



Known for excellence.  
Built on trust.

GEOTECHNICAL  
ENVIRONMENTAL  
ECOLOGICAL  
WATER  
CONSTRUCTION  
MANAGEMENT

GZA GeoEnvironmental of NY  
300 Pearl Street  
Suite 700  
Buffalo, NY 14202  
T: 716.685.2300  
F: 716.248.1472  
www.gza.com



June 4, 2021, Revised July 15, 2021  
File No. 03.0033579.14

Ms. Megan Kuczka  
Environmental Program Specialist 1  
Division of Environmental Remediation  
New York State Department of Environmental Conservation, Region 9  
270 Michigan Avenue  
Buffalo, New York 14203-2915

Re: Site Management Periodic Review Report and IC/EC Certification Submittal  
Certifying Period: May 5, 2020 through May 5, 2021  
Tecumseh Redevelopment Site (Site No. C915205)  
Lackawanna, New York

Dear Ms. Kuczka:

GZA GeoEnvironmental, Inc. (GZA) is pleased to submit this Site Management Periodic Review Report and Institutional Controls/Engineering Controls (IC/EC) Certification Submittal (PRR) to the New York State Department of Environmental Conservation (NYSDEC), for the Steel Winds I portion of the Tecumseh Redevelopment Site (Site No. C915205), located in Lackawanna, New York. This letter report has been prepared on behalf of the Site operator, Niagara Wind Power, LLC (NWP), an affiliate of TerraForm Power, and has been prepared in general accordance with NYSDEC's March 26, 2021 letter to NWP and NYSDEC's DER-10 *Technical Guidance for Site Investigation and Remediation*, dated May 23, 2010. This letter report is subject to the Limitations provided in **Attachment A**.

## EXECUTIVE SUMMARY AND SITE OVERVIEW

Tecumseh Redevelopment, Inc. (Tecumseh) owns approximately 1,100 acres of land at 1951 Hamburg Turnpike, as shown on **Figure 1**. The property was formerly used for the production of steel, coke and related products by Bethlehem Steel Corporation (BSC). Steel production on the Tecumseh property was discontinued in 1983 and the coke ovens ceased activity in 2000. Tecumseh acquired the property, along with other BSC assets, out of bankruptcy in 2003.

In September 2006, BQ Energy entered into a long-term lease agreement with Tecumseh to construct and operate wind turbines and supporting power generation equipment and infrastructure on an approximately 29-acre parcel of the Tecumseh property, referred to as the Steel Winds Site. BQ Energy and the NYSDEC also entered into a Brownfield Cleanup Agreement for the Steel Winds Site. The Site is wholly contained within the Slag Fill Area (SFA) Zones 3 and 4 of the Tecumseh property bordered by Lake Erie to the west, Smoke Creek to the south, and former industrial lands of BSC to the north and east, as shown on **Figure 2**. A Site Plan is provided as **Figure 3**. NWP currently operates the eight wind turbines installed at the Site.



The Brownfield Cleanup Program (BCP) was successful in achieving the remedial objectives for the Steel Winds Site. The Site Management Plan (SMP) and Final Engineering Report (FER) were approved by NYSDEC in December 2007. NYSDEC issued a Certificate of Completion (COC) for the Site on December 18, 2007.

The remedial activities conducted at the Site include:

- Excavation and off-site disposal of impacted slag fill from the eight wind turbine foundations and interconnecting utility trenches;
- In-situ enhanced biodegradation of residual volatile organic compounds (VOCs), including benzene, toluene, total xylenes, and naphthalene, using oxygen release compound (ORC<sup>®</sup>) socks within the saturated soil and groundwater in the vicinity of WT-01 and associated monitoring; and,
- Completion of a soil cover system.

The IC/EC (i.e., a soil cap and land use restrictions) are in general compliance with the SMP. GZA made Site observations during recent turbine foundation retrofit work completed between October 2020 and January 2021. Notification of these construction activities was provided to NYSDEC via email on September 4, 2021. These work activities (required as part of planned repowering of the eight turbines) included excavation of an approximate 12-foot radial area around each of the eight turbine pedestals, down to the top of the respective concrete foundations (a depth of approximately 4 to 5 feet). Based on our observations, GZA determined the excavation work was completed within soil backfill that was previously placed during initial turbine construction; and therefore, did not impact or disturb the existing cap system or underlying fill material at the Site. All work areas were observed to be restored to preconstruction conditions. A summary letter report documenting site observations made during the repowering work was prepared and submitted via email to NYSDEC on February 1, 2021. Additionally, no significant areas of soil erosion, rutting and/or thin vegetation were observed during GZA's site observations during the certifying period. No evidence of animal burrow holes was observed. Repairs/maintenance to isolated areas of thin vegetation, vehicle ruts and/or erosion to the soil cap, if identified, are typically repaired as part of routine maintenance.

## **RECENT PROGRAM MODIFICATIONS**

BQ Energy submitted a 60-day advance notice of change of use to NYSDEC on November 2, 2020. Specifically, the change of use was for a change of ownership and transfer of the Site Certificate of Completion (COC). The change of ownership was recorded with the Erie County, New York clerk's office on January 13, 2021 with BQ Energy transferring ownership to NWP and identified Ms. Lily Henning of NWP as the primary Site contact.

Based on a review of analytical test results from the six (6) semi-annual WT-1 vicinity groundwater monitoring wells, the findings of recent sampling events have generally exhibited no significant change in their respective concentrations when compared with historical data collected during previous sampling events. Based on this observation, GZA recommends that the semi-annual WT-1 vicinity groundwater monitoring be modified to annual groundwater monitoring beginning in 2022. The modified sampling is proposed to be conducted simultaneously with the current annual groundwater monitoring program in September of each year. PRR evaluations should continue to be conducted on an annual basis, and GZA believes that the requirements for discontinuing site management have not yet been met.



## **SITE MANAGEMENT PLAN**

A SMP was prepared for the Site and approved by NYSDEC in December 2007. The SMP includes an Operation, Monitoring, and Maintenance (OM&M) Plan, a Soil/Fill Management Plan (SFMP), and Environmental Easements. The OM&M Plan consists of three major components: 1) the Site-wide LTGWM Plan and WT-01 Vicinity monitoring; 2) a WT-01 Vicinity ORC Monitoring and Maintenance Plan; and 3) the Annual Inspection & Certification Program. A brief description of the components of the SMP is presented below.

### Groundwater Monitoring OM&M Plan

As a requirement of the SMP, LTGWM is being performed at nine (9) wells across the Site. The following semi-annual and annual groundwater reports have been prepared by GZA and submitted to NYSDEC in accordance with the SMP since our previous PRR submission in June 2020.

- “September 2020 Annual/Semi-Annual Groundwater Monitoring Report, Niagara Wind Power, LLC, / Erie Wind Power, LLC, Steel Winds I Facility (Site No. C915205), Lackawanna, New York” prepared by GZA GeoEnvironmental of New York for Niagara Wind Power, LLC, / Erie Wind Power, LLC, dated, November 23, 2020, revised December 23, 2020.
- “2021 Semi-Annual Groundwater Monitoring Report, Niagara Wind Power, LLC, / Erie Wind Power, LLC, Steel Winds I Facility (Site No. C915205), Lackawanna, New York” prepared by GZA GeoEnvironmental of New York for Niagara Wind Power, LLC / Erie Wind Power, LLC, dated, May 2021.

The two monitoring reports listed above have previously been provided under separate cover and submitted electronically to NYSDEC. GZA is currently scheduled to conduct the next annual/semi-annual sampling event consisting of the nine (9) LTGWM wells and the six (6) WT-01 vicinity wells in September 2021.

As discussed in GZA’s May 9, 2012 letter, six wells in the WT-01 vicinity (BCP-ORP-1, MWN-01, MWN-01B, WT1-02, WT1-04 and replacement well WT1-05) will be sampled on a semi-annual basis for the following compounds:

- STARS list VOCs via EPA Method 8260B; and
- Base-Neutral semi-volatile organic compounds via EPA Method 8270C.

No changes are recommended for the currently implemented LTGWM Plan for the nine Site monitoring wells sampled annually. As noted above, recent semi-annual WT-1 vicinity groundwater monitoring has not shown any significant change in the respective monitoring well concentrations when compared with historical data collected during previous sampling events and we propose that this monitoring be conducted annually starting in 2022.

As described in the May 9, 2012 letter, remedial alternatives have not yet been selected or implemented for the various Solid Waste Management Units (SMUs) which make up the former Bethlehem Steel Site (i.e., the Tecumseh Redevelopment property). Assessing the relative contaminant contribution from the Steel Winds Site is difficult. As such, GZA had previously proposed that the semi-annual groundwater monitoring in the WT-01 vicinity continue until these remedies have been selected, implemented and their effectiveness evaluated. However, since this has not yet occurred, and since there has been no significant changes in groundwater contaminant concentrations, GZA recommends that the semi-annual groundwater monitoring be modified to annual groundwater monitoring beginning in 2022. Once the remedies are selected, implemented and their



effectiveness evaluated, the relative impact of the contaminant contribution from the Steel Winds Site can be assessed.

On September 30, 2013, GZA submitted a Technical Impracticability Waiver Supplemental Field Studies Work Plan for the Site, detailing sampling, laboratory analysis, data evaluation and reporting to be conducted in support of a Technical Impracticability Waiver request for the Site. This Work Plan was approved by NYSDEC on February 24, 2014. The Work Plan was implemented in the summer 2014 and a Technical Impracticability Waiver Application was submitted to NYSDEC on November 5, 2014. In the application GZA evaluated five potential remedies for the WT-01 AOC using criteria described in DEC's DER-10 (Technical Guidance for Site Investigation and Remediation, dated May 3, 2010) and EPA's "Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration", dated September 1993.

- Monitored Natural Attenuation (MNA);
- Air Sparge/biosparge with a contingency enhanced denitrification system;
- Reactive Barrier (Air-sparge/biosparge curtain using a continuous stone trench with a contingency enhanced denitrification injection system);
- In-situ Chemical Oxidation (ISCO); and
- Hydrodynamic Groundwater Containment (HGC).

Additionally, we conducted an environmental evaluation of the specific WT-01 AOC. The study included an evaluation of the potential impact of groundwater discharges to adjacent water bodies and benthic invertebrates, a regional groundwater mass flux and contaminant mass loading evaluation, as well as an ecological risk assessment. The study concluded that:

- Previously implemented IC/ECs voluntarily implemented at the Steel Winds Site under the Brownfield Cleanup Program (BCP), including a soil cap and offsite disposal of displaced soil and activity and use limitations, have effectively mitigated potential risks to human health.
- The Fish and Wildlife Resource Impact Analysis (FWRIA)<sup>1</sup> prepared by GZA identified PAHs in sediment, and certain VOCs in pore water within Smoke Creek, at concentrations that may potentially be harmful to exposed aquatic/benthic organisms. Inputs from sources other than the WT-01 pore water likely contributed to the concentrations of PAHs and VOCs measured. Furthermore, comparisons of sediment and pore water data to screening levels likely resulted in a conservative assessment because of the limited number of PAHs reported, and suspended particulates in the pore water samples. For this reason, GZA recommended additional sampling to evaluate the relative contribution from other sources, and to collect data more representative of potential bioavailability and risk to ecological receptors.

As noted, GZA recommended, and in April 2015 DEC personnel approved, additional surface water and sediment sampling and analysis from Smoke Creek and Lake Erie to further evaluate potential impacts to ecological receptors. The field work was completed in August and September of 2015 and a Supplement TI Waiver Report was submitted to NYSDEC on April 24, 2018.

---

<sup>1</sup> Note that an information request was submitted to the New York Natural Heritage (NYSNH) Program, as the DEC ERM indicated that rare species habitat is present in Lake Erie adjacent to the Site. The results were not available in time to be reported with the November 5, 2014 TI Waiver Application. The results of that inquiry were subsequently reported to DEC in a letter dated January 28, 2015. They substantiated the findings presented in the TI Waiver Application and confirmed the need for a limited supplemental ecological evaluation.





Based on this additional evaluation, it is GZA's opinion that active remediation is not warranted or feasible, would not result in significant benefit to the environment relative to the cost, and is technically impracticable.

### Engineered and Institutional Controls

An engineered control (EC) consisting of a soil cover system has been installed at the Site. Maintenance of the 12-inch soil and vegetated cover system is being performed in compliance with the SMP.

The Steel Winds Site is subject to the following institutional controls (ICs):

- Groundwater-Use Restriction – the use of groundwater for potable and non-potable purposes is prohibited;
- Land-Use Restriction - the controlled property may be used for commercial and/or industrial use;
- Implementation of the SMP including the OM&M Plan and SFMP.

The SFMP provides guidelines for the management of soil and fill material during any intrusive activities. As part of a planned repowering of the Steel Winds turbines, NWP completed tower foundation retrofits between October 2020 and January 2021. During this work, GZA made Site observations which included excavation of an approximate 12-foot radial area around each of the eight turbine pedestals, down to the top of the respective concrete foundations (a depth of approximately 4 to 5 feet). Based on our observations, GZA determined the excavation work was completed within soil backfill that was previously placed during initial turbine construction. All work areas were observed to be restored to preconstruction conditions. Additionally, as part of this foundation retrofit work, no material was imported to or exported from the Site and CAMP data was not collected as Site waste material was never encountered. A Post-Construction Closure report documenting site observations made during the repowering work was prepared and submitted via email to NYSDEC on February 1, 2021. This report recommended that the construction laydown area be reseeded to reestablish grass cover. As this area is anticipated to be similarly used during on-going turbine repowering work, the reseeded of this area will be done at the completion of this work, currently estimated for the summer of 2022.

Other than the foundation retrofit work, no other intrusive activities requiring management of on-Site soil or fill material, or the placement of backfill materials (beyond that required for minor cap repairs described in last year's report), are known to have occurred during the current monitoring period.

### Annual Inspection and Certification Program

As a requirement of the SMP and in accordance with NYSDEC DER-10, this PRR is to provide the information necessary to document the basis for the IC/EC certification. The certification primarily consists of an annual Site inspection to complete NYSDEC's IC/EC Certification Form in order to confirm that:

- The IC/ECs are in place, performing properly, and remain effective;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for the IC/ECs; and



- Access is available to the Site to evaluate continued maintenance of the IC/ECs.

A Site visit of the property was conducted by GZA on several occasions throughout the certifying period (May 5, 2020 through May 5, 2021), and the IC/EC Certification Form has been signed by an engineer who meets the requirements of a Qualified Environmental Professional (QEP) and is a Professional Engineer registered in the State of New York. At the time of the inspections, the Site was typically observed in compliance with the IC/ECs. Limited surface damage (minor rutting and thin vegetation coverage) to the vegetated cover system in the vicinity of WT-01 through WT-08 was noted during the site visits. The limited surface damage was likely the result of occasional vehicular traffic on the cap during wet conditions. In general, the LTGWM network was noted to be in good condition. As part of routine maintenance, the minor grading and vegetative cover repairs will be conducted by NWP as needed as part of the ongoing Site O&M work.

Portions of the Site are currently being used to stage new equipment (e.g., blades, transformers, nacelles, cranes, etc.) associated with planned wind turbine repowering. All equipment and materials are being staged on the ground surface with no disturbance to the cover system.

The completed IC/EC Certification Form is included in **Attachment B**. A photographic log of the Site inspection observations is included in **Attachment C** and the GZA's foundation improvement construction notification to NYSDEC and our construction observation summary letter report are included in **Attachment D**.

## CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are as follows:

- At the time of the Site inspections, the Site was in compliance with the IC/ECs including: groundwater monitoring, maintenance of the cover system, land-use restrictions, groundwater-use restrictions, and soil/fill management plan.
- Minor surface and vegetative cover damage was noted in the vicinity of WT-01 through WT-08. The cover system damages are addressed when necessary, as part of regular O&M work to be completed by NWP as part of routine maintenance this summer. Grass mowing and routine cover system maintenance should be continued at the Site in an effort to keep the cover in good condition.
- Site-wide LTGWM and WT-01 vicinity groundwater monitoring will be continued. In accordance with the SMP, the next semi-annual WT-01 and LTGWM event is scheduled for September 2021. Based on findings of recent semi-annual sampling and their comparison with historical sampling, GZA recommends that the WT-1 vicinity groundwater monitoring be modified to annual monitoring starting in 2022.
- The groundwater remedy for the WT-01 Vicinity has been re-evaluated as described above.
- With the exception of modifying the WT-1 vicinity groundwater monitoring from semi-annual to annual monitoring in 2022, no other modifications to the SMP are recommended at this time. PRR evaluations should continue to be conducted on an annual basis and GZA believes that the requirements for discontinuing site management have not yet been met.



We trust this letter report addresses your requirements. If you need any additional information, please feel free to contact Daniel Troy at 716-570-6673 or Ed Summerly at (401) 421-4140 or via email at [daniel.troy@gza.com](mailto:daniel.troy@gza.com) or [edward.summerly@gza.com](mailto:edward.summerly@gza.com).

Sincerely,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read "Richard A. Carlone".

Richard A. Carlone, P.E.  
Senior Project Manager

A handwritten signature in blue ink, appearing to read "Daniel J. Troy".

Daniel J. Troy, P.E.  
Consultant/Reviewer

A handwritten signature in blue ink, appearing to read "Edward A. Summerly".

Edward A. Summerly, P.G.  
District Office Manager / Principal

RAC/EAS:blm

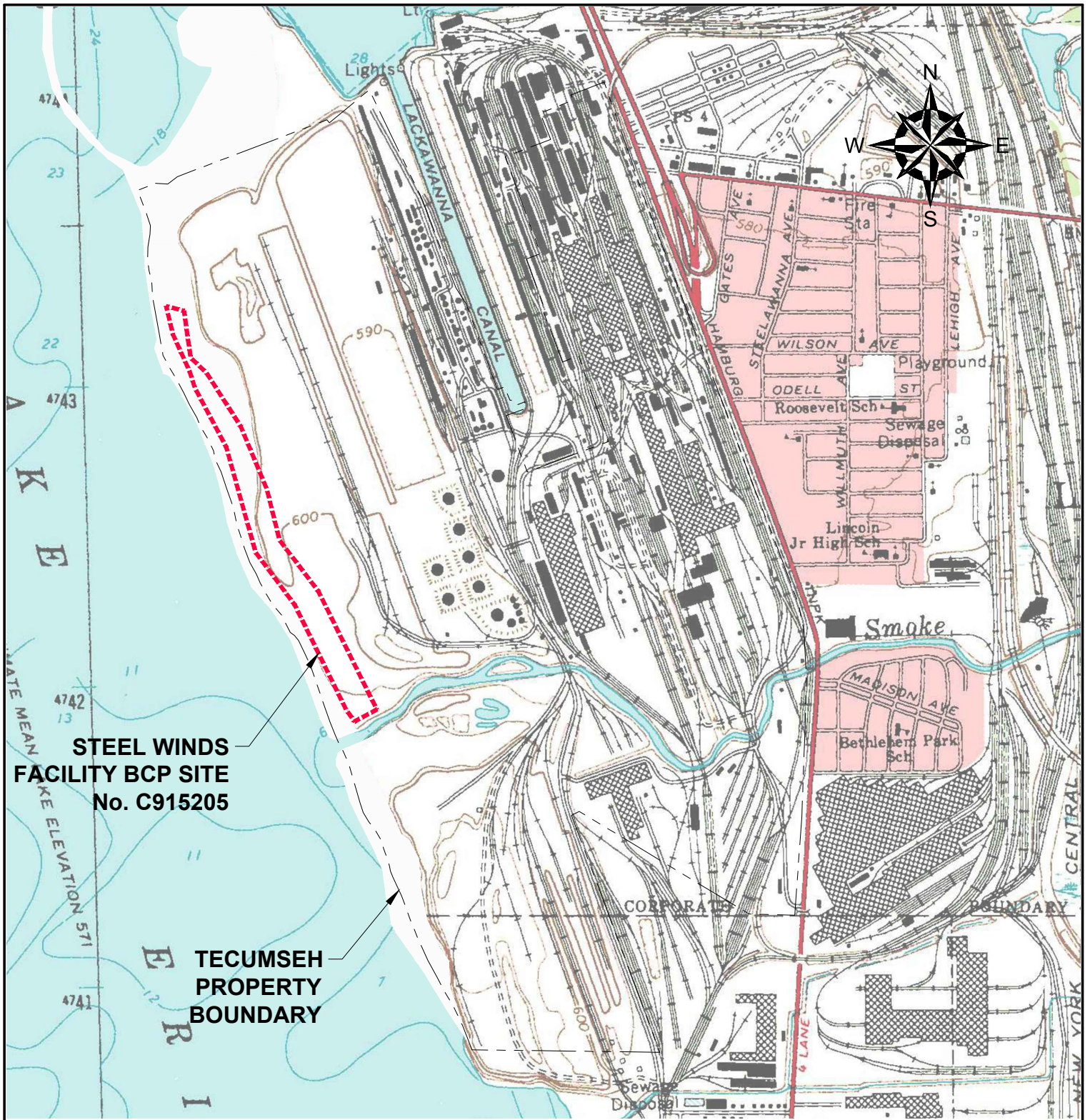
Attachments:            Figures 1 through 3  
                                 Attachment A - Limitations  
                                 Attachment B - Institutional and Engineering Controls Form  
                                 Attachment C - Site Photographs  
                                 Attachment D – Construction Observation Notification and Summary Reports

cc: Lily Henning, Niagara Wind Power, LLC  
     Matt Carson, Brookfield Renewable

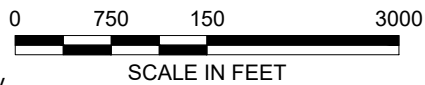
J:\Other Offices\03 Projects - Providence, RI\03.0033579.14 Steel Winds 2021\2021 PRR\03.0033579.14 GZA Steel Winds PRR May 2021.docx

## **FIGURES**






**NOTE:**  
 BASE MAP ADAPTED FROM A 1965  
 U.S.G.S. TOPOGRAPHIC MAPS  
 DOWNLOADED FROM <http://store.usgs.gov>



UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

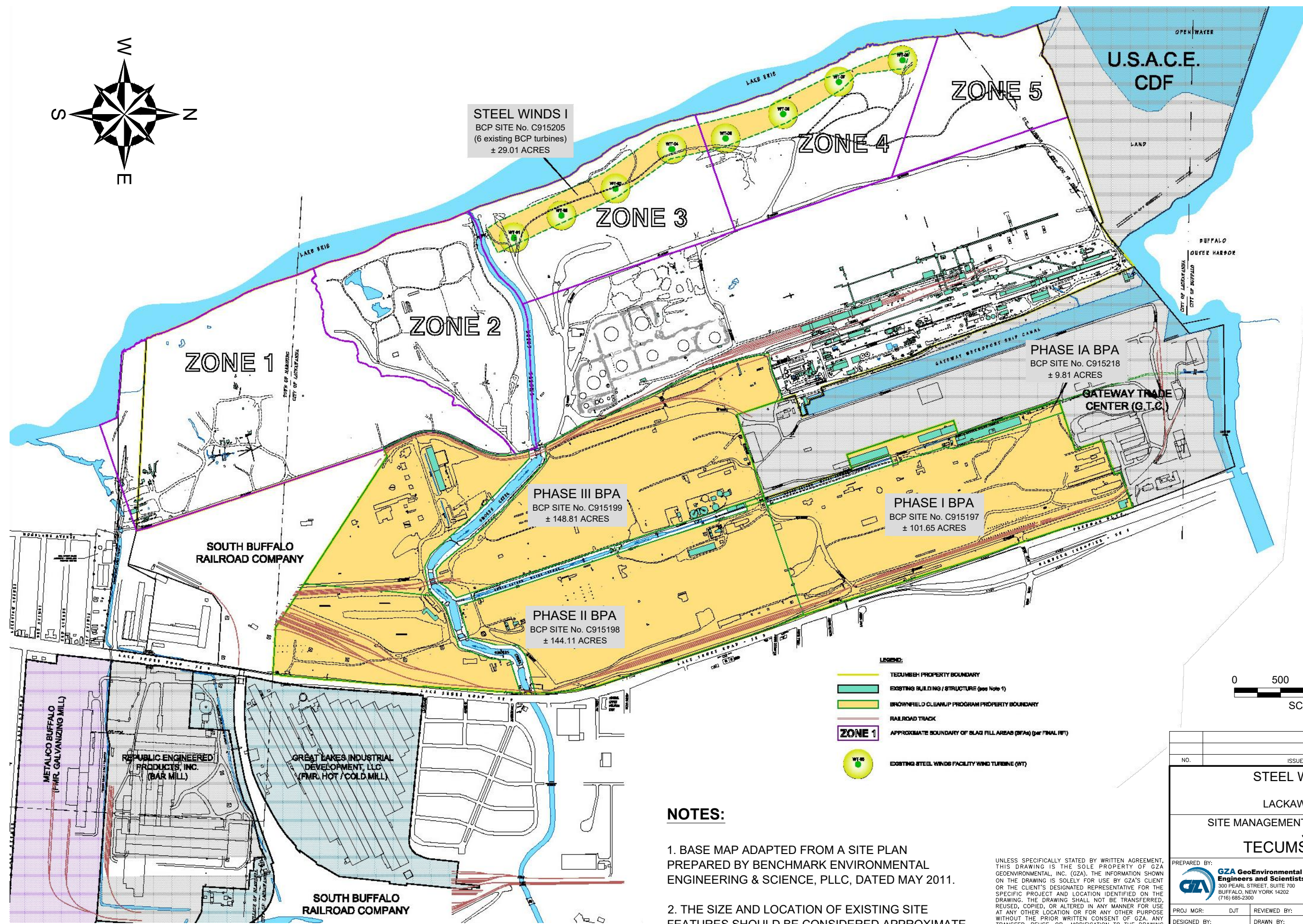
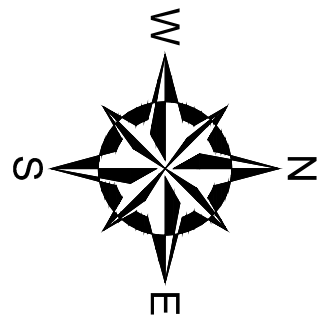
PREPARED BY:  
 **GZA GeoEnvironmental of N.Y. Engineers and Scientists**  
 300 PEARL STREET SUITE 700  
 BUFFALO, NEW YORK 14202  
 (716) 685-2300

PREPARED FOR:  
**NIAGARA WIND POWER, LLC**

NO.	ISSUE/DESCRIPTION	BY	DATE
	<b>STEEL WINDS I FACILITY ROUTE 5 LACKAWANNA, NEW YORK</b>		
	<b>SITE MANAGEMENT PERIODIC REVIEW REPORT JUNE 2021 LOCUS PLAN</b>		
PROJ MGR:	DJT	REVIEWED BY:	CHECKED BY:
DESIGNED BY:	MDK	DRAWN BY:	SCALE: AS SHOWN
DATE	PROJECT NO.	REVISION NO.	
JUNE 2021	03.0033579.14		

FIGURE  
**1**  
 SHEET NO.  
 1 of 3





- LEGEND:**
- TECUMSEH PROPERTY BOUNDARY
  - EXISTING BUILDING / STRUCTURE (see Note 1)
  - BROWNFIELD CLEANUP PROGRAM PROPERTY BOUNDARY
  - RAILROAD TRACK
  - ZONE 1 APPROXIMATE BOUNDARY OF SLAG FILL AREAS (BFAs) (see FINAL RFP)
  - EXISTING STEEL WINDS FACILITY WIND TURBINE (WT)



- NOTES:**
1. BASE MAP ADAPTED FROM A SITE PLAN PREPARED BY BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC, DATED MAY 2011.
  2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

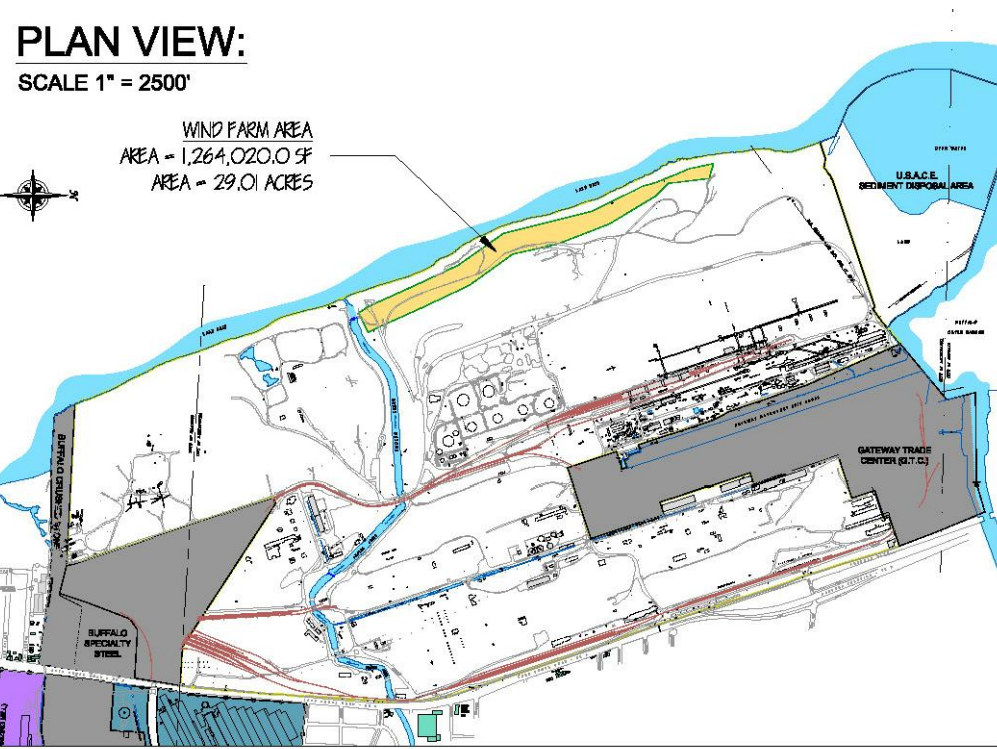
NO.	ISSUE/DESCRIPTION	BY	DATE
<b>STEEL WINDS I FACILITY</b> <b>ROUTE 5</b> <b>LACKAWANNA, NEW YORK</b> <b>SITE MANAGEMENT PERIODIC REVIEW REPORT</b> <b>JUNE 2021</b> <b>TECUMSEH SITE PLAN</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y.</b> <b>Engineers and Scientists</b> <small>300 PEARL STREET, SUITE 700            BUFFALO, NEW YORK 14202            (716) 655-2300</small>		PREPARED FOR: <b>NIAGARA WIND POWER, LLC</b>	
PROJ MGR: DJT DESIGNED BY: DATE: JUNE 2021	REVIEWED BY: DRAWN BY: MKK PROJECT NO.: 03.0033579.14	CHECKED BY: SCALE: AS SHOWN REVISION NO.	<b>FIGURE</b> <b>2</b> SHEET NO. 2 of 3



**PLAN VIEW:**

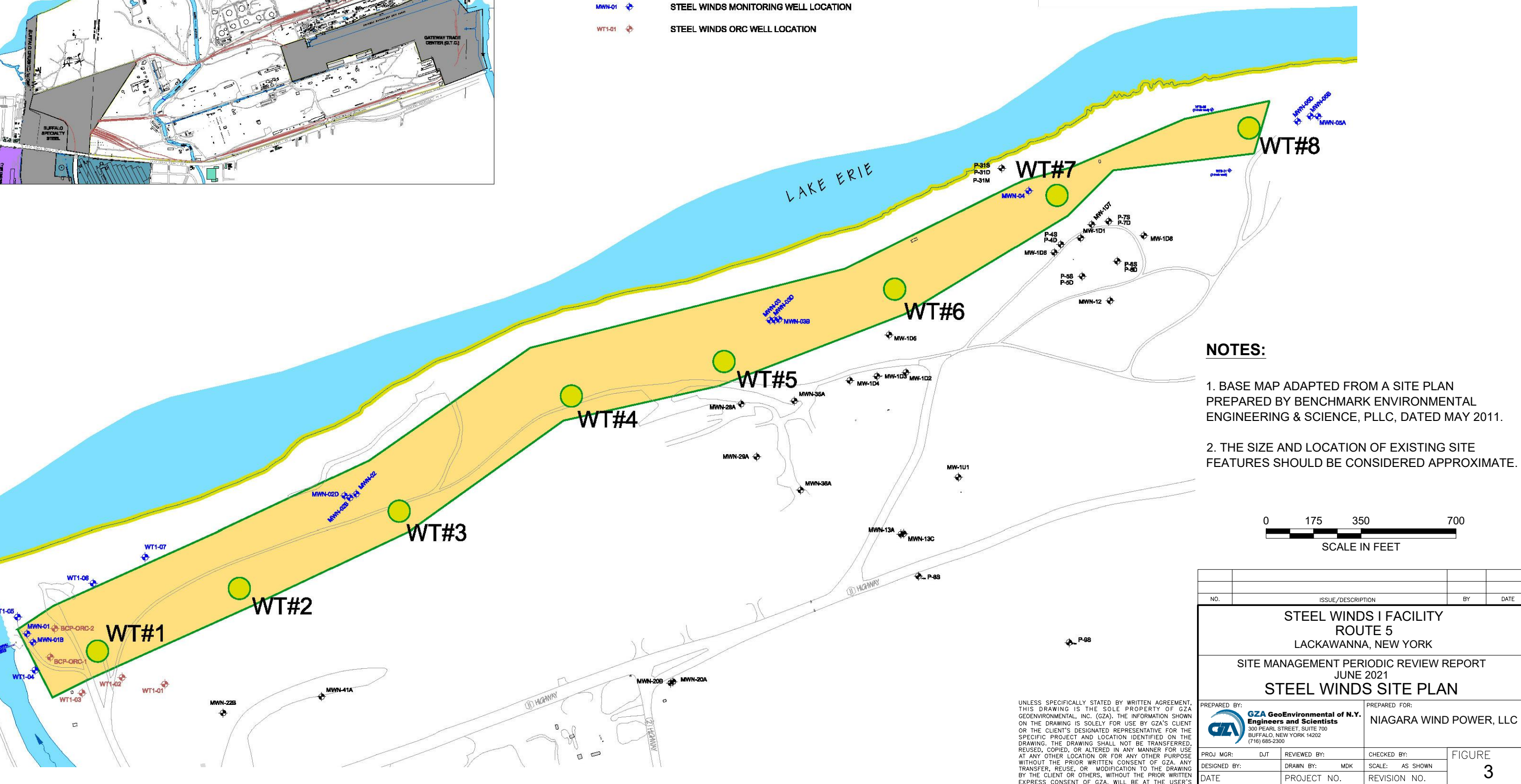
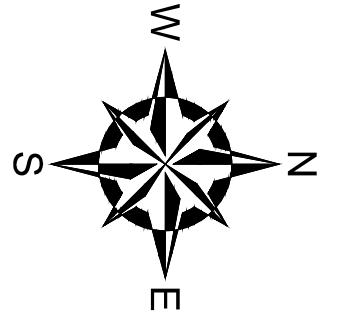
SCALE 1" = 2500'

WIND FARM AREA  
AREA = 1,264,020.0 SF  
AREA = 29.01 ACRES



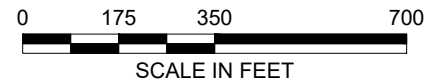
**LEGEND:**

- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING / STRUCTURE
- RAILROAD TRACK
- STEEL WINDS FACILITY BCP SITE (SITE No. C915205)
- WT#1 WIND TURBINE (WT) LOCATION (8)
- MWN-22B EXISTING MONITORING WELL LOCATION
- MWN-01 STEEL WINDS MONITORING WELL LOCATION
- WT1-01 STEEL WINDS ORC WELL LOCATION



**NOTES:**

1. BASE MAP ADAPTED FROM A SITE PLAN PREPARED BY BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC, DATED MAY 2011.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.



NO.	ISSUE/DESCRIPTION	BY	DATE
<b>STEEL WINDS I FACILITY</b> <b>ROUTE 5</b> <b>LACKAWANNA, NEW YORK</b>			
SITE MANAGEMENT PERIODIC REVIEW REPORT JUNE 2021 <b>STEEL WINDS SITE PLAN</b>			
PREPARED BY: <b>GZA GeoEnvironmental of N.Y. Engineers and Scientists</b> 300 PEARL STREET, SUITE 700 BUFFALO, NEW YORK 14202 (716) 685-2300		PREPARED FOR: <b>NIAGARA WIND POWER, LLC</b>	
PROJ MGR:	DJT	REVIEWED BY:	CHECKED BY:
DESIGNED BY:		DRAWN BY:	MDK
DATE:	JUNE 2021	PROJECT NO.:	03.0033579.14
		REVISION NO.:	
			<b>FIGURE</b> <b>3</b>
			SHEET NO. 3 of 3

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

© 2021 - GZA GeoEnvironmental of N.Y. G24-20 (Users) (Michael.Keeves) Desktop / STUFF / Steel Winds 2021 PRN (PRN) Figures 2 & 3 Site Plans.dwg [Figure 3] May 17, 2021 - 11:17am Michael.Keeves

**ATTACHMENT A**  
**LIMITATIONS**



## GEOHYDROLOGICAL LIMITATIONS

### Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

### Standard of Care

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

### Subsurface Conditions

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

6. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

#### Compliance with Codes and Regulations

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

#### Screening and Analytical Testing

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.
10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

#### Interpretation of Data

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

#### Additional Information

12. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

### Additional Services

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

**ATTACHMENT B**  
**INSTITUTIONAL AND ENGINEERING CONTROLS FORM**





**Enclosure 2**  
**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Site Management Periodic Review Report Notice**  
**Institutional and Engineering Controls Certification Form**



	Site Details		Box 1
<b>Site No.</b>	<b>C915205</b>		
<b>Site Name Tecumseh Redevelopment, Inc.-Steelwinds</b>			
Site Address: 1951 HAMBURG TURNPIKE      Zip Code: 14218			
City/Town: Lackawanna			
County: Erie			
Site Acreage: 29.050			
Reporting Period: May 05, 2020 to May 05, 2021			
			YES    NO
1. Is the information above correct?			<input checked="" type="checkbox"/> <input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?			<input type="checkbox"/> <input checked="" type="checkbox"/>
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?			<input type="checkbox"/> <input checked="" type="checkbox"/>
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?			<input type="checkbox"/> <input checked="" type="checkbox"/>
<b>If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.</b>			
5. Is the site currently undergoing development?			<input type="checkbox"/> <input checked="" type="checkbox"/>
			<b>Box 2</b>
			YES    NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial			<input checked="" type="checkbox"/> <input type="checkbox"/>
7. Are all ICs in place and functioning as designed?			<input checked="" type="checkbox"/> <input type="checkbox"/>
<b>IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.</b>			
<b>A Corrective Measures Work Plan must be submitted along with this form to address these issues.</b>			
Signature of Owner, Remedial Party or Designated Representative			Date

**Box 2A**

YES NO

8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?  YES  NO

**If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.**

9. Are the assumptions in the Qualitative Exposure Assessment still valid?  YES  NO  
(The Qualitative Exposure Assessment must be certified every five years)

**If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.**

**SITE NO. C915205**

**Box 3**

**Description of Institutional Controls**

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
141.11-1-1.111	Tecumseh Redevelopment, Inc.	Site Management Plan Ground Water Use Restriction Soil Management Plan Landuse Restriction

- (i) Compliance with the Site Management Plan ("SMP") for the implemented remedy;
- (ii) Maintenance of the 12 inch soil cover system and vegetation over the Site;
- (iii) The groundwater beneath the Site cannot be used as a potable water source or for any other use without the prior written permission of the Department;
- (iv) Groundwater monitoring as specified in the SMP;
- (v) In the event that buildings are constructed, a Department approved evaluation of potential sub-slab vapor impacts will be required.

**Box 4**

**Description of Engineering Controls**

<u>Parcel</u>	<u>Engineering Control</u>
141.11-1-1.111	Cover System

**Periodic Review Report (PRR) Certification Statements**

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES NO

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

(a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and  
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

**A Corrective Measures Work Plan must be submitted along with this form to address these issues.**

\_\_\_\_\_  
Signature of Owner, Remedial Party or Designated Representative

\_\_\_\_\_  
Date

*[Handwritten Signature]*

*6/1/21*



IC CERTIFICATIONS  
SITE NO. C915205

Box 6

**SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE**

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Lily Henning at 200 Liberty Street Floor 14, New York, NY 10281  
print name print business address

am certifying as Niagara Wind Power, LLC (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Lily Henning  
Signature of Owner, Remedial Party, or Designated Representative  
Rendering Certification

6/1/21  
Date

**EC CERTIFICATIONS**

**Box 7**

**Professional Engineer Signature**

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Daniel J. Troy, P.E. at GZA GeoEnvironmental of New York  
300 Pearl St., Buffalo, NY 14202  
print name print business address

Niagara Wind Power (Steel Winds I)

am certifying as a Professional Engineer for the \_\_\_\_\_  
(Owner or Remedial Party)

DJ Troy  
Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification



Stamp  
(Required for PE)

6/2/2021  
Date

**APPENDIX C**  
**SITE PHOTOGRAPHS**



## Periodic Review Report

Steel Winds Site 2021  
BCP Site No. C915205  
Lackawanna, New York

File No. 03.0033579.14



View of Turbine 8 foundation retrofit.



View of typical foundation retrofit rebar.



View of excavation spoil stockpile on plastic during foundation retrofit.



View of typical foundation retrofit area restoration.



Typical view of foundation retrofit work area. Note erosion control wattle.



View of restored cap area of contractor trailer and equipment laydown area.

**Periodic Review Report**

Steel Winds Site 2021  
BCP Site No. C915205  
Lackawanna, New York

File No. 03.0033579.14



View of Turbine 1.



View of turbine blade unloading for upcoming repowering work.



View looking northerly along access road.



View of groundwater monitoring wells within grass covered cap area.



Typical view of grass covered cap.



Southerly looking view of access road and grass covered cap.

**APPENDIX D**

**CONSTRUCTION OBSERVATION NOTIFICATION  
AND SUMMARY REPORT**

## Daniel Troy

---

**From:** Richard Carlone  
**Sent:** Friday, September 4, 2020 12:29 PM  
**To:** Megan.Kuczka@dec.ny.gov  
**Cc:** Edward Summerly; Lily Henning; Ben Wolcott (bwolcott@terraform.com); Daniel Troy  
**Subject:** Steel Winds I Repower Turbine Foundation Retrofits  
**Attachments:** Scope of excavation for foundation retrofits NWPI.docx

Megan,

Terraform Power will be completing a retrofit of the wind tower foundations at the Steel Winds I Site in Lackawanna New York. The work is associated with installation of new turbines in the towers at the Site (referred to as repowering). The foundation retrofit will include excavation of an approximately 12-foot radial area around the turbine pedestal, down to the top of the concrete foundations (a depth of approximately 4 feet), as shown on the attached sketch. All excavation work will be completed above the existing concrete tower foundations, where clean soil backfill was placed during construction. We have reviewed the Site Management Plan and because the exaction work will be conducted within clean soil, we believe that the proposed work does not constitute a cap disturbance and are providing this notification as a courtesy. The work is currently scheduled to start in late September/early October. We'll let you know when the final schedule is determined.

Please let me know if you have any questions or comments, or if you would like to setup a Site visit to observe the work.

Regards,

Rick

**Richard A. Carlone, P.E.**

**Senior Project Manager**

GZA | 188 Valley St, Suite 300 | Providence, RI 02909

o: 401.427.2776 | c: 401.639.0985 | [richard.carlone@gza.com](mailto:richard.carlone@gza.com) | [www.gza.com](http://www.gza.com) | [LinkedIn](#)

**\* Please note: Our office is currently working remotely. I can be reached at 401. 639.0985.**

GEOTECHNICAL | ENVIRONMENTAL | ECOLOGICAL | WATER | CONSTRUCTION MANAGEMENT

Known for excellence. Built on trust.



Known for excellence.  
Built on trust.

GEOTECHNICAL  
ENVIRONMENTAL  
ECOLOGICAL  
WATER  
CONSTRUCTION  
MANAGEMENT

GZA GeoEnvironmental of NY  
300 Pearl Street  
Suite 700  
Buffalo, NY 14202  
T: 716.685.2300  
F: 716.248.1472  
www.gza.com



February 1, 2021  
File No. 03.0033579.12

Benjamin Wolcott  
Director, Operations Project Management  
Brookfield Renewables  
10535 Rynders Road  
Cohocton, NY 14826

**Sent via email**

Re: Post-Construction Closure Report  
Site No. C915205 -Steel Winds I Repower Turbine Foundation Retrofits  
Lackawanna, New York

Dear Mr. Wolcott:

GZA GeoEnvironmental, Inc. (GZA) is pleased to provide you with this closure report which summarizes recent excavation associated with the completed repowering work at the Steel Winds I Site in Lackawanna, New York. Specifically, this work involved the turbine foundation retrofits associated with Turbines 1 through 8, completed between October 2020 and January 2021.

Prior to the start of the retrofit construction, GZA evaluated the planned work activities which called for excavation of an approximate 12-foot radial area around each of the eight turbine pedestals, down to the top of the respective concrete foundations (a depth of approximately 4 to 5 feet). Based on this information, GZA determined the excavation work would be completed within soil backfill that was previously placed during initial turbine construction; and therefore, was not expected to impact or disturb the existing cap system at the Site.

At the request of Brookfield Renewables, Mr. Daniel Troy of GZA visited the construction sites periodically during foundation retrofit construction activities to observe and document the work areas and to confirm that the work was being conducted in conformance with the requirements of the NYSDEC approved Site Management Plan (SMP) for the Site (Site No. C915205).

GZA visited the Site generally weekly between November 19 and January 8, 2021. During these visits, GZA made visual observations of construction activities proximate to each turbine location. After each site visit, GZA prepared a Daily Field Summary Form that summarized our observations and included select photo documentation of the work (see attachments). The excavation limits were observed to be confined to areas surrounding the turbines within a demarcation ring of erosion control material (i.e., straw wattles). No excavation work was observed outside of these ringed areas. Temporary excavation stockpiles were also observed staged inside of the ringed areas and was observed either on plastic sheeting or on the ground surface. No evidence of soil migration outside of the straw wattle ringed areas was noted during out site visits. Excavation work was limited to soil placed as part of turbine installation and as such, no soil testing was required. No soil was imported to or exported from the Site





as part of this work. Subsequent to addition of the concrete turbine support collars, the excavations were backfilled with previously removed material. Any remaining excavation spoil that was unable to be placed around the respective turbine area was reportedly placed, compacted, and graded within select on-Site low spots.

Site observations identified a few localized areas of construction vehicle rutting outside of the ringed work areas. The observed rutting was not a regular occurrence and was typically observed after heavy precipitation at the Site. The observations made did not indicate that rutting penetrated through the designated cover/cap system as the reported wood chip demarcation layer beneath the cover system was never observed.

During the final visit on January 8, 2021, the construction work was completed, and the work areas were observed to be backfilled and compacted, previously observed rutting was regraded and all residual construction waste/debris (e.g., erosion control materials, concrete, etc.) was removed from the Site for disposal as solid waste. Additionally, the contractor's trailer and staged equipment area had been cleared and removed from the Site.

Based on the site observations made during the foundation retrofit construction, it is GZA's opinion that the Site was satisfactorily restored to preconstruction conditions. However, GZA recommends that the area formerly used as a construction laydown area be reseeded in the springtime to reestablish grass cover in this area of the Site.

We trust this letter addresses your current needs. If you have any questions or comments on this information please contact Ed Summerly at 401-374-2314 or Daniel Troy at 716-844-7034, or via email at [edward.summerly@gza.com](mailto:edward.summerly@gza.com) and/or [daniel.troy@gza.com](mailto:daniel.troy@gza.com).

Sincerely,

GZA GEOENVIRONMENTAL of New York

A handwritten signature in blue ink that reads 'Dan Troy'.

Daniel J. Troy, P.E.<sup>NY</sup>  
Senior Project Manager

A handwritten signature in blue ink that reads 'Richard A. Carlone'.

Richard A. Carlone, P.E.<sup>RI</sup>  
Consultant/Reviewer

A handwritten signature in blue ink that reads 'Edward A. Summerly'.

Edward A. Summerly, P.G.<sup>NY, VT</sup>  
Principal / District Office Manager

Attachments: Daily Field Summary Forms

cc: Megan Kuczka - NYSDEC





PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York  
Brookfield Renewables

GENERAL WEATHER CONDITIONS: Mostly Sunny, 55-60  
Wind Speed: 15-20 mph from SW to NE

REPORT: GZA arrived on-Site: 09:30

Site Conditions: Dry

GZA Personnel on-Site: Daniel Troy

---

GZA arrived on the Site around 09:30 A.M. to make observations of foundation work at Turbines 1 through 8. In general, all turbines have previously been excavated to expose the existing foundations to allow for planned upgrades. Each turbine work location was observed surrounded by a large ring of erosion control wattle. The exposed tower foundation excavations were observed surrounded by concrete blocks which were used as excavation sidewall support to allow for safe work areas.

At select turbine locations, construction crews were observed drilling holes in the vertical collar portion of the existing foundations for the purpose of installing steel reinforcement dowels. All work areas and exposed excavations were observed to be secured with signage to keep unauthorized people away from the work areas and no areas of exposed waste materials were observed.

The overall work areas were observed to be clean and organized. Excavation spoil was observed piled within the respective erosion control ringed areas and generally consisting of a mixture of clayey and coarse-grained soil. Some piles were observed with evidence of brick and slag materials possibly generated from the surrounding site materials however no wood chip material (reportedly a cap demarcation layer) was observed. Additionally, no evidence of impacted materials (staining, sheens, odors, etc.) was apparent. Larger stockpiles were observed placed on plastic sheeting and smaller piles were observed placed on the ground surface within the ring of erosion controls noted above. None of the piles were covered with plastic sheeting however, there was no evidence of runoff or migration of stockpiled soil from their respective piles at the time of our observations.

Attached are photographs representative of the observations made on Site.

GZA left Site: 11:30

Prepared by: Daniel J. Troy, P.E.



**Photo 1:** Typical Pre-Excavated Tower foundation with concrete block sidewalls.



**Photo 2:** Typical foundation with drilled holes for steel dowel installation.



**Photo 3:** Foundation excavation work area. Note spoil on plastic sheeting.



**Photo 4:** Excavation Spoil pile with fine and course grained Site fill material (brick, slag, etc.).



**Photo 5:** Excavation spoil on plastic, surrounded by erosion control wattle.



**Photo 6:** Excavation spoil not on plastic but surrounded by erosion control wattle.



## DAILY FIELD SUMMARY FORM

DATE: 12/03/2020

FILE No. 03.0033579.13

REPORT No. 20-02

PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York  
CLIENT: Brookfield Renewables

GENERAL WEATHER CONDITIONS: Mostly Sunny, 40-45° F  
Wind Speed: 20-25 mph from SW to NE (Gusting to 35 mph)

REPORT: GZA arrived on-Site: 13:30

Site Conditions: Dry

GZA Personnel On-Site: Daniel Troy

### SUMMARY OF WORK PERFORMED

GZA arrived on the Site around 1:30 P.M. to make observations of foundation work at Turbines 1 through 8. In general, work areas did not change significantly since the previous Site visit. All turbine locations were previously excavated to expose the existing foundations to allow for planned upgrades. Each turbine work location was observed surrounded by a large ring of erosion control wattle. The exposed tower foundation excavations were observed surrounded by concrete blocks which were used as excavation sidewall support to allow for safe work areas and to keep unauthorized people out of the work areas.

At select turbine locations, construction crews were observed drilling holes in the vertical collar portion of the existing foundations for the purpose of installing steel reinforcement dowels. Turbines 5 and 8 were observed having recently had concrete foundations poured (reportedly about 50 cubic yards per foundation). Turbine 6 was observed fitted with rebar within the existing foundation in anticipation of concrete pour scheduled for Monday, December 7, 2020. All work areas and exposed excavations were observed to be secured with signage to keep unauthorized people away from the work areas and no areas of exposed waste material was observed.

Overall, the work areas were observed to be clean and organized. Similar to the previous site visit, excavation spoil was observed piled within the respective erosion control ringed areas at each location. None of the stockpiled soil was observed having migrated outside of the designated work areas and no evidence of impacted materials (staining, sheens, odors, etc.) was apparent. Larger stockpiles were observed placed on plastic sheeting and smaller piles were observed placed on the ground surface within the ring of erosion control materials noted above. None of the soil piles were covered with plastic sheeting and there was no evidence of runoff or migration of stockpiled soil from their respective piles at the time of our observations.

A few areas of tire rutting from construction vehicles (not exceeding 8-inches) was observed in select areas outside of the respective work areas. These areas will require repair (e.g., regrading and seeding) near the end of the project.

Attached are photographs representative of the observations made on Site.

GZA left Site: 15:00

Prepared by Daniel J. Troy, P.E.





## DAILY FIELD SUMMARY FORM

### SITE PHOTOGRAPHS



**Photo 1:** Typical Turbine work location with stockpile soil inside erosion control wattle.



**Photo 2:** Typical foundation spoils on top of plastic sheeting.



**Photo 3:** Typical foundation spoils on top of plastic sheeting.



**Photo 4:** Turbine 5 with recently poured concrete within formwork.



**Photo 5:** Turbine 6 with installed rebar ready for concrete pour.



**Photo 6:** View of soil cover rutting from construction equipment.



PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York GENERAL WEATHER CONDITIONS: Mostly Sunny, 50-53  
Brookfield Renewables Wind Speed: 5-10 mph from W

REPORT: GZA arrived on-Site: 12:30

Site Conditions: Dry

GZA Personnel On-Site: Daniel Troy

---

GZA arrived on the Site around 12:30 P.M. to make observations of foundation work at Turbines 1 through 8. No construction activities or associated personnel were observed on Site. The work areas in general appeared to be similar to observations made during our most recent visit. Each turbine work location remained surrounded by erosion control wattles, although a section of missing wattle was noted at Turbine 5. The wattle appears to have been removed to allow for construction equipment to access the work area. The tower foundations remained exposed and surrounded by concrete blocks, similar to previous observations.

Turbines 5 and 8 were observed with completed concrete foundations. Turbine 6 was observed with recently poured concrete within associated formwork. Turbines 4 and 7 were observed with steel rebar in place and may receive concrete next week. The remaining turbines 1 through 3 were observed with completed drill holes ready for installation of steel rebar.

Overall, the work areas were observed to be clean and organized. Portable generators and mobile light towers were observed situated on temporary spill control containment and no evidence of petroleum releases was noted.

Similar to the previous site visit, excavation spoil was observed piled within the respective erosion control materials at each location. None of the stockpiled soil was observed having migrated outside of the designated work areas and no evidence of impacted materials (staining, sheens, odors, etc.) was apparent. Larger stockpiles were observed placed on plastic sheeting and smaller piles were observed placed on the ground surface within the erosion control materials. No evidence of runoff or migration of stockpiled soil was noted at the time of our observations and nearby storm drainage basins were observed clean of construction debris and far enough away from work areas.

A few areas of tire rutting from construction equipment were observed in select areas outside of nearby work areas. These areas will require repair (e.g., regrading and seeding) near the end of the project. The wood chip demarcation layer beneath the Sites 12-inch soil cover system was not exposed or apparent within the rutted areas and the observed rutting was not near storm drainage catch basins.

Attached are photographs representative of the observations made on Site.

GZA left Site: 14:15

Prepared by Daniel J. Troy, P.E.





**Photo 1:** Turbine 5 work location with missing erosion control wattle. Note nearby storm drain.



**Photo 2:** Typical work area with generator over temporary spill control containment.



**Photo 3:** Typical rutting observed near Turbine 5. No wood chip demarcation material was observed.



**Photo 4:** Typical storm drain catch basin located outside of designated work area.



**Photo 5:** Turbine 6 with recently installed concrete and associated formwork.



**Photo 6:** View of Turbine 5 with new concrete foundation. Note installation of elevated platform.





PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York GENERAL WEATHER CONDITIONS: Mostly Cloudy, 35 - 40  
Brookfield Renewables Wind Speed: 5-10 mph from W

REPORT: GZA arrived on-Site: 10:00

Site Conditions: Damp from overnight rain  
GZA Personnel On-Site: Daniel Troy

---

GZA arrived on the Site around 10:00 A.M. to make observations of foundation work at Turbines 1 through 8. Construction activities and associated personnel were observed working on Site at Turbines 1, 2, 3 and 6. Each turbine work location remained surrounded by erosion control wattles with the exceptions of Turbine 5, 6 and 8.

Turbines 5, 6 and 8 were observed as having been completed, backfilled and graded. All erosion control materials and concrete blocks were removed from the respective areas. Previously rutted ground surface in these areas were observed as having been repaired and regraded.

Turbines 4 and 7 were observed with new concrete foundations but not yet backfilled. A site contact indicated they are waiting for test results from concrete cylinders from the respective locations before the foundations can be backfilled. Excavation spoils remain stockpiled proximate to the respective turbine tower.

Turbines 1 and 3 were observed being fitted with steel rebar and were reportedly scheduled to receive concrete during the week of December 28.

Several concrete trucks were observed on site placing concrete at Turbine 2.

Overall, the work areas were observed to be clean and organized. Portable generators and mobile light towers were observed situated on temporary spill control containment and no evidence of petroleum releases was noted.

Similar to the previous site visit, remaining excavation spoils were observed piled within the respective erosion control materials at the turbines not yet backfilled. None of the stockpiled soil was observed having migrated outside of the designated work areas and no evidence of impacted materials (staining, sheens, odors, etc.) was apparent. No evidence of runoff or migration of stockpiled soil was noted at the time of our observations and nearby storm drainage basins were observed free of construction debris and loose soil.

No areas of significant tire rutting were observed at the Site.

Attached are photographs representative of the observations made on Site during these observations.

GZA left Site: 12:00

Prepared by Daniel J. Troy, P.E.



**Photo 1:** Turbine 2 work location with concrete being poured. Note erosion control wattle.



**Photo 2:** Turbine 8 foundation completed, backfilled and regraded.



**Photo 3:** Turbine 4 with new poured foundation.



**Photo 4:** View of former tire rutting near Turbine 5. Note former rutting is filled in.



PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York GENERAL WEATHER CONDITIONS: Mostly Cloudy, 35  
Brookfield Renewables Wind Speed: 5-10 mph from West

REPORT: GZA arrived on-Site: 09:00 A.M.

Site Conditions: Dry

GZA Personnel On-Site: Daniel Troy

---

GZA arrived on the Site around 9:00 A.M. to make observations of foundation work at Turbines 1 through 8. Construction activities and associated personnel were limited to a crew removing concrete barriers from Turbine 2 area and crews fastening steel stairs/platforms to select recently completed turbine foundations.

Turbines 5, 6 and 8 were observed with new foundations and associated work areas restored to pre-construction conditions. All erosion control materials and concrete blocks were removed from the respective areas and the surrounding ground surface was graded and compacted. These turbines have since been put back into service. No significant ground surface rutting was observed in these areas.

Turbines 2, 4 and 7 were observed with new concrete foundations and work areas having been backfilled and graded. Concrete barricades were observed stacked near the respective turbines and ready for removal. All erosion control materials have been removed from the Site. These turbines have not yet been put back into service as crews were observed reconnecting the steel stairs/platforms to the new foundation and towers.

Turbines 1 and 3 were observed with newly placed concrete (Turbine 1 reportedly poured on Tuesday, December 29, 2020). These work areas are still surrounded by erosion control materials and associated excavation spoils remain secured on plastic sheeting. No evidence of runoff or migration of stockpiled soil was noted at the time of our observations. These locations are expected to be backfilled and graded during the first week of January

Some remnant concrete slabs (associated with the original stair/platform base) were observed staged near each completed turbine. A site contractor indicated those materials will eventually be removed from the Site. Additionally, any residual vehicle rutting will be repaired/regraded as part of final construction clean-up.

Overall, the work areas were observed to be clean and organized and most of the construction equipment having been removed or staged neatly for eventual removal. Portable generators and mobile light towers were removed from the work areas and were observed staged together near a construction trailer until they can be removed from the Site.

Attached are photographs representative of the observations made on Site during these observations.

GZA left Site: 11:00 A.M.

Prepared by Daniel J. Troy, P.E.





**Photo 1:** Turbine 1 work location with spoil pile.



**Photo 2:** Turbine 2 completed and regraded.



**Photo 3:** Repaired rutting area near Turbine 5.



**Photo 4:** Completed Turbine 7.



**Photo 5:** Completed Turbine 8.



**Photo 6:** Former concrete slab requiring removal.





PROJECT: Steel Winds I  
Foundation Upgrades  
Lackawanna, NY

LOCATION: Steel Winds I, Lackawanna, New York GENERAL WEATHER CONDITIONS: Mostly Cloudy, 30  
Brookfield Renewables Wind Speed: 5-10 mph from Northeast

REPORT: GZA arrived on-Site: 08:30 A.M.

Site Conditions: Dry

GZA Personnel On-Site: Daniel Troy

---

GZA arrived on the Site around 8:30 A.M. to make observations of foundation work at Turbines 1 through 8. Construction activities and associated personnel were limited to a crew removing concrete barriers from Turbine 3 area. The foundation contractors appear to have completed their work and demobilized equipment and construction trailers from the Site.

All eight (8) turbines were observed with new foundations and associated work areas having been restored to pre-construction conditions. All erosion control materials, concrete blocks and construction debris was removed from the respective areas and the surrounding ground surface at each location was graded and compacted. The steel stairs/platforms were observed attached to each of the eight towers and new concrete foundations.

Turbines 2, 3, 5, 6 and 8 were observed as operational.

No significant ground surface rutting was observed at the Site.

Previously observed concrete slabs debris (associated with the original stair/platform base) were removed from the Site.

A site contractor indicated remaining concrete block barriers will be completely removed by next week.

Overall, the work areas were observed to be completed, regraded and generally returned to its pre-construction condition. Based on these observations, GZA does not believe further Site observations are needed.

Attached are photographs representative of the observations made on Site during these observations.

GZA left Site: 10:30 A.M.

Prepared by Daniel J. Troy, P.E.



**Photo 1:** Completed Turbine 1 work location.



**Photo 2:** Completed Turbine 2 work location.



**Photo 3:** Remaining concrete barriers.



**Photo 4:** Former construction trailer area.



**Photo 5:** Former equipment laydown area.



**Photo 6:** Completed Turbine 7 work area.