



HIGH ACRES LANDFILL &  
RECYCLING CENTER  
A WASTE MANAGEMENT COMPANY

425 Perinton Parkway  
Fairport, New York 14450  
585/223-6132  
585/223-6898 (Fax)

October 2, 2015

Mr. Kenneth G. Rainis  
Chairman, Town of Perinton Conservation Board  
Town of Perinton  
1350 Turk Hill Road  
Fairport, NY 14450

**RE: Waste Management of New York, LLC  
Supplemental High Acres 2014/2015 Town of Perinton Annual Parkway Expansion  
Phase III Conditions Update**

Dear Mr. Rainis:

Waste Management of New York, LLC (WMNY) is pleased to provide the Town of Perinton with the High Acres 2014/2015 Annual Parkway Expansion Phase III Permit (Phase III) Conditions Update. This document is provided as a supplement to the previous updates submitted since 2008. In an effort to conserve paper and to treat these updates as supplemental documents to the initial Report submitted in 2009, we have provided a summary at the end of this letter of the attachments for which we are providing new information.

As done in previous years, a Conditions Summary Table that provides responses to the conditions that were issued by the various boards in 2008 is provided in Attachment A. While Phase III construction hasn't yet commenced, 19 of the 33 conditions have been completed and another 12 are ongoing.

In addition to the permit condition update, WMNY would like to provide the Perinton Conservation Board with highlights from High Acres 2014/2015 operations.

**Rail Operations Center (ROC).**

In 2013, High Acres received a permit modification from the New York State Department of Environmental Conservation (NYSDEC) to operate an intermodal railroad facility. The Rail Operations Center (ROC), adjacent to existing CSX main line tracks, began operation in 2015. The key benefit of solid waste transportation by railroad is the significant reduction in fuel use and emissions, coupled with reduced truck traffic.





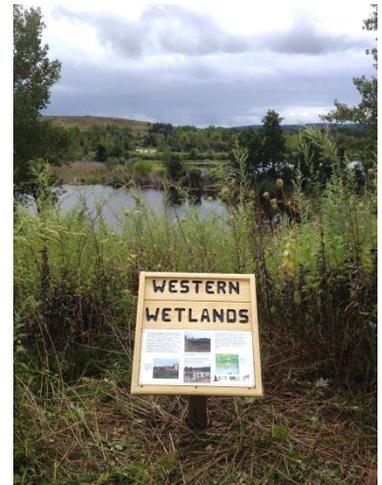
Construction of the ROC underscores WMNY's commitment to sustainable transportation. While the intermodal operation represents progress and advancement in the industry, it's important to note that the permitted daily capacity of High Acres Landfill to accept waste, as laid out in the NYSDEC operating permit, will not change. Similarly, the service area, type of materials accepted, and hours of operation will all remain the same. High Acres will continue to operate a nonhazardous landfill, committed to environmental performance as exemplified by the shift to cleaner transportation of waste to the facility.



### **High Acres Nature Area (HANA).**

High Acres Nature Area's (HANA's) Wildlife Habitat Council (WHC) programs continue to thrive and gain recognition. This year WMNY has been nominated by the international WHC for the Certified Lands for Learning (CLL) of the Year award. This nomination demonstrates WMNY's dedication not only to the conservation and ecological management program at HANA, but also to community education through HANA.

One of the key elements of HANA's CLL program is the partnership with Rochester Institute of Technology (RIT). The goal of this collaboration is to have the RIT Environmental Science department utilize HANA's diversity of ecosystems for research projects and to participate in community education related to their findings. The objectives of RIT Environmental Science department are met by the students' scientific experiments, data collection, and real world experience in the field of wetland mitigation during their internships at HANA. Each student spends approximately 400 hours each summer at HANA learning in an experiential way in an outdoor classroom. Since 2011, WMNY has hosted over 20 undergraduate and graduate student internships at HANA in conjunction with RIT. The data that students gather provide a scientific baseline for the development of a conservation and management plan for the future of HANA. Each year, the interns participate in multiple outreach events, sharing their research with the community. Overviews of RIT student research projects at HANA can be found on High Acres' website.



This year, eight educational signs developed by RIT explaining the flora, fauna, and ecological features of various ecosystems within HANA were printed and posted along the trails at HANA (see photo above). In an effort to further the accessibility of these educational resources, a virtual tour incorporating the educational signs is also available on High Acres' website. In 2015, RIT students offered guided tours of HANA for the first time during High Acres' Open House (see photo below). WMNY will continue to provide environmental education opportunities through internships at HANA and values the important partnership that has been cultivated with RIT.



Information provided in Attachment M (text from CLL Management Plan) was only a portion of the application submittal to the WHC. The breadth of detail and diversity of these projects speaks volumes to the hard work put into our program on a daily basis by our dedicated volunteers. Ongoing programs include: Eagle Scout projects, pollinator garden management, trail infrastructure, mulching and weeding, bio-diversity studies, collegiate field studies, migratory bird studies, habitat enhancements, invasive species removal, amphibian monitoring, trails programs and community presentations to local groups.



WMNY is a proud Perinton partner and committed to a community based environmental vision. Through our regular communication with the DEC, Town staff, Perinton Conservation Board and the community, we are confident that these long term objectives will be met.

We appreciate your time and commitment and look forward to a continued successful partnership.

Sincerely,

Jeffrey Richardson  
Senior District Manager



**ATTACHMENTS**

<b>Att.</b>	<b>Description</b>	<b>New Information Provided or Nothing New Available (N/A)</b>
<b>A</b>	<b>Condition Summary Table</b>	<b>New</b>
B	Summary of Improvements	N/A
<b>C</b>	<b>Landscape Plans</b>	<b>New</b>
D	Conceptual Fill Sequence Plan	N/A
<b>E</b>	<b>Summary Table of Acoustical Monitoring Results</b>	<b>New</b>
F	Summary of Materials Disposed in 2008	N/A
G	Route 31F High Acres Nature Area (HANA) Visual Enhancement - Approved Plans	N/A
<b>H</b>	<b>Wetland Mitigation Related Documentation</b>	<b>New</b>
<b>I</b>	<b>Closure and Post-Closure Cost Estimates</b>	<b>New</b>
J	Landscape Bond Correspondence	N/A
K	Planning Board Condition #13 Clarification Letter	N/A
L	Response Letter to the Planning Board related to the Town of Perinton's Dept. of Public Works Comments dated 5/15/08	N/A
<b>M</b>	<b>High Acres Nature Area (HANA) Wildlife Habitat Council (WHC) Corporate Lands for Learning – 2015</b>	<b>New</b>
N	HANA – Sample educational resources	N/A
O	HANA – Eagle Scout Projects Information	N/A
P	HANA – Pollinator Garden Information	N/A
Q	HANA – Wildlife Management Team Information	N/A
R	WM Sustainability Goals/Focus	N/A
<b>S</b>	<b>Progress Photographs</b>	<b>New</b>
<b>T</b>	<b>Aerial Photography of Site</b>	<b>New</b>
U	Landfill Gas Management Summary	N/A



## Attachment A

### Condition Summary Table

**High Acres Landfill Recycling Center  
Parkway Expansion Phase III  
Conditions 2014/2015**

**Conditions Resulting from the following: Perinton ZBA Special Use Permit; Perinton Planning Board Site Plan Approval or Town Board LDD SUP**

ZBA 3/24/08 Condition	Planning Board 4/2/08 Condition	Town Board 4/9/08 Condition	Planning Board 5/21/08 Condition	DPW 3/28/09 Comment	DPW 5/16/08 Comment	Action Item (Condition)	Status As of September 1, 2015 ----- 2014/2015 Town of Perinton Annual Parkway Expansion Phase III Conditions Update	Status	Attachment Reference
X	X	-	-	-	-	WMNY to provide a final landscaping plan with the understanding that such plan may be modified with the consent of the PB, as it is implemented. Landscaping plan to be provided within two years and prior to development of Phase III of the landfill expansion.	<b>Ongoing.</b> WMNY continues to work with a professional landscape contractor to implement the landscape plan. As portrayed in previous years, the landscaping efforts on the landfill are a work in progress and require continual monitoring and adjustments. The goal of creating a view of High Acres that is similar in texture and feel of the surrounding topography remains. The success of the naturally occurring vegetation (poplars and black locust trees) has been very successful and WM intends to encourage this type of growth in the next few years. Minimal plantings will be completed over the next few years given the future fill progression and given the success of the natural successional growth versus installing new plantings. Examples of this growth are shown in the photographs in Attachment C. Rotational mowing continues to occur on the interim cover portions of the landfill to break up the surface of the landfill.	Ongoing	C
X	X	-	-	-	-	WMNY to provide every two years updated landscaping plans incorporating some of their experimental plantings.	<b>Ongoing.</b> See response above.	Ongoing	--
X	X	-	-	-	-	WMNY to meet with Conservation Board on an annual basis to discuss implementation of the approved updated landscaping plans and provide aerial photographs showing the progress of the ongoing landscaping.	<b>Ongoing.</b> See response above. An aerial flyover was conducted in 2015, which is included in Attachment T.	Ongoing	T
X	X	X	-	-	-	WMNY to prepare & submit annual reports to the Town of Perinton summarizing the progress made in implementing the <u>landscaping plan</u> , the berm build out plans, and the wetland mitigation plans.	<b>Ongoing.</b> See response above.	Ongoing	--
X	X	-	-	-	-	WMNY to provide projected filling sequence and a projected schedule for applying both interim and final cover and a schedule for implementation of the updated landscaping plans.	<b>Ongoing.</b> The Conceptual Fill Sequence Plans included in the 2009/2010 Annual Update remain the most recent fill progression documents. As previously discussed, the capping will be completed in accordance with the Final Cover Grading Plan approved by the NYSDEC. It is anticipated that following the completion of a cell, that area will be covered with interim cover until it is determined by the DEC and WMNY that final capping is necessary. WMNY is continuing to work with a professional landscape contractor on the landscaping plan.	Ongoing	--
X	X	-	-	-	-	WMNY to provide annual reports to the Conservation Board showing that noise levels emanating from the landfill do not exceed Part 360 standards.	<b>Ongoing.</b> Updated acoustical monitoring results are attached and can be inserted into Attachment E. The 2015 acoustical monitoring results were consistent with the facilities' historical results and were generally below the Part 360 required Leq sound levels for suburban environments.	Ongoing	E
X	X	-	-	-	-	WMNY to continue to inform the Town of Perinton of citizen odor notifications and WMNY's response, in a timely manner, and if applicable, including remedial mitigation measures.	<b>Ongoing.</b> High Acres continues to show year over year improvement with odor management. From September 1, 2014 to August 31, 2015 High Acres received notifications from 17 residents. 2014/2015 performance represents the lowest number of notifications since 2010. For the months of March, April, May and June of 2015, High Acres received zero notifications. 50% of odor notifications were received during July/August 2015 at a time when High Acres was constructing the Cell 11/Cell 10 liner tie in. Additional odor mitigating measures employed during 2014/2015 include horizontal and vertical gas collection, enhanced daily and intermediate cover placement, expanded permanent odor neutralizer infrastructure (1,500 ft), portable odor neutralizer deployment and restricted use of alternate daily cover. It should be noted that through our public outreach and communication program, WM encourages and promotes community input regarding High Acres operations. Residents can communicate with WM via email, in person, or phone and will speak with a live person even after business hours, through our 24 hour call center.	Ongoing	--

**High Acres Landfill Recycling Center  
Parkway Expansion Phase III  
Conditions 2014/2015**

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X	X	X	-	-	-	WMNY to prepare & submit annual reports to the Town of Perinton summarizing the progress made in implementing the landscaping plan, the berm build out plans, and the wetland mitigation plans.	<b>Wetland Mitigation Plans - Ongoing.</b> WMNY has provided the Perinton Conservation Board with a copy of the 2014 Wetland Mitigation Monitoring Report prepared by Earth Dimensions, Inc. (EDI) that summarizes the wetland mitigation successes and deficiencies that were observed during the monitoring period in 2014. Monitoring continues to be conducted by EDI as required by the permit.	Ongoing	H
-	X	-	-	-	-	WMNY shall store vehicles in such a manner so that they are not visible to the public and that they are not parked in the public viewshed.	<b>Ongoing.</b> WMNY continues to maintain a vehicle storage standard operating procedure to limit visibility on the top of the landfill.	Ongoing	---
-	-	X	-	-	-	WMNY is to meet with the Conservation Board, acting as the Town Board's agent, on an annual basis to review and discuss the landscaping plan and wetland mitigation plans, as well as related conditions made by the ZBA and PB, after which the Conservation Board will prepare a summary report for the Town Board	<b>Ongoing.</b> WMNY met with the Chairman of the Conservation Board on September 22, 2015, and expects to meet with the Conservation Board at a regularly scheduled meeting on November 17, 2015.	Ongoing	---
-	-	-	X	-	-	The applicant to continue to work with the Conservation Board in terms of providing educational material comparable to what they provide now.	<b>Ongoing.</b> High Acres Nature Area's Wildlife Habitat Council (WHC) programs continue to thrive. This year WMNY has been nominated by WHC as the Certified Lands for Learning of the Year award. One of the key elements of HANA's CLL program is the partnership with Rochester Institute of Technology (RIT). The goal of this effort was to have RIT utilize HANA's diversity of ecosystems for research projects and participate in community education related to their findings. Since 2011, HANA has hosted over 20 undergraduate and graduate student internships in conjunction with RIT. Each year, the students participate in multiple outreach events, sharing their research with the community. Examples of RIT student work included in WMNY 2014 report have been added on High Acres' website as educational materials available to the public. Eight educational signs developed by RIT explaining the flora, fauna, and ecological features of various ecosystems within HANA have been printed and posted along the trails at HANA and are also available on High Acres' website.	Ongoing	M
X	X	X	-	-	-	Permit is subject to WMNY maintaining a bond in the amount determined by NYSDEC per the Part 360 Regulations.	<b>Ongoing.</b> WMNY provides a copy of the Closure/Post-Closure Bond to the NYSDEC on an annual basis. The 2014 Closure and Post-Closure cost estimates are attached and can be inserted into Attachment I. (These are the latest estimates)	Ongoing	I
X	X	-	-	-	-	Phase III expansion will be covered with at least six inches of non-deleterious topsoil in conformance with the general storm water permit.	<b>Future Operating Condition.</b> Construction of the Parkway Expansion Phase III has not begun.	Later Date	---
X	X	X	-	-	-	WMNY to provide a bond to the Town of Perinton for landscaping plan to be updated as necessary, prior to the development of Phase 3 landfill expansion, in an amount to be determined by the Town Engineer (initial bond for \$225,000.00).	<b>Future Operating Condition.</b> Given that construction of Phase III has not begun yet, the bond is not necessary at this time; however, it will be provided at the commencement of Phase III.	Later Date	---
-	-	-	-	X	-	We (DPW) support the Conservation Board's recommendation to develop a final landscaping plan and implementation schedule within two years.	<b>Completed.</b> A landscaping plan was developed and implemented in May 2009.	Completed	---
-	-	-	X	-	-	The applicant to improve their flyer showing what they are doing with the wetland, what the species are etc., and post it on the internet for the public.	<b>Completed.</b> An interpretative trail map developed by volunteers from HANA and Rochester Institute of Technology was developed in 2012.	Completed	---

**High Acres Landfill Recycling Center  
Parkway Expansion Phase III  
Conditions 2014/2015**

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X	X	X	-	-	-	WMNY to prepare & submit annual reports to the Town of Perinton summarizing the progress made in implementing the landscaping plan, <u>the berm build out plans</u> , and the wetland mitigation plans.	<b>Completed.</b> <u>Berm Build Out Plans</u> - The Perinton Parkway berm was constructed during the summer of 2008. The HANA visual enhancement berm along Route 31F was completed in the Fall of 2009.	Completed	---
X	X	-	-	-	-	WMNY to make their reports sent to the NYSDEC and USEPA, regarding air quality, available to the Conservation Board on an annual basis. WMNY to provide Town of Perinton with copies of applications for new permits or modifications to existing permits for HALRC regarding Prevention of Significant Deterioration (PSD) and/or New Source Review. WMNY to provide copies of comments from the USEPA and/or the NYSDEC regarding the applications and resulting responses and submissions.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
X	X	-	-	-	-	Materials approved to be tipped at the site for disposal or reclamation are limited to those materials detailed in the host community agreement.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	X	-	-	-	-	Satisfaction of any remaining concerns of the DPW (3/28/09 comments).	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	-	X	-	The two stormwater management ponds to be installed in Macedon will accommodate the drainage from the infill wedge construction.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	-	X	-	We (DPW) would like to meet with the engineers to review the cause and repair of the bank areas that have sloughed.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	X	-	-	Satisfaction of any remaining concerns of the DPW (5/16/08 comments).	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	-	-	X	Show the proposed construction entrance and provide a stabilized construction entrance detail on the plans.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	-	-	X	Does the earthwork for this project balance?	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---
-	-	-	-	-	X	Has the trail relocation been approved by the Crescent Trail Association? The proposed trail relocation should be completed with this project.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	---

**High Acres Landfill Recycling Center  
Parkway Expansion Phase III  
Conditions 2014/2015**

ZBA 3/24/08 Condition	Planning Board 4/2/08 Condition	Town Board 4/9/08 Condition	Planning Board 5/21/08 Condition	DPW 3/28/09 Comment	DPW 5/16/08 Comment	Action Item (Condition)	Status As of September 1, 2015 ----- 2014/2015 Town of Perinton Annual Parkway Expansion Phase III Conditions Update	Status	Attachment Reference
-	-	-	-	-	X	Is the 50' access way shown along the westerly property line on an existing easement? If so, indicate on the plan the Liber and Page and to whom the easement was granted.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	-	-	X	Provide a copy of the DEC Wetland Permit.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	-	-	X	Provide a Sequence of Construction, including planting schedule and plant materials list for the different wetland areas.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	X	-	-	The applicant to include a site location map on the plans indicating the proposed wetland areas specific location within Waste Management's entire parcel along and near Perinton Parkway	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	X	-	-	The findings were made under Town Code Section 208-50 and Section 208-46B as the proposed mitigation conforms to both sections pursuant to memos from Scott Copp and Ken Rainis	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	X	-	-	The applicant to provide earthwork data.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--
-	-	-	X	-	-	The second wetland area to the east to be identified as future wetland mitigation areas associated with the Macedon Expansion per 11x17 drawing received by the Town on 4-11-08.	<b>Completed.</b> Addressed in the 2008/2009 Annual Progress Update.	Completed	--



Attachment C

Landscape Plans

**Attachment C  
Photographs of Landscaping**



**L.P. 1 - September 2015 – Natural and Planted Vegetation on Closed Portions of the Landfill**



**L.P. 1 - October 2014 – Natural and Planted Vegetation on Closed Portions of the Landfill**

**Attachment C  
Photographs of Landscaping**



**L.P. 2 – September 2015 – Natural Vegetation on Southern Slope of Closed Landfill**



**L.P. 2 – October 2014 – Natural Vegetation on Southern Slope of Closed Landfill**

**Attachment C  
Photographs of Landscaping**



**L.P. 3 – September 2015 - View of Landscaping Berm Along Closed Landfill Access Road**



**L.P. 3 - October 2014 - View of Landscaping Berm Along Closed Landfill Access Road**

**Attachment C  
Photographs of Landscaping**



**L.P. 4 – September 2015 - View of Landscaping Plot on Closed Landfill**



**L.P. 4 - October 2014 - View of Landscaping Plot on Closed Landfill**

**Attachment C  
Photographs of Landscaping**



**L.P. 5 - September 2015 - Miscellaneous Photos of Landfill Landscaping**



**L.P. 5 - October 2014-Miscellaneous Photos of Landfill Landscaping**

**Attachment C  
Photographs of Landscaping**



**L.P. 6 - September 2015 - Miscellaneous Photos of Landfill Landscaping**



**L.P. 6 - October 2014-Miscellaneous Photos of Landfill Landscaping**

**Attachment C  
Photographs of Landscaping**



**L.P. 7 - September 2015 - Miscellaneous Photos of Landfill Landscaping**



**L.P. 7 - October 2014-Miscellaneous Photos of Landfill Landscaping**

**Attachment C  
Photographs of Landscaping**



**L.P. 8 - September 2015 - Miscellaneous Photos of Landfill Landscaping**



**L.P. 8 - October 2014-Miscellaneous Photos of Landfill Landscaping**

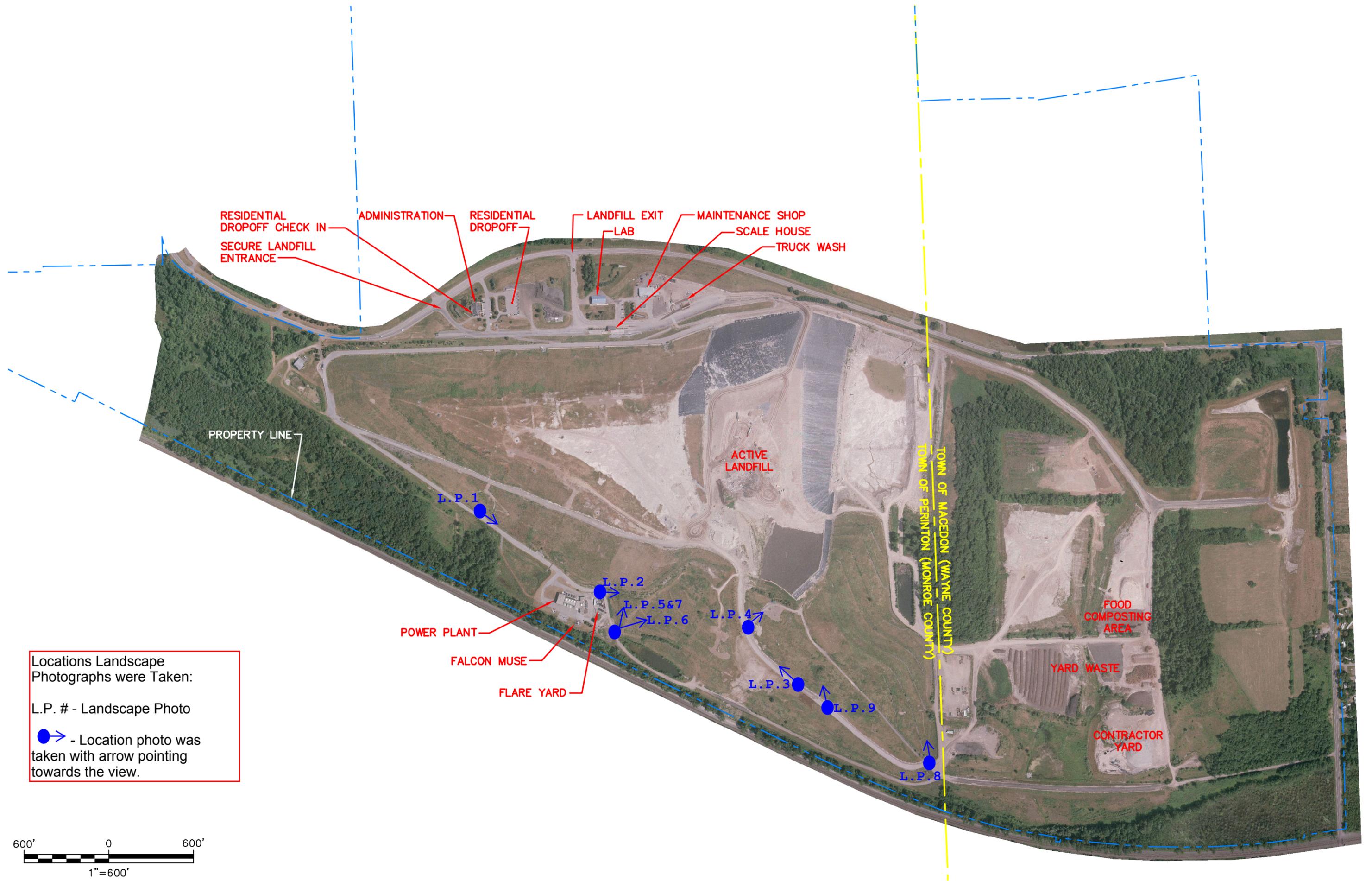
**Attachment C  
Photographs of Landscaping**



**L.P. 9- September 2015 - Miscellaneous Photos of Landfill Landscaping**



**L.P. 9 - October 2014-Miscellaneous Photos of Landfill Landscaping**



RESIDENTIAL DROPOFF CHECK IN  
 SECURE LANDFILL ENTRANCE  
 ADMINISTRATION  
 RESIDENTIAL DROPOFF  
 LANDFILL EXIT  
 LAB  
 MAINTENANCE SHOP  
 SCALE HOUSE  
 TRUCK WASH

PROPERTY LINE

ACTIVE LANDFILL

TOWN OF MACEDON (WAYNE COUNTY)  
 TOWN OF PERINTON (MONROE COUNTY)

FOOD COMPOSTING AREA

YARD WASTE

CONTRACTOR YARD

L.P. 1

L.P. 2

L.P. 5&7  
 L.P. 6

L.P. 4

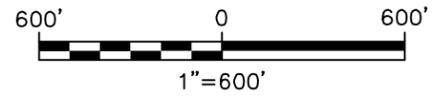
L.P. 3

L.P. 9

L.P. 8

POWER PLANT  
 FALCON MUSE  
 FLARE YARD

Locations Landscape Photographs were Taken:  
 L.P. # - Landscape Photo  
 ●➔ - Location photo was taken with arrow pointing towards the view.





## Attachment E

### Summary Table of Acoustical Monitoring Results

**Acoustical Monitoring Results  
High Acres Landfill and Recycling Center**

Location of Noise Monitoring	2014 Reading*	Date/Time	2015 Reading*	Date/Time	Part 360 required Leq Sound Levels (Suburban)	
					7 a.m. – 10 p.m.	10 p.m. – 7 a.m.
521 Perinton Parkway	46	10/8/14 0530	39	10/1/15 1102	62 dBa	52 dBa
	49	10/8/14 1400	40	10/2/15 0555		
2137 Wayneport Road	46	10/8/14 0545	46	10/1/15 1106	62 dBa	52 dBa
	49	10/8/14 1405	37	10/2/15 0600		
2048 Wayneport Road	42	10/8/14 0550	40	10/1/15 1118	62 dBa	52 dBa
	48	10/8/14 1410	44	10/2/15 0605		
129 West Canal Street	47	10/8/14 0555	43	10/1/15 1120	62 dBa	52 dBa
	49	10/8/14 1420	42	10/2/15 0608		
1344 Macedon Center Road	47	10/8/14 0550	52	10/1/15 1215	62 dBa	52 dBa
	50	10/8/14 1450	50	10/2/15 0615		
Town Line on Perinton Parkway	47	10/8/14 0535	45	10/1/15 1105	62 dBa	52 dBa
	60	10/8/14 1455	38	10/2/15 0553		
412 Perinton Parkway	44	10/8/14 0540	43	10/1/15 1059	62 dBa	52 dBa
	60	10/8/14 1510	40	10/2/15 550		
Erie Canal Path (West of Power Plant)	44	10/8/14 0610	40	10/1/15 1130	62 dBa	52 dBa
	47	10/8/14 1525	40	10/2/15 0620		
Erie Canal Path (South of Power Plant)	44	10/8/14 0620	44	10/1/15 1115	62 dBa	52 dBa
	47	10/8/14 1545	40	10/2/15 0623		
Erie Canal Path (East of Power Plant)	48	10/8/14 0625	45	10/1/15 1110	62 dBa	52 dBa
	52	10/8/14 1600	40	10/2/15 0610		
Erie Canal Path (slow moving train passing)	60	10/8/14 0630	50	10/1/15 1300	62 dBa	52 dBa
	50	10/8/14 1620	48	10/2/15 0500		
18 Crosswinds Circle	42	10/8/14 0635	46	10/1/15 1140	62 dBa	52 dBa
	42	10/8/14 1700	40	10/2/15 0630		
Crescent Trail	47	10/8/14 0645	50	10/1/15 1150	62 dBa	52 dBa
	50	10/8/14 1720	44	10/2/15 0645		

\*These noise readings were taken by HALRC personnel.



## Attachment H

### Wetland Mitigation Related Documentation

**2014 Mitigation Monitoring Report**

**for**

**HIGH ACRES LANDFILL  
WETLAND MITIGATION  
AREAS 1 & 2**

**Towns of Perinton and Macedon  
Monroe and Wayne Counties, New York**

**for**

**Waste Management of New York, LLC**



**EARTH DIMENSIONS, INC.**

*Soil and Hydrogeologic Investigations • Wetland Delineations*

**1091 Jamison Road • Elma, NY 14059  
(716) 655-1717 • Fax (716) 655-2915**

**November 25, 2014  
Project Code: W6C88g**



The following is a list of the plantings completed in <b>Area 1 South in 2014</b> by RIT STUDENTS					
Common name	Species	Planting date	No. planted	Caged	Planting method/ Planted By
Sweet Flag	<i>Acorus americanus</i>	7/8	86	No	Hand planted
American Burreed	<i>Sparganium americanum</i>	7/8	86	No	Hand planted
Rice Cut Grass	<i>Leersia oryzoides</i>	7/8	92	No	Hand planted
American White Water Lily	<i>Nymphaea odorata</i>	7/15	91	No	Hand planted attached to PVC
Yellow Pond Lily	<i>Nuphar lutea</i>	7/15	106	No	Hand planted attached to PVC
Broadleaf Arrowhead	<i>Sagittaria latifolia</i>	7/15 & 8/7	225 total	No	Hand planted
Pickrel Weed	<i>Pontederia cordata</i>	7/15 & 8/7	242	No	Hand planted
			<b>Total: 928</b>		

In **Area 1 North**, the population of cattail (*Typha* spp.) is still present around the edges of the wetland with pockets scattered through the center. The population is being reduced through the efforts of cutting and herbicide application. Water levels were within permitted goals; however the establishment of hydrophytic vegetation is still not meeting the permitted goals. Throughout the summer, the student interns cut the seed heads off the majority of the cattails in this area. Mature seed heads were bagged and removed from site. These areas also were herbicided in 2014.

The following is a list of the plantings completed in <b>Area 1 North in 2014</b> by RIT STUDENTS					
Common name	Species	Planting date	No. planted	Caged	Planting method
Sweet Flag	<i>Acorus americanus</i>	6/30	43	Yes	Hand planted
American Burreed	<i>Sparganium americanum</i>	6/30	62	Yes	Hand planted
Rice Cut Grass	<i>Leersia oryzoides</i>	6/30	43	Yes	Hand planted
American White Water Lily	<i>Nymphaea odorata</i>	6/30	50	No	Hand planted
Yellow Pond Lily	<i>Nuphar lutea</i>	6/30	43	No	Hand planted
Broadleaf Arrowhead	<i>Sagittaria latifolia</i>	6/30	48	Yes	Hand planted
Pickrel Weed	<i>Pontederia cordata</i>	6/30	43	Yes	Hand planted
			<b>Total: 332</b>		

In **Area 2 North**, control efforts were undertaken in 2011, 2013 & 2014 for reed canary grass (*Phalaris arundinacea*), cattail (*Typha* spp.) and common reed (*Phragmites australis*). In 2014, the populations of reed canary grass were limited to scattered pockets, mostly around the planted trees with scattered areas of cattails and common reed. These localized areas of invasive plant species were treated with herbicide in 2014 with a backpack sprayer, to limit secondary impacts to desirable plants. No new additional plantings were added to this area in 2014. Native plants that were added by seed in previous years are beginning to spread and establish. The students also removed some of the tree tubes and stakes from established plantings. RIT indicated a sharp increase of mortality of the live stakes from 2013 to 2014.

In **Area 2 South**, cattails were cut and herbicided in 2011, 2013 and 2014. It was determined that another application was necessary to control the cattails. In 2015, it is very likely that spot treatments of herbicide will be necessary. In Area 2 South, RIT Students added compost in large transect rows (as described in the attached report). This experiment was to determine if adding additional nutrient layer to the soil will deter non-native plant growth (including invasive species) and encourage native plant growth. Additional compost application and studies are proposed for this area in 2015.

The following is a list of the seed added to <b>Area 2 South in 2014</b> <b>by AES (Applied Ecological Services)</b>			
<i>Latin Name</i>	<b>Common name</b>	<b>quantity</b>	<b>units</b>
<i>Acorus calamus</i>	Sweet flag	9	oz
<i>Alisma plantago-aquatica L. var. parviflorum</i>	American water plantain	24	oz
<i>Glyceria septentrionalis</i>	Floating manna grass	0.16	oz
<i>Iris veriscolor</i>	Blue flag iris	0	oz
<i>Juncus effusus</i>	Common rush	20	oz
<i>Leersia oryzoides</i>	Rice cut grass	3.2	oz
<i>Peltandra virginica</i>	Green arrow arum	0	oz
<i>Polygonum pensylvanicum</i>	Pinkweed	20	oz
<i>Pontederia cordata</i>	Pickerel weed	0.02	oz
<i>Sagittaria latifolia</i>	Broad-leaved duck potato	0.32	oz
<i>Scirpus acutus</i>	Hard-stemmed bulrush	16	oz
<i>Scirpus cyperinus</i>	Wool grass	32	oz
<i>Scirpus validus creber</i>	Soft-stem bulrush	32	oz
<i>Sparganium americanum</i>	American bur reed	0	oz
<i>Sparganium eurycarpum</i>	Common bur reed	3.3	oz
	<b>total</b>	<b>148.8</b>	<b>oz</b>

The Vernal Pool areas held water in spring and dried up by early summer. The pools were inundated again by early fall. The pools were teeming with wildlife, including a high concentration of amphibians. EDI noted northern leopard frog, spring peepers, American toads, grey tree frog, green frogs and bull frogs within the pools. The vernal pools contain varying amounts of invasive species due to their close proximity to the roadway and the quarry area. In June, RIT Students cut all invasive plants in the vernal pools to below the water levels. There are no specific monitoring criteria for the vernal pool areas. EDI is currently monitoring the pools by documenting water levels, vegetation within the pools, wildlife usage and by use of benchmark photographs. The nearby colonies of reed canary grass (*Phalaris arundinacea*) and cattails (*Typha* spp.) have spread into the pools. Therefore, herbicide application was applied in 2014 to reduce their populations. In addition, the RIT students added leaf litter and shade canopies to the vernal pools to encourage an “experimental” forested condition to aid in vernal pool establishment and help deter further spread of invasive species in the pools.

The following is a list of the plantings completed in <b>the Vernal Pools in 2014</b> <b>by RIT STUDENTS</b>							
<b>Common Name</b>	<b>Max Height (ft)</b>	<b>Sun Requirements</b>	<b>Water Tolerance</b>	<b>Bloom</b>	<b>Notes</b>	<b>No. stakes per pool</b>	<b>Total planted</b>
Common Elderberry ( <i>Sambucus canadensis</i> )	5-10	Full sun- part shade	Medium-wet	June-July		8	64
Common Buttonbush ( <i>Cephalanthus occidentalis</i> )	5-12	Full sun-part shade	Med-wet	June		8	64
Silky Dogwood ( <i>Cornus amomum</i> )	6-10	Shade tolerant	Moist soils, not very tolerant of drought	Flowers mid-June; fruit Sept	Used for stream bank protection; recommended for use with willow in areas prone to dryness	8	64
Red Osier Dogwood ( <i>Cornus sericea</i> )	4.6-20	Sun-part shade	Spring inundation & late summer drying; no long-term root saturation	June-August	Possibly already present in vernal pool area	8	64

The following is a list of the seed added to the <b>Vernal Pool Area in 2014</b> <b>by AES (Applied Ecological Services)</b>			
<i>Latin Name</i>	<b>Common name</b>	<b>quantity</b>	<b>units</b>
<i>Acer rubrum</i>	Red maple	0	oz
<i>Acer saccharinum</i>	Silver maple	0	oz
<i>Alisma subcordatum</i>	American water plantain	8	oz
<i>Arisaema atrorubens</i>	Jack-in-the-pulpit	0.46	oz
<i>Asclepias incarnata</i>	Swamp milkweed	4	oz
<i>Aster novae-angliae</i>	New England aster	6	oz
<i>Betula lutea</i>	Yellow birch	0	oz
<i>Bidens cernua</i>	Nodding bur marigold	4	oz
<i>Carex scoparia</i>	Broom sedge	16	oz
<i>Carex stipata</i>	Owl-fruited sedge	4	oz
<i>Carex vulpinoidea</i>	Fox sedge, Brown fox sedge	16	oz
<i>Cephalanthus occidentalis</i>	Buttonbush	16	oz

<i>Chelone glabra</i>	Turtlehead	0.02	OZ
<i>Cinna arundinacea</i>	Common wood reed	2	OZ
<i>Cornus amomum/obliqua</i>	silky dogwood	6	OZ
<i>Cornus stolonifera</i>	Redtwig dogwood	2	OZ
<i>Eupatorium perfoliatum</i>	Common boneset	8	OZ
<i>Glyceria striata</i>	Fowl manna grass	2	OZ
<i>Ilex verticillata</i>	winter berry	0.02	OZ
<i>Impatiens capensis</i>	Orange jewelweed	0.02	OZ
<i>Iris versicolor</i>	Blue flag iris	4	OZ
<i>Juncus effusus</i>	Common rush	8	OZ
<i>Leersia oryzoides</i>	Rice cut grass	4	OZ
<i>Lindera benzoin</i>	Spicebush	0	OZ
<i>Lobelia cardinalis</i>	Cardinal flower	0.16	OZ
<i>Lobelia siphilitica</i>	Great blue lobelia	0.32	OZ
<i>Lycopus uniflorus</i>	Northern bugleweed	4	OZ
<i>Penthorum sedoides</i>	Ditch stonecrop	1	OZ
<i>Polygonum pensylvanicum</i>	Pinkweed	16	OZ
<i>Quercus bicolor</i>	Swamp white oak	10	OZ
<i>Scirpus atrovirens</i>	Green bulrush	16	OZ
<i>Scirpus cyperinus</i>	Wool grass	4	OZ
<i>Scirpus validus creber</i>	Soft-stem bulrush	8	OZ
<i>Thalictrum dasycarpum</i>	Purple meadow rue	4	OZ
<i>Verbena hastata</i>	Blue vervain	8	OZ
<i>Viburnum recognitum</i>	northern arrowwood	0	OZ
	<b>total</b>	<b>356.72</b>	<b>OZ</b>

Careful monitoring for the further establishment of desired vegetation, control of invasive species and control of water levels will be continued in 2015. No other recommendations for any additional corrective or remedial actions are being made at this time.

(6) Mitigation Location is north of Perinton Parkway, south of Route 31F on the High Acres Landfill Property.  
 Town .....Fairport and Macedon  
 County.....Wayne and Monroe  
 State .....New York  
 Latitude/Longitude .....43.09137°N, 77.38719°W

(7) Directions to the site from USACE



- 1776 Niagara St, Buffalo, NY 14207
- Head south on Niagara St toward Wayne St go 0.3 mi total 0.3 mi
  - Turn right to stay on Niagara St go 59 ft total 0.4 mi
  - Turn left to merge onto Scajaguada Expy About 4 mins go 3.3 mi total 3.6 mi
  - Take the NY-33 E ramp to Airport go 0.4 mi total 4.0 mi
  - Keep left at the fork to continue toward NY-33 E and merge onto NY-33 E About 5 mins go 4.0 mi total 8.1 mi
  - Take the exit onto I-190 E Partial toll road About 45 mins go 43.0 mi total 51.1 mi
  - Take exit 47 to merge onto I-490 E toward NY-19/Leroy/Rochester Partial toll road About 28 mins go 30.3 mi total 81.4 mi
  - Take exit 25 for New York 31F/Fairport go 0.1 mi total 81.5 mi
  - Keep right at the fork to continue toward Fairport Rd/New York 31F E and merge onto Fairport Rd/New York 31F E Continue to follow New York 31F E About 7 mins go 3.6 mi total 85.1 mi
  - Turn left at S Main St/New York 31F E About 2 mins go 0.4 mi total 85.5 mi
  - Turn right at High St/New York 31F E Continue to follow New York 31F E About 5 mins go 2.8 mi total 88.3 mi
  - Turn right at Perinton Pkwy Destination will be on the right About 2 mins go 1.0 mi total 89.3 mi
- 425 Perinton Pkwy, Fairport, NY 14450

## Section 2: Requirements

Table 2-1: Requirements

Monitoring Requirements/ Performance Standards	Conditions/Status of Mitigation Site	Achieved Standard?
The USACE permit requires 16.65 acres of mixed wetland creation, enhancement to 7.63 acres of existing wetland and establishment of 2.76 acres of upland buffer to the wetland creation to compensate for the loss of 7.19 acres of federal wetlands.	In 2009, Area 1 north and south, consisting of 8.28 acres of mixed wetland (shallow marsh and wet meadow) and 2.43 acres of wetland transitional area were created. In 2009, Area 2 north and south, consisting of 3.73 acres of wooded wetland and 1.26 acres of wetland transitional area were created. In addition, in 2009, a total of 8 vernal pools totaling 0.36 acre were created. Area 3 mitigation was constructed in 2012-2013 (report under separate cover).	Yes
Performance goal for <b>scrub/shrub/forest</b> (Areas 2 north and 2 south approx. 3.73± acres): establish and maintain 65% coverage of beneficial FAC, FACW, and OBL species; total coverage shall meet or exceed 90%; at least 60% of the total coverage shall be woody species.	Both areas contain some vegetation from hydric soils that were re-applied. Wetland Area 2 north is dominated by a combination of FAC, FACW and OBL species. Area 2 south contains primarily FACW & OBL species. - Approx. 65% coverage of beneficial FAC, FACW and OBL species; meets criteria, -Approx. 90% aerial coverage of FAC, FACW & OBL species thus far, meets criteria Approx. least 60% of woody species, area at about 40% woody species; not meeting criteria. Potential for additional tree and shrub plantings in 2015.	No
Performance goal for <b>wet meadow</b> (Areas 1 north and 1 south approx. 0.69± acres): establish and maintain 70% coverage of beneficial FAC, FACW, and OBL; total coverage shall meet or exceed 95%.	This area contains vegetation from hydric soils that were reapplied. A majority of this area is the side slope between the wetland creation and the surrounding uplands. Species found within these areas consist of a combination of FAC, FACW and OBL species. 75% aerial Coverage of beneficial FAC, FACW & OBL species thus far (meets permit criteria).	Yes
Performance goal for <b>emergent</b> (Areas 1 north and south approx. 7.59± acres): establish and maintain 85% coverage of beneficial FAC, FACW, and OBL species; total coverage shall meet or exceed 80%.	Area 1 north vegetation has established. Water levels seem to be normalizing with the water control structure in place. Wetland Area 1 south contains variable amounts hydrophytes dominated mostly by FACW and OBL species. Water levels are nearing equilibrium from adjustments made in this area to control beaver activity that increased water levels in 2011 and 2012 and continued maintenance in 2014 to keep the culvert clear at the south end of Area 1 south. EDI estimates there is currently 85% coverage of hydrophytic vegetation in Area 1 north and about 50% in Area 1 south. Additional plantings were installed in 2014 although are not evident in overall coverage amounts. Plant coverage will be reassessed in 2015, once new coverage is present.	Yes, for Area 1 north No, for Area 1 south
Hydrology/Water Levels: for <b>wet meadow and scrub/shrub/forest areas</b> : Establish and maintain soil saturation within 10 inches of the ground surface for at least 12.5% of the growing season for 8 of the 10 monitoring years.	Water present in Wetland (see table 3-1); the amount of water present in these portions of the mitigation area meet the performance criteria. Area 2 north currently meets desired hydrology goals. Although consideration was given to installing a back flow flap in Area 2 South, to reduce hydrology input from the existing wetland to the south, it was determined unnecessary due to reduced water levels from removing the beaver dams.	Yes
Hydrology/Water Levels: for <b>emergent areas</b> : Establish and maintain seasonal inundation of between 6 and 12 inches of water, for at least 12.5% of the growing season for 4 of the 5 monitoring years.	Water present in Wetland (see table 3-1); Area 1 north currently has hydrology levels within goals of the permit. The control structure in Area 1 north has helped to obtain the desired water levels. Area 1 south is now meeting desired hydrology for the altered target plant community (submergent and emergent species instead of just emergent species). EDI will continue to assess the hydrology after water levels stabilize during the growing season of 2015.	Yes
Evidence of Wildlife Usage of the Wetland	Evidence of deer (tracks), various birds, insects and amphibians (see listing of species noted in Section 3).	Yes
Invasive Species: no more than 5% aerial coverage shall be vegetated with invasive plant species.	Herbicide application throughout Area 1 (North & South) & Area 2 (North and South), the vernal pool areas and the along the perimeters of these areas was continued in 2014. Cattails dominated Area 2 south through the summer, with <i>Phragmites</i> encroaching mostly on the east side of Areas 1 north and south and in Area 2 north. Cattail control measures including seed head removal and a cutting effort were conducted in Area 1 north and south. In Area 2 north, the population of reed canary grass, cattail and common reed has been reduced by about 80% from localized herbicide treatment in 2013. In 2014, spot treatment was necessary primarily around the planted trees and shrubs. In addition, the seed heads of purple loosestrife plants were cut off and removed from areas throughout the site. Invasive species management including cutting, removal and herbicide application for cattails and loosestrife control are scheduled to continue in 2015. WM has undertaken an effort to control black swallowwort in areas outside of the mitigation area. Although these areas are not required to be maintained by the permits, WM realizes the potential threat of the plant on their site resources. Please see the attached chart of herbicide application by AES in 2014. An Article 15 permit from the DEC has been secured to allow for herbicide application. WM is continually progressing toward meeting this standard.	No
Implement invasive species control protocol for purple loosestrife ( <i>Lythrum salicaria</i> ) and common reed ( <i>Phragmites australis</i> ).	An invasive plant survey was conducted by interns who studied populations of purple loosestrife ( <i>Lythrum salicaria</i> ), reed canary grass ( <i>Phalaris arundinacea</i> ), cattails ( <i>Typha</i> spp.) and common reed ( <i>Phragmites australis</i> ). A study surrounding <i>Phragmites</i> was undertaken. The plant was mapped using GIS and compared to previous years. The results indicated that populations within the mitigation area were lower, however existing large populations within the HANA property were not changed.	Yes
Monthly site visits during growing season to monitor water levels; representative data and photos to be collected twice during the growing season.	See Table 1-1	Yes

Table 2-1 outlines which permit standards and requirements have been met and which ones have not yet been achieved.

### Section 3: Summary Data

#### Hydrology:

**Table 3-1: Water Level/Hydrology Data:**

2014 Water Levels										
Date of Data Collection	W1 (SG4)	W2 (SG5)	W3 (SG6)	W4 (SG7)	W5 (SG8)	W6 (SG1)	W7 (SG3)	W8 (SG2)	W9 (Vernal Pool)	W10 (Vernal Pool)
April 17 2014	0.85'	0.85'	1.55'	1.45'	0.65'	0.90'	0.60'	0.90'	1.00-1.50'	1.50-2.00'
May 15, 2014	0.95'	1.00'	1.75'	1.60'	0.85'	0.90'	0.60'	0.90'	1.00-2.00'	1.00-1.50'
June 18, 2014	1.20'	1.25'	1.60'	1.45'	0.70'	0.75'	0.45'	0.90'	0.83'	0.33'
July 24, 2014	1.00'	1.00'	1.50'	1.40'	0.70'	0.70'	0.40'	0.85'	saturated	saturated
August 19, 2014	1.10'	1.10'	1.60'	1.50'	0.70'	0.80'	0.50'	0.90'	0.60'	saturated
September 22, 2014	1.10'	1.10'	1.60'	1.50'	0.7'	saturated	0.05'	0.60'	saturated	saturated
October 27, 2014	1.05'	1.10'	1.60'	1.45'	0.95'	0.45'	moist	0.50'	moist	moist

#### Wildlife Observed:

The wetland creation area and surrounding habitat is occupied by various wildlife species. Data pertaining to wildlife usage within and adjacent to the wetland and vernal pool creation areas was collected by EDI as well as interns and various volunteer wetland stewards for HANA (High Acres Natural Area). Species include those noted foraging, nesting, visiting, as well as evidence of their usage including calls, tracks, scat, etc. The wildlife noted include: sand hill crane, hermit thrush, brown thrasher, white throated sparrow, gold crowned kinglet, eastern towhee, blue gill, Carolina wren, blue-gray gnatcatcher, ruby crowned kinglet, green wing teal, northern harrier, eastern bluebird, snowy egret, dark eyed junco, common moorhen, trumpeter swan, American coot, king bird, purple finch, eastern phoebe, black duck, gadwall, greater yellow legs, American kestrel, American wigeon, great blue heron, northern water snake, northern cardinal, tree swallows, mallard ducks, northern leopard frog (observed and egg masses), muskrat (den), black capped chickadees, red wing blackbirds, American goldfinch, American robin, mourning dove, turkey vulture, common snipe, least bittern, green heron, marsh wren, Canada geese, American crow, raccoon, white tailed deer, common silver spotted skipper, hummingbird clear-wing moth, tiger swallowtail, eastern black swallowtail, spicebush swallowtail, Virginia tiger moth, eastern pond hawk, northern rough winged swallow, northern shoveler, belted kingfisher, northern flicker, willow fly catcher, eastern kingbird, yellow throated vireo, warbling vireo, red eyed vireo, wood ducks, European starlings, pied-billed grebe, horned grebe, beaver, killdeer, turkey vulture, solitary sandpiper, common sandpiper, least sandpiper, spotted sandpiper, osprey, blue winged teal, semi-palmated plover, northern cardinal, ring neck ducks, wood frogs, spring peepers, Virginia rail, common snipe, blue jay, grey squirrel, painted turtle, lesser yellow legs, bank swallow, barn swallow, tufted titmouse, wood thrush, gray catbird, glossy ibis, dunlin, green frog, bull frog, red tail hawk, great egret, chipmunk, garter snake, wild turkey, Tennessee warbler, Nashville warbler, yellow warbler, chestnut sided warbler, Magnolia warbler, Cape May warbler, black-throated blue warbler, yellow rumped warbler, black throated green warbler, blackburnian warbler, palm warbler, bay-breasted warbler, blackpoll warbler, American redstart, Canada warbler, northern waterthrush, common yellow throat, Wilson's warbler, field sparrow, song sparrow, chipping sparrow, swamp sparrow, rose-breasted grosbeak, common grackle, brown-headed cowbird, Baltimore oriole, ruby-throated hummingbird, red-bellied woodpecker, downy woodpecker, hairy woodpecker, white breasted nuthatch, bufflehead, hooded merganser, goldeneye, bufoheads, marsh wren, American woodcock, ring billed gull, herring gull, banded water snake, crayfish dens, American toads, mosquitoes, caddis flies, gray fly catcher, honey bees, grey tree frog, wooly bears, coyote, mink, lady beetles, water striders, dragon flies, darner flies, monarch butterflies, viceroy butterflies, cabbage white butterflies, various sulphur butterflies, bald eagle (flew overhead), seagulls, rusty blackbird, lesser scaup, yellow jackets, hummingbird moth, grasshoppers, agriope spider, dextral snails, *Gallerucella* beetles, meadow vole, water

beetles, tadpoles, cedar waxwing, cormorant, American tree sparrow, American kestrel, cicada adult and sheds, red banded leaf hopper, various aquatic insects, aquatic snails, snapping turtle, calico pennant, black saddlebags, twelve spotted skimmer, Halloween pennant, common white tail, deer fly, white faced dotted, pearly wood nymph and water boatsman. Also, an abundance of tracks made by raccoons and white-tail deer all throughout the vicinity of the wetlands was noted.

### **Vegetation:**

The following is a cumulative list (2009-2014) of plant species and their wetland indicator status identified at the monitoring data points depicted on the map included as Figure 3:

<b><u>Common Name</u></b>	<b><u>Latin Name</u></b>	<b><u>Wetland Ind.</u></b>
cursed buttercup	<i>Ranunculus sceleratus</i>	FACW
pond weed	<i>Potamogeton spp.</i>	OBL
sago pond weed	<i>Potamogeton pectinatus</i>	OBL
floating leaf pondweed	<i>Potamogeton natans</i>	OBL
blue flag	<i>Iris versicolor</i>	OBL
spotted touch me not	<i>Impatiens capensis</i>	FACW
red maple	<i>Acer rubrum</i>	FAC
red top	<i>Agrostis alba</i>	FACW
narrow leaf cattail	<i>Typha angustifolia</i>	OBL
yellow nutsedge	<i>Cyperus strigosus</i>	FACW
reed canary grass	<i>Phalaris arundinacea</i>	FACW
marsh seedbox	<i>Ludwigia palustris</i>	FACW
ditch stonecrop	<i>Penthorum sedoides</i>	OBL
sedge	<i>Carex spp.</i>	*
blunt bulrush	<i>Eleocharis obtusa</i>	OBL
water plantain	<i>Alisma-plantago aquatica</i>	OBL
lesser duckweed	<i>Lemna minor</i>	OBL
barnyard grass	<i>Echinochloa crus-galli</i>	FACU
fox sedge	<i>Carex vulpinoidea</i>	OBL
blue vervain	<i>Verbena hastata</i>	FACW
curly dock	<i>Rumex crispus</i>	FACU
purple leaf willow herb	<i>Epilobium coloratum</i>	FACW
purple stem aster	<i>Symphotrichum puniceus</i>	FACW
soft stem bulrush	<i>Schoenoplectus tabernaemontani</i>	OBL
fall panicum	<i>Panicum dichotoflorum</i>	FACW-
crowned beggars ticks	<i>Bidens coronata</i>	FACW
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>	FACW
smartweed	<i>Polygonum spp.</i>	NA
common boneset	<i>Eupatorium perfoliatum</i>	FACW
tick seed sunflower	<i>Bidens aristosa</i>	FACW
switch grass	<i>Panicum virgatum</i>	FACW
hop sedge	<i>Carex lupulina</i>	OBL
swamp milkweed	<i>Asclepias incarnata</i>	FACW
common ragweed	<i>Ambrosia artemisifolia</i>	FACU
purple loosestrife	<i>Lythrum salicaria</i>	FACW
broad leaf cattail	<i>Typha latifolia</i>	OBL
coontail	<i>Ceratophyllum demersum</i>	OBL
American sycamore	<i>Plantanus occidentalis</i>	FACW
silky dogwood	<i>Cornus amomum</i>	FACW
common buttonbush	<i>Cephalanthus occidentalis</i>	OBL
silky willow	<i>Salix sericea</i>	FACW
soft rush	<i>Juncus effusus</i>	FACW+
Canada rush	<i>Juncus canadensis</i>	OBL
green bulrush	<i>Scirpus atrovirens</i>	OBL
common reed	<i>Phragmites australis</i>	FACW

wool grass	<i>Scirpus cyperinus</i>	OBL
common three square	<i>Scirpus pungens</i>	FACW
toad rush	<i>Juncus bufonius</i>	OBL
water meal	<i>Wolffia</i> spp.	OBL
fringed sedge	<i>Carex crinita</i>	FACW
rice cut grass	<i>Leersia oryzoides</i>	OBL
water horsetail	<i>Equisetum fluviatile</i>	OBL
rattlesnake manna grass	<i>Glyceria canadensis</i>	OBL
three petaled bedstraw	<i>Galium trifidum</i>	FACW
common dandelion	<i>Taraxacum officinale</i>	FACU
pickerel weed	<i>Pontederia cordata</i>	OBL
red osier dogwood	<i>Cornus sericea</i>	FACW
marsh marigold	<i>Caltha palustris</i>	OBL
climbing nightshade	<i>Solanum dulcamara</i>	FAC-
broad leaf arrowhead	<i>Sagittaria latifolia</i>	OBL
brittle water nymph	<i>Najas major</i>	OBL
nodding beggarticks	<i>Bidens cernau</i>	FACW
rough barnyard grass	<i>Echinochloa muricata</i>	FACW+
common bladderwort	<i>Utricularia macrorhiza</i>	OBL
smooth sawgrass	<i>Cladium mariscoides</i>	OBL
black willow	<i>Salix nigra</i>	FACW
hairy white old field aster	<i>Symphotrichum pilosum</i>	FACU
longhair sedge	<i>Carex comosa</i>	OBL
New England aster	<i>Symphotrichum novae-angliae</i>	FACW
devil's beggar ticks	<i>Bidens frondosa</i>	FACW
stinging nettle	<i>Urtica dioica</i>	FACU
water knotweed	<i>Polygonum amphibium</i>	OBL
Canadian waterweed	<i>Elodea canadensis</i>	OBL
Eurasian water milfoil	<i>Myriophyllum spicatum</i>	OBL
rough cocklebur	<i>Xanthium strumarium</i>	FAC
bebb's sedge	<i>Carex bebbiana</i>	OBL
floating primrose-willow	<i>Ludwigia peploides</i>	OBL
broom sedge	<i>Carex scoparia</i>	FACW
swamp white oak	<i>Quercus bicolor</i>	FACW
star duckweed	<i>Lemna trisulca</i>	OBL
sweet flag	<i>Acorus calamus</i>	OBL
beaked spikerush	<i>Eleocharis rostellata</i>	OBL
flat topped goldenrod	<i>Euthamia graminifolia</i>	FAC
wrinkled goldenrod	<i>Solidago rugosa</i>	FAC
common moonseed	<i>Menispermum canadense</i>	FAC
American burnweed	<i>Erechtites hieraciifolius</i>	NI
spotted lady's thumb	<i>Polygonum persicaria</i>	FAC
green ash	<i>Fraxinus pennsylvanica</i>	FACW

Section 4: Maps

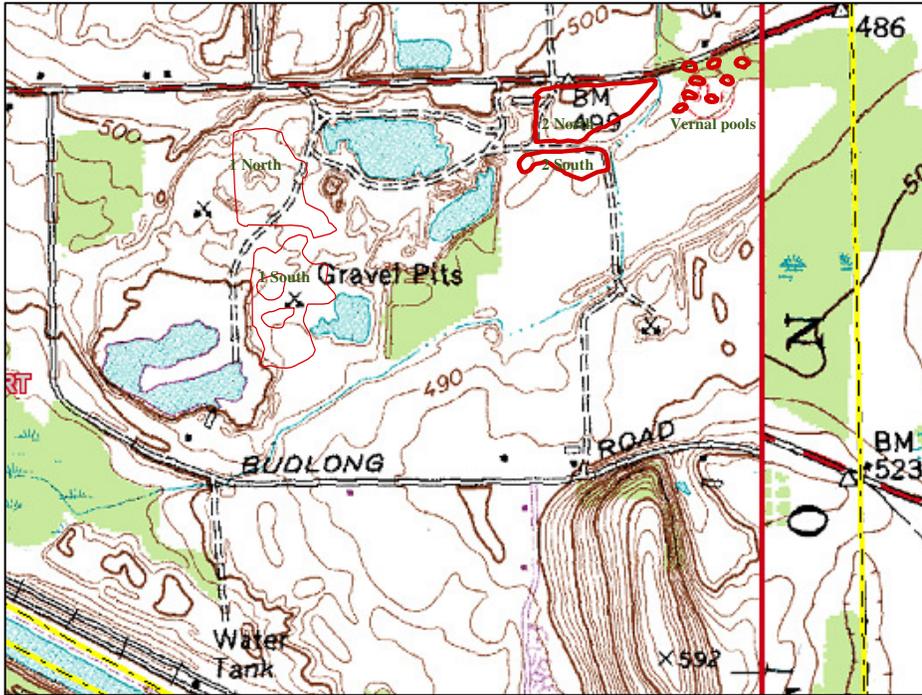
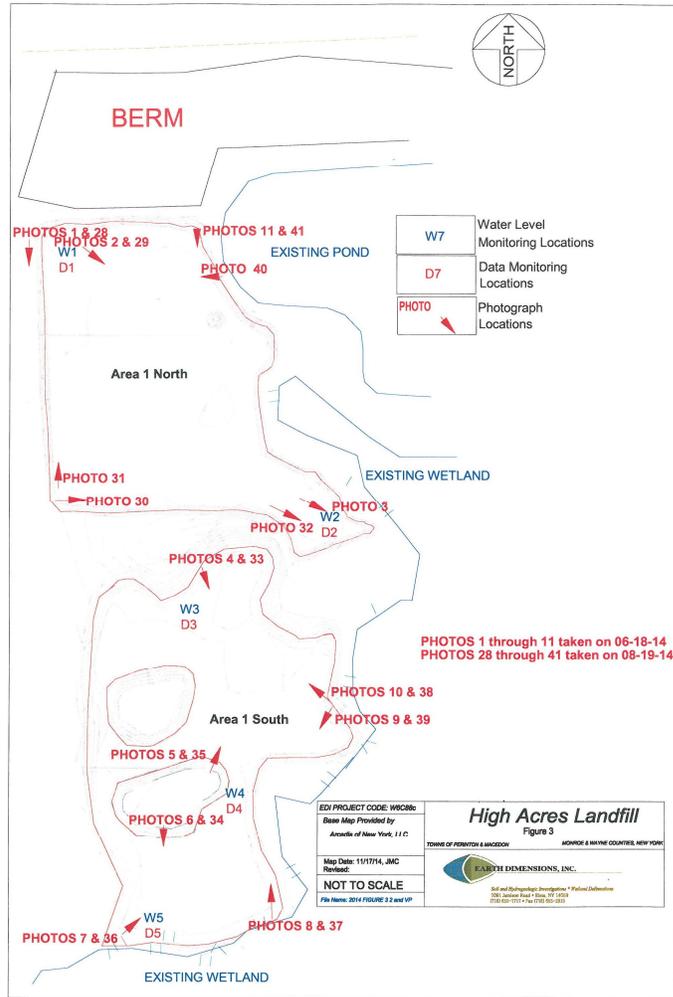


Figure 1: USGS 7.5 Minute Topographical Map, Fairport Quadrangle Delorme 2002

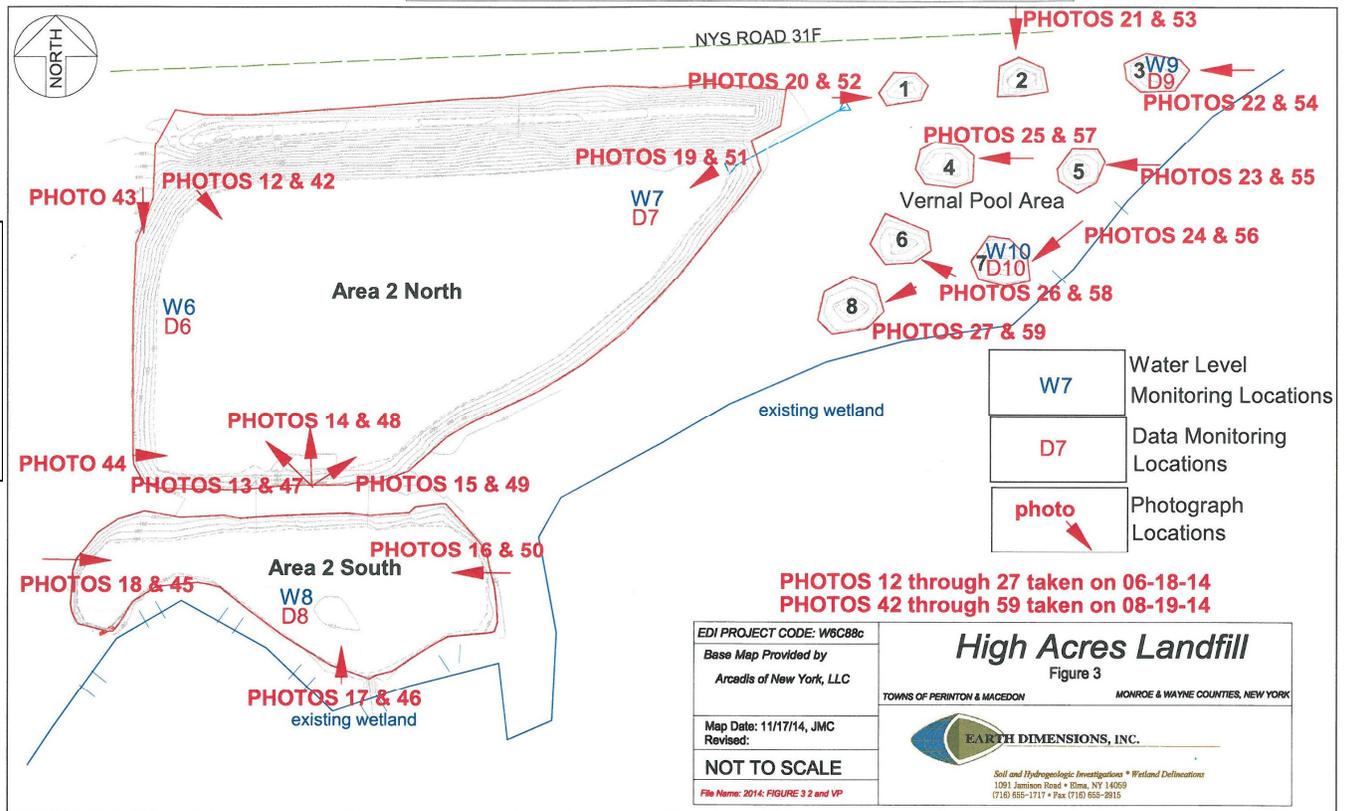


Figure 2: 2011 Aerial Photograph, Courtesy of Google Earth

**Figure 3: 2014 Data Point & Photo Location Map Areas 1 North & 1 South**



**Figure 3: 2014 Data Point & Photo Location Map Areas 2 North, 2 South and Vernal Pools**



**2014 SITE PHOTOS**



Photo 1: 06-18-2014; facing south from the northwest corner of Area 1 North.



Photo 2: 06-18-2014; facing southeast from the northwestern corner portion of Area 1 North.



Photo 3: 06-18-2014; facing southeast toward the southeast corner of Area 1 North.



Photo 4: 06-18-2014; facing southeast towards the southeastern corner of Area 1 South.



Photo 5: 06-18-2014; facing northeast from the northern edge of the southern island in Area 1 South.



Photo 6: 06-18-2014; facing south from the southern edge of the southern island in Area 1 South.



Photo 7: 06-18-2014; facing northeast from the southwestern corner of Area 1 South.



Photo 8: 06-18-2014; facing north from the southeastern corner of Area 1 South.



Photo 9: 06-18-2014; facing southwest from along the eastern-central edge of Area 1 South.



Photo 10: 06-18-2014; facing northeast from along the eastern-central edge of Area 1 South.



Photo 11: 06-18-2014; facing south from the northeastern corner of Area 1 North.



Photo 12: 06-18-2014; facing southeast from the northwestern corner of Area 2 North.

**2014 SITE PHOTOS**



Photo 13: 06-18-2014; facing northwest from the south-central portion of Area 2 North.



Photo 14: 06-18-2014; facing north from the south-central portion of Area 2 North.



Photo 15: 06-18-2014; facing northeast from the south-central portion of Area 2 North.



Photo 16: 06-18-2014; facing west from the eastern edge of Area 2 South.



Photo 17: 06-18-2014; facing north from the southern central edge of Area 2 South.



Photo 18: 06-18-2014; facing east from the western edge of Area 2 South.



Photo 19: 06-18-2014; facing southwest from the northeastern corner of Area 2 North.



Photo 20: 06-18-2014; facing east towards Vernal Pool 1.



Photo 21: 06-18-2014; facing south towards Vernal Pool 2.



Photo 22: 06-18-2014 facing west towards Vernal Pool 3.



Photo 23: 06-18-2014; facing west towards Vernal Pool 5.



Photo 24: 06-18-2014; facing southwest towards Vernal Pool 7.



Photo 25: 06-18-2014; facing west towards Vernal Pool 4.



Photo 26: 06-18-2014; facing northwest towards Vernal Pool 6.



Photo 27: 06-18-2014; facing southwest towards Vernal Pool 8.



Photo 28: 08-19-2014; facing south from the northwest corner of Area 1 North.



Photo 29: 08-19-2014; facing southeast from the northwestern corner portion of Area 1 North.



Photo 30: 08-19-2014; facing east from the southwestern corner of Area 1 North.



Photo 31: 08-19-2014; facing north from the southwestern corner of Area 1 North.



Photo 32: 08-19-2014; facing southeast towards the southeastern corner of Area 1 North.



Photo 33: 08-19-2014; facing southeast towards the southeastern corner of Area 1 South.



Photo 34: 08-19-2014; facing south from the southern edge of the southern island in Area 1 South.



Photo 35: 08-19-2014; facing northeast from the northern edge of the southern island in Area 1 South.



Photo 36: 08-19-2014; facing northeast from the southwestern corner of Area 1 South.



Photo 37: 08-19-2014; facing north from the southeastern corner of Area 1 South.



Photo 38: 08-19-2014; facing southwest from along the eastern-central edge of Area 1 South.



Photo 39: 08-19-2014; facing northwest from along the eastern-central edge of Area 1 South.



Photo 40: 08-19-2014; facing west from along the eastern edge of Area 1 North.



Photo 41: 08-19-2014; facing south from the northeastern corner of Area 1 North.



Photo 42: 08-19-2014; facing southeast from the northwestern corner of Area 2 North.



Photo 43: 08-19-2014; facing south from the northwestern corner of Area 2 North.



Photo 44: 08-19-2014; facing east from the southwestern corner of Area 2 North.



Photo 45: 08-19-2014; facing east from the western edge of Area 2 South.



Photo 46: 08-19-2014; facing north from the south central edge of Area 2 South.



Photo 47: 08-19-2014; facing north from the south-central portion of Area 2 North.



Photo 48: 08-19-2014; facing northeast from the south-central portion of Area 2 North.



Photo 49: 08-19-2014; facing west from the eastern edge of Area 2 South.



Photo 50: 08-19-2014; facing northwest from the south-central portion of Area 2 North.



Photo 51: 08-19-2014; facing southwest from the northeastern corner of Area 2 North.



Photo 52: 08-19-2014; facing east towards Vernal Pool 1.



Photo 53: 08-19-2014; facing south towards Vernal Pool 2.



Photo 54: 08-19-2014; facing west towards Vernal Pool 3.



Photo 55: 08-19-2014; facing west towards Vernal Pool 5.



Photo 56: 08-19-2014; facing southwest towards Vernal Pool 7.



Photo 57: 08-19-2014; facing west towards Vernal Pool 4.



Photo 58: 08-19-2014; facing northwest towards Vernal Pool 6.



Photo 59: 08-19-2014; facing southwest towards Vernal Pool 8.

## Section 5: Conclusions

Based on information gathered over the course of the 2014 monitoring year, it is EDI's professional opinion that the constructed wetlands are developing towards a sustainable wetland system. It is EDI's professional opinion that Area 1 North is meeting all criteria outlined in the permit. Area 1 South is not meeting criteria for hydrophytic plant establishment. Adjustments are on-going to obtain the proper wetland hydrology and desirable wetland species. The aerial coverage of invasive species in Area 2 North has been greatly reduced, and somewhat reduced in Area 2 South striving towards the permit criteria. EDI anticipates that with the fall herbicide treatment, the coverage will be greater reduced in 2015. In 2015, remedial efforts will continue to pursue compliance with permit conditions. The wetlands are already being inhabited by numerous wildlife species. During the winter months of 2014-15, WM, volunteers and EDI will discuss plans for 2015. During the spring and early summer visits of 2015, EDI will assess the establishment of hydrophytic vegetation, water levels and amount of invasive species present and subsequently recommendations will be made. EDI hereby submits this report as the 2014 Monitoring Report.

*It should be noted that Area 3 was constructed in fall/winter of 2012 and planted in 2013. A report summarizing the first year (2014) monitoring efforts for Area 3 will be submitted under separate cover.*

Table 1: Summary of 2014 Herbicide Treatment Areas: Areas 1&amp;2 and Vernal Pools

<b>Target Species</b>	<b>Date(s) of Treatment</b>	<b>Product Name/ EPA Reg. #</b>	<b>Quantity Used</b>	<b>Applicator (s)</b>	<b>Method of Application</b>
Cattails ( <i>Typha spp</i> )	9/24 - 9/26 9/29 - 9/30 10/2 - 10/3	Rodeo/ 62719-324	480 FL OZ	Ben Zimmerman	ATV Spray Rig Gun Broadcast, Backpack Sprayer, Glove Wick
Reed Canary Grass ( <i>Phalaris arundinacea</i> )	6/9 - 6/10 9/24 - 9/26 9/29 - 9/30 10/2 - 10/3	Rodeo/ 62719-324	204 FL OZ	Ben Zimmerman	Backpack Sprayer, ATV Boom Sprayer & Gun Broadcast
Common Reed ( <i>Phragmites australis</i> )	9/24 - 9/26 9/29 - 9/30	Rodeo/ 62719-324	75 FL OZ	Ben Zimmerman	ATV Gun Broadcast, Glove Wick
Black Swallowwort ( <i>Cynanchum nigra</i> )	6/9 - 6/10 9/24 - 9/25	Accord/62719- 556	80 FL OZ	Ben Zimmerman	Backpack Sprayer



**2014 Mitigation Monitoring Report**

**for**

**HIGH ACRES LANDFILL  
WETLAND MITIGATION  
AREA 3**

**Towns of Perinton and Macedon  
Monroe and Wayne Counties, New York**

**for**

**Waste Management of New York, LLC**



**EARTH DIMENSIONS, INC.**

*Soil and Hydrogeologic Investigations • Wetland Delineations*

**1091 Jamison Road • Elma, NY 14059  
(716) 655-1717 • Fax (716) 655-2915**

**November 26, 2014  
Project Code: W6C88g**



In the **Area 3 Degraded Cow Pasture**, herbicide efforts were undertaken to control many of the established non-native species. Non-native species included American burnweed (*Erechtites hieracifolius*), Canada lettuce (*Lactuca canadensis*), teasel (*Dipsacus sylvestris*), rough cocklebur (*Xanthium strumarium*), bull thistle (*Cirsium vulgare*), reed canary grass (*Phalaris arundinacea*) and pokeweed (*Phytolacca Americana*). In addition to the herbicide application, the area was seeded with a Wet Meadow Mix.

The following is a list of the seed added to **Area 3 in 2014 (Degraded Cow Pasture)**  
by AES (Applied Ecological Services)

Species	Common Name	Qty	Unit
<i>Verbena hastata</i>	Blue vervain	6	oz
<i>Elymus virginicus</i>	Virginia wild rye	192	oz
<i>Leersia oryzoides</i>	Rice cut grass	3.2	oz
<i>Spartina pectinata</i>	Prairie cord grass	10	oz
<i>Agalinis tenuifolia</i>	Slenderleaf false foxglove	0.5	oz
<i>Angelica atropurpurea</i>	Great angelica	4	oz
<i>Asclepias incarnata</i>	Swamp milkweed	4	oz
<i>Symphotrichum lanceolatum</i>	Panicled aster	2	oz
<i>Aster puniceus</i>	Marsh aster	2	oz
<i>Aster umbellatus</i>	Flat-topped aster	2	oz
<i>Bidens cernua</i>	Nodding bur marigold	6.4	oz
<i>Bromus ciliatus</i>	Fringed brome	16	oz
<i>Carex bebbii</i>	Bebb's sedge	6.4	oz
<i>Carex hystericina</i>	Bottlebrush sedge	8	oz
<i>Carex scoparia</i>	Broom sedge	9.6	oz
<i>Carex vulpinoidea</i>	Fox sedge, Brown fox sedge	9.6	oz
<i>Epilobium coloratum</i>	Cinnamon willow herb	0.4	oz
<i>Eupatorium maculatum, Eupatoriadelphus maculatus</i>	Spotted Joe Pye weed	4.8	oz
<i>Eupatorium perforlatum</i>	Common boneset	4.8	oz
<i>Helenium autumnale</i>	Sneezeweed	6.4	oz
<i>Heliopsis helianthoides</i>	False sunflower	3	oz
<i>Lobelia cardinalis</i>	Cardinal flower	0.5	oz
<i>Lycopus uniflorus</i>	Northern bugleweed	1	oz
<i>Mimulus ringens</i>	Monkey flower	2	oz
<i>Pycnanthemum virginianum</i>	Virginia mountain mint	1	oz
<i>Tradescantia ohioensis</i>	Spiderwort	8	oz
<b>total 3.6 acre</b>		<b>1128.96</b>	<b>oz</b>

Careful monitoring for the further establishment of desired vegetation, control of invasive species and control of water levels will be continued in 2015. No other recommendations for any additional corrective or remedial actions are being made at this time.

- (6) Mitigation Location ..... is on Perinton Parkway, south of Route 31F on the High Acres Landfill Property  
 Town ..... Fairport and Macedon  
 County ..... Wayne and Monroe  
 State ..... New York  
 Latitude/Longitude ..... 43.09137°N, 77.38719°W

(7) Directions to the site from USACE



1776 Niagara St, Buffalo, NY 14207

- Head south on **Niagara St** toward **Wayne St** go 0.3 mi total 0.3 mi
- Turn right to stay on **Niagara St** go 59 ft total 0.4 mi
- Turn left to merge onto **Scajquada Expy** About 4 mins go 3.3 mi total 3.6 mi
- Take the **NY-33 E** ramp to **Airport** go 0.4 mi total 4.0 mi
- Keep left at the fork to continue toward **NY-33 E** and merge onto **NY-33 E** About 5 mins go 4.0 mi total 8.1 mi
- Take the exit onto **I-90 E** Partial toll road About 45 mins go 43.0 mi total 51.1 mi
- Take exit **47** to merge onto **I-490 E** toward **NY-19/Leroy/Rochester** Partial toll road About 28 mins go 30.3 mi total 81.4 mi
- Take exit **25** for **New York 31F/Fairport** go 0.1 mi total 81.5 mi
- Keep right at the fork to continue toward **Fairport Rd/New York 31F E** and merge onto **Fairport Rd/New York 31F E** Continue to follow New York 31F E About 7 mins go 3.6 mi total 85.1 mi
- Turn left at **S Main St/New York 31F E** About 2 mins go 0.4 mi total 85.5 mi
- Turn right at **High St/New York 31F E** Continue to follow New York 31F E About 5 mins go 2.8 mi total 88.3 mi
- Turn right at **Perinton Pkwy** Destination will be on the right About 2 mins go 1.0 mi total 89.3 mi

425 Perinton Pkwy, Fairport, NY 14450

## Section 2: Requirements

**Table 2-1: Requirements**

Monitoring Requirements/ Performance Standards	Conditions/Status of Mitigation Site	Achieved Standard?
The USACE permit requires 16.65 acres of mixed wetland creation, enhancement to 7.63 acres of existing wetland and establishment of 2.76 acres of upland buffer to the wetland creation area to compensate for the loss of 7.19 acres of federal wetlands.	In 2009, Area 1 north and south, consisting of 8.28 acres of mixed wetland (shallow marsh and wet meadow) and 2.43 acres of wetland transitional area were created. In 2009, Area 2 north and south, consisting of 3.73 acres of wooded wetland and 1.26 acres of wetland transitional area were created. In addition, in 2009, a total of 8 vernal pools totaling 0.36 acre were created. The report for Areas 1, 2 and the Vernal Pools is under separate cover. In 2012 & 2013, Area 3, consisting of 3.02 acres of created wooded wetland and 0.47 acre of created wet meadow were constructed and 11.28 acres of old field was planted as a prairie grass buffer. Area 3 also contains an existing 3.51 acres of degraded cow pasture and 4.02 acres of an open water pond.	Yes
Performance goal for <b>wooded wetland</b> (Area 3 approx. 3.02± acres): establish and maintain 65% coverage of beneficial FAC, FACW, and OBL species; total coverage shall meet or exceed 90%; at least 60% of the total coverage shall be woody species.	The wooded wetland portions of Area 3 are dominated by a combination of FAC, FACW and OBL species. - Approx. 50% coverage of beneficial FAC, FACW and OBL species; not meeting criteria; - Approximately 60% aerial coverage of FAC, FACW & OBL species thus far, not meeting criteria; -Approximately 30% woody species; not meeting criteria, largely due to immature trees and shrubs. Potential for additional tree and shrub plantings will be assessed in 2015. A random survey of 100 of the planted trees and shrubs was completed in June of 2014, resulting in 94 viable trees and 6 dead trees (94% survival).	No
Performance goal for <b>wet meadow</b> (Area 3 approx. 0.47± acre): establish and maintain 70% coverage of beneficial FAC, FACW, and OBL species; total coverage shall meet or exceed 95%.	Species found within these areas consist of approximately 90% FAC, FACW and OBL species (meeting permit criteria) and roughly 70% aerial coverage of beneficial FAC, FACW & OBL species (not meeting permit criteria).	No
Hydrology/Water Levels: for <b>wet meadow</b> and <b>wooded wetland</b> : Establish and maintain soil saturation within 10 inches of the ground surface for at least 12.5% (or roughly 23 days) of the growing season for <b>4 of the 5</b> monitoring years (for <b>wet meadow</b> ) and <b>8 of the 10</b> monitoring years (for <b>wooded wetland</b> ).	Water present in Wetland (see table 3-1); the amount of water present in these portions of the mitigation area meet the performance criteria. Area 3 currently meets desired hydrology goals.	Yes
Evidence of Wildlife Usage of the Wetland	Evidence of deer (tracks), various birds, insects and amphibians (see listing of species noted in Section 3).	Yes
Invasive Species: No more than 5% aerial coverage shall be vegetated with invasive plant species.	Herbicide application took place throughout Area 3 in 2013 and 2014. Cattails dominated the perimeter of the existing pond and south wooded wetland through the summer with minor pockets in the wet meadow area and the northern portion of the wooded wetland. <i>Phragmites</i> is encroaching mostly in the southern portion of the wooded wetland areas, closer to the Perinton Parkway (Quaker Road). Reed canary grass was dominant in the degraded cow pasture and scattered around the perimeter of the existing pond. Cattail control measures included seed head removal and cutting and herbicide application in the fall. The populations of reed canary grass, cattail and common reed received herbicide treatments in the summer and/or fall of 2014. In 2015, it is likely that additional treatments will be necessary. Please see page 11 for a chart outlining the herbicide applications completed by AES in 2014. An Article 15 permit from the DEC has been secured to allow for herbicide application. WM is progressing toward meeting this permit standard.	No
Implement invasive species control protocol for purple loosestrife ( <i>Lythrum salicaria</i> ) and common reed ( <i>Phragmites australis</i> ).	Invasive plant management efforts including seed head removal, cutting and herbicide application are on-going in Area 3.	Yes
Monthly site visits during growing season to monitor water levels; representative data and photos to be collected twice during the growing season. <b>Wet Meadow</b> community to be monitored for 5 years, <b>Wooded Wetland</b> to be monitored for 10 years.	See Table 1-1. 2014 is Monitoring Year 1 for all of Area 3.	Yes

Table 2-1 outlines which permit standards and requirements have been met and which ones have not yet been achieved.

## Section 3: Summary Data

**Hydrology: Table 3-1: Water Level/Hydrology Data:**

2013 Water Levels					
Date of Data Collection	W11 Wet Meadow	W12 Degraded Cow Pasture	W13 Wooded Wetland North	W14 Wooded Wetland South	W15 (@ pond outlet) *Added in late August 2014
April 17 2014	0.25'	0.66'	1.0'	0.50'	*
May 15, 2014	0.15'	0.66'	0.66'	0.40'	*
June 18, 2014	Saturated	Saturated	0.25'	0.02'	*
July 24, 2014	Moist	0.00'	0.50'	Moist	*
August 19, 2014	Moist	0.00'	0.65'	0.20'	*
September 22, 2014	Saturated	Saturated	0.45'	Saturated	0.30'
October 27, 2014	0.00'	0.00'	0.30'	0.00'	0.00'

**Wildlife Observed:**

The wetland creation areas and surrounding habitats are occupied by various wildlife species. Data pertaining to wildlife usage within and adjacent to the wetland was collected by EDI as well as student interns and various volunteer wetland stewards for HANA (High Acres Natural Area). Species include those noted foraging, nesting, visiting, as well as evidence of their usage including calls, tracks, scat, etc. The wildlife noted include: calico pennant, Savannah sparrow, whirlgig beetles, red shoulder hawk, white throated sparrow, gold crowned kinglet, eastern towhee, northern harrier, eastern bluebird, king bird, purple finch, eastern phoebe, greater yellow legs, great blue heron, northern water snake, northern cardinal, tree swallows, mallard ducks, northern leopard frog, muskrat (den), black capped chickadees, red wing blackbirds, American goldfinch, American robin, mourning dove, turkey vulture, green heron, marsh wren, Canada geese, ruby throated hummingbird, American crow, raccoon, white tailed deer, common silver spotted skipper, eastern black swallowtail, eastern pond hawk, northern flicker, eastern kingbird, red eyed vireo, wood ducks, bobolink, bluets darter, European starlings, killdeer, turkey vulture, solitary sandpiper, common sandpiper, least sandpiper, spotted sandpiper, osprey, spring peepers, Virginia rail, common snipe, northern mockingbird, blue jay, grey squirrel, painted turtle, lesser yellow legs, gray catbird, green frog, bull frog, red tail hawk, chipmunk, garter snake, yellow warbler, yellow rumped warbler, common yellow throat, song sparrow, swamp sparrow, common grackle, brown-headed cowbird, Baltimore oriole, red-bellied woodpecker, downy woodpecker, white breasted nuthatch, banded water snake, American toads, mosquitoes, caddis flies, gray fly catcher, honey bees, grey tree frog, woolly bears, coyote, lady beetles, aphids, water striders, dragon flies, damner flies, monarch butterflies, viceroy butterflies, cabbage white butterflies, various sulphur butterflies, yellow jackets, grasshoppers, agriope spiders, dextral snails, *Gallerucella* beetles, meadow vole, water beetles, tadpoles, American tree sparrow, various aquatic insects, aquatic snails, twelve spotted skimmer, Halloween pennant, common white tail, deer flies and water boatsman. Also, an abundance of tracks made by raccoons and white-tail deer all throughout the vicinity of the wetlands was noted.

**Vegetation:**

The following is a cumulative list (2013-2014) of plant species and their wetland indicator status identified along the monitoring transects (depicted on the map included as Figure 3) as well as those identified during time meander searches:

<b><u>Common Name</u></b>	<b><u>Latin Name</u></b>	<b><u>Wetland Ind.</u></b>
monkey flower	<i>Mimulus ringens</i>	OBL
cursed buttercup	<i>Ranunculus sceleratus</i>	FACW
red maple	<i>Acer rubrum</i>	FAC
spreading bentgrass	<i>Agrostis stolonifera</i>	FACW
narrow leaf cattail	<i>Typha angustifolia</i>	OBL
yellow nutsedge	<i>Cyperus strigosus</i>	FACW
reed canary grass	<i>Phalaris arundinacea</i>	FACW
marsh seedbox	<i>Ludwigia palustris</i>	FACW
ditch stonecrop	<i>Penthorum sedoides</i>	OBL
sedge	<i>Carex spp.</i>	*
blunt bulrush	<i>Eleocharis obtusa</i>	OBL
water plantain	<i>Alisma-plantago aquatica</i>	OBL
northern bugleweed	<i>Lycopus uniflorus</i>	OBL
lesser duckweed	<i>Lemna minor</i>	OBL
barnyard grass	<i>Echinochloa crus-galli</i>	FACU
fox sedge	<i>Carex vulpinoidea</i>	OBL
blue vervain	<i>Verbena hastata</i>	FACW
curly dock	<i>Rumex crispus</i>	FACU
purple leaf willow herb	<i>Epilobium coloratum</i>	FACW
purple stem aster	<i>Symphyotrichum puniceus</i>	FACW

soft stem bulrush	<i>Schoenoplectus tabernaemontani</i>	OBL
crowned beggars ticks	<i>Bidens coronata</i>	FACW
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>	FACW
common boneset	<i>Eupatorium perfoliatum</i>	FACW
switch grass	<i>Panicum virgatum</i>	FACW
hop sedge	<i>Carex lupulina</i>	OBL
bull thistle	<i>Cirsium vulgare</i>	FACU
swamp milkweed	<i>Asclepias incarnata</i>	FACW
common ragweed	<i>Ambrosia artemisifolia</i>	FACU
purple loosestrife	<i>Lythrum salicaria</i>	FACW
broad leaf cattail	<i>Typha latifolia</i>	OBL
silky dogwood	<i>Cornus amomum</i>	FACW
common buttonbush	<i>Cephalanthus occidentalis</i>	OBL
silky willow	<i>Salix sericea</i>	FACW
soft rush	<i>Juncus effusus</i>	FACW+
Canada rush	<i>Juncus canadensis</i>	OBL
green bulrush	<i>Scirpus atrovirens</i>	OBL
common reed	<i>Phragmites australis</i>	FACW
wool grass	<i>Scirpus cyperinus</i>	OBL
common three square	<i>Scirpus pungens</i>	FACW
toad rush	<i>Juncus bufonius</i>	OBL
rice cut grass	<i>Leersia oryzoides</i>	OBL
rattlesnake manna grass	<i>Glyceria canadensis</i>	OBL
broad leaf arrowhead	<i>Sagittaria latifolia</i>	OBL
nodding beggarticks	<i>Bidens cernau</i>	FACW
common bladderwort	<i>Urticularia macrorrhiza</i>	OBL
hairy white old field aster	<i>Symphotrichum pilosum</i>	FACU
longhair sedge	<i>Carex comosa</i>	OBL
New England aster	<i>Symphotrichum novae-angliae</i>	FACW
devil's beggar ticks	<i>Bidens frondosa</i>	FACW
pokeweed	<i>Phytolacca americana</i>	FACU
water knotweed	<i>Polygonum amphibium</i>	OBL
rough cocklebur	<i>Xanthium strumarium</i>	FAC
bebb's sedge	<i>Carex bebbiana</i>	OBL
broom sedge	<i>Carex scoparia</i>	FACW
swamp white oak	<i>Quercus bicolor</i>	FACW
beaked spikerush	<i>Eleocharis rostellata</i>	OBL
flat topped goldenrod	<i>Euthamia graminifolia</i>	FAC
wrinkled goldenrod	<i>Solidago rugosa</i>	FAC
American burnweed	<i>Erechtites hieracifolius</i>	NI
Canada lettuce	<i>Lactuca canadensis</i>	NI
teasel	<i>Dipsacus sylvestris</i>	NI
green ash	<i>Fraxinus pennsylvanica</i>	FACW
bird's foot trefoil	<i>Lotus corniculatus</i>	FACU
awlfruited sedge	<i>Carex stipata</i>	OBL

### Section 4: Maps

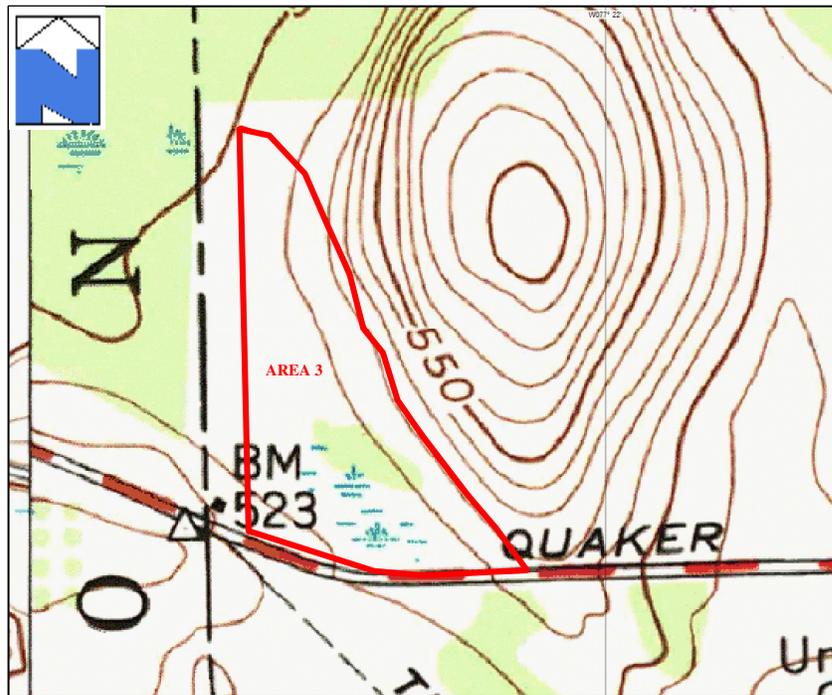
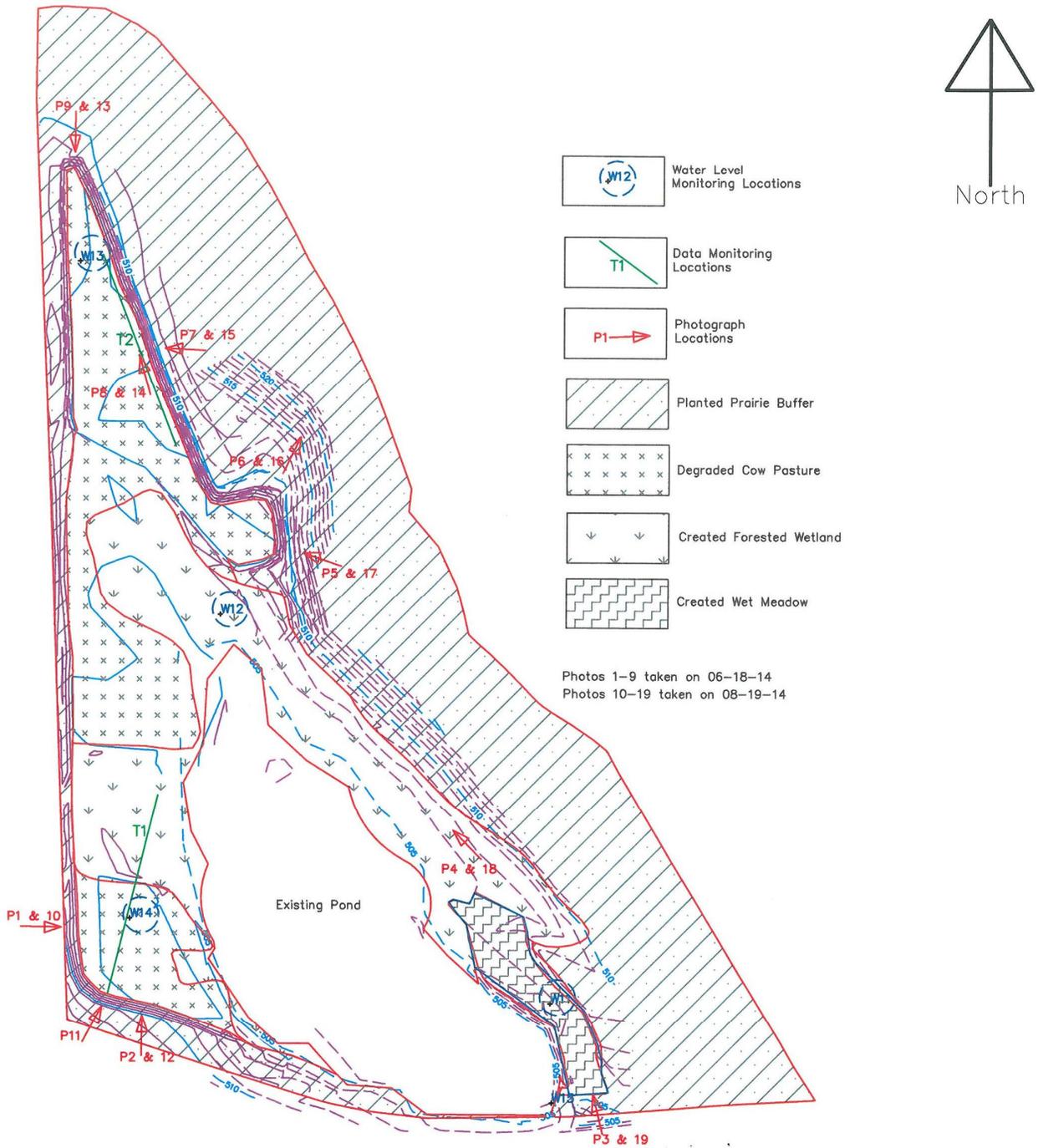


Figure 1: USGS 7.5 Minute Topographical Map, Fairport Quadrangle GPSExpert



Figure 2: 2013 Aerial Photograph  
Courtesy of GPSExpert



Scale: Not To Scale
Map Date: 11-25-14 JMC/EDI Revised:
Base Map Provided By: Barton & Loguidice, P.C.
File Name: 2014 Figure 3 Area 3.dwg
EDI Project Code: W6c88g

Figure 3: Monitoring Stations & Photo Benchmark Locations Map  
**High Acres Landfill- Area 3**  
 Town of Perinton & Macedon Monroe & Wayne Counties, New York

Soil and Hydrogeologic Investigations  
 Wetland Delineations

1091 Jamison Road \* Elms, NY 14059  
 (716) 635-1717 \* Fax (716) 655-2915

2014 SITE PHOTOS



Photo 1: 06-18-2014; facing east from near the southwestern corner of Area 3.



Photo 2: 06-18-2014; facing north from near the southwestern corner of Area 3.



Photo 3: 06-18-2014; facing north from near the southeastern corner of Area 3, depicting the created wet meadow.



Photo 4: 06-18-2014; facing northwest from along the eastern edge of the existing pond; depicts the degraded cow pasture.



Photo 5: 06-18-2014; facing northwest from the southeast corner of the northern wooded wetland.



Photo 6: 06-18-2014; facing east toward the eastern edge of Area 3; depicts the planted prairie buffer area.



Photo 7: 06-18-2014; facing west from near transect #2 in the northern portion of the wooded wetland.



Photo 8: 06-18-2014; facing northwest along Transect #2 in the northern portion of Area 3.



Photo 9: 06-18-2014; facing south from the northern point of the wooded wetland of Area 3.



Photo 10: 08-19-2014; facing east from near the southwestern corner of Area 3.



Photo 11: 08-19-2014; facing northeast from the southwestern corner of Area 3; toward transect #1.



Photo 12: 08-19-2014; facing north from near the southwestern corner of Area 3.

2014 SITE PHOTOS



Photo 13: 08-19-2014; facing south from the northern point of the wooded wetland of Area 3.



Photo 14: 08-19-2014; facing northwest along Transect #2 in the northern portion of Area 3.



Photo 15: 08-19-2014; facing west from near transect #2 in the northern portion of the wooded wetland..



Photo 16: 08-19-2014; facing east toward the eastern edge of Area 3; depicts the planted prairie buffer area.



Photo 17: 08-19-2014; facing northwest from the southeast corner of the northern wooded wetland.



Photo 18: 08-19-2014; facing northwest from along the eastern edge of the existing pond; depicts the degraded cow pasture.



Photo 19: 08-19-2014; facing north from near the southeastern corner of Area 3, looking toward the created wet meadow.



Photo 20: 08-19-2014; depicts a buttonbush shrub that was planted in 2012.



Photo 21: 06-18-2014; depicts dragonfly (*Celithemis elisa*) found in Area 3.



Photo 22: 06-18-2014; depicts a willow live stake shrub that was planted in 2013.



Photo 23: 06-18-2014; depicts a volunteer swamp white oak in Area 3.



Photo 24: 06-18-2014; depicts a grey tree frog found in one of the tree protection tubes in Area 3.

## **Section 5: Conclusions**

Based on information gathered over the course of the 2014 monitoring (year 1), it is EDI's professional opinion that the constructed wetlands are developing towards a sustainable wetland system. It is EDI's professional opinion that Area 3 is progressing towards meeting the criteria outlined in the permit. In 2015, remedial efforts will continue to pursue compliance with permit conditions. The wetlands are already being inhabited by numerous wildlife species. During the winter months of 2014-15, WM, volunteers and EDI will discuss plans for 2015. During the spring of 2015, EDI will delineate the wetland communities of Area 3 to quantify the wetland systems present. In addition, in 2015, EDI will assess the amount of invasive species present and subsequent recommendations will be made. EDI hereby submits this report as the 2014 Monitoring Report.

Table 1: Summary of 2014 Herbicide Treatment Areas: Area 3

<b>Target Species</b>	<b>Date(s) of Treatment</b>	<b>Product Name/ EPA Reg. #</b>	<b>Quantity Used</b>	<b>Applicator (s)</b>	<b>Method of Application</b>
Cattails ( <i>Typha spp</i> )	9/24 - 9/26 9/29 - 9/30 10/2 - 10/3	Rodeo/ 62719-324	657 FL OZ	Ben Zimmerman	ATV Spray Rig Gun Broadcast, Backpack Sprayer, Glove Wick
Reed Canary Grass ( <i>Phalaris arundinacea</i> )	6/9 - 6/10 9/24 - 9/26 9/29 - 9/30 10/2 - 10/3	Rodeo/ 62719-324	406 FL OZ	Ben Zimmerman	Backpack Sprayer, ATV Boom Sprayer & Gun Broadcast
Common Reed ( <i>Phragmites australis</i> )	9/24 - 9/26 9/29 - 9/30	Rodeo/ 62719-324	40 FL OZ	Ben Zimmerman	Glove Wick



## Attachment I

### Closure and Post-Closure Cost Estimates



**HIGH ACRES LANDFILL**  
A WASTE MANAGEMENT COMPANY

425 Perinton Parkway  
Fairport, NY 14450  
585-223-6132  
585-223-6898 Fax

November 20, 2014

Mr. John Swanson, P.E.  
New York State Department of  
Environmental Conservation  
Division of Solid and Hazardous Materials  
6274 E. Avon – Lima Road  
Avon, New York 14414-9519

RE: High Acres Landfill and Recycling Center;  
2014 Closure/Post Closure Cost Estimate – Including Cell 11N Phase 2

Dear Mr. Swanson:

Waste Management of New York, LLC (WMNY) is herein submitting the update of our closure and post closure cost estimates including the increased acreage for Cell 11N Phase 2. Consistent with last year, please note that a formal update to the Leachate Generation Rate Model (previously prepared by ARCADIS) was not performed. Instead, the additional acreage for the new cell was added to the “HELP Model Output” table from the previous analysis to account for the additional leachate volume.

The following is a summary of the 2014 Closure/Post Closure cost estimate as compared to the previous estimate:

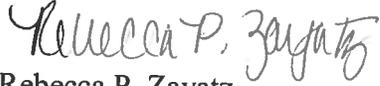
	<u>2013 Estimate</u>	<u>2014 Estimate</u>
Closure	\$16,703,468	\$17,351,178
Post Closure	<u>7,172,690</u>	<u>7,192,504</u>
Total	\$23,876,158	\$24,543,682

The details behind the updated estimate are included in the attached tables, consistent with prior submittals. Following your approval of the updated estimate, WMNY will provide to NYSDEC an updated surety in the amount of \$24,543,682.

Please contact me at 716-286-0279 with any questions regarding this submittal.

Sincerely,

Waste Management of New York, LLC



Rebecca P. Zayatz  
Market Area Engineering Manager

Attachment

CC: J. Richardson WMNY, Fairport, NY (via e-mail) w/Attach.  
S. DiSalvo WMNY, Bergen, NY (via e-mail) w/Attach.

# TABLE 1

## CLOSURE / POST-CLOSURE COST SUMMARY

### CLOSURE COSTS

Item	Units	Quantity	Unit Cost	Total
Final Cover Installation Remaining (see notes)	acres	110.7	\$141,954	\$15,714,287
Stormwater Management Features	acres	110.7	\$10,000	\$1,107,000
Groundwater / Surfacewater Monitoring	lump sum	1	\$115,585	\$115,585
Leachate Management	lump sum	1	\$50,475	\$50,475
Landfill Gas and Air	lump sum	1	\$123,531	\$123,531
Exit Closure Costs	lump sum	1	\$240,300	\$240,300
<b>TOTAL</b>				<b>\$17,351,178</b>

### POSTCLOSURE COSTS

Item	Total
Leachate Management	\$1,552,882
Landfill Gas Management	\$1,564,372
Operation & Maintenance	\$1,269,600
Groundwater / Surfacewater Monitoring	\$2,805,650
<b>TOTAL</b>	
	<b>\$7,192,504</b>

#### CONTENTS:

Final Cover "Per Acre" Unit Cost  
 Stormwater Management Features  
 Exit Closure Costs  
 Leachate Management Costs  
 Landfill Gas Management Costs  
 Operations & Maintenance Costs  
 Groundwater / Surfacewater Monitoring Costs

#### LOCATION:

Table 2 - Page 1 of 3  
 Table 1 - Page 1 of 1  
 Table 2 - Page 2 of 3  
 Table 2 - Page 3 of 3 and attached Calculation Sheets  
 Table 2 - Page 3 of 3  
 Table 2 - Page 2 of 3  
 Table 2 - Page 2 of 3

#### Notes

- Quantity of final cover installation remaining is based on the constructed baseliner/overliner planimetric area for WEX/Phase I/Phase II Landfill total area minus the existing constructed final cover area (i.e., 121.6 ac total final cover area possible - 15 ac existing final cover area = 106.6 ac final cover area remaining to be constructed).
- WEX (68.1 ac) + PH I (20.1 ac) + PH II (37.5 ac) = Landfill total area (125.7 ac). Landfill total area does not include existing closed landfill area that is outside of the overliner areas.

**TABLE 2**  
**CLOSURE COSTS**  
**FINAL COVER - "PER ACRE" COST**

	Item	Comments or remaining site quantity	Units	Unit Cost	T (ft)	% of Area	Average Quantity per Acre	Average Cost per Acre
Admin	Construction Drawings		acre	600.00			1.00	600
	Bid Package		acre	200.00			1.00	200
	Construction Management		acre				0.00	0
	General project management		acre	\$3,000.00		100	1.00	\$3,000
Earthwork	Mobilization: earthwork contractor		acre	\$5,000.00			1.00	\$5,000
	CQA/surveying - earthwork and soil cap		acre	\$8,000.00		100	1.00	\$8,000
	Erosion and sediment control		acre	\$3,000.00			1.00	\$3,000
	Perimeter berm: rem. site qty =		cy or ft				0.00	0
	Fine grading		acre	\$2,000.00		100	1.00	\$2,000
	Structural fill layer		cy				0.00	0
	Subbase		cy				0.00	0
	Soil cap - purchase and haul		cy	\$8.15		100	2,420.00	\$19,723
	Soil cap - place and compact		cy	\$12.00		100	2,420.00	\$29,040
	GCL - material		sf				0.00	0
	GCL - installation over subgrade		sf				0.00	0
	GCL - installation over geosynthetics		sf				0.00	0
	Barrier soil excavate/screen		cy	\$8.00		100	3,226.67	\$25,813
	Barrier soil haul/place		cy	\$5.00		100	3,226.67	\$16,133
	Drainage swales		acre	\$8,000.00		100	1.00	\$8,000
Geosynthetics	CQA/surveying - geosynthetics		acre	\$9,000.00		30	1.00	\$2,700
	Mobilization: geosynthetics contractor		acre	\$4,200.00			0.14	\$588
	Anchor trench: rem. site qty. =		ft				0.00	0
	Geomembrane - material	HDPE 60 mil texture	sf	\$0.34		50	43,560.00	\$7,405
	Geomembrane - material	type, mils, texture	sf				0.00	0
	Geomembrane - material	type, mils, texture	sf				0.00	0
	Geomembrane - installation	slope, texture	sf	\$0.15		50	43,560.00	\$3,267
	Geomembrane - installation	slope, texture	sf				0.00	0
	Geomembrane - installation	slope, texture	sf				0.00	0
	Gas well boots		acre				1.00	0
	Misc. boots, rubsheets, flaps, etc.		acre				1.00	0
	Drainage and Cover Layers	Geonet - material and installation		sf				0.00
Drainage composite - material			sf				0.00	\$0
Drainage composite - material			sf				0.00	0
Drainage composite - installation			sf				0.00	\$0
Drainage composite - installation			sf				0.00	0
Tygar geotextile - material			sf				0.00	0
Nonwoven geotextile - material		12 oz	sf	\$0.11		50	16,117.20	\$886
Geotextile - installation, heat bonded		12 OZ	sf	\$0.07		50	16,117.20	\$564
Geotextile - installation, heat bonded, on textured membra			sf				0.00	0
Gravel drainage layer			cy				0.00	0
Protective cover soil			cy				0.00	0
Topsoil			cy	\$5.00			806.67	\$4,033
Vegetation and seeding			acre	\$2,000.00			1.00	\$2,000
Drainage control berms: rem. site qty:			cy or ft				0.00	0
Downspouts: rem. site qty:			each				0.00	0
Other permanent erosion control			acre				0.00	0
Average Cap Unit Cost Per Acre								\$141,954

**TABLE 2 (continued)**

**CLOSURE COSTS**

**Exit Closure Costs**

<b>Exit Closure and Post-Closure Schedule</b>				
First Year of Closure	2020			
Exit Closure Construction and Certification Period	1			
First Year of Post-Closure Period	2021			
Regulatory Post-Closure Period	30			
Final Year of Post-Closure Period	2050			
<b>Exit Closure Construction and Certification</b>				
	Units	Unit Cost	Quantity	Cost
Drainage and site work	lump sum		1.00	\$0
Engineering (Final Reports, Modifications, Certifications)	lump sum	\$116,300	1.00	\$116,300
Deed records update	lump sum	\$1,000	1.00	\$1,000
Demobilization and Demolition	lump sum	\$5,000	1.00	\$5,000
Management/overhead	man-hr	\$60	300.00	\$18,000
Final increment of landfill gas well field, installed during exit closure period	acre	\$10,000	10.00	\$100,000
<b>Total Exit Closure Cost</b>				<b>\$240,300</b>

**POST CLOSURE COSTS**

<b>Operation, maintenance, and admin costs through 2050</b>				
	Units	Unit Cost	Annual Quantity	Annual Cost
Cap repair, general earthwork, labor, equipment, surveying	year	\$12,000	1.00	\$12,000
Seeding and fertilizing cap	acre	\$900	1.00	\$900
Mowing	acre	\$25	176.80	\$4,420
Surface water management maintenance	lump sum	\$500	1.00	\$500
Building security, repairs, and demolition	lump sum	\$500	1.00	\$500
Fence and road maintenance, snow removal	annual	\$4,000	1.00	\$4,000
Utilities (excluding LFG and leachate equipment)	annual	\$10,000	1.00	\$10,000
Inspections, Reports, and Management		\$10,000	1.00	\$10,000
<b>Total Annual OMA Cost:</b>				<b>\$42,320</b>
Postclosure Period				30
Total Current Cost				\$1,269,600
<b>Groundwater and surface water monitoring costs through 2050</b>				
<b>Surface Water</b>				
	No. of points	Unit cost	Ann. Frequency	Annual Cost
Number of sample points	7			0
Surface water sampling and analytical	7	\$150	4.00	\$4,200
<b>Groundwater</b>				0
Number of groundwater wells	41			0
Groundwater analytical, quarterly parameters	43	\$350	3.00	\$45,150
Groundwater analytical, semi-annual parameters				0
Groundwater analytical, annual parameters	43	\$700	1.00	\$30,100
Groundwater well sampling, per well	180	\$100	1.00	\$18,000
Groundwater analytical QA and statistics	each	\$1,000	4.00	\$4,000
Report Preparation	each	\$2,500	4.00	\$10,000
Well redevelopment accrual, each well every 10 years	41	\$350	0.10	\$1,435
Well replacement accrual for 10% replacement each 15 years	9	\$10,000	0.03	\$2,700
<b>Total Annual Groundwater and Surface Water Cost (2021 - 2025)</b>				<b>\$115,585</b>
Potential reduction in Monitoring costs (%)				30
Annual reduction in cost				\$34,676
Year when potential reduction will occur				2026
Annual GW and SW Costs (2026 - 2050)				\$80,909
Total Current Cost				\$2,681,000
<b>Groundwater Well Decommissioning</b>				
	No. of points	Unit cost		Cost
Groundwater Well Decommissioning	41	\$5,000	1.00	\$205,000
Year cost incurred				2051

**TABLE 2 (continued)**

**POST-CLOSURE COSTS**

<b>Leachate Management Through 2050</b>	Data	Units	Unit Cost	Annual Quantity	Annual Cost
No. of Years Leachate will be generated	30				
Total disposal area size	163.7				
Total gallons generated	142,264,890				
Leachate disposal cost		gal	\$0.0025	4,742,163	\$11,855
Leachate Management System Repairs		lump sum		NA	
Wastewater Treatment Plant Repairs		lump sum		NA	
Electricity: Pumps, plant, treatment		annual		NA	
System Operation and Inspection				NA	
Leachate Sampling and Testing		lump sum	\$13,620	1.00	\$13,620
Leachate Collection System O&M		lump sum	\$25,000	1.00	\$25,000
<b>Leachate Management Costs</b>					<b>\$50,475</b>
Leachate Management Period					30
Total Current Cost					<b>\$1,514,262</b>

Notes:

1. Total and annual (average annual) leachate quantities are based on HELP model output (attached).
2. See Table 3 for actual yearly leachate management costs associated with predicted leachate quantities.

<b>Landfill Gas Management Through 2032 (1st year NMOC &lt; 50Mg/yr)</b>	Data	Units	Unit Cost	Annual Quantity	Annual Cost
Collection System Repair and Replacement					\$37,000
Blower Replacements		each	\$2,000	1.00	\$2,000
Flare Maintenance		annual	\$1,600	1.00	\$1,600
Electricity: Blower		annual	\$4,523	1.00	\$4,523
System Operation and Inspection		annual	\$50,000	1.00	\$50,000
Condensate Disposal		\$/gal	0.003	96,000	\$240
Condensate Sampling and Testing		annual	\$2,000	1.00	\$2,000
Perimeter Gas Probes: testing and report		annual	\$4,000	1.00	\$4,000
NSPS Monitoring		annual	\$10,238	1.00	\$10,238
Title V Emissions Fee		annual	\$7,916	1.00	\$7,916
Title V Operating Permit		annual	\$4,014	1.00	\$4,014
<b>Landfill Gas Management Costs</b>					<b>\$123,531</b>
NSPS Compliance Period (yrs)					12
Total Current Cost					<b>\$1,482,372</b>

<b>Perimeter Probe Monitoring (2032 - 2050)</b>	annual	\$4,000	1.00	\$4,000
<b>LFG System Decommissioning (2051)</b>	lump sum	\$10,000	1.00	\$10,000

Note:

1. See table 3 for yearly landfill gas management costs.

**TABLE 3**

**Exit Closure and Post-Closure Expense Schedule**

Exit Closure							
Year	Exit Closure Construction	OMA	GW	Leachate Management	LFG and Air	Total Gross	Comments
2020	\$240,300	\$42,320	\$115,585	\$50,475	\$123,531	\$572,211	
<b>Totals</b>	<b>\$240,300</b>	<b>\$42,320</b>	<b>\$115,585</b>	<b>\$50,475</b>	<b>\$123,531</b>	<b>\$572,211</b>	

Post Closure							
Year	Exit Closure Construction	OMA	GW	Leachate Management	LFG and Air	Total Gross	Comments
2021		\$42,320	\$115,585	\$52,114	\$123,531	\$333,550	
2022		\$42,320	\$115,585	\$51,447	\$123,531	\$332,883	
2023		\$42,320	\$115,585	\$46,743	\$123,531	\$328,179	
2024		\$42,320	\$115,585	\$50,079	\$123,531	\$331,515	
2025		\$42,320	\$115,585	\$49,501	\$123,531	\$330,937	
2026		\$42,320	\$80,909	\$54,789	\$123,531	\$301,549	Potential 30% red. In GW/SW mon
2027		\$42,320	\$80,909	\$50,179	\$123,531	\$296,939	
2028		\$42,320	\$80,909	\$50,986	\$123,531	\$297,746	
2029		\$42,320	\$80,909	\$49,385	\$123,531	\$296,145	
2030		\$42,320	\$80,909	\$48,203	\$123,531	\$294,963	
2031		\$42,320	\$80,909	\$51,188	\$123,531	\$297,948	
2032		\$42,320	\$80,909	\$53,942	\$123,531	\$300,702	
2033		\$42,320	\$80,909	\$49,026	\$4,000	\$176,255	First Year < 50 Mg/yr
2034		\$42,320	\$80,909	\$52,466	\$4,000	\$179,695	
2035		\$42,320	\$80,909	\$50,399	\$4,000	\$177,628	
2036		\$42,320	\$80,909	\$52,497	\$4,000	\$179,726	
2037		\$42,320	\$80,909	\$53,515	\$4,000	\$180,744	
2038		\$42,320	\$80,909	\$51,868	\$4,000	\$179,097	
2039		\$42,320	\$80,909	\$50,605	\$4,000	\$177,834	
2040		\$42,320	\$80,909	\$47,446	\$4,000	\$174,675	
2041		\$42,320	\$80,909	\$50,382	\$4,000	\$177,611	
2042		\$42,320	\$80,909	\$48,128	\$4,000	\$175,357	
2043		\$42,320	\$80,909	\$45,731	\$4,000	\$172,960	
2044		\$42,320	\$80,909	\$50,102	\$4,000	\$177,331	
2045		\$42,320	\$80,909	\$47,619	\$4,000	\$174,848	
2046		\$42,320	\$80,909	\$51,031	\$4,000	\$178,260	
2047		\$42,320	\$80,909	\$50,314	\$4,000	\$177,543	
2048		\$42,320	\$80,909	\$52,451	\$4,000	\$179,680	
2049		\$42,320	\$80,909	\$51,439	\$4,000	\$178,668	
2050		\$42,320	\$80,909	\$50,686	\$4,000	\$177,915	
2051			\$205,000	\$38,620	\$10,000	\$253,620	Decommission Period
2052							
2053							
2054							
2055							
2056							
2057							
2058							
2059							
2060							
2061							
2062							
2063							
2064							
2065							
2066							
2067							
2068							
2069							
2070							
<b>Post Closure Totals</b>		<b>\$1,269,600</b>	<b>\$2,805,650</b>	<b>\$1,552,882</b>	<b>\$1,564,372</b>	<b>\$7,192,504</b>	

Notes:

1. Annual leachate management costs for each year based on annual quantities predicted by HELP model (attached).

## HELP Model Output

Existing Closed Landfill (51.1 acres)			WEX/Phase I/Phase II (Plateau Areas – 40.1 acres)		WEX/Phase I/Phase II (Sideslope Areas – 85.6 acres)		Total – 172.7 acres
OLD [gpay]	+4.7% [gpay]	[gallons/year]	[gpay]	[gallons/year]	[gpay]	[gallons/year]	[gallons/year]
41,290	43,231	2,209,085	340	13,634	37,092	3,175,075	5,397,794
38,222	40,018	2,044,942	273	10,947	35,921	3,074,838	5,130,727
23,325	24,421	1,247,927	185	7,419	23,294	1,993,966	3,249,312
37,633	39,402	2,013,429	289	11,589	29,891	2,558,670	4,583,688
33,812	35,401	1,808,999	279	11,188	29,583	2,532,305	4,352,492
49,303	51,620	2,637,794	383	15,358	44,561	3,814,422	6,467,574
36,191	37,892	1,936,280	307	12,311	31,252	2,675,171	4,623,762
37,027	38,767	1,981,007	283	11,348	34,510	2,954,056	4,946,412
32,864	34,409	1,758,280	260	10,426	29,640	2,537,184	4,305,890
26,671	27,925	1,426,944	224	8,982	28,004	2,397,142	3,833,069
42,815	44,827	2,290,675	345	13,835	31,807	2,722,679	5,027,189
46,450	48,633	2,485,154	353	14,155	42,401	3,629,526	6,128,835
30,851	32,301	1,650,581	236	9,464	29,234	2,502,430	4,162,475
44,247	46,327	2,367,290	365	14,637	36,875	3,156,500	5,538,426
36,568	38,287	1,956,450	293	11,749	32,047	2,743,223	4,711,423
41,964	43,936	2,245,145	331	13,273	38,463	3,292,433	5,550,851
45,975	48,136	2,459,741	356	14,276	40,701	3,484,006	5,958,022
41,113	43,045	2,199,615	339	13,594	36,050	3,085,880	5,299,089
36,470	38,184	1,951,207	282	11,308	33,080	2,831,648	4,794,163
27,457	28,747	1,468,996	237	9,504	23,973	2,052,089	3,530,589
36,492	38,207	1,952,384	287	11,509	32,021	2,740,998	4,704,890
25,454	26,650	1,361,832	223	8,942	28,416	2,432,410	3,803,184
25,950	27,170	1,388,369	231	9,263	16,900	1,446,640	2,844,272
34,855	36,493	1,864,802	252	10,105	31,749	2,717,714	4,592,621
26,208	27,440	1,402,173	229	9,183	25,562	2,188,107	3,599,463
39,425	41,278	2,109,305	318	12,752	33,207	2,842,519	4,964,576
35,989	37,680	1,925,473	284	11,388	32,017	2,740,655	4,677,516
41,474	43,423	2,218,930	322	12,912	38,558	3,300,565	5,532,407
38,775	40,597	2,074,528	300	12,030	35,527	3,041,111	5,127,670
38,493	40,302	2,059,441	315	12,632	32,178	2,754,437	4,826,509



## Attachment M

High Acres Nature Area (HANA) Wildlife Habitat Council (WHC)



**CLL MANAGEMENT PLAN  
RECERTIFICATION  
HIGH ACRES NATURE AREA  
2015**



## **A. MISSION**

The mission of High Acres Nature Area's (HANA) *Corporate Lands for Learning* program shall be to leverage HANA's diversity of habitats and wildlife to teach both children and adults in the community about our interdependence with the natural world and how it enriches our lives and to demonstrate Waste Management's commitment to conservation of natural resources. The program will use hands-on and structured activities to foster experiential learning as well as community outreach programs and events. Target audiences include:

- Scout groups
- Waste Management employees and HANA volunteers
- Outside groups including service organizations and outdoor enthusiasts
- School-age learners
- College/University faculty and students

## **B. MEASURABLE GOALS**

High Acres Nature Area (HANA) has achieved several of the goals established by its Wildlife Management Team (WMT) and the Education Committee. Other goals have resulted in annual or ongoing events, reflecting the growth and development of our team. The first goal of the WMT was to form committees and begin to formulate an overall Conservation Management Plan. Established committees are: Ecosystems, Infrastructure, Pollinator Area and Education. Simultaneously, several projects to enhance the ecosystems at HANA and conduct inventories were conceived.

As the Education Committee researched programs and made contacts, its goals grew proportionately and dovetailed with the goals of our “Wildlife at Work” programs. The focus of our original goals, taking inventories of the wildlife and flora of HANA, expanded the knowledge of the Wildlife Management Team. With this information in hand, the team could then offer programs to schools, Scouting and members of the community interested in nature.

For the past five years, the Education Chair and the Ecosystems Chair have developed a relationship with the faculty of environmental education at Rochester Institute of Technology (RIT). The goal of this effort was to have RIT utilize HANA’s diversity of ecosystems for research projects and participate in community education related to their findings. Since 2011, HANA has hosted over 20 undergraduate and graduate student internships in conjunction with RIT. Each year, the students participate in multiple outreach events, sharing their research with the community. The data gathered also provides a scientific baseline for the development of a conservation and management plan for the future of HANA.

The Education Committee’s goal is to expand upon its successes by increasing participation in its current educational programs, initiating additional ones, and evaluating and modifying those that were unsuccessful. It may prove that some educational endeavors cannot succeed, and we have to move on to those that will. We utilize tried and true curricula such as Project WET, Flying WILD and Discover Bats. Evaluations vary with the age level of the “learners” and activity. With younger students, we utilize the 3-2-1 method, post questions about the activity and answering inquiries from the students. Evaluation sheets are used for larger activities such as the Open House. Our goal, especially for children, is not to leave the feeling that it is “school and there will be a test”. Learning should be fun. Packets were put together for large groups from schools with handouts, and other materials related to the activities allowing teachers could follow up in the classroom. Here is how we are making these goals a reality.

	Scouting Goals	Actions to Achieve Goal	Status/Evaluation Methods
1	Provide mentors for Eagle Scout Candidates	<p>Utilized specific expertise of volunteers, consultants or employees depending upon project.</p> <p>Meet several times with candidate for advisement and oversee execution of project.</p> <p>Continue to offer Eagle Scout projects.</p>	<p>Candidates that achieve Eagle Scout rank.</p> <p>Three Eagle Scouts completed projects since June 2012.</p>
2	Host a “Scout Day” in October	<p>Give tours of the landfill, which is a requirement for “Don’t Trash our Future” patch sponsored by Monroe County. <i>Note:</i> Monroe Co. no longer offers this patch. It was discontinued in late 2010.</p> <p>Each participant in a tour of the landfill receives a “Think Green” WM patch.</p> <p>Having our Falcons and Falconer explain Gull Control is a big draw for this age level.</p> <p>Actively promote HANA and educational opportunities to Girl Scouts and Boy Scouts at this event.</p> <p>Offer mentoring on merit badges that utilize the habitat at HANA, such as Reptile &amp; Amphibian Study, Nature, Bird Study, and Fish &amp; Wildlife Management merit badges.</p>	<p>“Scout Day” has become an annual event and now rotates between High Acres and Mill Seat Landfill sites.</p> <p>We have seen an increase in both Boy Scout and Girl Scout groups attending this event.</p> <p>Have signup sheets for this at Scout Day and a commitment from leaders. Ongoing</p>
3	Increase participation in Scouting Programs	<p>Establish a Scouting Liaison position on the Education Committee, preferably a parent active in Scouting. This person will promote using HANA property for outdoor programs for Scouts and for Eagle Candidate projects. They will shepherd the Eagle Candidate through the process keeping them on target with their goals and those of HANA’s Team.</p>	<p>Accomplished, Scouting Liaison continues to mentor Eagle Candidates at HANA</p> <p>We have a steady 1-2 Eagle Projects each year.</p>
4	Create an Event – coordinated by Seneca Waterways Council	<p>Examples suggested by Scouting Executive: Have a fishing derby in a.m., lunch, and spend p.m. pulling invasive weeds such as garlic mustard or swallowwort along trails, or collecting trash. Flyers would go out from Council HQ.</p>	<p>Future Goal – No follow up from Council. This Council is new combining 3 councils into one – organizational issues at this time.</p>
5	Explore BSA Merit Badges that utilize HANA property.	<p>Develop a list of potential mentors from within the Education Committee and the Wildlife Management Team, and enlist “one-time program volunteers” from our Partner List to help scouts achieve the following badges:</p> <ul style="list-style-type: none"> <li>• Nature Merit Badge</li> <li>• Fish &amp; Wildlife Management</li> <li>• Reptile &amp; Amphibian Study</li> <li>• Bird Study</li> </ul>	<p>Future Goal – May need to recruit one new volunteer who will be dedicated to this project.</p>

<b>6</b>	<b>Develop a High Acres Nature Patch for one-time scouting events.</b>	<b>The design of this patch would be a project for the Venturing Group.</b>  <b>Offer to both BSA and GSA Groups, upon completion of a specific all day event held on HANA.</b>	<b>Future Goal as Venturing Group failed.</b>
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	Employee/Volunteer Goals	Actions to Achieve Goal	Status/Evaluation Methods
1	Increase knowledge of employees and promote volunteering	<p>“Lunch &amp; Learn”: programs taught by team members on a variety of environmental topics to employees during lunch.</p> <p>A library of field guides was established. Develop a reporting form for employees to report bird observations. Contribute to observations to databases.</p> <p>Engage employees in volunteer work day efforts and educational efforts.</p>	<p>Increased participation of employees in a volunteer capacity.</p> <p>Ongoing – employees volunteered with Scouting efforts, especially with tours and several educational efforts.</p> <p>Employees identified nesting Great Horned Owls, Red Tailed Hawks, and reported to Ecosystems Team for recording on e-Bird.</p> <p>Employees consistently provide resources for volunteer work days and RIT internship projects. Employees also help with infrastructure maintenance at HANA, including bridges and the bird banding station.</p>
2	Expand team members’ knowledge of a variety of topics related to ecosystems.	<p>Provided expert consultants in areas of butterflies, amphibians, and bats to speak and/or lead field trips at HANA.</p> <p>Offer workshops on Project WET to Team Members.</p> <p>Team members certified as instructors in Flying WILD share knowledge with other team members.</p>	<p>Accomplished</p> <p>These volunteers are now available for education programs as instructors.</p> <p>A volunteer leads Amphibian walks yearly.</p> <p>More volunteers lead annual Birding walks.</p> <p>Three additional volunteers participate in Bluebird Monitoring following protocol.</p>
3	Participate in the North American Butterfly Count	<p>Participation in the NABA Count is the next step after the butterfly class taken by team members.</p> <p>Identify butterflies by field marks and habitat preference as learned in class provided. This enhances the volunteers’ education regarding the butterflies of HANA.</p> <p>Contribute to a national database.</p>	<p>Achieved in 2009</p> <p>Counts now held annually</p> <p>The HANA Team of counters is one of the largest in the Rochester Count Circle.</p>
4	Enter all bird data on Cornell University’s <i>eBird</i> .	<p>Two HANA volunteers and one bird watcher coordinate and verify by sighting (two or more of the three volunteers) the same species.</p> <p>Data are shared on a local list serve for birders. This list serve gives birders up to date information on where to find birds, especially</p>	<p>As an added bonus to this, birders are using our signage to help in locating the area where the birds have been sighted!</p> <p>We had originally decided to</p>

		<b>first arrivals during migration, and rare birds to our area.</b>	<b>name all of our ponds and pools as away for users to identify where they were, as well as, providing educational information about each one and why they are unique. It is working!</b>
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	Goals to Engage Outside Groups	Actions to Achieve Goal	Status/Evaluation Methods
1	Develop a variety of PowerPoint Presentations for outreach	<p>PowerPoint Slide Shows developed:</p> <ul style="list-style-type: none"> <li>▪ Gardening for Wildlife</li> <li>▪ Volunteering at HANA</li> <li>▪ Growing a Monarch</li> <li>▪ Birds of High Acres</li> <li>▪ RIT &amp; HANA Partnership</li> <li>▪ A Community Conservation Resource</li> <li>▪ Environmental Management</li> </ul> <p>Update these presentations as needed to reflect change at HANA.</p>	<p>Ongoing Completed Completed Completed Completed Developed in 2013 Developed in 2014 Developed in 2014</p> <p>8 presentations were made to community groups since 2012</p>
2	Encourage local art and writing groups to utilize HANA for inspiration for art, or essays.	Compile a list of such organizations, and offer them a tour to investigate the possibilities of “subject matter” for their pursuits.	<p>Complete- A pastel artist has done seven paintings of HANA, and has presented them in a show. Those not sold will hang in WM office. A local photographer created a photo book of HANA through the four seasons which was purchased and distributed to local libraries, town halls, etc.</p> <p>Future Goal – Explore having an Art/Photography contest for youth using HANA as subject.</p>
3	Increase participation of a variety of local organizations:	<p>Develop partnerships with local organizations and local businesses.</p> <p>Participation in Town of Perinton’s Bicentennial Celebration 2012 – Programs like these are one-time events, which reach large numbers of people. Good exposure for HANA within the community.</p>	<p>Accomplished – but ongoing Volunteer Groups: <u>Lion’s Club</u> – Open House, <u>Rotary of Fairport</u> – Bridges, Trails, <u>Crescent Trail Association</u> – Mows trails monthly</p> <p>Many of these groups schedule annual events.</p> <p>A sub-committee developed a display about the history of HANA and its programs in the local Library. A historical building on HANA property is a part of the Bicentennial “Scavenger Hunt”.</p> <p>Positive Public Relations within the community.</p>
4	Workday projects (Day of Caring, Make a Difference Day, etc.)	<p>Initially, we reached out to other groups for help. In recent years, groups have heard of what we are doing, and they are contacting WM to help at HANA on one-time projects.</p> <p>Continue to host for Day of Caring.</p> <p>Infrastructure Chair organizes and co-sponsored with Crescent Trail Association. In addition to working on projects to enhance</p>	<p>Day of Caring, led by the United Way, has become an annual volunteer work day on the site. 10 to 30 employees from various firms annually learn about HANA, wetland ecosystems, and invasive species while conducting work projects.</p>

		<p>the site, These participants learn about the history of the land, what a WHC certification was and WM's commitment to preserving habitat and encourage learning.</p> <p>Continue to host Make a Difference Day.</p>	<p>A group from the LDS church participating in their pageant completed a service project in July 2012</p> <p>Make a Difference Day has also become an annual work day, led by Fairport Rotary with about a dozen volunteers.</p>
5	Monetary support (speaker honorariums, grants)	<p>Keep America Beautiful</p> <p>Rochester Birding Association</p>	<p>Applied for and received grant in 2013 for \$4,000 to support RIT student internship.</p> <p>Will provide \$4,500 grant for RIT student internship in 2015.</p>
6	Volunteering Awareness	<p>Provided "virtual" visits to HANA for Nursing Home residents, church groups, and historical club members.</p> <p>Dedicate an overlook on a hiking trail in memory of a local artist and environmentalist who loved the HANA Wetlands. Her panoramic photograph of one of the HANA Wetlands hangs in the Lobby of the WM Administration Building.</p>	<p>Ongoing</p> <p>Accomplished – "Christine Sevilla Overlook"</p> <p>An Eagle Scout candidate built a covered bench, which affords the view that was the subject of Ms. Sevilla's photograph. Volunteers landscaped the area, and a dedication was held in June 2012.</p>
7	Hiking, bird watching, etc.	<p>Offer guided bird and butterfly trips throughout the variety of ecosystems on HANA.</p> <p>Provide <u>New</u> Trail Maps, Self-Guided Interpretive Trail Brochures.</p> <p>Provide Birding Check Lists of the Birds of HANA.</p>	<p>Annual events with the following organizations:</p> <ul style="list-style-type: none"> <li>√ Rochester Birding Association</li> <li>√ Burroughs Audubon Nature Club</li> <li>√ Crescent Trail Hiking Group</li> </ul> <p>A new Trail Map was developed using GIS through our partnership with RIT faculty and students in 2012. The group is working to update this map as new trails have been created.</p>
8	Sponsor worthwhile community organizations and activities.	<p>Little League of Perinton – teaches sportsmanship</p> <p>Participating in the Town of Perinton's Passport to Family Wellness.</p>	<p>This is an ongoing venture. One of the town's Little League Fields is on HANA property.</p> <p>In 2012, the Town created a trail passport to encourage</p>

			families to visit six trails in the community. Hikers still look for HANA's rubbing plate to mark their visit in the passport.
9	Connect HANA's Hiking Trails with the Town of Perinton's Trails, managed by Crescent Trail Association (volunteer group)	<p>WM and HANA want to promote their role as good neighbors and demonstrate a spirit of cooperation.</p> <p>This is another program that offers "passive" education as the Crescent Trail hikers traverse HANA property</p>	Eagle Candidates completed two sections for this connection in 2010.
10	Expand Community Awareness of Landfill Operations and High Acres Nature Area – Annual Event	<p>Hold an Annual Open House, which focuses on solid waste management, resource conservation and the ecosystems of HANA.</p> <ul style="list-style-type: none"> <li>▪ Offer free Guided Tours of the Landfill.</li> <li>▪ Free educational materials, demonstrations, and booths with activities for school-age children.</li> <li>▪ Wildlife provided by rehabilitator that releases at HANA.</li> <li>▪ <i>American Falconry Services</i> (contractors) falconers and falcons used in gull control.</li> <li>▪ Have a theme each year reflected in the demonstrations, groups participating, and handouts.</li> </ul> <p>Demonstrate the accomplishments during the past 40 years including operations changes for the landfill, WHC certifications, and Educational and Wildlife at Work Programs.</p>	<p>2012 – Theme was the 40th Anniversary of WM's operation of the Landfill</p> <p>2013 – Theme was sustainability and resource conservation.</p> <p>2014 – Single Stream recycling was the theme. RIT student interns displayed invasive species and "banded" visitors with paper bracelets to explain bird banding. Note- in 2014, decision was made to rotate events between High Acres and Mill Seat landfills.</p> <p>2015—Theme will be clean, green transportation. RIT students will offer guided tours of HANA.</p>
11	Develop a public relations program for HANA's educational programs	<p>Recruit a Public Relations volunteer for the Education Committee. This individual will develop a relationship with media contacts that focus on nature and outdoor activities.</p> <p>Submit releases about Scouting activities, and other educational programs involving groups of children, or nature groups advising the community of the quality of learning at HANA.</p> <p>Offer photos and write up of activities during Day of Caring, Open House, etc. to the organizations and businesses participating to use in their in-house newspapers.</p>	<p>Achieved</p> <p>An article was written about the two volunteers who helped form the HANA Wildlife Management Team. Focus on several Eagle Projects. In 2014, two local news stations came to HANA and filmed segments- one featured a HANA volunteer and bird banding and the other featured the RIT student interns and their work with wetlands at HANA.</p>
12	Develop a Web page for HANA using a link from High Acres Landfill.	With the development of a web page for High Acres Nature Area, we will be able to update the highlights of what is "happening" at HANA.	<p>Accomplished</p> <p>Link:  <a href="http://highacreslandfill.wm.com/nature-area/index.jsp">http://highacreslandfill.wm.com/nature-area/index.jsp</a></p> <p>In 2014, an activities page</p>

			<p><b>was added and now includes a digital trail map and email for interested volunteers. Pictures are continually updated to reflect the change in seasons and landscapes at HANA. A QR code is being developed by a volunteer to be placed on the new site maps so that visitors with smart phones can link to HANA's site and pull up the map digitally.</b></p>
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	Goals for School-Age Learners	Actions to Achieve Goal	Status/Evaluation Methods
1	Educate school groups on Landfill Operation and the High Acres Nature Area.	<p>Provide guided tours. Topics include:</p> <ul style="list-style-type: none"> <li>• Landfill Operations</li> <li>• Renewable Energy Recovery</li> <li>• Encourage recycling</li> <li>• Creating new habitat for wildlife</li> </ul> <p>Utilize NY School Standards to achieve goal.</p>	<p>Achieved</p> <p>Ongoing</p> <p>Q &amp; A during Tour</p>
2	<p>Introduce the following curricula to schools:</p> <ul style="list-style-type: none"> <li>• Project WET</li> <li>• Flying WILD</li> </ul>	<p>Offer a free training session for teachers, by a certified Project WET instructor in the curriculum.</p> <p>Identify a “contact” teacher in each school district willing to advocate for the HANA programs. Science classes participate in a field trip to the Landfill and an activity.</p> <p>Offer to present Project WET activities to classes at HANA.</p> <p>Present a Project WET activity at the Annual Open House in August, with the idea that teachers may attend and contact us.</p> <p>Pilot Project WET program and measure success prior to presenting Flying WILD</p>	<p>Offered to several schools and the public. Further inquiries indicate teachers are familiar with Project WET, but need to have it as an adjunct to class work. Have been advised that teachers have less flexibility to being innovative by teachers in several districts.</p> <p>Now have a contact in the Fairport Schools as a result of Project Wet Activity mentioned above in #1</p> <p>Accomplished</p> <p>Accomplished</p> <p>Accomplished – also began to utilize Flying WILD activities</p>
3	Develop “traveling” Educational Programs.	<p>Barriers to school field trips are the result of budget cuts in most area schools.</p> <p>Review the NYS School Standards, and when relevant subjects are taught during school years. Meet with teachers to see where programs from HANA might fit in with their curriculum.</p> <p>\Participated in the Monroe County Conservation Days – 3-day event in September.</p>	<p>A variety of props and traveling programs have been developed.</p> <p>HANA volunteers present a Project WET activity and a Flying WILD activity. The RIT students conduct an activity focused on identifying invasive plants, and wetlands.</p> <p>Celebrated the United Nations Year of the Bat utilizing Bat International “student kit”. Lesson included “myths” about bats, how bats benefit farms, and what “white-nose syndrome” is and how it is killing bats.</p> <p>HANA and RIT interns now participate in Monroe County Conservation Days annually.</p>

	Goals with Colleges/Universities	Actions to Achieve Goal	Status/Evaluation Methods
1	Develop relationships with key people in Biology, Environmental Departments of local colleges and Universities to promote HANA	<p>Sent invitations to tour the HANA property to the department chairs, and discuss the potential programs.</p> <p>Conducted personalized tour of HANA to each respondent, and discussed their needs for outdoor laboratories and research projects.</p> <p>Send invitations to additional colleges and universities in the area.</p>	<p>A Nazareth College professor mentored an Eagle Scout.</p> <p>John Waud, PhD, an RIT professor joined our Team. He is now retired but serves as the bird banding mentor and chair of the Conservation Plan Committee.</p> <p>These efforts are ongoing.</p>
2	Provide a co-op position for a college student interested in the environment.	<p>Applied for a 5 Star grant to assist in funding a co-op student for the summer to monitor <i>Galerucella spp.</i> beetles, as a control for Purple Loosestrife.</p> <p>Continue to host RIT student interns at HANA for wetland mitigation, invasive removal, native plantings, and individual research projects.</p>	<p>Achieved - \$20,000 Grant Award in 2010</p> <p>Approximately 5 internships have been provided in conjunction with WM each year since 2011 (over 20 students).</p>
3	Expand Partnership with Rochester Institute of Technology	<p>Meet with John Waud and his colleagues regarding Master's research projects available at HANA.</p> <p>Dr. Waud and Dr. Tyler not only mentored students working in the field on research, but had more control on results that we did in year one of the Purple Loosestrife control.</p> <p>In conjunction with the RIT Partnership, expand upon the Purple Loosestrife project.</p> <p>Develop research proposals for controlling narrow-leaved cattails, survival rate of rescued native plants, photo identification database for invasives and native plants.</p>	<p>Accomplished This was a two-year effort, but in 2011 the results of this partnership accomplished far more than we ever hoped for.</p> <p>Student report with data showed presence of large numbers of beetles reduced flowers on PL plants.</p> <p>RIT MS candidate is conducting research on a biological method for controlling narrow-leaved cattail spread.</p> <p>An RIT recent BS graduate who participated in 2011 field period will conduct research on Reed Canary Grass control as her MS project.</p>

		<p><b>Develop educational signage for interpretive signs</b></p> <p><b>Incorporate the data into the development of our conservation and management plan for HANA, which Dr. Waud and Dr. Tyler have agreed to write.</b></p>	<p><b>Achieved – need to be printed and installed</b></p> <p><b>We will continue to work with RIT and its Faculty and students for the next 3 – 5 years developing our Conservation and Management Program.</b></p> <p><b>We also will work to continue providing a hands-on location for Master’s level research for RIT students.</b></p>
4	<p><b>Continue to work with grants and other organizations to assist with funding RIT student research</b></p>	<p><b>Letters and presentations to Birding and Nature Groups.</b></p>	<p><b>Achieved and ongoing-</b>  <b>In 2012, \$500 was provided by Burroughs Audubon Nature Club and \$750 by Rochester Birding Association and \$250 from NYS Ornithological Assoc. In 2013, a \$4,000 grant was provided by Keep America Beautiful. In 2015, Rochester Birding Association will provide \$4,500.</b></p>

### C. RELATING THE CLL PROGRAM TO YOUR HABITAT

Every aspect of our *Wildlife at Work* program relates either directly or indirectly to either educational offerings or outreach programs. The educational and outreach programs cannot exist without our *Wildlife at Work* projects. Examples are demonstrated in the document titled HANA Outdoor Classroom and Education Areas.

- *Wildlife at Work Program #1* – Establish databases of birds, bats, amphibians, butterflies, mammals, trees, shrubs and wildflowers. All of these databases require some expertise of the compilers. At HANA, we bring in volunteers or consultants to assist in the data collection and compiling of data. Having worked with these databases, the experts then become mentors to Eagle Scouts, or assist in presenting demonstrations to school-age learners and adult learners.

Since 2009, HANA's bird data have added to Cornell University Ornithology's *e-Bird* database, and coordinated by three HANA volunteers. The information is shared with the general birding community on Genesee Birds' list serve. Through our partnership with Rochester Institute of Technology (RIT), 2011 saw the addition of four new sites for monitoring marsh birds of concern through the Birds Canada Marsh Monitoring Program (MMP).

In addition, students conducted a Migratory Avian Productivity Survey (MAPS) in 2011, which entailed identifying several habitat locations, setting up nets, establishing a survey schedule, catching birds, examining them for fecundity, recording the information and releasing the birds. HANA established a permanent bird banding station and signed on for a five year commitment with the MAPS program. An RIT student has lead the study each year, with the help of many volunteers and one primary volunteer mentor during banding sessions. A third study conducted by the RIT students was a transect study for the Breeding Bird Atlas, which identifies species of birds nesting or possibly nesting at HANA. All of the data collected and the procedures used are included in the curriculum of this recertification.

Monitoring of bat boxes and bat walks has ended because the species "Little Brown Bats" were the only bats found at HANA and they have had the highest mortality rate in NYS due to "white-nose syndrome". The last bat walk in 2013 produced NO bats. Our bat boxes have never had bats. Unfortunately, they were installed just as WNS hit bats. They will be removed in 2015.

MMP for amphibians is conducted on an annual basis and is ongoing. Every year since HANA's establishment of a monitoring territory for the North American Butterfly Associations, HANA volunteers have participated in the annual count, and organization of the monitoring team for 2015 is underway. Data indicates the Monarch butterfly has dramatically declined at HANA.

Again, through our partnership with RIT, students began during the 2011 field season to assemble a catalog of plants (native and invasive) at HANA. Plant specimens were photographed and compiled for a digital herbarium completed in 2012 and updated in 2013 (see curriculum). Dried specimens will be stored at the RIT herbarium.

HANA has its own logo designed by a GLISTEN student: the silhouette of a Wood Duck, in flight, and it appears on signage, trail maps and presentations. Wood Ducks are one of HANA's most prolific breeders.

- *Wildlife at Work Program #2* – Identification of habitat areas that require management of invasive plants offers an opportunity to engage service organizations, Scouting Groups and other interested volunteers to engage in removal. Managing invasives in our new wetlands has led to the creation of a co-op position for a college student and a research project.

During the 2011 field season, RIT students monitored the *Galerucella sp.* beetles on HANA. Students also pulled young narrow-leaved cattail plants early in the growing season, and both volunteers and students cut cattail flowers to prevent spread of seed. Large stands of cattail were cut below the water level when they became too large to pull. This stresses the plant and the plant eventually dies. These field activities give students enrolled in college/university programs an opportunity to experience hands-on projects that they may encounter when employed in their given fields. The 2011 field season resulted in a student designing a Master of Science (MS) thesis on biological control methods for cattails. Two graduate students conducted their MS thesis at HANA in 2013 and an additional two in 2014, for a total of 4 MS theses related to HANA since the last recertification! Several key volunteers are actively engaged in the mentoring process throughout the field season.

The students share their findings with the public during the annual Open House at one of two Waste Management facilities in the Monroe County, NY area (High Acres and Mill Seat Landfills). They reach over 1,000 members of the community, sharing information on invasive plants and wetland habitats.

Additional students from RIT, Monroe Community College and SUNY Brockport, participated in several of the invasive studies and control methods through a second grant *Great Lakes Innovative Stewardship Through Education* project (GLISTEN). Waste Management provided matching funds for three students through this program.

RIT students provide an education activity at the Monroe County Conservation Days, hosted by the Monroe County Soil & Water Conservation District annually in September. Topics have ranged from invasive plants, food webs, migration, insect communication, and more all relating to the wetlands and habitat at HANA. This program is offered to all 6<sup>th</sup> grade classes in all of the schools in Monroe County. Participation is voluntary on the part of the schools.

The partnership between WM, HANA, and RIT has been the topic of presentations to community groups.

Identification of invasive plants and management is also a key component to many of the volunteer work days held annually at HANA, described in Program #8.

- *Wildlife at Work Program #3* – Develop a Pollinator Area. This program designed and led by a volunteer, with a background in butterflies and the plants they require as caterpillars for food as well as those preferred for nectar, has been shared at the Annual Open House in August. Each year an update is given on the progress of the plantings. She has also shared her knowledge with and received help from a group of professional women who call themselves WOWs. They had a limited knowledge of gardening and butterflies several years ago. Three of these women now participate in our annual North American Butterfly Count!

The Pollinator Garden program may be the most frustrating of our programs. However, after speaking with other WHC sites, the setbacks experienced at HANA seem typical. We have decided that we might have been too ambitious in the size of our pollinator are, but have learned a great deal from this experience.

The formal nectaring garden improves every year, with the introduction of additional plants. Each year more butterflies are attracted to this garden. The main problem experienced has been the recurring appearance of a variety of invasive plants due to an unknown seed load in the original soil. The soil at HANA has been disturbed through farming and then lastly mined for glacial gravel before purchased by Waste Management. Most of the top soil removed or degraded happened during the mining operation.

A native wildflower mixture planted in two large meadows flanking the formal gardens performed well the first two years as plants increased during that time-period. Year three was a disaster, as multiple invasives overwhelmed the native wildflowers. The volunteer in charge of this project attended several workshops offered through the USDA, and working with a WM volunteer with an agricultural background devised a plan to control the undesirable plants by applying an herbicide to the invasives and letting the soil rest. In the spring of 2012, the meadows were hydro-seeded with a grain crop, and hand-sowed with wildflowers without tilling the soil. This method was monitored during 2012 and 2013.

A second area planted with caterpillar food plants was also established and during the 2011 NABA butterfly count, we were excited to find several Red Admiral caterpillars on the Stinging Nettles.

While being discouraging, and labor intensive, the volunteers engaging in this project have enhanced their knowledge of plants and several food plants appeared to have butterfly eggs on them in 2012. In 2014, it was decided that the second formal garden had become overgrown and that maintenance on both gardens was too much work for the volunteer base. Established native plants were transplanted from the second garden to the primary garden, allowing the Pollinator Garden team to focus their efforts on the primary garden, without getting overwhelmed. The team has developed a regimen of a springtime application of compost, a regular summer weeding schedule, and a fall cutting and clean up session. The Pollinator Garden is a key area for annual volunteer work days and enables the team to educate groups on the importance of pollinators and native species.

- *Wildlife at Work Program #4* – Several of our database collection trips have become outdoor laboratories and learning experiences for volunteers and scouts. A field trip to find bats became part of an Eagle Scout project. The Scout used what he learned on the field trip to build four bat boxes and where to locate them in HANA.

An Eagle Scout project resulted in ten interpretive signs with educational information, some of which are from these field trips. For example, a sign by “Newt Pool” will tell about the Red-spotted Newts that reproduce in the pool. The educational information developed for these signs has been another benefit of the RIT/GLISTEN partnership.

- Wildlife at Work Program #5 – Enter all birds observed within the diverse habitats located on the HANA property into an eBird account established with Cornell Laboratory of Ornithology. Two volunteers, who verify sightings, enter the data. These accounts can be viewed by birders and birding clubs. Volunteers lead a birding trip throughout HANA for the Rochester Birding Association every year as well as for other nature groups. It has had the largest turnout of any Birding Trips two years in row.

As mentioned in Program #1 – all of the birding data continues to be entered on *eBird* and with the expansion of bird research at HANA, more data will be gathered and shared with appropriate compilers. Improvements to our wetlands, includes the installation of a gate, which allows volunteers working with bird researchers to raise and lower the water during shorebird migration. This has proven to enhance the numbers and variety of shorebirds observed by HANA volunteers and birders in general. Since 2011, a RIT student intern has conducted avian studies at HANA using the Monitoring Avian Productivity and Survivorship (MAPS) protocol. After each session the intern also posts on the Braddock Bay Bird Observatory blog. Several volunteers from HANA and regional birding groups help facilitate each of the MAPS sessions.

The annual birding trips offered to both Rochester Birding association and the Burroughs Audubon Nature Club continue to be popular.

In addition, our Bluebird Nestbox project, which was conducted by one volunteer for several years, has now expanded to include an employee from US Bosch, an employee of the Town of Perinton, and two volunteers with HANA. Our bird monitoring projects have expanded to include more members of the community.

- Wildlife at Work Program #6 – Photographing wildlife as a part of documentation for databases, has led to the development of several slide shows shared with a variety of groups, including garden clubs, scouts, nursing homes and service organizations. These slide shows are a way of educating the community about the importance of setting aside lands for wildlife in a suburban area.

These presentations have become very popular within the community. It is an opportunity to introduce to the general population to the Wildlife Habitat Council and its goals, and the sustainability initiative set by Waste Management to establish sites like HANA throughout the US.

The elderly in the nursing homes that cannot get out and enjoy nature delight in seeing the photographs of wildlife and related craft activities.

In 2013, a local photographer, Angela Possemato, brought a book to the manager at High Acres with a collection of photos she had taken at HANA called *Four Seasons at High Acres Nature Area*. WM purchased over 100 photo books which have been distributed to local libraries, HANA volunteers and interns, Town boards, and more. It has been a wonderful communication tool to show the community the diversity and beauty of HANA during all times of the year. Several of Angela's photos are included here as well as her introductory note explaining her experiences at HANA and interactions with the volunteers and team. A link to the photo book <http://www.lighttouchphotos.com/high-acres-nature-area> is also on HANA's website. Angela plans to join the HANA volunteer team this year!

- Wildlife at Work Program #7 – The activities of wildlife, such as the beaver family at HANA, send the Wildlife Management Team back to the drawing board! Between 2010 and 2012, some of our trails were flooded due to our industrious beavers. However, they have also deepened our Great Marsh and provided habitat for rare marsh birds. After multiple trappings, agreement reached with the town included maintaining water levels in the marshes at the baseline level. With the lowered water levels, we were able to restore our trail connector, and received a permit to install culverts with water gates to maintain these water levels. Also by removing all the dams made by the beaver, the water flows out through the canal now. We continue to monitor this water level and adjust when necessary for the benefit of the marsh birds.

The educational component of this program was the understanding of water levels required for successful nesting of several marsh birds. HANA volunteers learned a hard lesson on “managing” habitats. Because we wanted to accommodate “all” the wildlife at HANA, we created a problem. Not only did the beavers industriousness threaten a flood should the dams be breached, but they were flooding one of our woodlands. With the potential loss of the woodlands and other species as a result, made the culling of the beavers more palatable. A long term plan for beaver management at HANA is being discussed as part of the Conservation Plan Committee's work.

- ***Wildlife at Work Program #8*** – Develop partnerships with colleges/universities, local businesses, and volunteer groups to provide more volunteers and revenue for projects.

The partnership, which was forged with Rochester Institute of Technology (RIT) in 2011, is now a key element of research, education, and outreach at HANA. Each year, five or more RIT students conduct internships at HANA focused on wetland mitigation, invasive species removal, and avian studies. Planning is underway for the field season research and educational outreach activities for 2015. Based on the student field recommendations from 2014 internships, WM ecologists, engineers and RIT faculty are discussing invasive removal, monitoring areas, and plantings for 2015 internships. HANA is also working with the Rochester Birding Association to plan for a 2015 internship, which will be focused on the Eastern Marsh (Unit 4) and mapping the water depths in this particular marsh due to it being where most of the marsh birds of concern nest. This will be the fifth year in a five year commitment to the MAPS (Monitoring Avian Productivity and Survivorship) program and this year it will be run entirely by volunteers.

Participating in community-wide “volunteer activities” such as Day of Caring provide a large number of volunteers for several hours on a given day and has allowed the completion of many projects within a short span of time.

During 2014 Make A Difference Day, 11 volunteers from Fairport Rotary were led by two HANA volunteers in an important work project. They helped to put the pollinator garden to bed for the winter and also removed invasive plants, primarily buckthorn and multiflora rose, from the Eastern Woodland. A presentation by a HANA volunteer was first given to explain the significance of invasive species. The volunteer who led up the project sent an email to the work group and HANA team saying, “Besides having a good time with the Rotary volunteers, I’m very pleased with the work that we did on Saturday! I was impressed with the group’s efficiency and smarts in recognizing plants. The weather was perfect and the carpet of woodland leaves was pleasant to walk in, so we had a great day.” The volunteer has experience in leading groups in nature areas and she was particularly pleased with this group’s ability to identify the invasive species for removal. Because the volunteers understood the significance of their work to the ecosystem and wildlife at HANA, it was particularly rewarding for all involved.

## I. HANA's EXISTING INFRASTRUCTURE THAT FACILITATES LEARNING

- **Interpretive Trail** – An Eagle Scout project completed in 2009. This trail, complete with brochure, leads the visitor through the eastern woodlands and identifies trees and shrubbery found along the trail. Vandals destroyed some of these posts. They have all been removed and placed in storage. Because this trail was in a remote portion of HANA, we feel this is why they were vandalized. We will plan a different trail in an open area, where vandals would be less likely to do damage.
- **Marked Hiking Trail with an accompanying map.** In 2010, we named the trails to coincide with the habitat they pass through. This will make it easier for visitors to orient themselves to where they are in the entire site. During 2011, a new map was developed by RIT using GIS, along with designing a HANA logo. The map included new trails added and those abandoned. A brochure with this map and revised rules is printed and available onsite and also on HANA's website. A 3 foot by 2 foot version of the map is also located at each of the three parking entrances to the trails. The HANA team plans to work with RIT to update the trail map as new trails have been added. Brochures and material will be updated.
- **Kiosks** – There are three currently on the HANA property, each with updated maps, Rules & Regulations, Wildlife and WHC certification information. An Eagle Scout built a covered kiosk for the NW parking area, which holds the new map and rules for HANA. New metal maps and rules were installed in four locations on HANA during the Day of Caring (May 10, 2012). The kiosk also included a covered area for brochures that was vandalized and removed.
- **Temporary Signage** – Signs placed on portions of trails alert hikers during nesting season when closed to public traffic. Each summer, we close the areas near the bird banding station when MAPS sessions are in place. We also placed detour signs when portions of the trails flood due to excessive rain, or beaver activity. Signs are also posted alerting dog owners that dogs cannot be in the water during nesting season for waterfowl per NYDEC regulations.
- **Bird Blind** – This was an Eagle Scout project and was placed in a location where photographers and birders can view shy waterfowl, such as Wood Ducks.
- **Picnic tables and trash cans** - We have a limited number that can be utilized during outdoor activities, such as hiking, bird watching and other learning activities. Trash cans at parking lots encourage our “pack in and pack out” trash policy.
- **Two benches** are located in the Pollinator Area to facilitate observation of pollinators. This was an Eagle Scout project. The HANA team maintains all wooden structures with periodic polyurethane treatment.
- **Bat houses** – Four are located throughout HANA property. After annual monitoring, it was determined that they will be removed in 2015 due to lack of occupancy.
- **Several bridges** aid hikers to traverse streams and canals to access a variety of habitats on the property. A new bridge and trail was blazed by an Eagle Scout that connected the town's trail system with HANA's. It also traverses close to a Cedar Swamp in a yet undeveloped portion of the HANA property. This is a unique habitat. WM employees added railings to several bridges over deep water at HANA as a safety measure, especially with increased activities for school-aged learners.
- **Viewing Platform** – This project is still on hold.
- **Interpretive Signs** – These signs will provide interpretive signage for our ponds and marshes. The Wildlife Management Team named the ponds and marshes. The signs will include the name of the body of water and a description of the wildlife. Example: Newt Pool – This vernal pool is home to Spring Peepers and Red-spotted Newts in early spring. Amphibian photos are included on the sign. Nine of these signs are installed, and the educational material developed. Next step is to have the information printed on plastic and installed into the signs. A tenth sign will be attached to a viewing platform for the Eastern Marshes, once the flooding conditions abate and a platform can be built.
- **Pergola** – This Eagle Scout project is located in the pollinator area, and joins the benches as part of the “hardscaping” being developed to enhance this area.
- **Covered Memorial Bench** – This bench was built by an Eagle Scout Candidate, in memory of a local environmentalist and photographer, who produced a guide to the wetlands in Monroe County. HANA was one of her favorite wetlands, and it is situated on a portion of our trail system called “Christine Sevilla Overlook”, which overlooks a scene she photographed and which hangs in the WM office. Landscaping around the bench was begun in 2011.
- **Restrooms** – These are only available at the WM office during office hours. HANA is maintained as a semi-primitive location.

- **Temporary bridges/corduroy trails** – Day of Caring Volunteers (2012) built several corduroy trails over wet areas to keep hikers on trails. Temporary bridges were built in areas where beaver flooding is still an issue, but will allow hikers to continue on trails.
- **Raised boardwalks-** Eagle Scout candidates built two 40 inch wide raised boardwalks (one 20 feet long and one 40 feet long) across frequently wet and flooded drainage areas in 2014. This not only enables hikers to cross these areas safely but also enables the volunteer mowing crew to more easily access portions of the trails with the proper equipment.
- **Trail map and user rules signs** – Trail maps and user rules are installed near the three parking areas at HANA. The new trail map is easier for the user to follow as the trails are not only color coded but named for the habitat. Ponds and pools are also identified by name. The information on these signs is also incorporated into the brochure.
- **Bird Banding Station-** In 2011, the RIT avian student intern used a portable tent to protect the birds and equipment from the elements during MAPS sessions. In 2012, WM donated a covered roll off with doors, counter tops, cabinetry, and an awning as a permanent research station. It is located northwest of Frog Pond.

## D. PLANNING FOR PROGRAM LONGEVITY

### 1. Education Advisory Committee/Education Committee

High Acres Nature Area does not have a designation called *Education Advisory Committee* within its Wildlife Management Team (WMT). We have an Education Committee that performs both the role of advising the WMT of the need for specific programs, and how the Education Committee intends to address those needs. If need be, the Education Committee will seek additional advisement from several partner consultants on methods and avenues to reach educational goals.

High Acres, owned by Waste Management of NY, LLC, certified as a “Wildlife at Work” program in 2006. In January 2009, a Wildlife Management Team organized by WM Community Relations staff and two Perinton residents, Mary Ann and Bruce Cady met.

The Team initially formed four Committees, with chairpersons and in 2014, the Team added a fifth committee. The committees consist of the following:

- Ecosystems – Responsible for inventories of flora and fauna, habitat monitoring and making appropriate wildlife and habitat management recommendations.
- Infrastructure – Responsible for trail maintenance, trail markers, bridges, benches, and interpretive signage and brochures.
- Pollinator Area – Develop a pollinator area, which incorporates meadows of native wildflowers and formal gardens around an existing pond.
- Education – Responsible for developing educational offerings that incorporate the Wildlife at Work site. Target groups:
  - Schools-age learners
  - Local Colleges/Universities
  - Scouting
  - Garden Clubs
  - Service Organizations
  - Nature Clubs, Hiking Clubs
- Conservation Plan- Working group responsible for developing a management plan that will ensure the availability of natural resources at HANA into the future.

The Education Committee’s charge is the development and execution of educational programs utilizing HANA’s “*Wildlife at Work*” site. Our membership does cross committee lines, as a way of utilizing everyone’s skills and interests.

High Acres Nature Area certified as a *Corporate Lands for Learning* site in 2010, and won the “*Rookie of the Year Award.*” In 2012, HANA was awarded the *Corporate Lands for Learning of the year* award.

#### Education Committee:

##### **Mary Ann Cady, Chair**

1. Retired Anthropologist/Archaeological Conservator
2. Experience/skills include scientific and historical research, diversity training and education, grant writing, youth programs with leadership roles in all areas.
3. Believes that learning is a lifelong experience, and continues to broaden her knowledge through workshops and extension classes.
4. Actively promotes the utilization of programs such as Flying WILD, and Project WET, as well as innovative methods that will tailor programs to HANA’s resources.
5. Mentoring gets results.
6. A Former Camp Fire Leader, Camping Chair and President of the Monroe County Council of Camp Fire, and Cub Scout Pack Committee member for over ten years.
7. Tutored High School Students at a military school in Germany, and College Students at SUNY Brockport on a volunteer basis.
8. Active for four years in Junior Achievement Program in City of Rochester Schools
9. Flying WILD, Project WET instructor

##### **Dave Schaeffer, Scouting Liaison**

1. Member of Town of Perinton’s Parks & Recreation Board.
2. Crescent Trail Association Trail Master.
3. Part of sub-committee that is developing partnerships among local businesses.

#### **4. Coordinator and mentor of Eagle Scout programs at HANA and Crescent Trail sites**

**Nicole Fornof – WM Employee, Public Affairs**

- 1. Guided Tours of Landfill Operations, host annual Open House and Scout Days**
- 2. Coordinate volunteer work days at HANA and engage WM employees in events and projects**
- 3. Outreach programs to Service Organizations, such as Lion's, Rotary, Volunteer Fire Departments, etc.**
- 4. Public Relations for HANA through website and media outreach**
- 5. Degree in Environmental Geography**

**Norma Platt – Retired Chemist**

- 1. Coordinates annual NABA Butterfly Count**
- 2. Coordinator of Pollinator Area project**
- 3. Assists in environmental activities with school-age learners**
- 4. Leader of volunteer work day groups**
- 5. Co-compiler and author of High Acres Nature Area Conservation Plan**

**John Marvin – WM Landfill Technician**

- 1. Assists with tours for school-age children**
- 2. Assists with Scouting activities and volunteer work days (Scouting Day, etc.)**
- 3. Coordinates availability of resources for RIT internships**

**John Waud, PhD – Environmental Science Professor Emeritus, Rochester Institute of Technology**

- 1. Mentored students majoring in avian science**
- 2. Coordinates birding surveys such as MMP (Birds), MAPS and Breeding Bird Atlas Transect Survey**
- 3. Co-compiler and author of High Acres Nature Area Conservation and Management Plan**

**A. Christy Tyler, PhD – Environmental Science Professor, Rochester Institute of Technology**

- 1. Mentors students majoring in botanical science**
- 2. Coordinates research in invasives and native species**
- 3. Co-compiler of High Acres Nature Area Conservation and Management Plan**
- 4. Primary advisor for HANA RIT undergraduate and graduate interns focusing on wetland research.**

The Education Committee is an aggregate of educators, conservation experts, employees and administrators and those involved in Scouting and other youth organizations. It brings decades of experience to the HANA Education program, as well as being hands-on participants in programs. We lost one member due to health issues and several due to change in employment. We have two new members who will be joining the HANA volunteer committee in 2015 and hope to recruit one of them for the education committee.

Most of the members participate in the annual Open House preparing materials and giving demonstrations. They also participate in the development of educational signage and brochures incorporated into the HANA Trail System. Due to the variety of experience, and backgrounds, the Education Committee has the pulse of the community. Some members have children that are school age; others are involved in conservation groups within Monroe County. By combining this knowledge, the committee is able to assess where there are gaps in programs within the HANA community.

The Education Committee utilizes all members of the HANA Wildlife Management Team in specific activities such as the Open House, mentoring, and providing expertise in developing checklists of birds and butterflies that are provided free to public users. They also participate in teaching within areas of their expertise.

In addition, approximately fifty percent of WM employees actively support and participate in ongoing programs that further the Education Committee's goals. Moreover, the annual Open House, which in and of itself is an educational event providing guided tours of the landfill operations, activities for children, and educational booths related to both the HANA area and the Landfill Operation, brings in 100 percent participation of employees and the HANA Team. It is a free event, with food and educational materials. On average, 1,000 people participate and every year the numbers increase as the word spreads. Every planned event by the HANA Education Committee or other team committees regularly enlists volunteers from WM employee base.

No member of the Wildlife Management Team receives compensation for its efforts on behalf of HANA. WM employees split their time between paid and non-paid depending upon what they are doing. Educational programs are provided on a volunteer basis.

## 2. Management and Expansion of Program

As one of our WLT members stated, “There is always something new to do or learn at HANA!” Through the efforts of the entire WLT through its “*Wildlife at Work*” program, new opportunities abound for incorporation into our CLL program.

Identification of new inventories that are needed, monitoring wildlife behavior, their interaction with their habitat – these all provide information for better management of HANA as well as opportunities to involve Scouts and schools in some of these projects. Pairing the projects with school curricula and standards or Merit Badges for Scouting Groups provides a continuous expansion of knowledge that can be shared to further our educational objectives.

Over the next three years, we intend to continue and expand existing programs and seek new ways to engage the community to further our educational objectives. We will use the following methods to manage the program:

1. Continuously seek out and recruit new members or consultants to the Education Committee. - Ongoing
  2. Train Education Committee members in some of the programs we offer to provide a stronger base to each program, and reduce “burn out.” - Ongoing
  3. Encourage parental involvement in the development of Scouting programs, such as Eagle Scout Projects.
    - o Eagle Scout projects are ongoing.
    - o Merit Badge activities – a future target.
- All programs will be ongoing once their targets are reached.
4. Develop a “special contact”, in areas that prove to be the most difficult to get support, who can advocate for our educational programs.
  5. Provide curriculum workshops in Project WET and similar programs for school districts. We were able to make inroads into the 6<sup>th</sup> grade classes in the Fairport School District, and other grades in the Henrietta School District, Honeoye Falls-Lima District, Irondequoit District and the City of Rochester District.
  6. Use successes in School Districts, as seed for bringing in other districts to these programs. Again, successes in the aforementioned school districts, plus our annual participation in the Monroe County Conservation Days program exposes HANA and its programs to several school districts.
  7. Expand the interpretive signs throughout HANA to educate visitors about the site. A second Eagle Scout developed ten signs highlighting our ponds, marshes and vernal pools. The signs were installed in 2011. College students working at HANA during 2011 developed the educational material to be included on the signs. We currently have all ten finalized and ready to be printed. The first three signs (edited by a faculty advisor) have been printed and installed. The balance will be printed and installed in 2015.
  8. One of the most important management efforts put into place in 2012 was the creation of the Conservation Plan Working Group. The committee is made up of four HANA volunteers in addition to one RIT professor and WM engineer who act as consultants. The goal is to create a management plan that will ensure the availability of natural resources at HANA into the future. In 2014, the group met on a monthly basis and developed units of analysis within HANA. By analyzing the unique qualities of each area and the threats, the group was able to determine priority areas. The group continues to meet monthly to progress the working draft of the conservation plan, included in this application.

## 3. Methods to Review and Evaluate Programs

We have employed experiential learning, “3-2-1” questions at the end of a program, Q & A about the content of the program, and written evaluations in the case of adult learners since our initial certification. This combination depends upon the age of the learners and has worked well.

The annual Open House is the largest educational program that WM and HANA conduct. This year RIT student interns will provide guided tours of HANA during the event! We are excited to offer the community this opportunity to get a glimpse of HANA (possibly for the first time) and see HANA through the eyes of the students who know HANA as an outdoor classroom and research site. We know it will be a valuable experience for the visitors as well as the students who will share their experiences and what they’ve learned through research on site.

An evaluation sheet that asks which activities and/or demonstrations provided the most useful information, and “what would you like to see in future”, was used at past events and we hoped it would provide us with possible topics for future Open Houses. This method wasn’t as successful as we thought it would be in this venue as people were interested in the activities and food and didn’t want to spend the time doing a survey. We did get some feedback, however by randomly asking a few of the questions to people who passed by the booth.

#### **4. Training Events for Employees, Teachers, Community**

A series of PowerPoint programs developed: “Volunteering at High Acres Nature Area”, “How to Grow a Monarch”, “Those Clever Butterflies”, “Gardening for Wildlife”, and “The Birds of HANA” are regularly given to Garden Clubs, Service Organizations, and Nursing Homes. The purpose of these presentations is two-fold. First, we want to introduce audiences to the “jewel” that is High Acres Nature Area located in the middle of their suburban town. It can transport them into the “wilderness” without having to travel a long distance. It is a place where they can nurture their senses, learn about wildlife, and exercise their bodies. Secondly, we use these presentations to encourage volunteering, and donations, whether monetary or in-kind, to assist in accomplishing the goals of our Wildlife Management Team and Education Committee.

In April, 2011, we offered Project WET training to the community, and held it in the town community center, which was centrally located. Participation was lower than we hoped. However, once teachers experienced some of our educational programs in different venues, field trips from schools requesting hikes or activities increased in 2011 and early 2012. It appears that many teachers are familiar with programs such as Project WET, but are looking for them as an adjunct to their class curriculum. By trial and error it appears that this is a niche we can fill. We developed several portable activities with props that trained committee members can then take either to classrooms, or use in the field at HANA. We piloted several and they were successful. Exposure to several Monroe County School Districts through our participation in the Monroe County Conservation Days has brought in more requests for field trips and activities at HANA.

## E. CURRICULUM

The High Acres Nature Area Education Committee carries out a comprehensive program, with curriculum adapted to maximize learning for each of its target audiences. Educational programs delivered to large groups, small groups and in one-to-one situations, shall incorporate hands-on learning experiences as appropriate. Based upon our belief that it encourages true understanding of our vital interrelationship with the natural world, we shall utilize the nature area as a *plein air* classroom wherever possible. As is evidenced below, curriculum is wide-ranging and takes advantage of the diverse resources available within HANA. See Habitat Education Area overview document for pictures and locations of various projects, events, and learning activities at HANA.

### I. Scouting Activities

#### A. Think Green Patches – offered to both BSA and GSA & Scout Day

Each October, WM and HANA host a Scout Day. Invitations sent to Scouting Groups in advance encourage participation. In recent years, the event has become well known and fills to capacity in advance. In 2014, 79 Scouts 48 adult leaders attended Scout Day at High Acres. Leaders and Scouts who participate are encouraged to contact WM/HANA for additional programs and mentoring.

Participation in a Tour of High Acres Landfill and Recycling Center was one of the requirements to earn a patch “Don’t Trash My Future” provided by Monroe County. Even though this program was suspended the end of 2010, WM continues to follow the requirements and provide their own patch, “Think Green”. This day also provides first contact with many scouting groups, and is an opportunity to engage them in further experiences at HANA.

The scouts watch a video on renewable energy production from landfill gas as well as a video on recycling. Then the Scouts board a bus for a guided tour of the Landfill Operation where they learn how a modern landfill operates, from its many liner system to its renewable energy facility. They also observe birds flying over the landfill.

They learn that thousands of gulls fly over landfills looking for a “free lunch”. Not only are they a nuisance, but this was not a healthy past time for the gulls. WM built a mews to house falcons, and hired falconers to fly them over the landfill to control the gulls. The gulls recognized a natural predator in the falcons, and returned to the lakes. Another benefit to removing the gulls is that you can now hear the songbirds singing! Too many gulls caused noise pollution. Other birds regularly seen flying are Red Tail Hawks and Turkey Vultures. The Scouts learn about a grassland habitat developed on the capped portion of the landfill that provides a home for Meadowlarks, Savannah Sparrows, Bobolinks and other grassland birds.

Upon returning from the tour, scouts identify the landfill and the High Acres Nature Area on an aerial map of the property. A volunteer introduces the variety of habitats on HANA and the wildlife they support as well as activities that scouts could participate in with their Troops or families.

The scouts then proceed out-of-doors, where they can see live falcons and their handlers. The scouts learn about the species of falcons used and why – speed and endurance. The falconers explain how they train the birds to respond to whistles and other methods used to call them back, what they are fed, how long they “work” and other pertinent facts regarding falconry. They get to ask questions, and get their pictures taken with the falcons.

#### B. Boy Scouts of America – Seneca Waterways Council

WM and HANA have worked primarily with three Boy Scout Troops: Troop 207 and Troop 208 in Fairport and Troop 61 in Victor, NY and their Eagle Scout Candidates. In subsequent years, we have worked with additional troops, including Troop 167 and a Troop from the western suburb of Rochester. Scouts are learning about High Acres from friends and relatives who have either visited HANA with other groups or volunteered on a project. The Eagle Scout Service Project is one of the qualifications for a Boy Scout to achieve the Eagle Scout rank and the project has certain criteria that must be met. The HANA scouting liaison, Dave Shaffer, works with the scouts and the HANA team to determine projects that fulfill the service project criteria while furthering the goals of the HANA community. Below are the service project requirements from Boy Scouts of America and descriptions of the Eagle Scout Service projects that have been done in conjunction with HANA.

##### **9.0.2.0 The Eagle Scout Service Project**

While a Life Scout, plan, develop, and give leadership to others in a service project helpful to any religious institution, any school, or your community. (The project must benefit an organization other than Boy Scouting.) A project proposal must be

approved by the organization benefiting from the effort, your unit leader and unit committee, and the council or district before you start. You must use the Eagle Scout Service Project Workbook, No. 512-927, in meeting this requirement.

—Eagle Scout requirement 5

- **Jeff Iadorola – Troop 208 (Fairport).** Eagle Scout project was to design and complete segment two of the connector trails between the Crescent Trails Hiking System and the HANA Hiking Trails. Dave Schaeffer offered to mentor Jeff. The project later modified will entail only the building of a viewing platform over Lake Edwards.

This segment also required obtaining permits and negotiating with a light industry that owns property adjacent to HANA property and that a town right-of-way passes through. Jeff received the assistance of his grandfather who owns a construction firm. They plan to build a viewing platform over a small lake adjacent to the trail.

1. Jeff spent two hours with Mr. Schaeffer and his grandfather walking the proposed trail and determining the work required and setting out his plans.

2. Through Mr. Schaeffer, additional funding was received from US Bosch and agreement to maintain the viewing platform located adjacent to their parking lot.

3. Mr. Schaeffer also helped Jeff to obtain the proper permits from the town to complete his project.

4. Completed in 2011.

- **Tom Rzatkiwicz – Troop 167 (Fairport).** Eagle Scout project was to design a pergola to be located in the Pollinator Garden at HANA.

1. Tom's initial contact was with Mr. Schaeffer who invited him to a HANA meeting to discuss potential projects at HANA.

2. Tom took these ideas back to his Scout Master and advisor. They drew up sketches, which he brought back to the HANA Team for approval.

3. Once agreement was reached, more detailed designs were made and paperwork completed for signatures.

4. Waste Management provided funding for this project.

5. Waste Management also provided the re-grind base and top soil for the project. Re-grind is a recycled material that WM makes from road repairs.

6. The pergola was pre-assembled in sections and transported to HANA for final assembly.

7. Augured holes for supports were done by Waste Management.

8. The pergola was installed in March, 2011.

- **Alex Thomas – Troop 61 (Victor).** Eagle Scout project was to design interpretive sign holders, which would later hold educational material to be developed.

1. Alex's mother suggested he contact us for a project as she was one of the early volunteers helping with the Pollinator Area.

2. Alex attended a HANA meeting and discussed potential projects. He chose to make 10 sign holders for education material about the ponds, marshes and vernal pool areas. He received a list of the names of ponds, pools and marshes to be described.

3. Alex brought a prototype to a HANA meeting, and received approval.

4. Alex built all ten signs and with the assistance of his troop and adults installed them.

5. The names of all of the locations were hand routed by Alex and painted the color of the trail where they would be located.

6. Alex walked the trails with Mrs. Cady, and placed a flag marking the location for installation.

7. Due to the rocky nature of the soil, Alex requested that WM augur the holes for the sign installation.

8. Alex raised money and WM donated to the cost of materials.

9. Alex completed his project by 5/31/2011.

10. The educational material was developed by GLISTEN students. Three are in final form and were printed on plastic and installed during 2012. The remaining signs will be installed in 2015.

- **David Palmer – Troop 207 (Fairport).** Eagle Scout project was to design a covered bench to serve as a memorial for a local artist, photographer, author and environmental advocate. She had photographed HANA many times.

1. David contacted Mr. Schaeffer as his mother and Mr. Schaeffer are on the Board of the Crescent Trail Association.

2. The HANA team suggested the memorial bench, and David agreed to return with some proposed suggestions.

3. Mr. Schaeffer worked closely with David and his Scouting advisors.

4. David and troop members prepared site and installed the bench. Small decorative stones were placed around the bench.

5. David raised money or materials from local businesses. WM and US Bosch also donated money for materials.

6. The project was finished and installed in October 2011.

7. A dedication was held in June 2012

- **Josh Gugel – Troop 175 (Greece) Eagle Scout project was to design a kiosk for placement in one of the parking lots at HANA. The kiosk holds a map of HANA and the rules for visitors.**

1. Josh contacted Education Chair, Mary Ann Cady, during the summer of 2011. He was referred by a college student who was working on a grant at HANA and is a friend.
2. Mrs. Cady gave Josh several suggestions from a list the Infrastructure Team had devised.
3. Josh visited the site in fall of 2011 and saw where the kiosk should be located. He was given dimensions required to hold a map and list of rules. It was also explained that the reverse side would be used for educational materials.
4. Josh returned to his Troop advisor and they roughed out a design, which he returned to HANA and explained.
5. The kiosk has an overhang roof and acrylic coverings on the back side with pockets to hold brochures. The front contains a map and rules.
6. A formal drawing has been completed with measurements and building instructions.
7. This project was completed in 2011.

- **Michael Kords- Eagle Scout project was to enhance habitat around a retention pond where undesirable plants had grown up in the adjacent uplands and remaining field. By replanting with native species of plants, shrubs and trees, habitat would be enhanced for targeted species.**

1. Observations of use by shorebirds during migration. Because of fluctuation of water levels, mud flats are ideal for these birds to forage.
2. Decision by Team that this would be an area for future development as habitat for birds and butterflies.
3. Discussions with Eagle Scout Candidate for a project in December 2012.
4. Suggested his project could be the planting of native plants and some invasive removal. He accepted.
5. The Scout was provided with information on the types of plants and which birds or butterflies would benefit from them.
6. The Scout developed his project plan, a drawing and a list of plants/shrubs/trees and seeds.
7. WM purchased all of the plants/shrubs/trees and seeds.
8. The Scout raised money to purchase supplies, such as flags to mark and code the plantings to the map, and other supplies such as building cages to protect tender young plants from predators (Canada Geese)
9. The Scout organized his Troup and planted everything during two weekends in May of 2013.

This young man has a learning disability, but had very supportive parents, and the Education Chair from the HANA Team gave him much support. However, he took the lead in this project and was very enthusiastic about the success of the project. He also learned a great deal by reading the literature given to him by the Education Chair.

- **Jimmy Wegeng - Troop #207 (Fairport) Eagle Scout project was to construct an elevated boardwalk over an area of HANA's trails (also part of Perinton's Crescent Trails) that are consistently wet and make it difficult for hikers to pass and volunteer crews to maintain trails.**

1. Discussions with Eagle Scout mentor and HANA to determine priority areas that would fit the criteria of an Eagle Scout project.
2. Jimmy met with civil engineer to discuss design of boardwalk in July 2014 and drew plans with help of mentor.
3. Discussions with WM, engineers to determine if adding soil and boardwalk over wetland area was acceptable.
4. The Crescent Trail Association purchased the lumber and hardware.
5. Jimmy and several other Scouts from his troop constructed a 40-inch-wide x 40-foot-long elevated boardwalk to carry the West Perimeter Loop (blue) Trail, which also is a section of Perinton's Crescent Trail, across the wetland overflow swale at the southwest corner of the South Marsh within the High Acres Nature Area.
6. Compost was added at the ends of the boardwalk to create a smooth transition and was seeded with native wool grass *Scirpus cyperinus*.
7. Completed October 11, 2014

- **Ethan Dell-- Troop #208 (Fairport) Eagle Scout project was to construct an elevated boardwalk over an area of HANA's trails that are consistently wet and make it difficult for hikers to pass and volunteer crews to maintain trails.**

1. Discussions with Eagle Scout mentor and HANA to determine priority areas that would fit the criteria of an Eagle Scout project.
2. Discussions with mentor to design of boardwalk and determine appropriate materials.
3. Discussions with WM, engineers to determine if adding soil and boardwalk over wetland area was acceptable.
4. Waste Management purchased the lumber and hardware.
5. Ethan and several other Scouts from his troop constructed a 40-inch-wide x 20-foot-long elevated board walk to carry the Woods Edge (black) Trail across a frequently wet or flooded drainage swale northeast of the South Marsh within the High Acres Nature Area.

6. Compost was added at the ends of the boardwalk to create a smooth transition and was seeded with native wool grass *Scirpus cyperinus*.

7. Completed October 11, 2014

Experiences the Scouts had at the site:

Although seven of the eight projects were different, they had a common theme, which was to add to the infrastructure at HANA. The scouts learned how each project would contribute to education and enhancement for experiencing the diversity of habitats at HANA. They also learned that HANA volunteers and WM employees were available to offer assistance when needed.

- David Palmer's project sits at a particularly scenic portion of the trail system, an overlook, and it honors an environmental advocate. He learned how to raise money, and communicate with committee members, and to coordinate segments of his project as it developed. David was a bit concerned that the project might be too complicated, but with mentoring, he developed more confidence, and the finished project is a tribute to his efforts. (See appendices)
- Alex Thomas' project was another ambitious project. He worked over the winter building the signs and hand routing the lettering. Alex conferred with his HANA mentor, and proceeded to build a prototype. He is the only Eagle candidate to ever build a prototype and ask for any revisions before proceeding. He understood the importance of his project as an educational tool.
- Tom Rzatkiwicz' project was to develop a pergola that would join two small benches in the Pollinator Area. The pergola is the highlight of hardscaping in this area. He learned that the area is developed to attract all types of pollinators to HANA and that trumpet vine was to be planted to climb on the pergola. The trumpet vine will attract hummingbirds as well as bees and butterflies. Lower growing plants were also planted on two sides of the installation. He received assistance as requested from Waste Management as well as funding for his project.
- Josh Gugel's project has been completed and the kiosk is located at the most frequented entrance to HANA's trails. Unfortunately this lead to vandalism of the holder for the trail maps as well as the large metal map itself.

David, Alex, Tom, and Josh have received their Eagle Award.

- Jeff Iadorola was one of our younger candidates and he took longer getting organized. Originally, he was going to blaze the connector trail through town property and into HANA's, and build the observation deck. He soon learned it was more than he could handle. Crescent Trail Association, with help from HANA volunteers blazed the trail. WM made a gate in the fencing that separates HANA from the town property and adjacent businesses. A branch off this connector trail goes to the observation deck that Jeff built. HANA users have access to the observation deck by way of the jointly used trail. Jeff's project also required getting several permits from the town, along with some assistance from the town putting in pilings to hold the deck as part of it hung over the water. Due to his younger age (16) he needed more guidance, but the project turned out to be very well constructed. US Bosch agreed to fund a large portion of this project, with some assistance from WM.

Jeff received his Eagle Award.

- Jimmy and Ethan's raised boardwalk projects required an understanding of regulatory and landowner protocols and the need to protect wetland ecosystems. Discussions with WM, ecologists and engineers and an analysis of permit requirements was necessary to determine if the addition of a boardwalk and compost near a wetland area was acceptable to the permitting agencies. This was the reason for completing all projects with hand tools. Jimmy and Ethan also worked together to develop plans for the design and building of the boardwalks, sharing ideas and resources.

Jimmy and Ethan have received their Eagle Award.

## II. School-Age Learners:

### A. Landfill Tours:

We work with five school districts, including suburban, rural and urban schools. Throughout the school year, we host approximately a dozen tours totaling several hundred students on a tour of the landfill and Renewable Energy Facility areas.

#### Experiences the students had on site:

- The students transported by bus onto the landfill observed where the trash that we all produce goes, and how complex a modern landfill is. Landfills are no longer open, burning “dumps”, but highly regulated for safety and are ecologically sound containers for a variety of trash. Students learn about the many layers involved in the liner system and capping process when a landfill is “full”. They see the different types of equipment needed to collect, and process the trash from doorstep to landfill. They learn how landfill gasses are a natural byproduct of garbage decay. Gasses collected and processed in a Renewable Energy Facility plant turn into electricity to power homes. Students also learn how landfill monitoring throughout each day assures that it is environmentally sound. Recyclables are forwarded to a Waste Management facility for that purpose. Yard waste and Christmas trees collected from homes, ground into mulch are provided free to the community for use in their gardens. Leaf waste and food waste from several universities are composted and finished material is provided to the community for free as a natural landscaping amendment. Students learn that conservation, recycling, and choices they make in purchases can reduce the amount of trash that enters landfills.

#### Correlation between the learning experience and students’ objectives:

- By participating in the Landfill Tour and learning about landfill operations, conservation, and purchasing decisions, the students are fulfilling the following New York State intermediate school’s education standards.
  - In the Health, Physical Education, and Family and Consumer Sciences field:
    - Standard 2 A Safe and Healthy Environment states: “Students will acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.”

*Students learned that conservation begins with decisions, analyzing the amount and type of packaging that goes with their potential purchase to ascertain how much of that will go to the landfill or recycling facility. They also learned that modern day landfills are built to protect air, water, and environmental resources while providing a secure place to dispose of waste. Students learned the importance of wetland habitats and their role in a healthy environment.*

- Standard 3 Resource Management states: “Students will understand and be able to manage their personal and community resources.”

*Students learned that recycling, landfilling, and composting are all ways to handle materials that people discard and that rather than thinking of that material as waste, when we put waste to use- we benefit from the continuation of the resource as a new recycled product, renewable energy, or compost. An important community resource part of High Acres is the area managed for conservation, wildlife habitat, and outdoor recreation.*

- In the Mathematics, Science, and Technology field
  - Standard 7 Interdisciplinary Problem Solving states: “Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.”

*Students learned that “trash” is a real-world problem, and scientific measures and mathematics are involved in the planning, construction and operation of a landfill. They also learned that the community and wildlife could benefit from capped landfills reclaimed as specialized habitats.*

### B. Guided Tours of HANA

Guided tours of HANA are generally given by one or more HANA volunteers in conjunction with teachers or visiting group leaders and multiple WM employees. Because they are dependent on weather, physical capability of visitors, appropriate gear, and availability of multiple groups, they are more infrequent than landfill tours. Tours of HANA are very valuable to appropriate groups as they are able to get a firsthand look at the variety of habitats and how each area is being used for different types of research, service projects, or mitigation.

### Experiences the students had on site:

Several groups have received guided tours of HANA and each is catered to the needs and interests of the group. For example, in April 2015, 50 students from McQuaid High School enrolled in the AP Environmental Studies course visited High Acres for a tour of the landfill, renewable energy facility, composting operation and HANA. HANA volunteer Bruce Cady provided an overview on WHC, the partnership between volunteers, business and university that makes HANA so successful, and the RIT internships. After leaving High Acres, they went onto the local waste water treatment plant and saw how landfill leachate and all other types of waste water are managed and how sewage sludge then comes back to the landfill for disposal. The overview of HANA and RIT internships demonstrated how environmental research and conservation compliments the waste management industry.

The students came prepared with hiking books for the muddy spring trails. Because of time constraints, a bus was used to transport students to several entrances at HANA so that they could cover more habitats in a short time span. Half of the students took a bus with their teacher, Bruce Cady, and WM employees to the South East parking lot and then walked to the MAPS banding station and discussed the avian studies, invasive plants, and wetland habitats in that area of HANA. Then, they took a bus to the northern portion of HANA and walked to the overlook where they discussed the mitigation and RIT internships, invasive removal, native plantings and the research projects that are conducted in the North East Wetlands. For high school students interested in environmental studies, it was an important learning opportunity for them to see how local university students are using HANA as an outdoor classroom and conducting internships.

### Correlation between learning experience and student objectives:

The course description for McQuaid's AP Environmental Studies course reads "Advanced Placement Environmental Science is an interdisciplinary course providing students with the scientific principles, concepts and methodologies required to understand the interrelationships in the natural world. Students will first investigate ecological and population biology principles in depth. Students will then learn to analyze natural and human-induced environmental problems, to evaluate the relative risks associated with these problems and to examine alternative solutions for resolving and/or preventing them. Field work, experimental design, and problem solving skills are heavily stressed in this course. Projects/field work include designing and building a self-contained living ecosystem, chemical and biological aquatic ecosystem analysis, producing biodiesel fuel from waste oil, designing and building a solar race car, and whitewater rafting in Letchworth Park."

Being in the research field of HANA lended itself to discussion related to many of the course objectives, specifically human-induced environmental issues (invasive species spread), alternative solutions (chemical, mechanical, and biological control of invasives), and aquatic ecosystem analysis (wetland habitats and role in ecosystem). A discussion with the teacher revealed that the students had just received an introduction to invasive species so seeing examples in a real life setting and learning about control methods enhanced their classroom learning. Using the idea of interrelationships in the natural world such as habitat requirements for species, HANA volunteers explained how RIT students will be studying the water depth in existing wetlands and how that affects which species migrate through or nest at HANA.

### C. Project WET

#### "Sum of All Parts"

In conjunction with the Landfill Tours, we have developed an activity from the Project WET curriculum that is a hands-on activity.

This activity, "Sum of the Parts" is a "paper project". We took it one step further and using flags, and a small hill near the Waste Management Administration Office, we laid out two streams.

- The flags represented the shorelines and a site where either a dwelling, farm, industry, etc. was located.
- Examples: A farm where cattle went to the water to drink and....
  - A street where all the houses had septic systems – some faulty and the land sloped to the stream
  - An industrial plant which illegally discharged into the stream.
  - A park with a hiking trail along the stream – hikers tossed their trash in the stream.
  - A shopping mall under construction near the stream, which did not have silt fencing, and trash tossed around by the workers blew in the stream
  - Fishermen discarding their fishing line and hooks.

We had several more examples, including positive examples

- Scouting groups picked up trash during "Coastal Trash Pick Up Day"
- Environmentalists rescuing a duck with its head caught in a plastic six-pack holder, and untangling a bird with fishing line on its wing.

### Experiences the students had on site:

Each flag had a student with a scenario to read about that station. Two students were the “river” flowing by. If the station called for some kind of trash tossed into the stream, this was given to the “river” to carry to the next site. Toxic chemicals that caused death were represented by dead frogs, fish, etc. (all plastic or paper drawn). We used some real trash, such as six-pack holders, Styrofoam cups, etc. As the river flowed down stream to the lake, it became apparent that even if there was a trash pickup, or the stream passed a home that didn’t pollute, that the pollution still affected that property owner’s portion of the river. The more trash the students taking the part of the river received the harder it was for them to carry. Pollution comes in many forms, and it accumulates and affects living things.

### Correlation between the learning experience and students’ objectives:

The teachers had asked us to use a project where the students had to identify “biotic” and “abiotic” items and know the difference. After the activity, we asked questions which required the students to identify what was “biotic” and “abiotic”.

We also sent a packet of questions regarding this activity with the teachers. We did this activity on two separate occasions, with 80 students each time for a total of 160 students. (See Appendices)

### “Incredible Journey”

Utilizing an Enviroscape™ model of a watershed, students and staff have a virtual experience of becoming a “drop of water.”

### Experiences the students had on site:

Once a drop of water, students go on an “incredible journey”. This journey takes them from mountain top, to ocean floor, to landfill, to plant fiber, etc., and then back to clouds. By the end of the activity, students and staff have a clear understanding of the water cycle and the importance of every part of that cycle.

Because a drop of water travels through much terrain and bodies of water, there are many opportunities to explain the role of wetlands and how they are crucial to removing much pollution from the water, which flows into our Great Lake - Ontario, which is the water supply for most municipalities around the lake. Students and staff also learn how each of us has a role in maintaining water quality.

This form of learning is “experiential”.

The aforementioned version of this Project WET activity is ideal with larger groups.

- For smaller groups we utilize the use of die that are made from “gift boxes” and have labels located in the Water Cycle Table representing the options for pathways that water can follow.
- A spinner is made and used for each station
- Students spin and move to the next station and so forth.

### Correlation between the learning experience and students’ objectives:

Teachers requested an “activity” that was related to the wetlands in some way. This is a great game to play in the outdoors and focuses much of the energy that younger learners have. They learn that water has many forms, liquid, vapor and solids.

### D. Flying WILD

This activity was developed for the Monroe County Conservation Days, which is offered for three days during the last week of September. It was called, “Just Passing Through” or “Migration is Risky Business”

- Posters were developed to illustrate migration and the strategies birds have developed to survive migration.
- We developed a Bingo game using both positive and negative experiences birds have during migration. Some examples are:
  - Whew! while flying near a large city, you almost collide with a jet. You are in shock and tumble to the ground where you must rest and recover.
  - You just flew into a tall glass building. Sorry, you broke your neck.
  - You land at a school where students created a schoolyard habitat. There is a birdfeeder. You eat seeds, fruit, insects and nectar.

- You can't find last year's resting spot because a new shopping mall has been built there. You fly around searching for food. You are so hungry you are getting too weak to fly.
- Lucky you, you have landed at High Acres Nature Area where there is lots of food to eat and trees and bushes to hide in from predators. Water for drinking is plentiful. Stop here and rest and eat before continuing your journey.
- We had a sheet for each student with a bird, with its common name and scientific name, as well as a picture of its migration route.
- A "log" of the bird's flight to be filled in by the students for their bird. To save time, we wrote the names of the birds in the first column, and the student just had to check the column indicating whether their bird completed their migration (survived) or didn't (perished).

**Experiences the student had at the site:**

- Upon arrival (classes rotated every 23 minutes) we introduced ourselves and using the posters explained that birds bulk up before they begin their migration.
  - Each student received a single penny in their right hand and three pennies in their left.
  - They learned that before bulking up hummingbirds weigh about one penny, but they more than double their weight prior to beginning their migration.
  - Students learned that most birds fly very long distances over water and must fly non-stop.
- Students learned how birds navigate.
  - They use star patterns, the Earth's magnetic fields, location of the setting sun, wind patterns and natural topographic features (mountains, coastlines, etc.) These are learned by young birds on their first migration.
  - Birds must learn where the good stopover spots are where they can rest and eat.
- Students learned about Safety.
  - Some birds flock because they have a better chance to escape a predator.
  - Most birds fly at night when winds are favorable and it is harder for predators to find them. Solo flyers, like the hummingbirds fly at night.
- Students learned what a "flyway" is. – A highway in the sky that each species uses.
- Students learned that different birds fly at different altitudes and why.
- They then played Bingo.

**Correlation between the learning experience and students' objectives:**

The objectives of Conservation Days are to expose the students at the sixth grade level with many activities related to the environment.

- Students were amazed to find out how much a hummingbird weighed – using real pennies to compare before and after weight was more realistic than just telling them...they also got to keep their pennies!
- Each student who had a bird perish during migration seemed really sad as they logged them in. Those that made it cheered.
- They were able to take home their Bingo Card and the paper with their bird and it's "flyway".
- The students learned how human activities are reducing the habitat available to birds to find safety to reproduce, and how important places like HANA are.
- Each teacher was sent home with a packet that they could use for follow-up.
- If time allowed, students could ask some questions.

We are continuing to work to develop "kits" like those above that we can reuse with different schools and each year. The development of these activities, purchasing materials and putting it all together takes hundreds of volunteer hours.

### III. Colleges/Universities

As stated earlier, developing a partnership with Rochester Institute of Technology was several years in the making. Both the Education Chair and Ecosystems Chair put hundreds of hours into “courting” the faculty to find out how HANA could fit into their research needs. By fall of 2010, an outline of what activities would fit with HANA’s needs and RIT’s were formulated.

- It was agreed that they would utilize the Five Star Grant money and continue the invasive studies covered by the grant.
- RIT also was able to get a second grant (GLISTEN) and WM matched funds.
- Please refer to the attached reports from the faculty and the students to cover this section.

A caveat must be stated at this juncture of the report. In 2009, Waste Management developed some new wetlands as a part of a mitigation project. Any requirements under the mitigation permitting are conducted by a hired consultant and other subcontractors. Even though the RIT/GLISTEN students have done their research in both the mitigation areas and the established wetlands, these activities were in addition to and indirectly related to the new wetlands. Obviously, the wetlands will benefit from much of the research being done on invasives and native plants, but these activities were not a *requirement of the permitting*. Therefore, you may see some of the areas they have conducted research in referred to as “mitigation area” in their student reports. See mitigation area map for an overview of habitat areas that relate to each student internship.

For example, invasives monitored and removed in areas around the mitigation area, is part of the student research. Each intern spends over 150 hours each during their summer internship at HANA doing planting and restoration activities. Removal of invasive species and planting native species, while highly relevant to the students’ research, is not included in hours of active learning because it is tied to High Acre’s mitigation efforts. A baseline of invasives plants moving into new wetland areas has been developed and the students continue to monitor the established wetlands and upland areas. Test plots are a common tool used by the students to study the effects of different materials or practices on plant growth. This type of research and monitoring done by the students through mapping, experiments, and research papers is above and beyond permitting requirements, and therefore is included as hours of active learning.

#### RIT Internships at HANA

RIT Environmental Studies internships at HANA formally began in 2011. In 2015, four interns will be returning from the previous year to continue their research and two students new to HANA will also join the internship team. We look forward to reporting the results of their studies for HANA’s next CLL application!

- **Katie Boa (2011-2013)-** conducted her MS thesis in the spring of 2013 at HANA on the control of invasive cattails in restored freshwater wetlands.
  1. Katie led the work on an electronic herbarium, collecting, photographing and documenting plant species at HANA (129 species).
  2. Katie’s thesis focus was mechanical and chemical control of cattails. She collected data on invasives including cattail, reed canary grass, phragmites, and purple loosestrife over three years.
- **Lisa Kratzer (2011-2014)-** conducted internships at HANA for four years in a row.
  1. In the summer of 2011, Lisa set up 12 plots for purple loosestrife monitoring. Each year she contributed to invasive control and native plantings.
  2. In 2013, Lisa conducted her MS thesis at HANA, studying the effect of grazing on the spread of invasive wetland plants.
  3. She created caged test plots and added snails to half to determine the effect of snail grazing on reed canary grass at HANA.
  4. Lisa came back in 2014 part time, assisting with invasive control, native plantings, and the other students’ research projects.
- **Sam Gonzalez (2012 & 2013)-** conducted avian studies, leading the MAPS program for two years.
  1. Each year, conducted 7 MAPS sessions (6 hours long each) between June and August, requiring setting up nets, data collection, and banding when necessary.
  2. Data entry for each of the 210 birds captured (25 species) in 2012 was submitted through the MAPS database.
  3. In 2013, 200 birds (26 species) were captured and returned after data collection.
  4. Sam also wrote blog entries on a local bird observatory blog after each banding session.
- **Nicole Klintok (2012)-** GLISTEN student established independent research project associated with cattail cutting in wetland Area 1 north.
  1. Four patches of cattail were divided into blocks with six treatment plots.

2. Baseline data were collected in the spring.
  3. Three eradication treatments were studied.
  4. Data were collected in July and August to determine effects.
- **Andrew Garland (2012)- assessed avian wildlife and overall habitat at HANA using the MAPS and MMP protocol.**
    1. Conducted 6 MMP transect surveys (4 hours each) between June and July to collect data on marsh birds throughout HANA.
    2. All bird seen or heard within the transect were recorded, noting habitat and breeding status.
    3. Andrew continued to contribute to avian studies at HANA in future years as a volunteer.
  - **Melissa Maurer (2013) conducted her thesis at HANA**
    1. Melissa studied the effect of herbivory by snails and nitrogen on invasives, including narrow leaf and broadleaf cattail.
    2. She also contributed to native plant restoration, researching plant requirements and planting over 2,000 plants in wetland areas 1 and 3, while also collecting and dispersing seed.
  - **Brenna DeAngelis (2013 -2015)- undergraduate Biology major, focus on purple loosestrife monitoring**
    1. Brenna continued to study the effect of the Galerucella Beetle on purple loosestrife control at HANA using the Yearly Blossy survey.
    2. In 2014, she added 4 new plot locations.
    3. She conducted a survey of beetles and their damage on plants in the spring and fall.
    4. Brenna will continue her research part time at HANA in 2015.
  - **Kim Lodge (2014-2015) undergraduate Environmental Science major, internship focused on native plantings in the wetland known as Area 1.**
    1. In June 2014, Kim established (32) 1x1 meter caged and uncaged plots in wetlands to evaluate the effect of herbivory on plant diversity.
    2. Throughout the months of June, July, and September, she measured percent cover and percent damage on all species in the plot.
    3. She determined that several more seasons of monitoring were needed to determine impact of herbivory.
    4. From September 2014 to May 2015, Kim also completed RIT's Capstone project at HANA.
    5. Kim will continue her research in her 2015 internship at HANA.
  - **Taylor Williams (2014-2015) undergraduate Environmental Science major, (now BSMS) internship focused on invasive plant removal. Here research project evaluated whether the addition of compost would affect cattail growth.**
    1. In June, Taylor focused on pulling cattail shoots and cutting more established plants below the water level.
    2. Taylor's research project was a continuation of a previous student's research, which demonstrated that adding carbon (in this case compost) decreased cattail cover.
    3. In July, she established 18 test plots and took baseline measurements. Compost was added to half of the plots.
    4. In September, she collected data on percent cover of natives versus invasives in plots.
    5. From September 2014 to December 2014, Taylor completed RIT's Capstone project at HANA in conjunction with Kim.
    6. Taylor will continue her research during her 2015 internship at HANA.
  - **Lizzy Bruen (2013 -2015) BSMS Environmental Science continued the vegetation survey and conducted a research project in the vernal pools, studying the effect of canopy on the restoration of the vernal pools.**
    1. In 2013, Lizzy focused on cattail control.
    2. In the spring of 2014, Lizzy studied the natural vernal pools with HANA volunteers in order to compare the created vernal pools that were the focus of her research.
    3. She applied a shade cloth and leaf litter for her experiment and collected data on percent cover of invasives in each plot.
    4. Lizzy also continued a vegetation survey, monitoring 200 points annually within HANA.
    5. Lizzy will continue her research on vernal pools during her 2015 internship at HANA.
  - **Kaity Moranz (2012-2015) GLISTEN student and BSMS Environmental Science continued to plan and monitor shrubs in the wetland area known as 2 north. Kaity has contributed to a number of projects at HANA, but her research focus is native shrub plantings.**
    1. Planted native shrub species each year in in wetland area 2 north.
    2. Collected data on leaf counts, health ratings, branch count, and percent cover
    3. In 2013 Kaity conducted her MS thesis at HANA, studying the effect of shrubs on native and invasive plant growth.
    4. Her research has demonstrated that areas with shrubs have fewer invasive plants and increased species richness.

5. Kaity will continue her research on native shrubs during her internship in 2015.
- Meghan Oberkircher- MS Environmental Science internship was the avian studies intern in 2014, leading the MAPS studies.
    1. Megan conducted 7 bird banding sessions between June and August.
    2. Over 20 volunteers helped to capture and collect data on 221 birds (75 were recaptures and 146 were new).
    3. She expanded on data from previous years and continued to collect data on fecundity,
    4. 7 new species were detected in 2014.

### Capstone Project

The RIT Capstone project aims to mirror the professional work of the environmental consulting field. Capstone students prepare a proposal for their “clients,” who are typically environmental professionals from the Rochester area. According to the syllabus:

*“In the proposal writing process, you will be expected to think, behave, and produce like a professional consulting team. While your professors will grade your work for its content and professionalism, your primary audience is your client. The purpose of a proposal is to inform your clients of what your plan will do for them and to allow them to provide feedback on the extent to which your plan matches their needs. Your aim is to produce a clearly-written, streamlined proposal with simple charts and images that precisely communicate your ideas.”*

In addition to a written proposal, students conduct a presentation for their clients.

In 2012 discussions were underway with RIT and HANA to create a capstone project that would provide a long-term Conservation Plan for HANA. There were more projects than students and this work picked back up in 2014 with HANA volunteers and retired RIT professor John Waud leading the way. RIT interns Kim and Taylor built on the HANA team’s initial plans in their 2014 RIT capstone project, creating a proposal to study the area determined to be a conservation priority at HANA for the HANA Conservation Plan Committee. The students will develop a baseline for both the habitat and water quality in the area.

In the fall of 2014, capstone students established (36) 1x1 meter vegetation plots and recorded plant species and cover. Using GPS, they mapped the distribution of current vegetation. In spring 2015, they continued to study the habitat requirements of target marsh birds. Using GIS, capstone students plotted the bathymetry of Unit 4.

### Experiences the students had on site:

Since 2011, over 20 internships based at HANA have been conducted by RIT students during the summer months. The students contribute to hands-on wetland mitigation including the removal of invasives like purple loosestrife and narrow-leaved cattail from approximately 100 acres of wetlands. Students also participate in restoration with native plantings that benefit wildlife. In addition to these activities, each graduate and undergraduate student conducts a research project at HANA. The focus of each study is outlined in the section above, but common themes are controlling invasives, plant survival, migratory bird reproductivity, and habitat assessment. The students design an experiment, collect data, and write final reports independently. However, they work cooperatively in the field (HANA), as it is often more efficient and beneficial for them to help each other with their projects. Many students have come back year after year and are able to build on their own research from previous years or from other students’ research conducted at HANA. Many of the students who focus on wetlands at HANA also volunteer during MAPS bird banding sessions and vice versa. They truly are a research team and often present their data and activities collectively to provide the bigger picture to the public.

All of the students participate in outreach and education efforts including WM Open Houses, Imagine RIT, and Monroe County Conservation Field Days (see II. School age learners). For each event, the student interns prepare posters to highlight their work and research and often put together activities and information for school age learners. In 2014, the students also took part in two separate news coverage events (see DVDs included), contributing to the HANA education committee’s goals to provide and outreach and awareness to the local community around wildlife habitat.

### Correlation between the learning experience and students’ objectives:

The objectives of RIT Environmental Science department are met by the students’ scientific experiments, data collection, and real world experience in the field of wetland mitigation during their internships at HANA. Each student spends approximately 400 hours each summer at HANA learning in an experiential way in an outdoor classroom. The fact that so many of them have come back year after year is a testament to the value of the partnership.

**Dr. Christy Tyler is the Director of Graduate Program at RIT's Thomas H Gosnell School of Life Sciences, a division of the Environmental Science department, and the primary professor who coordinates student research at HANA. In April 2015, Dr. Tyler presented her poster titled "Partnerships for Wetland Restoration: A model to achieve regulatory, conservation, and education goals" at the New York State Wetlands Forum conference. Her poster describes how the student internships at HANA meet the Environmental Science curriculum at RIT and offer mentorship and job experience opportunities:**

**"Students participate in invasive plant control, plant native species, and monitor restoration success. They are responsible for communicating with stakeholders and helping to ensure that performance criteria are met. Students also engage with management and consulting professionals, gaining mentoring and job experience. This model fits with the experiential learning outcomes of the Environmental Science program at RIT. Students conducted independent research on invasive species ecology, improving methods for invasive species control, and bird communities at HANA, resulting in 4 successful Master's theses and numerous undergraduate research projects to date, with many more in progress."**

#### **IV. Annual Or One-Time Events**

**Annual or one time events, such as Open House, North American Butterfly Association's Annual butterfly count, Day of Caring, and individual workdays that are coordinated by the Infrastructure Chair, have been explained previously. We have developed a brief introductory presentation for volunteer work days providing an overview of HANA, the role of the volunteer team, education efforts and WHC, safety procedures and a schedule for the day. We follow protocols for the butterfly count, and establish infrastructure needs for the workdays. As the trails and signage are very important for educational activities that take place on HANA, these events contribute in an indirect way to our Educational Program. The Open House usually has a theme, and displays and demonstrations that are educational are tied into the theme. Photographs and other documentation are included in the appendices.**

## F. PARTNER SUMMARY

Partners	Designation	Involvement/Projects	Additional Comments
Seneca Waterways Council, BSA	Youth Organization	Eagle Scout Projects Venture Ranger Projects	Continue mentoring
Girl Scouts of Western New York	Youth Organization	Brownie Level - butterflies	Expand to additional age groups Encourage a Gold Award Candidate
Fairport Little League	Youth Organization	Youth Baseball	Three baseball fields on Waste Management HANA Property
Fairport School District	Several Grade Levels	Tours of Landfill Project WET Activities	Sixth Grade participation in Project WET Activity – “Sum of all Parts”
Honeoye Falls/Lima School District	Grade School	Tours of Landfill	Introduction to landfill practices and recycling; Flying WILD component – birds seen near landfill and capped grasslands
Rush Henrietta School District	Grade School	Tours of Landfill Project WET activity	Watershed model
School 41 – Rochester City School District	4 <sup>th</sup> and 5 <sup>th</sup> Grades	Tour of Landfill Activity or Hike	Either Project WET or Flying WILD or a hike looking for wildlife
Park Ridge Child Care	Various Ages – Summer Child Care	Various activities	Age appropriate
Rochester Institute of Technology	College	Tour of Landfill	RIT offers Environmental Engineering Programs. Provided opportunity to see landfill operations and Renewable Energy Facility plant
Rochester Institute of Technology Thomas H. Gosnell School of Life Sciences	College	Undergraduate and Graduate Research & Stewardship Activities	In 5 <sup>th</sup> year of internship program and over 20 internships have been conducted at HANA since 2011.
Monroe County, New York	Government	Open House  Monroe County Conservation Days	Educational Materials regarding water quality  3-day activity for 6 <sup>th</sup> graders county-wide
Town of Perinton Conservation Board	Town Advisory Board	Advisory capacity on HANA Wildlife Team	Provides HANA with advice on Town Open Space requirements and regulations
Town of Perinton Parks & Recreation	Town Department	“Passport to Family Health” Program	This program encourages families to get out and hike for better health. HANA’s Trails are included in the Passport. WM is also a monetary sponsor.
Crescent Trail Association	Recreation Organization	Operates a system of trails throughout Town of Perinton	Connects with HANA’s trails

			Assists with trail maintenance  Offer guided tours of High Acres and HANA
North American Butterfly Association	Butterfly Educational Organization	HANA is a Member	HANA participates in Annual Count. HANA's Pollinator Garden is a designated Butterfly Site
Rochester Butterfly Club	Butterfly Recreation, Conservation and Education Organization	HANA is in their NABA Count Circle	Several members of the Wildlife Team belong to this group.
Rochester Birding Association	Birding Recreation, Conservation and Education Organization	Conducts Bird Trips on HANA Provided funding for RIT internships	Several members of the Wildlife Team belong to this group
Burroughs Audubon Nature Club	Nature Recreation Organization	Conducts Bird and Wildflower Trips on HANA	Several members of the Wildlife Team belong to this group
Women of Water (WOWs)	Professional Women's Group	Active participants in planting and maintaining HANA's Pollinator Area	Organization members are professionals in recycling or environmental areas. All members are active in Wildlife Team.
Fairport Rotary Club	Service Organization	Has one Trail Project a year at HANA	Has built bridges, relocated a trail, and removed invasives.
Fairport Lions Club	Service Organization	Participates annually in Open House	Serves food to attendees
Laurie Broccolo & Associates	Business – An Environmental Award Winning Landscaper. Specializes in sustainable planting.	Planted Wetlands with native plants	Worked closely with WM and HANA Team to choose appropriate native plants for the type of wetland and for the birds and wildlife.
Lowe's Macedon Store	Business – Building Supplies	Discount	Materials for HANA Wildlife Team and Eagle Scout Projects are purchased at this location.
Fairport Historical Club	Social Organization – 150 years old –women interested in local history.	Outreach partner – recipient of HANA programs	
Perinton Town Historian	Community	Assisting HANA Education Chair in compiling a history of property.	
Baptist Home	Nursing Home Facility	Outreach partner – recipient of programs from HANA	
All Seasons Garden Club	Garden Club	Outreach partner – recipient of HANA program	Monetary Donation
Creative Gardeners	Garden Club	Outreach partner – recipient of HANA program	Monetary Donation
Jr. League Garden Club	Garden Club	Outreach partner – recipient of HANA program	Monetary Donation
AAUW	Club for University Women	Outreach partner – recipient of HANA program	Monetary Donation
John Waud, PhD., RIT Prof. of Environmental Sciences	Consultant/Volunteer	Consultant on habitat and developing Conservation Plan for HANA	Recruiting other academic consultants

<b>Nature Conservatory fellow – Bird Habitat Project – Chiapas, Mexico</b>			<b>Mentor of Bird Studies by RIT students at HANA</b>
<b>William Hallahan, PhD. Nazareth College Ecology Chair</b>	<b>Consultant</b>	<b>Special projects: Mentoring Eagle Scout in Botany</b>	
<b>Bernd Blossey, PhD Cornell University Department of Biology</b>	<b>Consultant</b>	<b>Consultant on biological controls of invasives</b>	<b>HANA’s program to control Purple Loosestrife utilizes <i>Galerucella spp.</i> beetles and uses the Cornell Protocol developed by Dr. Blossey. HANA’s co-op student will follow this protocol to monitor beetle activity.</b>
<b>Dr. Anna Christy Tyler RIT – Director of Graduate Program in Environmental Science</b>	<b>Consultant</b>	<b>Consultant on habitat and developing Conservation Plan for HANA</b>	<b>Mentor of Undergrads &amp; Grad students doing invasive plant studies at HANA.</b>
<b>Dr. Karl Korfmacher RIT</b>	<b>Consultant</b>	<b>Developing GIS maps for HANA Developed trails map for HANA</b>	<b>Mentor to students doing GPS at HANA and entering in GIS database.</b>
<b>Macedon Center Fire Department</b>	<b>Volunteer fire department</b>	<b>Cook hotdogs and burgers at Open House</b>	<b>I In-kind donation of hours</b>



## Attachment S

### Progress Photographs

**Attachment S**

**Photograph at Pannel Circle and Route 31 (referred to as P1)**



**September 2015 - P1 - Pannell Circle and Route 31, view north**



**October 2014 - P1 - Pannell Circle and Route 31, view north**

**Attachment S**

**Photograph at Monarch Drive and Aldrich Road in front of White Brook (referred to as P2)**



**September 2015 - P2 – view northeast, from the intersection of Aldrich Road & Monarch Dr.**



**October 2014 - P2 – view northeast, from the intersection of Aldrich Road & Monarch Dr.**

**Attachment S**

**Photograph at Wakeman Road (referred to as P6)**



**September 2015 - P-6 - Wakeman Road view south**



**October 2014 - P-6 - Wakeman Road view south**

**Attachment S**

**Photograph at Piping Rock**



**September 2015 - View northeast, Piping Rock**



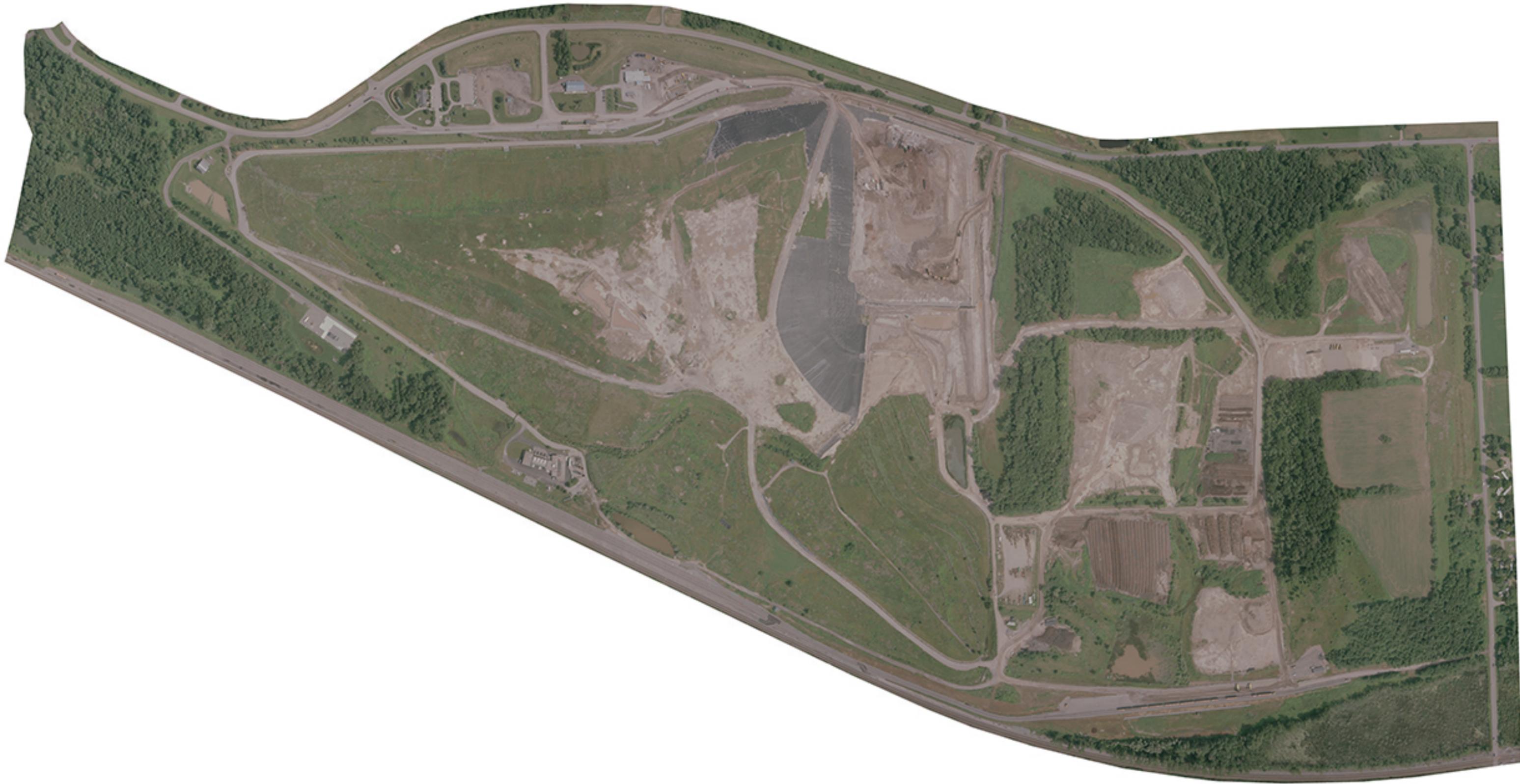
**October 2014 - View northeast, Piping Rock**

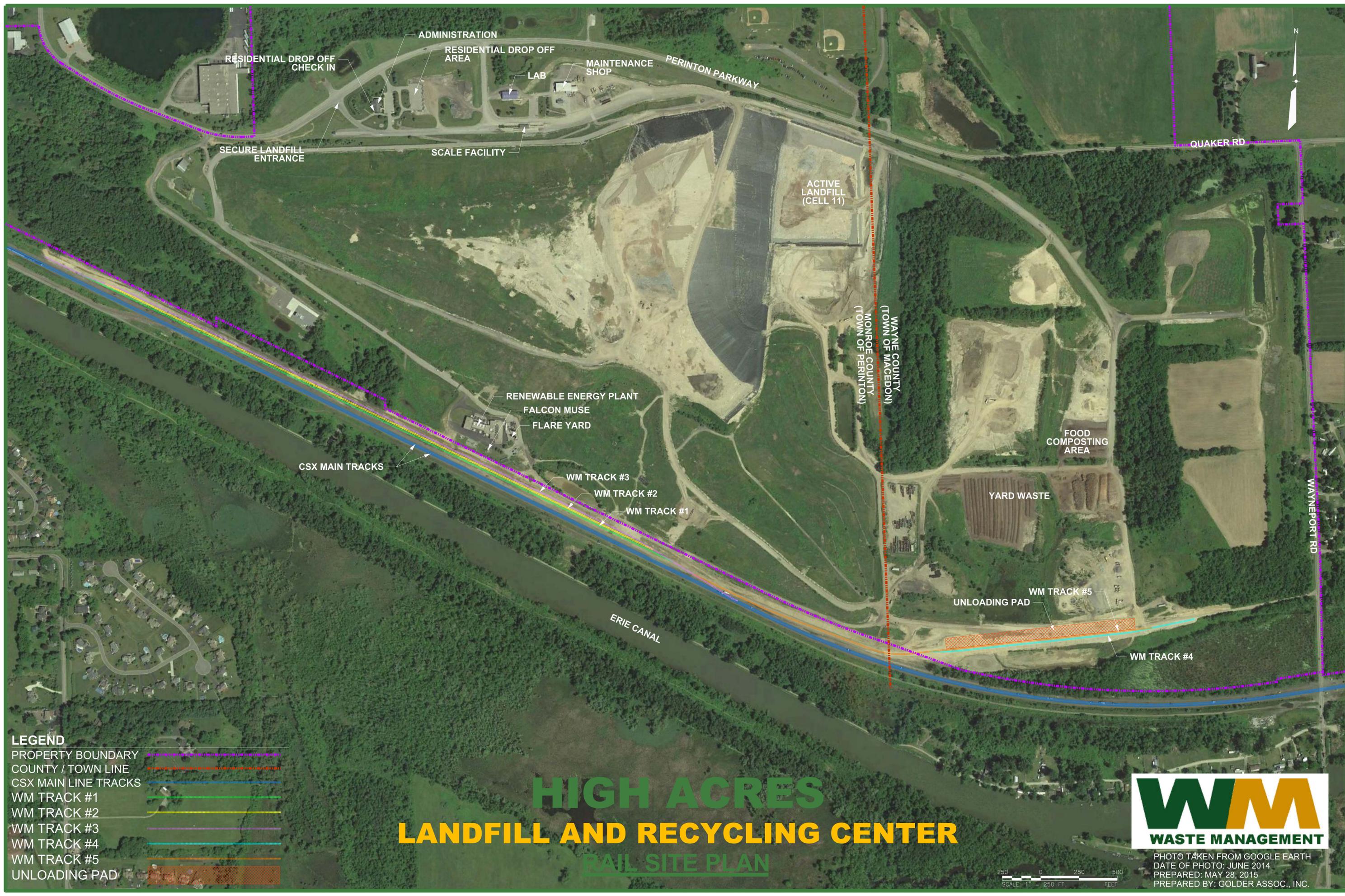


## Attachment T

### Aerial Photography of Site

Attachment T - July 2015 Flyover





**LEGEND**

PROPERTY BOUNDARY	
COUNTY / TOWN LINE	
CSX MAIN LINE TRACKS	
WM TRACK #1	
WM TRACK #2	
WM TRACK #3	
WM TRACK #4	
WM TRACK #5	
UNLOADING PAD	

# HIGH ACRES LANDFILL AND RECYCLING CENTER RAIL SITE PLAN



PHOTO TAKEN FROM GOOGLE EARTH  
 DATE OF PHOTO: JUNE 2014  
 PREPARED: MAY 28, 2015  
 PREPARED BY: GOLDER ASSOC., INC.

