

**Proposed Madison County
Agriculture and Renewable Energy Business Park**

**Town of Lincoln
Madison County, New York**

**Draft Generic Environmental
Impact Statement**

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COVER SHEET

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Executive Summary

Madison County, herein referred to as “the County” proposes to designate approximately 305 acres of County-owned land along Buyea Road and Tuttle Road for the development of an Agricultural and Renewable Energy (ARE) Park in the Town of Lincoln, Madison County, New York. These lands are generally comprised of permitted or planned soil borrow areas and buffer properties for the County’s active solid waste disposal facility. Sites 1A and 1B, which total approximately 65 acres in size, are located along Tuttle Road. Most of the acreage included in Sites 1A and 1B has been previously approved for use as soil borrow areas, as part of the County’s permitted landfill operation. Site 2 consists of approximately 218 acres of land, located on the east side of Buyea Road, opposite the operating Madison County Landfill, and approximately 12 acres located on the west side of Buyea Road at the south entrance to the landfill.

Numerous studies and surveys have shown the need for locally based support industries for agricultural producers in Madison County. Efforts to attract tenants to the ARE Park will be targeted toward attracting businesses that will coincide with the areas regional strengths and likely include those that produce, process, store, and ship a variety of meat, seafood and agricultural products, wood products, products manufactured from recycled materials, and specialty industries. Businesses in the ARE Park will have access to reliable, locally generated sources of green energy, including electrical energy from the Landfill-Gas-to-Energy facility and a solar energy cap located at the Madison County Landfill.

The action involves several components which are dependent upon each other and mutually support the development of the ARE Park:

- Reclamation of soil borrow areas 1A, 1B and 2 to meet approved Soil Borrow Area Use Plan requirements and grade for redevelopment as a business park.
- Extension of municipal water service from the Onondaga County Water Authority’s (OCWA) water transmission facilities south of the Village of Canastota
- Extension of sanitary sewer service from the City of Oneida to serve the sanitary and process needs of businesses and industries locating at the ARE Park as well as serve the current landfill operations needs.
- On-site construction of roads and infrastructure necessary to support industrial development
- Tenant specified construction of buildings, parking areas and appurtenances required for businesses in the ARE Park. The actual size and location of buildings, parking areas and appurtenances required by tenants will be determined on a case by case basis.

Development of the ARE Park has the potential to cause the following impacts at full build out:

- 117 acres of impervious surface area
- 21.4 acres of building floor area (932,184 square feet)
- 582 employees
- 29 businesses

This document evaluates acceptable thresholds for impacts related to noise, traffic, stormwater storage and discharge, vibration, air emissions, water usage and sanitary sewer discharge. These thresholds are detailed in Chapter 2 of this document. Individual park tenants whose impacts exceed these thresholds will be required to complete a supplemental evaluation of those impacts and provide mitigation.

Impacts to wetlands will be avoided by limiting grading and construction to areas outside of delineated wetlands and using directional boring methods to construct water mains and sanitary sewer mains beneath affected waterways. Impacts to cultural resources will be also be avoided by limiting construction to previously cleared areas. Visual impacts from construction of the project are minimal and not significant.

1.0 Introduction

Madison County, herein referred to as “the County” proposes to designate approximately 305 acres of County-owned land along Buyea Road and Tuttle Road for the development of an Agricultural and Renewable Energy (ARE) Park, herein referred to as “ARE Park”, in the Town of Lincoln, Madison County, New York. These lands are generally comprised of permitted or planned soil borrow areas and buffer properties for the County’s active solid waste disposal facility.

Designated ARE Park lands are located on two County-owned parcels. Discrete sections of the ARE Park are labeled Site 1A, Site 1B, and Site 2 for identification purposes. These lands are shown in Figure 1.1. Sites 1A and 1B, which total approximately 65 acres in size, are located along Tuttle Road. Most of the acreage included in Sites 1A and 1B has been previously reviewed and approved for use as a soil borrow area, as part of the County’s permitted landfill operation.

Site 2 consists of approximately 218 acres of land, located on the east side of Buyea Road, opposite the operating Madison County Landfill, and approximately 12 acres located on the west side of Buyea Road at the south entrance to the landfill.

The ARE Park is envisioned as a business and industrial park site that will meet the unique and special needs of businesses that will produce, process, store, and ship a variety of meat, seafood and agricultural products, wood products, products manufactured from recycled materials, and specialty industries. Businesses that locate in the ARE Park will have access to a reliable, locally generated source of green energy. The adjacent landfill gas-to-energy (LFGTE) facility, owned and operated by Waste Management Renewable Energy, LLC (WMRE) in accordance with a contract with Madison County, can supply up to 42.7 billion British Thermal Units (btu) of green thermal energy a year. A total of 12 million kilowatt-hours (kwh) of low-cost green energy would also be available to park tenants, subject to agreements between the tenants and the LFGTE facility.

1.1 Description of the Action and Setting

Description of the Action. The action involves several components which are dependent upon each other and mutually support the development of the ARE Park:

- Reclamation of soil borrow areas 1A, 1B and 2 to meet approved Soil Borrow Area Use Plan requirements and grade for redevelopment as a business park.
- Extension of municipal water service from the Onondaga County Water Authority (OCWA) water storage facility south of the Village of Canastota to serve the needs of industries and businesses locating at the ARE Park.

- Extension of sanitary sewer service from the City of Oneida to serve the sanitary and process needs of businesses and industries locating at the ARE Park. Once this sanitary sewer service is available to the ARE Park, it will also eliminate the need to truck landfill leachate to a sewage treatment facility.
- On-site construction of roads and infrastructure necessary to support industrial development at the ARE Park.
- Tenant specified construction of buildings, parking areas and appurtenances required for businesses in the ARE Park. A conceptual site design is shown in Figure 1.2, for illustrative purposes. The actual size and location of buildings, parking areas and appurtenances required by ARE Park tenants will be determined in the future through discussions with each prospective tenant.

Project Setting. The project site is located in the Town of Lincoln, approximately three miles south of the Village of Wampsville, four miles southeast of the Village of Canastota, and five miles southwest of the City of Oneida. The project area is divided by Madison County Route 54 (Buyea Road), which serves as the main access to the operating landfill. The western area of the project has access from Tuttle Road. Beyond the limits of the project site are County Route 27 (Timmerman Road) to the north, Eddy Road to the south and County Route 29 (Creek Road) to the east.

Sites 1A and 1B are located west of Madison County's operating landfill site on the west side of Limestone Creek. This site includes active and abandoned agricultural lands, a small wetland in the center of an agricultural field, and a deciduous forested corridor along the stream channel of Limestone Creek. The primary access to Sites 1A and 1B will be from Tuttle Road. Site 1A consists of approximately 50 acres of open agricultural field with a high point along Tuttle Road, and sloping gradually toward Limestone Creek, which divides the property from the operating landfill site.

Site 1B consists of a long, narrow, irregularly shaped, north-south oriented property with frontage along Tuttle Road. The site slopes gradually to the east, draining into Limestone Creek. Land use on the site consists of approximately 15 acres of agricultural land (primarily corn field), and a section of the deciduous wooded riparian corridor of Limestone Creek.

Land uses found on Site 2 include active and abandoned agricultural lands, mixed forest areas, unvegetated fill areas and disturbed soil areas. Some of the disturbed areas are associated with the storage and handling of bulky recyclable materials, and appurtenances related to the operation of a residential waste drop-off station. The primary access points for Site 2 are expected to be

from Buyea Road. Portions of Site 2 are expected to be used initially for soil mining activities associated with the County's adjacent landfill operation. It is currently anticipated that any such soil mining activity would be undertaken prior to, or concurrently with, the development of that portion of Site 2. The limits of this potential mining area will be determined in the future.

The project site is not currently served by public water or sanitary sewer. The landfill office and shops currently utilize groundwater wells as a source of water. Electric service is available at the site from National Grid and an operating LFGTE facility on-site. The addition of electric power from flexible solar photovoltaic membranes became operational in October 2011; this solar power is being used by the on-site materials recycling facility.

1.2 Impacts of the Action and Mitigation

1.2.1 *Historic and Archaeological Resources*

A detailed report of archaeological investigations on Sites 1A, 1B, and 2 is contained in Appendix A. A summary of the results of these investigations is included in Table 1.1.

Site	Dates of Investigation	Remarks
1A	2004-2010	The upper (western) field area of Site 1A was cleared during a series of Phase 1A and 1B investigations conducted as part of the landfill expansion and borrow area approvals. A Phase 1A and 1B investigation of the lower (eastern) field bordering the wooded slope of Limestone Creek showed no significant cultural materials. Cultural resource clearance of the eastern area of this site is recommended. ¹
1B	2004 – Cleared as part of Madison County Landfill Expansion	Three areas of historic scatter identified, but none of these areas were considered potentially significant. No further investigations recommended. Details are incorporated in Appendix A.

¹ Alliance Archaeological Services. December 30, 2011. *Phase IA Archaeological Background and Literature Review and Phase IB Archaeological Field Reconnaissance Report of the Proposed ARE Park Project Site in the Town of Lincoln, Madison County, New York*, p. 64.

Table 1.1. Summary of Archaeological Investigations and Clearances		
Site	Dates of Investigation	Remarks
2	2009-2011	<p>A 130-acre (western) section of Site 2 was investigated in 2009. No potentially significant cultural data were identified and no further archaeological investigations within the 2009 APE were recommended.</p> <p>Following consultation with the Oneida Indian Nation and OPRHP, a subsequent investigation of the remaining unsurveyed acreage within Site 2 was conducted. Significant cultural resource materials from four sites were discovered in a flood plain cornfield adjacent to Cowaselon Creek. Further archaeological investigation of this area is recommended.</p> <p>Madison County has indicated that this archaeologically sensitive area will be avoided by all earth-moving and surface-disturbing activities, and that a conservation easement will be developed to protect the integrity of this area.</p>
Water and Sewer Main Preferred Alignments	2010	<p>Preferred alignments for extension of water and sanitary sewer mains were investigated by the Rochester Museum and Science Center, Archaeological Services group. The study concluded that the Area of Potential Effect had been disturbed by previous road building, construction, and utility installation. Undisturbed areas of the APE did not yield any cultural materials. The report concluded that no further investigation was warranted, and that Section 106 requirements had been satisfied²</p>

The County has provided conservation easements to preserve cultural resources identified in connection with previous Archaeological Resource investigations, and will provide easements to protect significant cultural resources that may be identified by on-going studies.

1.2.2 Noise Impacts and Mitigation

A noise assessment was conducted for the proposed ARE Park project site using guidance from the NYS Department of Environmental Conservation³. Background noise levels were obtained by monitoring the project site at one location on Tuttle Road and two locations on Buyea

² Rochester Museum and Science Center, Archaeological Services. November 29, 2010. *Cultural Resource Management Report Phase I Cultural Resource Reconnaissance Survey for the Proposed Madison County ARE Park Water and Sewer Mains*, p. 21.

³ New York State Department of Environmental Conservation. 2001. *Assessing and Mitigating Noise Impacts*. Program Policy DEP-00-1 (revised), 28 pages.

Road. Monitoring was conducted during landfill operating and non-operating hours to determine existing background noise conditions.

Typical background noise levels along Tuttle Road ranged from 51.8 dBA during operational hours to 52.9 dBA during non-operational hours. The slight increase in noise during non-operational hours may be due to increased vehicular traffic on Tuttle Road during the PM peak traffic hour. Typical weekday background noise levels on Buyea Road ranged from 62.9 dBA to 63.8 dBA during landfill operating hours. Background noise levels during non operating hours ranged from 60 dBA to 62.1 dBA.

Observational data showed that the noise levels at all three monitoring stations were due to passing traffic, and were not the result of landfill operations.

An Leq sound level of 65 dBA at 50 feet from the source was considered to be typical of a rural industrial noise source. At an assumed distance of 200 feet from the noise source, the increase in noise (existing plus proposed source) is anticipated to be approximately 3.1 dBA along Tuttle Road. The increase in noise is expected to be a maximum of 3 dBA along Buyea Road. The NYS Department of Environmental Conservation considers a 6 dBA increase in noise to be significant. Based upon this analysis, no mitigation measures will be required for noise impacts less than 6 dBA over ambient levels. Projected noise levels of individual ARE Park occupants will be evaluated as part of the site plan review process. It is anticipated that mitigation measures to reduce noise impacts will be required for business park occupants whose operations or business activities may exceed the 6 dBA threshold. Mitigation measures may include but are not limited to:

- Placement of process equipment inside of structures;
- Use of dampers, noise filters, and enclosures on heating, ventilating and air conditioning equipment; and
- Use of noise barriers such as earthen berms, vegetation barriers, and other screens to attenuate noise sources.

1.2.3 Traffic Impacts and Mitigation

Traffic impacts resulting from the development of the ARE Park were analyzed by determining existing and predicted Levels of Service (LOS) along Tuttle Road and Buyea Road. Traffic data including vehicle count, vehicle classification, and speed data were collected on Buyea Road and Tuttle Road with traffic tubes in 2011. Traffic on Buyea Road consists of local traffic, commercial trucks, and agricultural vehicles. A

Level of Service traffic analysis was completed to determine the current and future use and capacity of the transportation system adjacent to the ARE Park site. The level of service evaluation was performed using Highway Capacity Software (HCS+, version 5.3) which automates the procedures contained in the 2000 Highway Capacity Manual. The level of service calculation for the future condition included the development of the proposed ARE Park site. A background traffic growth rate of 0.5% per year was used to estimate future no-build conditions.

The ARE Park build out analysis estimated a total of 288 new vehicle trips during the AM peak hour (248 trips entering and 40 trips exiting) and 285 new vehicle trips during the PM peak hour (57 trips entering and 228 trip exiting). However, given the rural character of the area it is possible that upon completion of the project, the actual traffic volumes generated by the project may be less than estimated.

The level of service along Buyea Road could degrade from an existing LOS B to a LOS C upon build-out. As described in the analysis, traffic flows are expected to be stable but are susceptible to congestion due to slow moving vehicles. According to New York State Department of Transportation standards, Level of Service C is considered to be an acceptable impact. Based upon the review of existing and projected traffic impacts, no mitigation measures will be required unless the change in level of service exceeds Level C.

1.2.4 Air Quality Impacts and Mitigations

The project area is located in an attainment area for criteria air pollutants. Level 1 Ambient Air Quality Standards apply to this site per 6 NYCRR Part 284.3. Level 1 air quality standards apply to areas dominated by timber, agricultural crops, dairy farming, recreation, residences and sparsely scattered industries. Permitted air emission sources located adjacent to the project site include the Madison County Landfill, a Title V Air Facility, and the Waste Management Renewable Energy Facility, a State Air Facility. In general, potential air emissions from the proposed project may include combustion emissions from facility heating systems and minor industrial process-specific emissions associated with each individual park occupant.

Air emissions from a new facility may be subject to regulation by the NYS Department of Environmental Conservation or the U.S. Environmental Protection Agency. The NYS Department of Environmental Conservation air permitting program is required by the USEPA Clean Air Act, and is administered by the NYSDEC's Division of Air Resources (DAR). NYSDEC requires that sources operating in New York State

obtain air permits prior to constructing and operating the source of air emissions, unless the activity or air source is specifically exempt from regulation. All non-exempt air emission sources are regulated under one of the following permitting structures:

- Title V Facility Permit (USEPA)
- State Facility Permit
- Air Facility Registration

Facilities which generate emissions greater than the Major Source Thresholds summarized in Chapter 4 will be required to obtain a Title V permit. Title V permits include facilities that are considered to be major by NYSDEC Regulations, or that are subject to USEPA New Source Performance Standards (NSPS) or other requirements for Hazardous Air Pollutants (HAPs) such as the National Emission Standards for Hazardous Air Pollutants (NESHAP). These two programs maintain industry specific regulations that require permitting and control of regulated emission sources.

Facilities emitting between 50 and 90 percent of the Major Source values are eligible for the State Facility permit. State facility permits are issued to facilities that are not considered to be major, and meet department specifications. Sources that accept federally enforceable limits on the potential to emit of the facility to less than major source levels may also qualify for a State Facility Permit. Facilities emitting below 50% of the threshold values are eligible to obtain a State Air Facility Registration.

Based upon the potential industries that are likely to locate in the ARE Park, emissions are anticipated to be less than major source thresholds. It is anticipated that combustion units such as facility boilers, heaters and process dryers will be the dominant emission sources from the project. Depending upon the size and fuel type, these sources may be exempt from permitting or subject to New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Air Pollutants (NESHAPS) regulations. NSPS regulates small boilers with a maximum heat input capacity between 10 million British thermal units (BTU)/hour and 100 BTU/hour. Currently, NYSDEC exempt activities per 6 NYCRR Subpart 201-3 include stationary or portable combustion installations with a maximum rated heat input capacity less than 10 million BTU/hour burning fossil fuels, other than coal, and wood fired stationary combustion units with a maximum heat input less than 1 million BTU/hour. These exempt sources do not specifically require permitting.

For any new industry, there will likely be minor particulate emissions from mobile sources such as employee vehicles, truck traffic, and site vehicles which are not subject to NYSDEC permitting, as well as minor particulate emissions from industrial process operations. Minor volatile organic compounds could also be emitted from agricultural and food production processes. Agricultural and food service industries that are currently exempt from air regulations include:

- Feed and grain milling, cleaning, conveying, drying and storage operations, including grain storage silos, where such silos exhaust to an appropriate emission control device, excluding grain terminal elevators with permanent storage capacities over 2.5 million US bushels and grain storage elevators with capacities above one million bushels.
- Equipment used to slaughter animals, but not including other equipment at slaughterhouses, including rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
- Flour silos at bakeries, provided all such silos are exhausted through an appropriate emission control device.
- Emissions from flavorings added to a food product where such flavors are manually added to the product.

Industrial process particulate emissions will be mitigated as required through operational practice, equipment installations and designed air pollution control strategies to prevent significant air quality impacts. Volatile organic compounds and other potentially hazardous air pollutants will be addressed by installing filtration, neutralization and other control measures to convert the emission to a non-hazardous compound or reduce or avoid emissions.

1.2.5 Visual Impacts and Mitigations

A desktop viewshed analysis of the proposed project was conducted using guidance documents from the NYS Department of Environmental Conservation⁴ and the U.S. Department of Transportation⁵. Viewshed mapping was completed using United State Geological Survey (USGS) 10 meter digital elevation model (DEM) data with ESRI's ArcInfo 10.0 desktop Geographic Information System (GIS) software with the

⁴ New York State Department of Environmental Conservation. 2000. *Assessing and Mitigating Visual Impacts*. Program Policy DEP-00-2, 15 pages.

⁵ U.S. Department of Transportation, Federal Highway Administration, Office of Environmental Policy. Undated. *Visual Impact Assessment for Highway Projects*. Publication No. FHWA-HI-88-054.

Spatial Analyst extension. The viewshed maps define the maximum viewable areas from which any portion of the existing development and the proposed development can be seen within a five (5) mile radius of the ARE Park site. A maximum building height of fifty (50) feet was used to model the visibility of buildings within the ARE Park site. The study also incorporated existing topography with vegetation into the analysis. The study showed that the ARE Park development will be visible to approximately three percent (3%) more land area within the five mile radius under the developed condition than under the existing condition. No National Register listed or eligible historic properties are located within a one-mile radius of the ARE Park sites. A few scattered residences may have a view of the ARE Park site, but this is considered to be an acceptable impact.

Mitigation measures that may be considered to reduce visual impacts to nearby residences may include, but are not limited to:

- Maintenance of existing vegetation and hedgerows as visual barriers, wherever feasible.
- Planting vegetation and construction of berms to limit visibility of interior buildings and process equipment.
- Use of natural materials for building construction, earth-sheltered and other low visual impact construction methods.

1.2.6 Community Character Impacts and Mitigation

Development of the ARE Park has the potential to cause the following impacts at full build out:

- 117 acres of impervious surface area
- 21.4 acres of building floor area (932,184 square feet)
- 582 employees
- 29 businesses

Construction of buildings and operation of businesses at the ARE Park may increase the need for community services such as fire protection and emergency medical services or transport. Impacts may be minimized by training business staff within the ARE Park to provide first-responder level emergency medical services (e.g., stabilize injured workers, use of AED and resuscitation methods, recognition of signs of stroke, shock, heat exhaustion, etc.), maintaining a business-specific Health and Safety Plan, and coordinating with local police, emergency and fire protection services. If potentially hazardous materials are used on the premises, the use, storage, handling and disposal of these materials

will be governed by a business specific Hazardous Materials Management Plan.

Building construction will be required to comply with applicable building and fire protection codes.

The project will not adversely affect any recreational resources. The project is likely to create a beneficial economic impact in the community by increasing the number of jobs and the need for goods and services that support the businesses that are anticipated to locate in the ARE Park.

1.2.7 Wetland Impacts and Mitigation

Areas meeting jurisdictional criteria for wetlands regulated under Section 404 of the Clean Water Act were delineated for proposed water main and sewer main alignments and within the ARE Park sites by Barton and Loguidice staff during 2009 and July, 2011. No wetland impacts are anticipated from either construction of the ARE Park or the proposed utilities. Wetlands within the ARE Park will be avoided. It is anticipated that directional boring of utilities will avoid disturbance of stream channels or wetlands along the proposed utility alignments.

1.3. Alternatives

1.3.1. Water Service Alternatives

1.3.1.1 No Build Alternative for Water Extension

Under this alternative, no public water mains would be extended to serve the project site. The intensity of site development would be limited to those uses which could utilize existing groundwater or surface water sources (wells or Limestone or Cowaselon Creeks). This alternative would likely limit the use of the site to continued agricultural use, or other uses that would not require substantial amounts of potable water. Potential uses that would not require much potable water include warehousing, construction/demolition debris processing, recycling activities, composting, and processing of agricultural plastic wastes.

1.3.1.2 Extension of Public Water to the ARE Park Site from the Onondaga County Water Authority's Water System

This alternative involves the installation of approximately 21,500 linear feet of 10-inch water mains and appurtenances along Oxbow Road, Old County Road, Timmerman Road, Tuttle Road

and Buyea Road, a duplex pumping station and 250,000 gallon elevated water storage tank. OCWA has indicated that there is currently no available capacity from the existing OCWA facilities. However, a looped water distribution system is currently under construction around the North Shore of Oneida Lake. Once this construction is completed, it is anticipated that the amount of water available to eastern shore communities will increase to about 1.75 MGD.

1.3.1.3 Use of a Groundwater Source Located Southwest of the ARE Park

This alternative involves the installation of approximately 20,500 linear feet of 10-inch water main and appurtenances along Nichols Pond Road, Alene Corners Road, Oxbow Road, Tuttle Road and Buyea Road, groundwater exploration/investigations, well construction, a water treatment building, and a water storage tank. The construction of the wells and water treatment building will require the acquisition of about one (1) acre of land.

The County prefers the OCWA alternative because water system ownership imposes a variety of new and costly responsibilities for public health. With the OCWA alternative, the costs of operating and maintaining the system are borne by the system users. However, the exigencies of meeting the needs of business occupants at the ARE Park and correcting certain non-compliant features of the existing water supply at the landfill may require the County to select the groundwater alternative.

1.3.2 Sanitary Sewer Service Alternatives

1.3.2.1 No Build Alternative

A no build alternative for sanitary sewer service for the project area would continue to maintain the existing on-site wastewater treatment systems for existing operations within the ARE Park footprint. Existing on-site wastewater treatment systems consist of conventional septic systems with holding tanks, distribution boxes and leach fields. This alternative is not feasible because wastewater volumes and wastewater strength from operations proposed at the ARE Park may result in potential overloading of existing soil systems and inadequate treatment of effluent wastes.

1.3.2.2 Construction of Sanitary Sewer to Village of Canastota

This alternative would consist of the construction of a sanitary sewer line from the ARE Park site to the Village of Canastota Wastewater Treatment Plant. This alternative was discussed with the Village Engineer, who determined that a headworks analysis would be required to determine whether the facility has the capacity to treat effluent originating from the ARE Park. A comparison of the cost of constructing sewer mains from the ARE Park to the Village of Canastota and to the City of Oneida was also completed. This Canastota wastewater treatment alternative is not considered feasible because the Village of Canastota WWTP would require significant upgrades and it is anticipated the necessary improvements would require a significant capital investment. In addition, the cost of constructing the sewer to Canastota exceeds the cost of constructing it to the City of Oneida.

1.3.2.3 Construction of Sanitary Sewer to the Oneida City Wastewater Treatment Plant

This alternative would consist of the construction of a sanitary sewer main from the ARE Park and Madison County Landfill sites to the City of Oneida along Buyea Road and then along Upper Lenox Avenue to the City's existing collection system located near NYS Route 5. The City has indicated that it could offer a treatment capacity of about 200,000 gallons per day. Under this alternative, the sanitary sewer would convey sanitary sewer waste from ARE Park operations and the Madison County Landfill, as well as leachate from the landfill. The volume of leachate produced by the landfill is generally about 20,000 gallons per day. This alternative is considered a feasible alternative because it offers the potential to develop the ARE Park site as an industrial park.

1.4 SEQR Overview

The environmental review of the proposed ARE Park began in 2009 with the preparation of a Full Environmental Assessment Form. Madison County, as Lead Agency for the project, completed coordinated review of the project in 2010. Involved agencies included the following agencies:

- New York State Department of Environmental Conservation (NYSDEC)
- New York State Department of Health (NYSDOH)

- New York State Environmental Facilities Corporation (NYSEFC)
- Madison County Department of Health (MCDOH)
- Madison County Industrial Development Agency (MCIDA)
- Onondaga County Water Authority (OCWA)
- Town of Lenox
- Town of Lincoln
- City of Oneida
- Village of Canastota

A positive declaration on the ARE Park project was issued by Madison County on February 10, 2011. A public notice of the positive declaration and a public scoping meeting was published in the NYSDEC Environmental Notice Bulletin and in the Oneida Daily Dispatch newspaper. A public Scoping Meeting was held on March 7, 2011 at the Madison County Office Building, 138 North Court Street, Wampsville, NY. A draft Scoping Document was provided both on-line at <http://www.madisoncounty.org> and in hard copy at the meeting. A final Scoping Document for the ARE Park Draft Generic Environmental Impact Statement was issued by Madison County on April 2011. Potentially significant issues identified during the scoping process included: (1) Impacts to Historic and Cultural Resources; (2) Impacts to Geology and Soils; (3) Water Resources; (4) Ecology; (5) Land Use and Community Character; (6) Visual Resources; (7) Air Quality; (8) Traffic; and (9) Noise.

1.5 Segmentation

Madison County issued a draft request for proposals (RFP) on January 7, 2009 to solicit proposals from businesses that may be interested in using thermal energy from the LFGTE plant. The Johnson Brothers Lumber Company of Cazenovia responded to the RFP, proposing to design, construct and operate a lumber kiln facility on county property. It will be located on approximately 2 acres of the County's landfill site, on the west side of Buyea Road, south of the existing truck entrance road for the landfill site. The Johnson Brothers kiln facility is not considered part of the ARE Park development. This facility is being developed independently of the ARE Park, and has a separate timeline and schedule for becoming operational.

Segmented environmental review of projects is contrary to the intent of the State Environmental Quality Review Act. Reviewing the "whole action" is an important principal in SEQR; interrelated or phased decisions should not be made without consideration of their consequences for the whole action, even if several agencies are involved in such decisions.

The following table presents an analysis of the Johnson Brothers Lumber Company (JBL) application and the County's decision to separate its review from the environmental review of the ARE Park.

Table 1.2 Determinants of Segmented Review		
Segmentation Element	Review Question	Response
Purpose of Project	Is there a common purpose or goal for each segment?	No. The purpose of the JBL project is to construct a lumber kiln facility that can take advantage of waste heat from the LFGTE plant.
Time	Is there a common reason for each segment being completed at or about the same time?	No. For business reasons, the JBL project is being progressed at a faster pace than the ARE Park.
Location	Is there a common geographic location.	Yes. The ARE Park is also located at the Madison County Landfill site.
Impacts	Does the JBL facility share a common impact that may, if the projects were reviewed as one project, result in a potentially significant adverse impact, even if the impacts of single activities are not necessarily significant by themselves.	No. The JBL kiln facility will not have any significant adverse effects on the environment. The operation of the kiln facility is completely independent of any other business operations that may develop within the ARE Park.
Ownership	Does the JBL facility share ownership or control with any aspect of the ARE Park?	No. The JBL facility will be owned and operated by the Johnson Brothers Lumber Company, which is a privately owned business that is completely separate from the governmental unit of Madison County.
Common Plan	Is the JBL facility a component of an identifiable overall plan?	No. Operation of the JBL kiln facility will have no effect on the operation or development of any other parts of the ARE Park.
Utility	Is any part of the JBL project dependent upon the ARE Park?	No. The JBL kiln facility is entirely independent of the ARE Park. It will not require sanitary sewer or public water for operation.
Inducement	Does the approval of the JBL facility commit any agencies to approve other phases of the ARE Park?	No.

This lumber kiln facility underwent a separate planning and environmental review process. While this lumber kiln facility, the landfill and the gas recovery and power production facility are co-located at the Madison County Landfill, each facility is separately owned, has its own function, and serves its own purpose. The separate environmental review of this proposed Johnson Brothers project will not determine future development in and around the landfill facilities or the ARE Park.

1.6 Organization of this DGEIS

This document presents conceptual development area, site occupancy and operation parameters for the proposed ARE Park. These conceptual parameters form the basis for the environmental impact assessments and studies that have been undertaken to complete the DGEIS. The intent of the hypothetical plan and impact assessment is to identify, assess and present mitigation measures for potentially significant environmental impacts as early in the planning process as possible. This approach ensures that development of the ARE Park will take place in an environmentally sound manner and expedites future economic development efforts for companies choosing to locate at the ARE Park.

2.0 Description of the Proposed Action

2.1 Project Purpose and Need

The purpose of the proposed project is to provide an economically stimulating, environmentally sound, and shovel ready development area that would be beneficial to the surrounding community and that would provide an opportunity for future industrial and commercial facilities to utilize green initiatives in their business plans.

Economic development is key to the future of Madison County. Between 2000 and 2009, Madison County suffered the loss of many manufacturing jobs that once formed the backbone of the regional economy. Many displaced workers have found it necessary to accept lower-wage jobs to stay in the area, or have had to leave the area to find better opportunities. The need for jobs is critical for the county and the region to retain its workforce, and provide employment opportunities for young people entering the workforce. Several needs have been identified as critical to sustaining growth and development in Madison County. These include:

- Improved employment opportunities for County residents;
- Improved business opportunities for entrepreneurs to develop green businesses; and
- Tax revenues from the addition of more businesses and employee wages.

The Madison County Agriculture and Farmland Protection Plan (2005) identified marketing the County's agricultural products and services as a primary priority. Creation of market opportunities and encouragement of value-added enterprises were cited as the means to achieve this priority.

Madison County has taken the pro-active step of facilitating the development of a Landfill Gas to Energy Plant at the Madison County Landfill site on Buyea Road

2.2 Location and Current Land Use

The proposed ARE Park site consists of 3 parcels of County-owned land located on Tuttle and Buyea Roads in the Town of Lincoln, Madison County, New York. These parcels are generally described in Table 2.1 and are shown in Figure 2.1.

Table 2.1 Summary of Project Site Locations						
Parcel Number	Size (acres)	Land Uses				
		Agriculture	Fallow Agricultural	Wooded/Riparian Channel	Wetland/Pond	Recycling/Other Uses
1A	50	29	20	0	1	0
1B	15	15	0	0	0	0
2	230	100	35	34	25	36

The project site is located approximately three miles south of the Village of Wampsville, four miles southeast of the Village of Canastota, and five miles southwest of the City of Oneida. The project site is divided into two sections by Madison County Route 54 (Buyea Road), which forms the main access to Site 2. Sites 1A and 1B are accessible from Tuttle Road, are located on the west side of Buyea Road and are separated from the main operating area of the Madison County Landfill by the riparian corridor of Limestone Creek. Site 2 is located primarily on the east side of Buyea Road, but includes a small portion on the west side of Buyea Road adjacent to the landfill main entrance.

2.3 Extension of Utilities

The project site is not currently served by either public water or municipal sewer. Extension of public water and sanitary sewer service or the development of a groundwater source of potable water and an on-site wastewater treatment facility will be required for development of the proposed project. Conceptual plans showing the proposed locations of water and sewer mains are shown in Figures 2.2 and 2.3, respectively.

2.3.1 *Municipal Water Supply*

Two alternatives are currently being evaluated to provide water service to the ARE Park site. These include (1) the extension of public water from the Onondaga County Water Authority (OCWA) Water Storage Tank south of the Village of Canastota and (2) the potential development of one or more groundwater wells located along Tuttle Road approximately one mile southwest of the project site.

2.3.1.1 Extension of Public Water from OCWA Water Storage Tank

One of the options being considered for water service for the proposed ARE Park is a connection to existing Onondaga County Water Authority (OCWA) facilities in the Canastota area. OCWA has indicated the quantity of water available to areas in the eastern most portion of their system (i.e., western Madison County area) is

currently limited; therefore, OCWA is reserving the remaining capacity for areas that are within the footprint of OCWA's existing infrastructure. Thus, OCWA has indicated that currently there is no available capacity for expansion into new service areas, such as the Madison County ARE Park.

OCWA is, however, currently working with the Town of Constantia on the North Shore Water System, which would involve the extension of water transmission mains along the northern portion of Oneida Lake (i.e., provide a hydraulic loop of Oneida Lake) and provide an increased transmission capacity of 1.75 million gallons per day to the eastern most portion of their system. It is anticipated that the North Shore Water System project will be completed within 3-5 years resulting in additional system capacity for OCWA to provide water supply to the ARE Park.

The proposed facilities required to serve the ARE Park include 4.1 miles of 10-inch transmission main, a duplex pumping station and a 250,000 gallon elevated water storage tank. A potential site for the duplex pumping station is adjacent to the existing water tank in the Village of Canastota. It is anticipated that the elevated tank could be located on Madison County owned land adjacent to ARE Park Site #1. Based on topography between the existing Canastota tank and ARE Park, anticipated pressures in the transmission main would be vary between 55 psi and nearly 200 psi, dependent upon actual ground elevation.

Upon completion of the North Shore Water System project, the only anticipated impact the ARE Park project would have on existing OCWA customers would be increased normal system pressures for 10-15 houses along Oxbow Road in the Town of Lenox. To alleviate this impact, pressure-reducing valves for these houses would be included in the project. Water quality has been identified as a potential concern since the proposed facilities would be located at the far end of the system. In order to maintain adequate water quality, it is anticipated that water will need to be periodically flushed from the system and that the cost of water used for this purpose would be charged to the system owner.

Service to potential customers along the transmission main in the Town of Lincoln would require the formation of a special improvement district. If the Town of Lincoln proceeds with formation of a water district, variable frequency drives (VFDs) could be installed at the pump station to deliver water to an intermediate tank, which would be constructed as part of Town facilities along

with a second pump station. This would reduce the highest pressure along the transmission main from approximately 200 psi to 120 psi.

Anticipated water usage from the ARE Park would be limited to approximately 180,000 gallons per day, based upon the available treatment capacity at the City of Oneida Wastewater Treatment Plant.

2.3.1.2 Development of Groundwater Source

Under this alternative, two or three wells, each with a capacity of approximately 140 gallons per minute (gpm) would be developed at a location off Tuttle Road, approximately one mile southwest of the southwest corner of the Madison County Landfill property. A water treatment plant would also be required for the production of potable and process-quality water. Treatment would likely consist of bag filtration, ultraviolet disinfection, chlorination, and corrosion control. An 8 in. ductile iron water main would be constructed from this water treatment facility to the landfill site along Tuttle Road, thence easterly across Limestone Creek, to Buyea Road, thence northerly along Buyea Road to the northern limit of County-owned lands along the east side of Buyea Road.

This alternative could be constructed sooner than the 3-5 year time frame required to implement construction of a water main from the OCWA water source. While initial construction costs are estimated to be lower than the OCWA alternative, long term operation and maintenance costs for this alternative could have the potential of making the life cycle costs higher than the OCWA alternative. The amount of water initially available from the groundwater source would likely be less limited than the OCWA source.

Table 2.2 presents a comparison of costs, available water and potential time frames for implementation.

Table 2.2 Comparison of Potable Water System Costs, Available Water Quantities, and Time Frames⁶				
Alternative	Projected Cost (2009 \$)	Projected Water Availability	Probable Implementation Time Frame	System Ownership
Purchase water from OCWA; install Water Main from Canastota	\$3,348,000	Up to 1.75 MGD	2-5 years	OCWA would operate the water system on behalf of Madison County
Develop ground water wells; install main, water treatment and storage facilities	\$4,209,000	201,600 gallons/day	1 -2 years (estimated)	Madison County

The County prefers the OCWA alternative because water system ownership imposes a variety of new and costly responsibilities for public health. With the OCWA alternative, the costs of operating and maintaining the system are borne by the system users. However, the exigencies of meeting the needs of business occupants at the ARE Park and correcting certain non-compliant features of the existing water supply at the landfill may require the County to select the groundwater alternative.

2.3.2 Sanitary Sewer Service

The preferred alternative for the provision of sanitary sewer service involves the construction of a pump station along Buyea Road and construction of a 6 inch force main from the project site to an existing connection point along Genesee Street in the City of Oneida. The City of Oneida and Madison County have discussed the treatment capacity that could be made available to the ARE Park and landfill. The City can provide treatment of up to 200,000 gallons per day of sanitary waste. The City and County would enter into an inter-municipal agreement to formalize the arrangement. It is anticipated that up to 180,000 gallons per day will be comprised of domestic and process wastewater from offices and operations at the ARE Park and the landfill, with approximately 20,000 gallons per day (10%) of this total consisting of landfill leachate.

The following facilities are proposed to serve the landfill and ARE Park Sites 1A and 1B:

⁶ Barton and Loguidice, P.C. Madison County Agriculture and Renewable Energy (ARE) Park Water Facilities Engineering Report, August, 2009.

- Side riser pumping system and dual contained leachate piping system to convey leachate from the existing leachate storage lagoons and proposed wet well.
- A wet well and associated controls to serve the landfill and ARE Park Site 1A and 1B.
- Approximately 15,600 linear feet (3.0 miles) of DR-11 HDPE force main piping extending from the wet well to the City of Oneida municipal boundary. The force main would be equipped with six (6) combination (air/vacuum) manholes, one (1) cleanout manhole, four (4) creek crossings, and approximately four (4) road crossings.
- Approximately 560 linear feet of PVC gravity sewer under Upper Lenox Avenue and New York State Route 5 and four (4) sanitary sewer manholes.
- Backpressure and flow control valves would be installed on the pipeline to regulate and control discharge and operating pressure. The back pressure and flow control valves would maintain positive pressure throughout the force main, and reduce the potential for surging or water hammer. The backpressure and flow control valves would be controlled via digital telemetry from the main controls located at the landfill/ARE Park site and along the pipe route. A magnetic flow meter would be installed to monitor flow to the City of Oneida.

The following additional facilities would be required to serve ARE Park Site 2:

- Installation of one wet well and associated controls.
- Approximately 2,125 linear feet (0.4 miles) of DR-11 HDPE force main piping extending from the wet well to the proposed force main on Buyea Road. This section of force main would be equipped with one (1) combination (air/vacuum) valve and manhole, one (1) creek crossing and one (1) road crossing.
- Installation of a three –way plug valve station to direct and regulate flows from the two wet wells. The valve station would be controlled via digital telemetry from the main controls located at the ARE Park sites and along the pipe route.

Because the details of the ARE Park site layout has not been finalized, on-site collector sewers, grinder pumps, and dual contained leachate piping needed to convey leachate and wastewater to the proposed wet wells are not included in the scope of this DGEIS. The design details, specifications, plans and profiles of the preferred sanitary sewer alternative are contained in the “Basis of Design” report prepared by Barton and Loguidice, P.C.⁷

2.4 Development of the Agriculture and Renewable Energy Park

2.4.1 *Potential Park Uses/Occupants*

The ARE Park will likely be developed in phases, with the timing for its development depending on tenants’ specific location preferences and facility needs. Prior to the construction of buildings and appurtenant facilities required for ARE Park tenants, the county will remove suitable borrow materials for use at the landfill. The ARE Park is specifically intended to be developed as a community of industries and businesses, which may be symbiotically related, that will maximize the use of green energy sources such as LFGTE, solar and wind power, for the benefit of participating businesses.

The Madison County Industrial Development Agency and the Madison County Agricultural Economic Development organization have identified several target industries and businesses that would be compatible with the setting of the ARE Park and the needs identified in the Agriculture and Farmland Protection Plan and other studies. These industries/businesses include:

- Meat Processing
- Food Processing
- Warehouse Storage
- Greenhouses
- Aquaculture
- General Manufacturing
- General Offices
- Biomass Power Production
- Vertical Wind Power Turbine(s)
- Outdoor Storage

⁷ Barton and Loguidice, P.C. August, 2011. *Basis of Design, Madison County Landfill Sewer Facilities, Madison County Department of Solid Waste, Madison County, New York.* 65 p.

The site design for the project area will be compatible with the standards and criteria contained in the Town of Lincoln Land Management Law enacted in 2011. The majority of Sites 1A and 1B are located within a designated Industrial-Commercial Zone(IC), with the remainder being zoned for agricultural and residential use (AR-2). Some rezoning may potentially be required to accommodate full industrial use of the project site. Figure 2.3 shows the existing zoning on the project site.

Table 2.3 presents a summary of permitted uses within the IC zone and uses that would require a special use permit. All uses that are currently permitted within an AR-2 and Neighborhood Commercial (NC) zones are permitted within the IC zone.

Table 2.3 IC Zone Permitted Uses and Special Uses			
Zoning District	Intent of Zone	Permitted Uses	Special Uses
AR-2	Mixed agricultural and residential uses in the interest of maintaining and enhancing open land for its aesthetic qualities and for its economic value in agricultural production	<ul style="list-style-type: none"> • Farms and farm buildings for related agricultural activities • One and two family residential uses • Home occupation • Mobile dwellings • One private garage • One accessory building (in addition to private garage) • Hobby farm use • Wildlife refuge • Private stables 	<ul style="list-style-type: none"> • Additional accessory buildings • Religious institution • School • Hospital • Cemetery • Multiple dwellings • Utility substation • Private aircraft landing strip • Recreation area • Private membership club • More than 2 residence structures on farms only • Private communication towers • Kennels and catteries • Public stables • Bed and breakfast • Veterinary hospitals • Community Center • Mobile dwelling parks
Neighborhood Commercial	Daily retail and personal services to Town residents. Services for individuals are encouraged. Services for vehicles and service emphasizing vehicles are discouraged.	<ul style="list-style-type: none"> • All uses in AR-1. • Retail convenience stores less than 3000 SF • Personal service less than 3000 SF • Business offices, financial institutions less than 6,000 SF • Day care • Inns and bed-and-breakfast • Health club less than 6000 SF • Religious institution • Community center • Health clinic • Private membership clubhouse less than 6,000 SF • Off-site parking less than 18,000 SF of surface area <p>Note: Site Plan Review Required</p>	<ul style="list-style-type: none"> • Gasoline station • Car wash • Public garage • Drive-in Service • Mortuary or funeral home without crematorium • Accessory buildings • Private communication towers • Offsite parking greater than 18,000 SF surface area • Utility substation <p>Note: Mobile dwellings prohibited in NC district. All other uses prohibited.</p>

Table 2.3 IC Zone Permitted Uses and Special Uses

Zoning District	Intent of Zone	Permitted Uses	Special Uses
IC	Not stated	<ul style="list-style-type: none"> • All uses permitted in AR-2 and NC zones 	<ul style="list-style-type: none"> • Salvage yard • Quarry • Commercial uses exceeding the scale of those permitted in NC district • Other commercial and industrial uses upon finding that use is of same general character as those permitted and which will not be detrimental to other uses within the District or to adjoining land uses • Off site parking • Private energy facility • Public aircraft landing strips • Commercial communication towers • All Special Uses permitted in AR-2 and NC districts • Enclosed manufacturing industries • Enclosed warehouse or wholesale use • Public utility • Enclosed service and repair • Machinery and transportation equipment, sales, service and repair • Enclosed industrial processes and service • Freight or trucking terminal • Contractor's yard • Garage, gasoline stations and car washes • Parking • Accessory building use • Research laboratories

The Town of Lincoln Land Management regulation also contains requirements for minimum lot sizes, front, side and rear setbacks, road frontage and other factors that govern the layout of the ARE Park site. Minimum lot configuration requirements are summarized in Table 2.4.

Table 2.4 IC Zone Lot and Building Design Criteria					
Size Square feet	Lot Depth (ft)	Front Setback (ft)	Side Setback (ft)	Rear Setback (ft)	Maximum Building Height (ft)
40,000	200	200	100	40	50
Notes					
<ol style="list-style-type: none"> 1. Where community water supply and sewer are to be used, smaller lot areas of not less than one-half of the stated lot area requirement and smaller bordering yards may be permitted. 2. All site plans require review and approval by the Planning Board. 3. A landscaped screening zone at least 15 feet wide shall be maintained by the owner on those sides of his lot that adjoin any residential property owned by another party. 4. Maximum height limitation not applicable to private and public communications towers, which are allowed to such height as the applicant can demonstrate a technical need for effective communications. The determination of such need shall be made by the Planning Board by the issuance of a special use permit. 5. Obstruction of vision on corner lot: the County or Town Highway Superintendent shall determine the appropriate "clear zone" for visibility 6. Parking: Shall be determined by the Special Use Permit 7. Junkyards shall be screened on all sides by a fence and/or evergreens to provide a visual barrier. 8. Any uses that endanger the health, safety, or welfare of any person are prohibited. This section applies to noise, odor, dust, dirt, smoke, noxious gases, building vibrations, dangerous glare or other impairment of vision, contamination of soil and open water systems, and other physical conditions. 9. Design, construction, maintenance and operation of storage facilities for flammable liquids, chemicals, and explosives shall comply with all applicable laws, codes, and regulations. 10. Conservation of Steep Slopes: Construction of new buildings, roads, and other facilities on slopes of 15% or more shall require a special use permit. 11. Driveways: All driveways must be at least 8 feet wide and must allow sufficient width at the street line for safe turning on or off the public roadway. Drainage under all access roads and driveways to new property development shall be provided for through the installation of driveway tubes. Driveway tubes must be properly installed before the issuance of a building permit. All tube sizes and specifications will be determined by the Town Highway Superintendent and the Code Enforcement Officer. The diameter must be large enough to adequately carry normal drainage on the side of the road at that location. 					

All lots within the ARE Park will be developed to meet or exceed the minimum lot size, depth and setback requirements. Placement of roads and buildings on slopes greater than 15% will be avoided wherever possible. Steep slopes, wooded riparian corridors and wetlands associated with Limestone and Cowaselon Creeks will be avoided.

2.4.2 Site Development Assumptions

To generate this environmental impact assessment, it is necessary to make reasonable assumptions about how the site will be developed, using physical data from similar developments and developing ratios to project certain factors for the build out of the ARE Park. These assumptions are summarized in Table 2.5.

Table 2.5 Site Development Assumptions			
Development Characteristic	Range	Reference	Assumed for this Project
Developable Area		Figure 1.2 Conceptual Design Map	214 acres
Impervious cover in light industrial areas	48-59%	Center for Watershed Development, New York State Stormwater Management Design Manual, August, 2010, p. 4-3.	55%
Ratio of building floor area to developable area	0.18-0.75	Oregon Metro Government, Urban Growth Report, 2010-2030, App. 5, http://www.oregonmetro.gov/index.cfm/go/by.web/id=29959	0.1*
Building floor area/employee	210-1,631 sq. ft.	Ibid.	1,600
Average number of employees/firm	20.5	Ibid.	20
Sanitary sewer discharge limit	180,000-200,000 gpd	City of Oneida Wastewater Treatment Plant	180,000 gpd
Water usage per employee/day	10-15	U.S. Environmental Protection Agency and other sources	8,730 gpd
Water usage by meat processing business	750 gpd/bovine unit	Kipp Hicks, Madison County IDA (assumes 25% of available treatment capacity reserved for a meat processing facility)	45,000 gpd
*A conservative ratio of 0.1 was assumed for the ARE Park because of the rural nature of the project site.			

Using the assumptions provided in Table 2.4, at full build-out, the ARE Park will support the following development:

- 117 acres of impervious surface area
- 21.4 acres of building floor area (932,184 square feet)
- 582 employees
- 29 businesses

All proposed uses within the ARE Park will require Site Plan Approval and a Special Use Permit from the Town of Lincoln Planning Board. All proposed lots will follow the Town of Lincoln design criteria.

2.4.3 Performance Criteria

A range of performance criteria and environmental thresholds were reviewed for this project. Based upon review of other similar projects and applicable regulations, the following standards are proposed as acceptable impact thresholds for ARE Park businesses and land uses. Any proposed exceedances of these thresholds will require supplemental review and mitigation measures.

Table 2.6 Acceptable Impact Thresholds			
Criterion	Impact Threshold	Source	Notes
Noise	6 dBA above existing ambient noise level measured at the property line (refer to Chapter 4 of this document for ambient noise levels and sample predicted noise levels)	NYSDEC, Assessing and Mitigating Noise Impacts, rev. 2001	6 dBA is considered a significant increase over ambient condition.
Dust and Air Pollutants	No emission of particulate matter, sulfur compound, carbon monoxide, hydrocarbon, nitrogen oxide, and open burning shall be allowed in excess of applicable air quality regulations	Example from Kenton County, Kentucky, <i>Performance Standards for Industrial Zones</i> , 2006	Section 404, Local Law No. 2, Town of Lincoln has provisions for nuisance enforcement against dust. This section would be difficult to enforce and would require a complaint against the Park to be enforced by the zoning enforcement officer.
Vibration	Vibration discernible to the human sense of feeling for three (3) minutes or more duration in any one (1) hour.	Threshold from Kenton County, Kentucky, <i>Performance Standards for Industrial Zones</i> , 2006	Section 404, Local Law No. 2, Town of Lincoln requires a complaint to be filed with code enforcement officer
Water Quality Treatment Volume Required	Site 1A – 1.92 acre-feet 83,634 cubic feet) Site 1B – 0.61 acre feet (26,708 cubic feet) Site 2 – 6.21 acre feet (270,638 cubic feet)	New York State Stormwater Management Design Manual (2010)	This analysis assumes a developable area of 47 acres in Site 1A, 15 acres in Site 1B, and 152 acres in Site 2. 55% impervious area was used to generate water quality treatment volumes for each developable area.
Minimum required stormwater runoff reduction volume	Site 1A – 0.55 acre feet (24,069 cubic feet) Site 1B – 0.18 acre feet (7,682 cubic feet) Site 2 – 1.79 acre feet (77,840 cubic feet)	New York State Stormwater Management Design Manual (2010)	

Table 2.6 Acceptable Impact Thresholds			
Criterion	Impact Threshold	Source	Notes
Water Usage	200,000 gpd	Onondaga County Water Authority	1.75 MGD of potable water may become available if the OCWA water main is extended from Canastota; however, discharge is limited to the capacity of the City of Oneida POTW
Sanitary Sewer Discharge	180,000 gpd	City of Oneida POTW	City of Oneida has limited discharge from ARE Park and Madison County landfill to 200,000 gpd. This study assumes that 20,000 gpd will be required for leachate discharge.
Pretreatment Requirements for Sanitary Wastes	Refer to City Code section for specific requirements	Article XI. Discharge Restrictions, City of Oneida Code of Regulations	Applies to all process water discharges from ARE Park
Traffic Level of Service (LOS)	C	NYSDOT Highway Design Manual, p. 5-6 (8/23/06 edition)	LOS C or better is desirable and LOS D is the minimum for the design year of a non-interstate project.

3.0 Reasonable Project Alternatives

This alternatives analysis is limited to those reasonable alternatives which would achieve the same objective as the current project proposal. These alternatives include a no-action alternative, different configurations of uses within the defined ARE Park site, different utility alternatives to provide water and sanitary sewer to the site, and a discussion of alternative site locations for the ARE Park.

3.1 No Action Alternative

The “No-Action” or Null Alternative would continue operations that are currently approved or planned for the ARE Park site. Under this alternative, it is anticipated that the following sequence of events would proceed:

- Soil would be mined out from Sites 1A and 1B as permitted by the County’s Borrow Area Use Plan and its Mined Land Reclamation Permit. These permits allow the mining of soil from Site 1A and Site 1B for use as daily cover material at the adjacent Madison County Landfill facility. Both sites would be regraded to achieve a stable slope that matches existing topography, topsoiled and planted with grasses and other vegetation to minimize soil erosion and deposition into nearby streams. Final contours would be designed to be compatible with agricultural use or potentially with more intensive land uses.
- Site 2 will continue to be used for agriculture until it is approved for use as a soil borrow area. It is likely that only the agricultural areas of Site 2 would be approved for use as a soil borrow area because use of the remainder of the site is constrained by the presence of steep slopes, a C(t) stream channel, and the flood plain of Cowaselon Creek.
- Under the No-Action alternative, it is unlikely that municipal water service would be extended to serve the ARE Park site. Operations within the footprint of the proposed ARE Park would continue using existing water sources. Construction of a water main to serve residential development in the hamlet of Clockville may proceed independently.
- Trucking of leachate generated at the Madison County Landfill would continue for the foreseeable future. The cost of leachate disposal would continue to be borne by the County, and would be offset by increases in tipping fees.
- Construction of a dedicated sanitary sewer force main from the landfill facility to the City of Oneida may proceed as funding is obtained. The City of Oneida and Madison County will proceed to

formalize an inter-municipal agreement allowing the discharge of up to 200,000 gallons per day of sanitary effluent, including leachate, to the City of Oneida Wastewater Treatment Plant.

3.2 Alternative Site Locations

The general location of the ARE Park is based upon its proximity to the County's green energy source (the landfill gas to energy facility) and the availability of County-owned land that can be utilized for such a business park. Potential alternative sites of comparable size within Madison County are included in this analysis. Factors that determine whether a site is a reasonable alternative include zoning and permitted uses, sizes and configuration of lots available, proximity to transportation networks, and availability of competitively-priced natural gas and electrical power. Table 3.1 presents a summary of industrially zoned, alternative sites within Madison County.

Based upon the comparison factors outlined in Table 3.1, only the Curtin Business Park in the City of Oneida is larger than the ARE Park. Some of the parcels within this park have rail access, which is not available at the ARE Park site. The sizes of lots within the Curtin Business Park vary. Some are shovel-ready, with water and sewer access; others require that sewer and water service be extended. The Curtin Business Park offers electrical and natural gas service through National Grid at market rates; the ARE Park has access to LFGTE gas and electrical energy which will be available at more competitive prices.

The underlying concept of the ARE Park is to provide a location for agribusinesses and support services that can complement each other in terms of resource utilization, supply chain, and other potential synergies. Specifically desired businesses for the ARE Park include those which add value to agricultural products.

One example of this type of business is food preparation for sale in vending machines and other institutional settings. Raw or partially prepared food products such as breads, sandwich meats, cheeses, and condiments would be combined into sandwich products and packaged for individual sale. Companion businesses could include a bakery and a condiment factory (pickles, sauces, salsa, mayonnaise, etc).

Table 3.1. Summary of Alternative Sites within Madison County									
Location	Ownership	Size (acres)	Zoning	Utilities Available	# Lots Available	Access	Permitted Uses	Shovel Ready?	Feasibility Notes
ARE Park Buyea Road Town of Lincoln Madison County	Madison County; lots to be leased or sold to individual occupants	305	Municipal use	LFGTE heat and electrical power, solar power under construction; sanitary sewer & water to be developed;	TBD, based on need	County Road 54 (Buyea Road) and local road (Tuttle Road)	Industrial; agricultural and energy related	No	Special use permit required from Town of Lincoln for most operations
City of Oneida Business Park		38	Light Industrial	City water and sewer; gas & electric (National Grid); fiber optic cable	4	NY Route 46	Light manufacturing, offices	Yes	Too small to accommodate some uses; no green energy available
Canastota Business Park Village of Canastota, NY	Village of Canastota	150	Light industrial	Village water and sewer; gas & electric (National Grid); fiber optic		NY Routes 5 and 13 Rail access available from CSX main line	industrial, warehouse & distribution, research, office and commercial activity	Yes	Energy costs likely to be comparable; but no green energy available
Harbor Lights Business Park Town of Sullivan	Town of Sullivan?	160	Industrial	Municipal water and sewer, gas, electric, high speed data	TBD, based on need	NY Route 31	Light manufacturing, export-import, small-medium warehouses, offices	Some yes.	Site not suitable for meat processing and some other uses proposed for ARE Park
Hamilton Airpark Rt. 12B Village of Hamilton	Village of Hamilton	56	Industrial	Municipal electric; fiber optic CATV & Internet	TBD	NY Route 12B Hamilton Airpark (airport)	Light manufacturing, warehouse, offices	Yes	Electrical costs likely to be comparable; probably not suitable for meat processing or other uses proposed for ARE Park

Table 3.1. Summary of Alternative Sites within Madison County									
Location	Ownership	Size (acres)	Zoning	Utilities Available	# Lots Available	Access	Permitted Uses	Shovel Ready?	Feasibility Notes
Curtin Business Park City of Oneida	Varied	412	Industrial	Some serviced by municipal water and sewer; additional water & sewer extensions planned to serve areas	TBD	NY Routes 5, 46, and 365A Rail access	Manufacturing, warehousing, intermodal freight transfer	Some parts – yes.	Lot sizes highly variable; not likely to be suited for meat processing or other ag-related uses; gas and electric not available through green sources
Trush Business Park Route 20 Village of Cazenovia	?	125	Industrial and office park	Municipal water and sewer; electric and gas (National Grid); fiber optic CATV and Internet	TBD	U.S. Route 20	Light manufacturing, warehouse, professional offices	No	Location not suited to agricultural support uses proposed for ARE Park; electric and gas not available from green sources

Note: Information on Alternative Sites taken from Madison County Industrial Development Agency webpage.

Another example of this type of synergistic relationship would be the co-location of a small meat packing plant offering custom slaughtering and processing services with cold storage facilities. Custom animal slaughtering that serves the needs of certain religious or ethnic groups (e.g., halal or kosher) are not plentiful in Upstate New York. The growth of Muslim populations in the United States and Canada has created a dramatic increase in demand for halal meats. Madison County is centrally located between markets in New York City, Quebec, Toronto and other larger cities. These businesses have been specifically identified by the Madison County IDA and the agri-business community as being needed in Madison County to support beef, dairy, goat, sheep and other animal production farm operations.

The size of businesses with water-intensive operations is likely to be limited by the wastewater treatment capacity of the City of Oneida Wastewater Treatment Plant. Wastewater discharges from the ARE Park must be limited to 180,000 gallons per day to avoid overloading the treatment capacity of the City of Oneida plant.

Slaughterhouses use an average of 750 gallons of water for every bovine processed⁸. Processing of sheep, goats, pigs, turkeys and chickens use less water per animal. Our build-out analysis assumes that 25% of the wastewater treatment capacity allotted to the ARE Park will be utilized by a slaughterhouse operation. This operation would be limited to approximately 45,000 gallons/day, resulting in a processing capacity of 60 bovine-equivalents per day.

Other potential businesses that have been considered for the ARE Park include aquaculture, greenhouse specialty products, food processing and other operations.

Aquaculture operations using recirculating water systems are capable of re-using over 99% of the water required for each closed loop system. Recirculating aquaculture systems (RAS) also provide a closed loop system that prevents potential fish escape to the wild, eliminates losses from avian predation, parasites and disease, and reduces the potential for the release of high strength wastewater. Water in each unit is continuously cleaned and returned to the fish tanks. Manure filtered from the water during the recycling process can be used as fertilizer on nearby farm fields. The nutrient-rich water can also be used to feed vegetables and herbs in large-scale aquaponics systems, which in turn filter the water for reuse.

Wastewater generated from RAS operations can be high in ammonia and nitrite, both of which are highly toxic to fish. Proper maintenance of biofilters and other

⁸ Kipp Hicks, Madison County Industrial Development Agency, personal communication to F. Reese, August, 2011.

on-site water purification equipment will be required to avoid the discharge of effluents that do not meet pre-treatment requirements.

3.3 Alternative ARE Park Configurations

Detailed plans for the development of the ARE Park have not been prepared due to the generic nature of this document. Alternative configurations involve the location of site access points, internal roadway alignments, lot sizes, building sizes, and parking areas. At this time, some general planning has been done for the location of storm water management facilities at the lowest point on each site, and the general size of these facilities (reference Chapter 2), as well as a preferred alignment for a water main and sanitary sewer main.

Access Points

Tuttle Road has a rolling terrain with several crest and sag vertical curves and sustained vertical grades ranging from 0.5% to 9% within the project location. Notable locations of limited sight distance include crest vertical curves at the Lincoln Town Highway Garage entrance (approximately 1260 feet south of Timmerman Road) and a location along Site 1B approximately 3350 feet south of Timmerman Road.

Currently, only one alternative exists for road access to Site 1A. The County owns a strip of land north of the Town of Lincoln Highway Garage property that provides access from Tuttle Road. The remainder of Site 1A is landlocked, and no other access is possible without acquisition of access rights from the Town of Lincoln. This access is located within a zone of limited visibility as described in the previous paragraph.

Site 1B has approximately 1700 linear feet of frontage along Tuttle Road. Traffic studies show that vehicles travel at speeds of up to 55 mph along Tuttle Road. At a design speed of 55 mph, AASHTO recommends a sight distance of 610 feet for left turning vehicles and 530 feet for right-turning vehicles.⁹ Further evaluation may be required to determine the best access point for Site 1B, based upon the site requirements of prospective occupants.

Buyea Road has a rolling terrain with several crest and sag vertical curves and sustained vertical grades ranging from 0.5% to 8% within the project location. Notable locations of limited sight distance include crest vertical curves at 6720 Buyea Road (~975 ft north of the landfill entrance) and 6829 Buyea Road (~3100 feet north of the landfill entrance).

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AASHTO. 2001. A Policy on Geometric Design of Highways and Streets (Green Book). 4th ed. Washington D.C.: American Association of State Highway and Transportation Officials.

The 12-acre section of Site 2 located on the west side of Buyea Road has two access points. The southernmost driveway serves as an access for the LFGTE plants as well as some landfill operations. The northern access driveway provides access to two leachate storage basins. These access points are likely to remain in use for the foreseeable future, and will be used by future ARE Park occupants.

The 218-acre section of Site 2 located on the east side of Buyea Road has approximately five access points. Each of these access points serves an existing building, farmstead or landfill operation. It is likely that these access points will be retained. In planning new driveway entrances, the design criteria of the Town of Lincoln and the AASHTO will be used for guidance.

Site Configurations

Lot sizes, parking areas, and building sizes will be determined by the needs of individual businesses and site occupants. Our analysis has been designed to develop site design and impact thresholds for the use of these occupants. The location of storm water management facilities and the proximity of steep slopes, wetlands and other sensitive environmental features will be likely to drive the configuration of buildings, parking areas, and internal site roadways. Buildings, utilities, roadways and parking areas will be located away from sensitive environmental features as much as possible. Installations of water main and sewer main will have to cross Limestone Creek on Madison County property. These stream crossings will likely be completed using a directional boring technique to avoid disturbance to any wetlands or sensitive water resources. No additional roadway crossings are proposed.

A conservative Build-out analysis has shown that approximately 117 acres of impervious surface could be developed among all 3 of the ARE Park sites. This estimate was developed using a conservative model based upon the avoidance of sensitive environmental features such as wetlands, steep slopes, forested areas, floodplains and cultural resources, and utilizing a low-intensity development scenario. Site analysis shows that the larger buildings and parking areas will likely be located within Site 1A or Site 2. Site 1B will likely be used for smaller buildings and parking areas because of the long, narrow "tail" of the parcel.

A more intensive scenario, involving the development of approximately 10 additional acres of agricultural land on the east side of Cowaselon Creek, was also considered. The development potential of this acreage is unlikely due to the presence of an active flood plain, wetlands associated with Cowaselon Creek and sensitive cultural resources. It is unlikely that this land would be needed for industrial development for the foreseeable future, and would be more productively used for agriculture.

3.4 Alternative Utility Options

3.4.1 *Water Service*

Public water service from a municipal source is not currently available to the project site. Facilities at the Madison County Landfill use existing groundwater wells as a potable water source. The County's municipal solid waste landfill water source has recently been designated as a non-transient, non-community public water system; however, the County is currently not compliant with the regulations of 10 NYCRR Part 5.1 related to operation and testing of the landfill's water system.¹⁰ Employees at the landfill currently use bottled water for potable purposes, and only use the well water for domestic sanitary purposes.

3.4.1.1 No Build

Under the No-Build Alternative, the Madison County Landfill would continue to use existing groundwater wells for potable water. Extension of public water to the ARE Park is considered essential to the types of businesses likely to locate at the ARE Park (e.g., food processing, meat processing, greenhouses). These businesses are likely to require water for operations in excess of the amount available from existing on-site groundwater wells. The no-build alternative is not considered a feasible alternative because it does not meet the overall projected water needs of ARE Park occupants.

3.4.1.2 City of Oneida Water Service Connection

A connection to the City of Oneida's water supply was evaluated for this project. This alternative is reasonable because of the City's relative proximity to the ARE Park site; however, the City's water supply has no excess capacity to supply potable water to the site.

3.4.1.3 Onondaga County Water Authority Water Service Connection to Canastota

This alternative is the preferred alternative and is described in Chapter 2 of this document.

¹⁰ Barton and Loguidice, P.C. Madison County Agriculture and Renewable Energy (ARE) Park Water Facilities, Engineering Report, August, 2009.

3.4.1.4 Development of Groundwater Potable Water Well

The development a groundwater potable water source has been evaluated and is considered a feasible alternative, but is not preferred because Madison County does not want the expense of operating a public water supply when other alternatives are available. This alternative is described in Chapter 2 of this document.

3.4.2 Sanitary Sewer Service

3.4.2.1 Sanitary Sewer to Village of Canastota

B & L evaluated the feasibility of constructing a sanitary sewer from the ARE Park/Madison County Landfill site to the Village of Canastota's wastewater treatment plant. This alternative is not viable because the Village's wastewater treatment plant does not have excess treatment capacity to handle the anticipated wastewater loading from the ARE Park.

3.4.3 Energy Services

3.4.3.1 Electrical Energy

Electrical energy is available to the project site from National Grid¹¹. Access to the energy lines is available along Tuttle and Buyea Roads. The only reasonable alternatives to National Grid for the provision of electric service include the installation of individual wind turbines or solar collectors. Wind and solar power alternatives are included in the mix of electrical energy sources for the ARE Park.

Electrical energy is produced at the Madison County Landfill site by a Landfill Gas to Energy plant. This plant currently produces enough electrical energy to meet the needs of the landfill operations as well as several other smaller users. It is anticipated that electrical energy from this source will be made available to ARE Park occupants.

A one-acre area of the closed section of the Madison County Landfill has been capped with a membrane containing solar power cells. Solar power from this source is currently being used to provide power for the on-site recycling facility.

¹¹ <http://madisoncountyida.com/electric.php?PHPSESSID=5cf6e4fb2d5690678fe1aacfe4f3ec>

3.4.3.2 Natural Gas

Natural gas service is not available to the ARE Park site directly. National Grid provides natural gas service to Madison County. Its nearest supply line is approximately one mile north of the project site. At the present time, there are no plans to provide energy to the project site from this source. However, extension of natural gas service could be considered, should a business park occupant require this service.

4.0 Potential Project Impacts, Mitigation Measures and Alternatives

4.1 Historic and Cultural Resources

Phase I Cultural Resource Investigations were conducted on Sites 1A, 1B and 2 by Alliance Archaeological Services in several stages. These reports are incorporated into this document by reference and are cited in Chapter 10 of this document. A Phase I Cultural Resource Investigation of the preferred alignments of the water and sewer mains for the ARE Park was conducted by Archaeological Services of the Rochester Museum and Science Center.

4.1.1 Existing Conditions

The Phase IA background and literature reviews conducted for the project site indicated that all three project sites were “highly suitable” to contain previously undocumented pre-contact archaeological resources and/or additional data related to two pre-recorded Late Woodland archaeological sites. A project review for Sites 1A and 1B in early 2010 indicated that at least four additional Late Woodland sites have been recorded within one mile, one of which is located beneath the closed landfill grounds east of Buyea Road. All three sites have a long history of human occupation and agricultural use.

4.1.1.1 Sites 1A and 1B

Shovel testing revealed the presence of scattered white ceramic and ironstone shards and glass that was commonly found in mid- to late nineteenth century houses. These shards were widely scattered except for three areas of concentration. No pre-contact sites were identified. No historic sites were identified. No previously determined National Register listed or eligible buildings, structures, cemeteries, or districts were found within the Area of Potential Effect. No National Register eligible buildings, structures, cemeteries or districts were found within the area of potential effect. The report did not recommend any areas for Phase II investigation or avoidance within these two sites.

4.1.1.2 Site 2

A detailed investigation of a 130 acre area of potential effect was conducted in early 2010 by Alliance Archaeological Services. This area is bounded by Buyea Road on the west, a line of shrubs and trees on the east, a large agricultural field and property line on the north and the closed portion of the Madison County Landfill on the south. Nearly all of this land is in active agriculture. An

archaeological investigation was conducted of this area in 2004. This study revealed the presence of numerous glass shards, ceramics, milk glass, a metal button, and other artifacts dating from the 1800's and 1900's. The Alliance Archaeological Services' study revealed the presence of 35 artifacts dating from the 1800's and 1900's, similar to those found in the 2004 study. All of these materials are consistent with an occupation of the site from the mid-19th century onward.

In 2011, Alliance Archaeological Services completed a Phase 1A and 1B investigation of lands located along Cowaselon Creek and within its flood plain east of the wooded area. One pre-contact and three historic archaeological sites were identified within the floodplain area east of the wooded steep slope. All four of these sites were determined to be potentially eligible for nomination to the National Register of Historic Places under Criterion D. Sites or properties that are National Register eligible under Criterion D are sites that "have yielded, or may be likely to yield, information important in prehistory or history."¹² In addition, this active agricultural area was mapped within a moderately well drained alluvial soil with the potential to contain buried topsoil horizons. It was concluded that this floodplain area has the potential to contain deeply buried archaeological deposits.

4.1.1.3 Water and Sewer Mains

The preferred alignments for the proposed water and sewer main extensions to serve the ARE Park and the Madison County Landfill were investigated in 2010 by Archaeological Services of the Rochester Museum and Science Center. Their report is incorporated by reference into this document. Please refer to Chapter 10 for the complete citation. The investigation included 20,000 linear feet of 10 inch water main alignment, one pumping station site, 18,000 linear feet of 6-inch sewer force main alignment, two wet wells and two wastewater storage tank sites. The road areas investigated include Oxbow Road, Old County Road, Timmerman Road, Tuttle Road, Buyea Road, Furnace Hill Road, Clockville Road, Upper Lenox Avenue and Lenox Avenue. The maximum width of the investigation alignment was approximately 40 feet. The study included 585 shovel tests at 25 foot, 50 foot and 100 foot intervals along each alignment. The majority of the area

¹²Advisory Council on Historic Preservation. National Register Evaluation Criteria. <http://www.achp.gov/nrcriteria.html>, webpage updated March 11, 2008.

investigated is road frontage. Land uses included driveways, mowed and unmowed road sides, and parking areas.

The water main alignment is located in the Timmerman Road right of way, crossing the frontage of a National Historic Register Site, the former Lenox District No. 4 Schoolhouse (96NR00926).

The sewer force main alignment may cross the rear property line of a National Register Historic Site, the DeFerriere House (06NR05598), located at 2098 Genesee Street in the City of Oneida.

4.1.2 Impacts

4.1.2.1 Sites 1A and 1B

Three concentration areas of Historic Euro-American artifacts were reported by the Alliance Archaeological Services Phase I investigation. The report concluded that although the artifacts recovered from Concentration Area 1 are most likely related to the former William Tuttle north homestead, the potential for this specific site to provide additional information that is significant and unique to our understanding of this occupation is considered to be extremely low. The report also concluded that Concentration Area 1 does not appear to be eligible for nomination to the National Register of Historic Places and no further archaeological investigations were recommended.

Concentration Area 2 is located south of the existing homestead along the north slope of a low ridge. All of the extant structures associated with this homestead are located outside of the project APE. A total of 20 artifacts were recovered from this site. This collection is consistent with a low density of tableware materials that were discarded by the residents of the adjacent homestead into the field where they were fragmented and spread about by agricultural activities. The report concluded that the materials recovered were mostly likely related to the historic occupation of the William Tuttle north homestead, and that the potential for this site to yield additional information that is significant and unique to understanding of this occupation is considered to be extremely low. The report concluded that this area does not meet the criteria for nomination to the National Register of Historic Places, and does not recommend further investigation of this area of concentration.

Concentration Area 3 is located in the south central portion of Site 1B. A total of 21 artifacts were recovered from this site. The mean ceramic date of the artifacts was 1861, suggesting that the site was associated with the B. Buyea occupation of the homestead to the south, as documented on historic maps from 1853, 1859, and 1875. The report concludes that the potential for this specific site to provide additional information significant and unique to the understanding of this occupation is considered to be extremely low. The site does not appear to be eligible for nomination to the National Register of Historic Places and no further archaeological investigation is recommended.

Based upon a review of the limits of potential excavation, it appears that all three areas of concentration will be affected by the approved soil borrow areas. While these artifacts will be affected by the development of the soil borrow area, they do not represent significant or unique resources and the impact to these resources is considered to be acceptable.

4.1.2.2 Site 2

All of the cultural materials associated with this site were recovered from a plow zone which had formed within moderately to severely eroded soils, and no indications of subplow zone cultural materials or features were identified. The study concluded that all cultural materials were most likely recovered from their current locations as a result of natural taphonomic processes such as erosion. The report states "Given the shallow nature of the identified Ap horizon..., the integrity of this site appears to have been compromised beyond the limits acceptable for a National Register nomination."

The report also states "The low density and diversity of the recovered cultural materials verses [*sic*] the high ground surface visibility also suggests that additional archaeological investigations are unlikely to produce either a variant artifact pattern/assemblage or a significant change in the suggested dates of occupation." No further archaeological investigations were recommended for the 130 acre APE in Site 2.

Given the presence of four potentially NRE archaeological sites and the potential for deeply buried archaeological deposits within the moderately well drained alluvial floodplain of Site 2, further archaeological investigations of this area have been recommended.

However, this area is outside of the ARE Park development footprint. No earth-moving or ground disturbing activities are proposed for this area. As a result the significant information within these and/or any more deeply buried archaeological sites will be preserved for the future. If additional investigations are necessary, they will be designed in consultation with the OPRHP and the Oneida Nation.

4.1.2.3 Water and Sewer Mains

The Rochester Museum study did not identify any prehistoric or historic sites and did not recommend any sites for Phase II investigation or avoidance. Soils within the APE exhibited a higher than average amount of disturbance, including grading adjacent to the road, cutting and filling associated with road building and adjacent construction projects, and installation of existing utilities (water, gas and storm sewers). Significant sections of the proposed sewer and water alignment (both gravity and directionally drilled components) are located between the edge of pavement and the edge of existing drainage ditches.

Artifacts that were encountered included bits of rusted iron, modern bottle glass, window glass, various plastics, food wrappers, cigarette packs, and a few pieces of plain, undecorated whiteware fragments. No Native American artifacts were recovered from any of the soil test pits within the APE. No significant Historic Euro-American artifacts were recovered within the project route tested.

The installation of the proposed watermain will not affect the historic school house building located on the Town Hall property. It may be installed within a parking lot area that serves the Town Hall property. It is anticipated that this impact will be temporary and acceptable to the Town of Lincoln.

Installation of the sewer force main will not adversely affect the DeFerriere House building because it will be located within the road right of way of Upper Lenox Avenue. Project construction will not affect any access points, structures, signage, historic landscape plantings or other functional aspects of this property.

4.1.3 *Mitigation Measures and Alternatives*

4.1.3.1 Sites 1A and 1B

No mitigation measures are proposed for the developable areas of the ARE Park Sites.

4.1.3.2 Site 2

No mitigation measures are proposed for the developable areas of the ARE Park Site 2.

4.1.3.3 Proposed Water and Sewer Mains

- The parking lot area affected by the construction of the proposed water main will be restored to its original appearance and function. No alternatives are proposed for this water main.
- No mitigation measures are proposed for the sewer main crossing on road right of way at the extreme south end of the DeFerriere House property.

4.2 Geology and Soils

4.2.1 *Existing Conditions*

The geologic conditions of the project site are described in the *Hydrogeologic Investigation Report* (February, 2006) which was prepared by Barton and Loguidice in support of the West Side Expansion of the Madison County Landfill, Part 360 Permit Modification and in other reports that are referenced in Chapter 10 of this document. Details from these reports are incorporated into this section. Soil information is referenced from the Madison County Soil Survey and previous Barton and Loguidice site investigations.

Topography

The topography on Site 1A ranges from a high point of approximately 850 feet above sea level along the east side of Tuttle Road sloping eastward to a low of approximately 790 feet above sea level along the channel of Limestone Creek.

The topography of Site 1B ranges from a low point of approximately 850 feet above sea level along the north limit to a high point between 900 and 920 feet in elevation at the south end of the site along Tuttle Road.

The land drops gradually from south to north, sloping northeasterly toward Limestone Creek at the north end of the property.

The topography of Site 2 varies from gently sloping to the north and east along the east side of Buyea Road, to steeply sloping along the stream channel of Cowaselon Creek. The highest point within Site 2 is approximately 900 feet above sea level located near the south end of the site along Buyea Road. The lowest point on the site is approximately 550 feet above sea level at the northeast corner of the site within the Cowaselon Creek channel.

The site geomorphology is an expression of glacial deposition processes superimposed on gently southward dipping bedrock units. Occasional dominating harder rock strata impart an apparent step-like or cuestaform character to the terrain. Surficial deposits are predominantly Pleistocene-aged, fine-grained lodgement or ablation tills. Minor isolated pockets of coarser-grained deposits caused by glacial outwash are also found within the site. The surficial deposits are underlain by Paleozoic (Silurian) age shale bedrock of the Camillus formation (Salina Group). Bedrock groups shown include the Helderberg Group-Ewen Formation underlying Sites 1A and 1B, with shales of the Syracuse Formation forming steep sides of the Cowaselon Creek valley, and softer bedrocks of the Vernon formation forming the floor of the Cowaselon Creek flood plain.

The project site is located on the northern boundary of the Appalachian Plateau, immediately south of the Mohawk and Oneida Lowland. The plateau is characterized by a mantle of glacial and glaciolacustrine sediments underlain by a sequence of mainly Paleozoic age Upper Silurian to Lower Devonian carbonate (limestone and dolostone) and clastic (shale) bedrock. Bedrock directly underlying the site consists mainly of a sequence of Upper Silurian Salina Group formations, the Bertie Formation (dolostone and dolomitic shale) and the Camillus formation (shale).

Prior to the Pleistocene glaciations, the Erie-Ontario lowland and the northern part of the Appalachian Plateau were uplifted, resulting in a gentle, south-southwest dip of the bedrock surface. Continued episodic uplift of the plateau, coupled with continuing erosion processes created deeply entrenched river valleys, and formed the initial bedrock troughs and through-valleys now occupied by the Finger Lakes.

On Site 1A, the depth to bedrock ranges from 0 to 25 feet based upon soil boring data and previous studies. The bedrock beneath the unconsolidated layer of soil consists of weathered shale. Based upon engineering calculations provided for the Landfill Expansion in 2009,

approximately 1,020,000 cubic yards of soil will be mined from Site 1A. On Site 1B, the depth to weathered shale bedrock ranges from zero to approximately fifteen feet. It is anticipated that 130,000 cubic yards of soil will be mined from Site 1B.

The depth of soil overburden material decreases with proximity to the steep sides of the Limestone Creek valley. The bedrock is exposed in the valley walls and floor.

The depth to competent bedrock on Site 2 is estimated to range between ten and twenty feet. Soil characteristics include severely eroded profiles within the 130 acre area investigated with soil test pits during the 2009 archaeological evaluation of this site. This area was concentrated on the east side of Buyea Road around an existing homesite and outbuildings. Severely eroded soil profiles are typical of areas that have been intensively farmed or row-cropped for many years.

Mapped soil types from the Madison County Soil Survey (NRCS, Web Soil Survey, 2011) are presented in Table 4.1.

Site No.	Mapped Soil Type	Acreage	Hydrologic Group	Drainage Classification	Hydric Classification
1A	Cazenovia silt loam, 3-8% slope	6.54	B	Well drained	Non hydric
	Honeoye silt loam, 3-8% slope	27.68	B	Well drained	Non hydric
	Honeoye silt loam, 25-60% slopes	0.30	D	Well drained	Non hydric
	Lairdsville silt loam, 3-8% slope	9.51	D	Well drained	Non hydric
	Lairdsville silty clay loam, 8-15% slope	0.04	D	Well drained	Non-hydric
	Lairdsville silty clay loam, 15-25% slopes, severely eroded	5.90	D	Well drained	Non hydric
	Schoharie-Cazenovia complex, steep	0.004	B	Well drained	Non hydric
		49.974			

Table 4.1 Mapped Soil Types					
Site No.	Mapped Soil Type	Acreage	Hydrologic Group	Drainage Classification	Hydric Classification
1B	Honeoye silt loam, 3-8% slopes	7.73	B	Well drained	Non-hydric
	Honeoye silt loam, 8-15% slope	7.31	B	Well drained	Non-hydric
	Honeoye silt loam, 25-60% slopes	0.40	B	Well drained	Non-hydric
		115.388			
2	Cazenovia silt loam, 15-25% slopes	31.7	B	Well drained	Non hydric
	Honeoye silt loam, 3-8% slopes	49.3	B	Well drained	Non hydric
	Honeoye silt loam, 8-15% slopes	56.4	B	Well drained	Non hydric
	Honeoye silt loam, 15-25% slopes	14.2	B	Well drained	Non hydric
	Lyons silt loam	10.5	D	Poorly drained	Hydric
	Palmyra gravelly loam, undulating	1.0	B	Well drained	Non-hydric
	Palmyra gravelly loam, hilly	1.2	B	Well drained	Non hydric
	Schoharie silty clay loam, rolling	2.9	C	Well drained	Non-hydric
	Schoharie-Cazenovia complex, steep	34.6	C	Well drained	Non hydric
	Warners mucky silt loam	11.4	C/D	Very poorly drained	Hydric
	Weaver silt loam	16.9	C	Moderately well drained	Non hydric
		460.876			

Cazenovia soils are very deep, moderately well drained soils formed in loamy till. This soil type ranges from nearly level to very steep on till plains. The thickness of Cazenovia soils ranges from 20 to 45 inches. Bedrock is deeper than 40 inches. Topsoil is typically about 10 inches thick, with 10 to 50 inches of subsoil to bedrock. The surface texture of Cazenovia soils is typically silt loam, grading to a clay loam or silty clay loam with depth.

The **Honeoye** soil series consists of very deep, well drained soils formed in till, which is strongly influenced by limestone and calcareous

shale. They are nearly level to very steep, formed on convex upland till plains and drumlins. Depth to bedrock is typically more than 60 inches. Topsoil depth ranges from zero to 8 inches.

Lairdsville soils consist of moderately deep, moderately well drained to well drained soils formed in till. They are nearly level to steeply sloping on bedrock-controlled land forms. Slope ranges from zero to 45%. The depth to bedrock ranges from 20 to 40 inches. Coarse fragments, usually consisting of shale, but can include varying amounts of sandstone and limestone, range from 0 to 35 percent. Surface soil texture can range from silt loam to silty clay loam, and may include gravelly or channery analogues.

Lyons soils consist of very deep, poorly and very poorly drained soils on upland till plains in depressions and low areas in the landscape. They are occasionally located in areas of seeps on gently sloping landscapes. These soils form in calcareous till derived from limestone, calcareous shale and sandstone. Slope ranges from 0 to 5 percent. Lyons soils are listed as hydric soils.

Schoharie soils are very deep (≥ 72 inches), moderately well drained soils formed in clayey lacustrine sediments. They are located on glacial lake plains and uplands mantled with lake sediments. Slopes range from 0 to 60 percent. The potential for surface runoff ranges from medium to very high.

Warners soils consist of very deep, very poorly drained soils on nearly level floodplains and seepage areas of hillsides. Warners soils are alluvial soils that show a mixed mineralogy. These soils typically overlay marl deposits. These soils are hydric, and may include pedons with a mucky or mucky modified surface texture. Warners soils are found on nearly level floodplains below springs flowing from limestone bedrock, at the margins of lakes, or on hillsides where there is seepage of calcium carbonate charged water.

Weaver soils are alluvial soils that form on narrow, nearly level bottomlands along spring-fed creeks and branches. These soils form in alluvium developed from limestone residuum. These soils are moderately well drained and are subject to inundation. The B and C horizons contain lime nodules and soft marly material. The depth to bedrock ranges from 40 to 60 inches.

Soils along the proposed water and sewer main alignments consist largely of the same soil types identified for the ARE Park sites, except for

Wampsville gravelly silt loam, Wassaic silt loam, Teel silt loam, and Wayland silt loam soils.

Wampsville soils consist of very deep, well drained soils on glacial outwash alluvial fans and glaciofluvial deposits of terraces, valley trains, and kames. They are nearly level to very steep soils formed in materials in which reddish shale is a significant component, with limestone, sandstone, and some grayish shale. Slope ranges from 0 to 25 percent.

Wassaic soils are moderately deep, well drained soils formed in loamy till. They are on bedrock controlled till plains. Bedrock is at depths of 20 to 40 inches. Permeability is moderate or moderately slow in the subsoil and substratum. Slope ranges from 0 to 50 percent.

Teel soils consist of very deep, moderately well drained soils on floodplains. They formed in nearly level, silty alluvial deposits. Permeability is moderate throughout the solum. Slope ranges from 0 to 3 percent. These soils are usually found on the first terrace of flood plains, and are generally not hydric, but may have hydric inclusions.

Wayland soils consist of very deep, poorly drained and very poorly drained, nearly level soils formed in recent alluvium. These soils are in low areas or slackwater areas on flood plains. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Slope ranges from 0 through 3 percent. These soils are located within the floodway or active flood plain of stream channels.

4.2.2 Potential Project Impacts

It is anticipated that the development of the ARE Park will occur subsequently to or concurrently with soil mining operations on Site 2. Sites 1A and 1B will be mined out first and reclaimed for open space use, until ARE Park development occurs. General impacts to the site will include re-grading to a contour that is compatible with redevelopment of the site for an industrial park. These contours will match the ground surface elevation at the edges of the existing agricultural field, and will likely have a maximum slope of 15%.

It is not anticipated that development of the ARE Park will have any adverse impacts on bedrock. Utilities will be bored through bedrock under area stream channels to avoid impacts to Limestone Creek, Cowaselon Creek and Clockville Creek. Utilities will be installed using the most recently approved version of Ten State Standards for Water and Wastewater Systems.

4.2.2.1 Site 1A

This site has a developable area footprint of approximately 47 acres. This acreage excludes a wetland and a drainage swale. This area is shown in Figure 2.2. It is anticipated that all of the developable area will be affected by site grading related to reclamation and construction of interior roads and utilities. For planning purposes, it is estimated that approximately 55% of the 47 acre developable footprint (25.8 acres) will be covered by impervious surface (asphalt parking areas, roads, and building rooftops). Approximately 45% of the developable area (approximately 21.1 acres) will be reserved for green space (landscaped lawns and buffer areas) and storm water management facilities (infiltration galleries, grassed swales, etc). These thresholds represent a reasonable estimate of the percentages of impervious and pervious/green space surfaces based upon the most recent New York State Stormwater Management Design Manual and a conservative approach to site redevelopment.

4.2.2.2 Site 1B

This site has a developable footprint of approximately 15 acres. The long, narrow “tail” at the south end of the site (reference Figure 2.2) may limit the size of buildings on the site. This “tail” ranges in width from 175 to 125 feet from Tuttle Road to the tree line along the east side of the site. East of this tree line, the land surface slopes sharply toward Limestone Creek. To minimize the potential for erosion and sedimentation, and to protect the steep slope, it is recommended that a buffer zone be maintained along the east side of Site 1B. The width of this buffer zone will be determined at the time of site construction.

The Town of Lincoln requires a 200 foot front setback for industrial development and a 40 foot rear setback. A front setback variance will be required for any buildings located within 200 feet of Tuttle Road. A 60 foot setback from Tuttle Road would be consistent with that of the Town of Lincoln Highway Garage.

Our analysis assumes that variances will be granted for front and rear setbacks for Site 1B, and will be accommodated within the 45% criterion for green space. The logical location for any stormwater management facility is at the lowest point at the northeast corner of Site 1B. Based on the buildout guidelines established in Chapter 2 of this document, 8.25 acres of the site will

be used by impervious surface, while 6.75 acres will be used for green space and stormwater management facilities.

Following the completion of mining operations, the site will be reclaimed for open space use prior to ARE Park development. Stockpiled topsoil will be re-distributed over the graded area, and the elevation at the exterior of the mine footprint will match the existing external ground contour. A maximum internal slope within the mined area will probably be 15% or less to comply with Town of Lincoln site development limitations.

4.2.2.3 Site 2

Less is known about the depth of soil overburden material on Site 2 than on Sites 1A and 1B because only one soil boring has been completed on the site to date. At the present time, Site 2 is not proposed or approved for use as a soil borrow area. As with the previous two sites, topsoil will be removed and stockpiled in stages for use in site reclamation. For planning purposes, it is assumed that approximately 152 acres of the site could potentially be developed as part of the ARE Park. This area excludes the portion of Site 2 that has been identified as being sensitive for cultural resources, and includes 140 acres on the east side of Buyea Road and 12 acres on the west side of Buyea Road.

Soil Mining Impacts

Based upon existing soil maps and other available data, it is estimated that approximately ten feet of soil material will be mined from the existing agricultural area footprint between the wooded area and steep slope comprising the Cowaselon Creek valley and Buyea Road. The area affected by this proposed use would most likely be the 110 acres of agricultural land on the east side of Buyea Road. An estimated 709,866 cubic yards of soil could potentially be mined from this site (110 acres x 4 feet of soil x 43,560 square feet per acre). It is also likely that this potential soil borrow area would have final grades of 15% or less within the mine footprint. Topsoil from the site will be progressively stockpiled and re-spread as areas of the site are mined out.

Stormwater management facilities will be developed in phases as the site is mined. The placement of stormwater management facilities such as detention/retention ponds, sediment basins, infiltration practices or other features will be determined by low points in the topography and by mining areas. Stormwater will

be routed to these facilities through a use of closed and open drainage systems including water quality swales, stormwater diversions, and grassed waterways. Where feasible, stormwater management facilities will become a permanent part of the ARE Park development. Additional temporary erosion controls measures (temporary stormwater swales/diversions, silt fence, check dams, sediment traps, etc.) will be utilized throughout the course of construction.

It is anticipated that site reclamation will proceed concurrently with soil mining operations. Once an area is mined out, that area will be re-graded, topsoiled, and seeded with a native grass cover.

The site will be revegetated with native grasses and forbs to reduce soil erosion.

It is not anticipated that the 10 acre agricultural field east of this wooded corridor would be affected by soil mining.

No areas of steep slope, wooded areas, wetlands, stream channel or areas that are sensitive for cultural resources would be affected by the proposed soil mining operation or construction of the ARE Park.

No previous waste disposal areas are located within the footprint of Site 2. Therefore, the project will not affect any closed waste disposal areas.

It is not anticipated that the area west of Buyea Road or the closed land fill or existing outdoor storage area would be affected by soil mining activities. Current uses of these areas will be likely to continue until an appropriate ARE Park use develops.

Development Impacts

Using the 55% impervious surface guideline, approximately 83 acres of Site 2 would be available for buildings, roadways and parking areas. The remaining 69 acres of developable area will be used for green space, buffer areas and storm water management. An additional 78 acres of open space would remain undeveloped. This area encompasses the floodplain of Cowaselon Creek, as well as the steep, wooded slope east of the developable area.

It is anticipated that internal access roads and storm water management facilities will be constructed prior to any structural

development of the sites. Development of the sites is likely to occur in phases, with sites closest to the road being developed first and sites located away from either Buyea or Tuttle Roads being developed later in the process.

Extension of public water is not likely to occur for at least three to five years from the date of this document. Sanitary sewer installation will likely occur along the same time frame. Internal roadways may be completed upon cessation of mining activities, and completion of final site grading.

Lot subdivision and structural development will proceed on a case by case basis as the demand arises.

4.2.2.4 Water and Sewer Main Impacts

Water and sewer mains will be installed using standard methods accepted by the New York State Department of Health and the NYS Department of Environmental Conservation. Installation will be completed within the existing road right of way, except for areas where it will be necessary to cross property lines to reach interior areas of the project site. Topsoil will be stockpiled as the installation proceeds, and will be regraded to match the existing ground surface in trenched areas. In areas where mains will be directionally bored, no ground surface restoration will be necessary except at entrance and exit points.

4.2.3 *Mitigation Measures*

Temporary mitigation measures common to all three ARE Park sites include the use of silt fence, temporary siltation basins, check dams, infiltration galleries, vegetated swales, and rapid re-vegetation of exposed soil areas and topsoil stockpiles. Vegetated buffer strips will also be planted around the perimeter of disturbed areas to provide additional filtration prior to discharge into area streams.

Mitigation measures associated with the installation of water and sewer mains include the use of directional boring to avoid impacts to stream channels. Areas affected by the water main and sewer main installation will be restored to match existing grade and seeded with an appropriate native seed mix to match existing vegetation.

4.2.4 *Alternatives*

Alternatives to disturbance of the soils on the proposed sites include minimization of the disturbance footprint, locating the structures and parking lots on the site to slopes of less than 15%, and extensive use of green infrastructure, and maintaining the sites in agricultural use until needed for development.

4.3 Water Resources

4.3.1 *Existing Conditions*

The proposed project is located within the Upper Cowaselon Creek watershed of Oneida Lake (12 digit hydrological unit code 041402020501). This watershed consists of approximately 18,615 acres of land located primarily in the Towns of Lincoln, Fenner, Smithfield and Stockbridge and the City of Oneida. Land uses within this watershed area are predominantly agricultural fields, forested areas and scattered areas of residential development. Some commercial and small industrial development is present within the City of Oneida.

4.3.1.1 Surface Water

Limestone Creek (Ont. 66-11-P26-33-13-2) flows generally from southwest to northeast between the existing Madison County Landfill operation and the Site 1A and 1B borrow areas. Limestone Creek is a Class C (T) stream with C (T) standards according to the DEC (6 NYCRR Part 899). Limestone Creek is not on the NYSDEC's list of 303 (d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients).

Limestone Creek is a perennial tributary of Clockville Creek. The stream forms a deeply incised channel immediately east of Sites 1A and 1B. It forms a confluence with Clockville Creek approximately one half mile north of the northern property line of Madison County Landfill. Clockville Creek forms a confluence with Cowaselon Creek approximately 0.9 mile downstream from the confluence with Limestone Creek. Cowaselon Creek eventually discharges into Oneida Lake via Canaseraga Creek, north of the Village of Canastota.

Surface water runoff from Sites 1A and 1B drains generally east-northeast in vegetated drainageways into Limestone Creek. The walls of the creek valley are steep, and forested with deciduous hardwoods. The nearly continuous tree canopy over the

creek adjacent to Sites 1A and 1B creates an ideal, shaded environment that maintains a cool temperature that is beneficial to salmonids. The stream channel also exhibits a steep gradient, dropping approximately 300 feet in elevation from Eddy Road to Buttermilk Falls. This gradient maintains a well-oxygenated condition that is also beneficial to salmonids.

Water quality sampling has been conducted on Limestone Creek since 1992 (Barton and Loguidice, various reports). A review of these data from one location upstream of the Madison County Landfill and one location downstream of the landfill indicates that the stream is alkaline with pH values varying between 7.5 and 9.0. The water temperature varies with the season, but has never been reported above 70 degrees F. Dissolved oxygen is also high in Limestone Creek, occasionally reaching supersaturated concentrations of 12 mg/L or more. Specific conductance ranges from approximately 400 μ S/cm to more than 1000 μ S/cm. These values are typical of alkaline streams with high total dissolved solids concentrations. Turbidity values also vary with weather and water flow conditions. Summaries of water quality data from Limestone Creek are incorporated by reference into this document (Barton and Loguidice, P.C., *Annual Certification Report, SPDES Multi-Sector General Permit for the Madison County Landfill*, March 24, 2011).

Cowaselon Creek (Ont. 66-11-P26-33) flows generally from south to north through Site 2 on the east side of Buyea Road. Within the project site, Cowaselon Creek is a perennial tributary of Oneida Lake. The water quality classification of Cowaselon Creek is Class C with Class C(T) permitting standards according to the NYSDEC (6NYCRR Part 899). Based upon a review of NYSDEC Priority Waterbody records, this upper reach of the creek has not been assessed for impairments to water quality and designated uses. Cowaselon Creek is not on the NYSDEC's list of 303 (d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients)¹³.

The character of Cowaselon Creek within the Site 2 footprint differs markedly from that of Limestone Creek. While the valley sides are quite steep, the stream gradient is much shallower, dropping only about 30 to 50 feet in elevation over a half mile within the Site 2 footprint. Numerous small perennial and intermittent

¹³ Cook, Steve, NYS Department of Environmental Conservation. E-mail communication to F. Reese, Barton and Loguidice, P.C., dated January 9, 2012.

streams flow into Cowaselon Creek from steep hillsides on both the east and west sides. Bryson (2002) describes this reach of Cowaselon Creek as having a Rosgen Type “C” channel that is slightly entrenched, relatively sinuous, with a general slope of about 2%.¹⁴ The development of a sinuous stream channel within the mature flood plain allows the stream to dissipate energy, slow down and drop sediments within the floodplain. Within Site 2, the stream channel is partially shaded by deciduous trees lining the banks. Runoff from agricultural fields in the flood plain allows some warming of the waters.

Cowaselon Creek forms a confluence with Clockville Creek about 0.9 mile north of the Madison County Site 2 north property line. Cowaselon Creek is a tributary of Canaseraga Creek, which is tributary to Oneida Lake.

The water quality classification for Clockville Creek and its tributaries is Class C, with a permit issuance standard of Class C(T). The best usage of Class C waters is fishing. The waters are to be suitable for fish, shellfish, and wildlife propagation and survival. The water quality is to be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

Other Stream Crossings for Water & Sewer Routes

Water service from OCWA Water Storage Tank in Canastota. Three stream crossings were identified for the proposed water main extension from the OCWA water storage facility in Canastota. These stream crossings are located at Old County Road over Clockville Creek (Ont. 66-11-P 26-33-13), Timmerman Road over an unnamed tributary of Clockville Creek (Ont. 66-11-P 26-33-13-6), and at Limestone Creek within the footprint of the Madison County Landfill, immediately west of Buyea Road.

Groundwater Alternative. One stream crossing at Limestone Creek was identified for the proposed water main from a groundwater source located off Tuttle Road southwest of the Madison County Landfill property. This crossing is located within the footprint of the Madison County Landfill property south of Site 1B.

¹⁴ Bryson, David S. 2002. An Evaluation of the Potential for Sport Fishing Enhancement and Aquatic Habitat Restoration Within the Cowaselon Creek Watershed. U.S. Fish and Wildlife Service, New York Field Office, p. 6.

Sanitary Sewer Main to City of Oneida. Four major stream crossings were identified for the proposed sanitary sewer. These include: (1) a crossing of Limestone Creek immediately west of Buyea Road; (2) a crossing of Clockville Creek at County Route 54; (3) a crossing of Cowaselon Creek at Lenox Avenue in the City of Oneida; and (4) a crossing of an unnamed tributary of Cowaselon Creek at Lenox Avenue in the City of Oneida near Five Corners.

4.3.1.2 Groundwater Resources

The depth to perched groundwater varies with the type of soil found in the overburden. Perched groundwater is generally seasonal in nature and may not persist within the soil profile over a prolonged summer drought. In general, perched groundwater is found above a soil layer that functions like an aquitard, such as a highly compacted clay layer. Water moves downward through the soil profile until it reaches an aquitard and moves laterally along its surface until it emerges in the form of ephemeral springs or until it finds a path into the deep groundwater found in bedrock layers. Water in the perched water table may evaporate or may be taken up in plant roots during the growing season and be re-charged during precipitation events.

Within Sites 1A and 1B, the perched groundwater table will be affected by soil mining activities. Depending upon the season, perched groundwater may flow into depressions created by mining operations to form temporary ponds.

Permanent groundwater is found in bedrock and unconfined layers above the bedrock and is available only through groundwater wells. The depth to bedrock in the project area varies from 10 feet to more than 30 feet. The groundwater surface generally follows the top of the bedrock. Groundwater emerges in the form of springs at the toe of slope along Limestone Creek and Cowaselon Creek.

4.3.1.3 Wetlands

National Wetland Inventory maps (U.S. Fish and Wildlife Service) and NYSDEC Freshwater Wetland Maps were reviewed prior to conducting a field evaluation of the preferred alignments for water and sewer mains and on Sites 1A, 1B and 2. No mapped NYS Freshwater Wetlands are located in the vicinity of the proposed water and sewer main alignments or within the development footprints of the proposed ARE Park.

National Wetland Inventory Maps (Oneida and Canastota, NY quadrangles) showed six NWI wetlands to be located within or adjacent to the water and sewer main alignments and the ARE Park parcels. These wetlands are summarized in Table 4.2.

Wetland ID	Mapped Wetland Cover Type	Location	Area (acres)*
PFO1C	Palustrine, deciduous broad leaf forest, seasonally flooded	Sewer main crossing of Clockville Creek	1.46
R3UBH	Riverine, upper perennial, unconsolidated bottom, permanently flooded	Upper Lenox Avenue over Cowaselon Creek	N.A.
R3UBH	Riverine, upper perennial, unconsolidated bottom, permanently flooded	Upper Lenox Avenue over tributaries of Cowaselon Creek	N.A.
PSS1E	Palustrine, scrub shrub, broad leaf deciduous, seasonally flooded/saturated	Site 2, south property line, near Cowaselon Creek; wetland straddles property line	2.43
PEM1E	Palustrine, emergent, persistent, seasonally flooded/saturated	Site 2, associated with flood plain of Cowaselon Creek	0.49*
PEM1E	Palustrine, emergent, persistent, seasonally flooded/saturated	Site 2, associated with flood plain of Cowaselon Creek	6.28
PFO1E	Palustrine, deciduous broad leaf forest, seasonally flooded/saturated	Site 2, associated with flood plain of Cowaselon Creek	7.99

*Area digitized from scanned NWI map GIS layer.

Wetlands were delineated within the ARE Park sites and along the preferred alignments of the water and sewer mains using methods outlined in the 1987 Corps of Engineers Wetland Delineation Manual and the Northeast/Northcentral Supplement to the 1987 Wetland Delineation Manual (2009). Results of the delineation are summarized in Table 4.3. Details of the wetland delineation are found in Appendix E.

Location	Wetland ID	Size	Cover Type	Jurisdictional Status
Site 1A	A	0.74	Palustrine scrub-shrub and emergent	Intermittent surface water connection with Limestone Creek, tributary of Clockville Creek, tributary of Cowaselon Creek and Oneida Lake.
Water and sanitary sewer main crossing of Limestone Creek, west of Buyea Road	Wetland B	Creek channel	Palustrine, deciduous forested riparian channel	On Limestone Creek, a water of the United States

Table 4.3 Summary of Wetlands Delineated				
Location	Wetland ID	Size	Cover Type	Jurisdictional Status
North side of Upper Lenox Avenue	Wetland C	Several small creek crossings	Palustrine emergent and scrub shrub	Wetlands associated with Cowaselon Creek
Site 2	Wetland D	24.7 acres	Palustrine emergent, scrub shrub and deciduous forested	Wetlands associated with Cowaselon Creek and flood plain areas.

4.3.2 Potential Project Impacts

4.3.2.1 Surface Waters

Potential Utility Impacts

Installation of water and sanitary sewer utilities across Limestone Creek, Clockville Creek, Cowaselon Creek and their tributaries will also be required. It is not anticipated that these utility installations will have impacts on the bed or banks of either of these stream channels because the utilities will be directionally bored through bedrock beneath the bottom of the creek channels.

Earth Moving Impacts

Earth moving activities in relation to the soil mining activities on Sites 1A and 1B have been quantified as part of the Landfill Expansion permit modification (2006) and are not part of this impact statement.

Soil erosion and sedimentation could occur as a result of earth moving activities associated with the development of the ARE Park if erosion and sediment controls are not properly installed or maintained. It is anticipated that the development of the ARE Park could occur simultaneously with soil borrow activities. Erosion and sediment controls associated with the operation of the soil borrow areas will be maintained during the operational period. It is anticipated that these erosion and sediment controls will initially also be utilized for the preliminary development of the ARE Park site.

Development Impacts

With a proposed increase in impervious surface from the construction of the ARE Park, and the removal of vegetation, higher volumes of stormwater could discharge from the site without detention or water quality treatment. Without proper stormwater

controls, higher peak runoff rates could also be discharged from the site. Increased stormwater rates and volumes could lead to downstream flooding and erosion of receiving waterways.

It is also possible that without appropriate erosion and sediment controls on site, stormwater discharges could carry an increased load of suspended solids. These solids could consist of fine and coarse grained soil particles with differential settling rates. Coarser grained particles (sands and gravels) could add to the bedload of Limestone Creek. Finer grained sediments would likely contribute to the suspended solids load, and settle out in more quiescent areas of the downstream tributaries. Increased sediment loads could also carry sorbed contaminants including nutrients (particularly phosphorus), pesticides and oils.

Without mitigation measures, it is possible that runoff from paved surfaces and building roofs could also create high temperature (80+ degrees F) thermal "slugs" that could raise the ambient temperature of the water in Limestone Creek during the summer. Addition of high temperature water to this stream could decrease the dissolved oxygen and adversely affect populations of trout that may inhabit this reach of Limestone Creek.

Potential Utility Impacts

It is unlikely that installation of water and sanitary sewers will have any adverse effect on the channel of Cowaselon Creek. These utilities would be installed via a boring beneath the bottom of the channel. No impacts to the bed or banks of Cowaselon Creek would occur as a result.

Impacts from Development of Soil Borrow Areas

Although there is no approved soil borrow area that has been determined for Site 2, borrow areas would not be located within steep slope areas ($\geq 15\%$ slope), wetlands, stream channels, flood plains or in former waste disposal areas. For practical reasons, soil borrow areas will likely be constructed in areas of well drained soils with slopes of less than 15%. Soil borrow operations are likely to affect an area of approximately 76 acres immediately adjacent to Buyea Road.

Impacts from Site Development

Impacts to Cowaselon Creek would likely be similar to those described for Limestone Creek. The creek channel would be likely to experience higher flows due to an increase in impervious surface, along with an increased sediment load that could adversely affect stream channel morphology and potential salmonid habitat.

It is unlikely that the agricultural field on the east side of the wooded corridor and wetland area would be used as a soil borrow area. It could potentially be used as an outdoor storage area, but will most likely be kept in agricultural use for the foreseeable future.

4.3.2.2 Groundwater Impacts

Groundwater impacts may occur during the development of a soil borrow area on Site 2. On this site, perched groundwater is likely to be present in several areas of the site at depths ranging from 24-36 inches to near the surface. It is likely that the soil will be mined to a depth below the elevation of the seasonal high groundwater table. This water will likely be collected and stored in a sedimentation basin prior to releasing it in a controlled manner to an existing grassed swale or drainageway. Areas with very high groundwater tables are not likely to be affected by construction of the soil borrow area because these areas are likely to be federal jurisdictional wetlands. As such, a permit would be required under Section 404 of the Clean Water Act for dredging. At the present time, Madison County has no plans to use any of the wetland areas on Site 2 for soil borrow areas.

Deep groundwater on the site is not likely to be adversely affected by the proposed use of Site 2 as a soil borrow area. Deep groundwater is likely located near the top of the bedrock as at Sites 1A and 1B. Impacts to deep groundwater are expected to be similar to those described in the approved *Soil Borrow Area Use Plan*.

4.3.2.3 Wetland Impacts

Sites 1A and 1B

The wetland located on Site 1A will not be adversely affected by the proposed soil borrow area or the ARE Park construction. Soil mining and ARE Park construction activities will avoid this

wetland. It may receive additional water from groundwater sources as the soil borrow area is expanded above the wetland. Based on this scenario, it is possible that the wetland could expand slightly in size with higher water levels.

No wetlands are located within the 15 acre footprint of Site 1B. No wetland impacts are anticipated from the construction of the ARE Park on this site.

Site 2

Wetlands located in Site 2 will not be affected by the proposed construction of the soil borrow area or the ARE Park because they are associated with the channel and floodplain of Cowaselon Creek. No construction or disturbance of wetlands east of the steep slope of the Cowaselon Creek valley is proposed or anticipated.

Water and Sewer Main

Some minor, temporary wetland impacts may be result from the installation of the sewer main along the west side of Upper Lenox Avenue. Wetland impacts are expected to be minimized by placing the sewer within the already disturbed road right of way.

4.3.3 Mitigation Measures and Alternatives

The peak stormwater runoff rates will be required to be attenuated for the 1, 10 and 100-year, 24-hour rainfall events in accordance with the NYSDEC's SPDES General Permit for Stormwater Discharges from Construction Activity. The permit requires no net increase in peak flow discharge rates to receiving waters. This is typically accomplished by construction of extended detention/retention ponds, wetlands, infiltration practices or dry basins. These practices would protect downstream structures and receiving waters from increased flooding and erosion risks. Infiltration practices, utilized in areas with hydrologic soil group B soils, would provide a further reduction in the volume of stormwater discharged from the site. Additional practices would be required to treat the NYSDEC's water quality and runoff reduction volumes in accordance with the SPDES permit requirements. The permanent stormwater practices would be required to provide at least an 80% total suspended solids and 40% total phosphorus reduction in accordance with SPDES Permit requirements. Thermal impacts could be off-set by utilizing infiltration practices where practical and by maximizing detention holding times to 12-

hours. Pond designs would be limited to micropool extended detention facilities to prevent thermal impacts.

Site planning practices and green infrastructure techniques can be applied to minimize the impacts associated with new development. These practices include preservation of natural buffers, reducing clearing and grading limits, open space design, soil restoration and reducing impervious cover. Mitigation measures for the prevention of water quality degradation may include but are not limited to:

Temporary Practices Utilized During Construction:

- Silt fence
- Vegetated swales
- Check dams
- Temporary sediment basins
- Revegetation and stabilization of slopes and stockpile areas
- Stabilized Construction Entrances
- Rolled erosion control practices
- Dedicated concrete washout areas
- Fiber rolls
- Dust control
- Temporary site stabilization practices (seeding and mulching)

Permanent Stormwater Management Practices:

- Stormwater management ponds with 12 hr. detention times to avoid thermal impacts
- Infiltration Practices
- Stormwater wetlands
- Water quality swales
- Bioretention areas
- Stormwater planters
- Rain barrels/cisterns
- Porous pavement
- Rock outlet protection
- Impervious cover reduction

Alternatives for the protection of water quality include the potential use of the following measures:

- Vegetated riparian buffers along the edge of wooded areas

- Preservation of steep slopes, wetlands, and other sensitive environmental features
- Rain gardens to filter runoff from roof areas
- Green roofs
- Porous pavements for parking areas and internal roadways (if feasible)
- Open channel drainage
- Micropool extended detention ponds
- Rainwater harvesting and reuse
- Use of non-phosphorus fertilizers

Thresholds for water quality treatment and runoff reduction volumes are presented for each of the ARE Park sites in Table 2.6 in Chapter 2 of this document. These thresholds are acceptable for project impacts; however, site-specific plans will be required for specific developments within the ARE Park. A Stormwater Pollution Prevention Plan (SWPPP) will also be required.

4.4 Ecology

4.4.1 *Existing Conditions*

According to Bailey's *Ecoregions of the Conterminous United States*¹⁵, the project site is located within the Northern Glaciated Allegheny Plateau Section of the Laurentian Mixed Forest Province, Warm Continental Division, Humid Temperate Domain. The Northern Glaciated Allegheny Plateau Section is described as a maturely dissected glaciated plateau of rounded ridges and moderate relief with areas of irregular topography with high hills and steep valleys. Forest vegetation consists of maple-beech-birch, oak-hickory, and aspen-birch cover types.

The predominant cover types within the ARE Park development areas consist of agricultural fields, meadow-brushland, and previously disturbed/unvegetated soil areas.

Soil from portions of Sites 1A and 1B will be mined for use as daily cover. As this activity proceeds, the percentage of land surface allotted to agricultural use will decrease as the amount of unvegetated or disturbed soil area increases.

¹⁵ McNab, W.H., Cleland, D.T., Freeouf, J.A., Keys, J.E., Jr., Nowacki, G.J., Carpenter, C.A., comps. 2005. Description of ecological subregions: sections of the conterminous United States [CD-ROM]. Washington, DC: U.S. Department of Agriculture, Forest Service, 80 p.

Hedgerow species between cultivated fields include black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), hawthorns (*Crataegus* sp.) and other northern hardwoods. Canopy species along the creek channels consist of American elm (*Ulmus Americana*), green ash (*Fraxinus pennsylvanica*), American beech (*Fagus grandifolia*), hemlock (*Tsuga canadensis*), yellow birch (*Betula allegheniensis*), Eastern hophornbeam (*Ostrya virginiana*), and sugar maple (*Acer saccharum*). Understory species consist generally of tartarian and Morrow's honeysuckle (*Lonicera tatarica* and *L. morrowii*).

The U.S. Fish and Wildlife Service identified American hart's tongue fern (*Asplenium scolopendrium* var. *americanum*) and Chittenango amber ovate snail (*Succinea chittenangoensis*) as Federally listed Threatened species in Madison County. The Indiana Bat (*Myotis sodalis*) is a Federally listed Endangered species that is present in Madison County as a summer resident¹⁶.

The following habitat information is summarized from a variety of sources¹⁷. Hart's tongue fern has specific substrate and microhabitat requirements and occurs in small, widely-separated population groups. The species is typically found on or near dolomitic limestone (a type of limestone high in magnesium), where it typically occurs in moist crevices, on mossy rock outcrops, or in sinkholes or blowholes of limestone caves. Most populations are associated with cool, well-shaded, moist microclimates; many occur in shady hardwood woodlands where sun flecks provide sufficient sunlight and where moisture is adequate. The species is associated at many sites with walking fern (*Asplenium rhizophyllum*), northern holly-fern (*Polystichum lonchitis*) and moist moss mats, especially those with rose moss (*Rhodobryum roseum*). Extant New York populations occur in conjunction with a dolomitic limestone formation known as the Lower Helderberg. Plants are typically found in or along deep ravines and "pit-hole lakes" or "plunge-basins," where limestone cliffs surround the water. New York populations are typically found rooted in black humus beneath beech, maple, hemlock and yellow birch forests well below overhanging ledges on east and north-facing slopes or in similar shaded areas.

¹⁶ U.S. Fish and Wildlife Service, *Federally Listed Endangered Species and Candidate Species in New York (by County)*, updated June 1, 2011, <http://www.fws.gov/northeast/nyfo/es/ColistCurrent.pdf>

¹⁷ NatureServe. 2011. *NatureServe Explorer: An online encyclopedia of life* [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: August 11, 2011). Comprehensive Report Species – *Asplenium scolopendrium* var. *americanum*. <http://www.natureserve.org>

The Chittenango amber ovate snail exists in only one location near Chittenango Falls, Madison County, New York¹⁸. The species requires a substrate rich in calcium carbonate and appears to prefer green vegetation such as the various mosses, liverworts, and other low herbaceous vegetation found within the spray zone adjacent to the falls. While the project site includes two streams with dolomitic carbonate type bedrock, neither stream includes a waterfall spray zone within the project footprint, which appears to be a habitat requirement.

Indiana bats typically hibernate in mines or caves during the winter, and roost under bark or in tree crevices in the spring, summer and fall. Suitable summer roosting habitat is characterized by trees (dead, dying or live) or snags with exfoliating or defoliating bark, or containing cracks or crevices that could potentially be used by Indiana bats as a roost. The minimum diameter of roost trees is 2.5 inches for males and 4.3 inches for females. Maternity colonies generally use trees greater than or equal to 9 inches diameter at breast height (dbh). Roost tree structure appears to be more important than a particular tree species or habitat type. Females appear to be more habitat specific than males, likely because of the warmer temperature requirements for gestation and rearing of young. As a result, females are generally found at lower elevations than males. Roosts are warmed by direct exposure to sunlight, leading to a preference for trees in open canopy situations rather than in shaded locations. Shaded roosts may be utilized during very hot weather¹⁹.

Streams associated with floodplain forests and impounded water bodies, where abundant supplies of flying insects are present, also provide preferred foraging habitat for Indiana bats. Indiana bats forage within 2-5 miles of upland roost trees, and within the canopy of upland forests, over clearings with early successional vegetation, along the borders of croplands, along wooded fencerows and over farm ponds in pastures²⁰. The maximum elevation where Indiana bats have been observed is approximately 900 feet above sea level²¹. The project area includes some areas above 900 feet in elevation, but most areas are below this elevation.

¹⁸ NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: August 11, 2011). Comprehensive Report Species – *Novisuccinea chittenangoensis*

¹⁹ U.S. Fish and Wildlife Service, New York Field Office. September, 2010. *Indiana Bat Project Review Fact Sheet*. <http://www.fws.gov/northeast/nyfo/es/lbat%20fact%20Sheet%20Sept%202010%20final.pdf>

²⁰ Ibid.

²¹ Ibid.

Based upon reported habitat preferences and the location of the proposed ARE Park footprint within existing agricultural fields or soil borrow areas (not within existing wooded areas or wetlands), it is unlikely that summer roosting habitat of Indiana bats would be affected by the development of the ARE Park. Utility construction will be completely largely within existing, cleared road right of way. This type of habitat is not utilized by Indiana bats because it does not contain trees needed for summer roosting.

Consultation with the New York Natural Heritage Program and the Region 7 office of the New York State Department of Environmental Conservation indicated that one State listed endangered species, the bent sedge (*Carex styloflexa*), was reported near the hamlet of Clockville in 1935. Habitat information for this species is summarized from a variety of sources.²² This species does well in areas where there is minor disturbance in the canopy, such as treefalls, but does not survive well following clear-cutting which dries the soil. The plant can persist in conditions ranging from deep shade to 70-90 percent sunlight. The soil conditions must remain moist. In New York, preferred habitats include: thin limestone ledges in woods near Clockville; damp spots in rich shade; moist wet thicket; edge of wet, rich woods; swampy woods; on the border of a brook; in a sphagnum bog; in rich wet hilly woods and in a damp thicket. It will not tolerate standing water that persists for 1-2 months or frequent inundation of water. The plant will tolerate flash floods.

4.4.2 Potential Project Impacts

American Hart's Tongue Fern (*Asplenium scolopendrium* var. *americanum*). While the wooded slopes and limestone/dolostone outcrops of Limestone Creek and Cowaselon Creek may provide habitat for American hart's tongue fern, these areas will not be disturbed by the proposed construction of the ARE Park. ARE Park construction will be limited to existing agricultural areas and soil borrow areas within Sites 1A and 1B, and will likely be limited to existing agricultural areas and previously disturbed areas. The Town of Lincoln also requires a permit for construction on slopes greater than 15%. Most of the known habitat for American hart's tongue fern occurs in steeply sloping environments. Based on the known habitat preferences of this plant and a detailed site walkover of the potential habitat area, the proposed development will not adversely affect this species.

²² NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: August 11, 2011). Comprehensive Report Species – *Carex styloflexa*.

This habitat will also not be disturbed by the construction of water and sewer mains because these utilities will be directionally bored through bedrock in the locations where this species is likely to be found.

Chittenango Amber Ovate Snail (*Succinea chittenangoensis*).

This species is known to exist in only one location: the spray zone of Chittenango Falls in Chittenango Falls State Park. The specific habitat requirements of this species are not present within the proposed ARE Park footprint. The stream channels of Limestone Creek and Cowaselon Creek will not be disturbed as part of this proposed development. Based upon a review of the habitat preferences of the Chittenango Amber Ovate Snail, and a site walkover of the project area, the proposed ARE Park development and the water and sewer mains will not adversely affect the Chittenango Amber Ovate Snail.

Indiana Bat (*Myotis sodalis*). Two stream channels are located within the project area: Limestone Creek and Cowaselon Creek. Riparian areas of these stream channels are forested within the project vicinity. Project development will largely be conducted within open lands approved for soil mining and existing agricultural fields. These open areas are not likely to be used by Indiana bats for foraging. No potential roost trees are located within the proposed development footprint.

The only area of potential impact to Indiana bat habitat is the utility crossing proposed for Limestone Creek. This area is wooded with silver and red maple, willow and other wetland/flood plain species. The utility crossings will likely be directionally bored under the creek channel to avoid adverse impacts to the creek and wetlands associated with the channel. Based upon this assessment, it is unlikely that Indiana bat habitat will be adversely affected by construction of project utilities.

Bent sedge (*Carex styloflexa*). Based upon a review of the habitat requirements of this species, and a site walkover of the proposed development area, it is unlikely that bent sedge will be directly or indirectly affected by the proposed project. Areas proposed for disturbance in this project have been previously cleared of vegetation, and are presently used as either soil borrow areas or agricultural fields. The habitat preferred by this species may be found within the project site, but is not within the project development footprint. No disturbance of any exposed limestone ledge areas or forested riparian corridors is proposed as part of this development. Therefore, no taking of the plant species will occur as a result of this project.

4.4.3. Mitigation Measures and Alternatives

Directional boring methods will likely be used for the installation of water and sanitary sewer mains to avoid adverse impacts to potential endangered species habitat along Limestone Creek.

No alternatives are proposed.

4.5 Land Use and Community Character

4.5.1 Existing Conditions.

The Town of Lincoln is predominantly rural in nature. The 2009 Town of Lincoln Comprehensive Plan noted that the landscape is characterized by large tracts of undeveloped land. Agriculture is the predominant land use in both Madison County and the Town of Lincoln.

4.5.1.1 Population

The 2010 population of the Town of Lincoln is 2,012 persons. Thirty-one people live within the census blocks that comprise the project site. Based upon 2010 census housing data, there are 17 houses within the two census blocks that comprise the project site. Of these, 14 are occupied, and 2 are renter-occupied. One house is reportedly used by Madison County as temporary office space. Only two residences are immediately adjacent to the ARE Park development site.

The population of Madison County increased by a total of 5.8% between 2000 and 2010. The population of the Town of Lincoln has increased by 9.6% over the 2000 census population. This population increase is attributed to an influx of Amish farm families who were attracted to the area because of its relatively low land prices and the rural nature of the community. It is anticipated that this trend will continue over the next several years.

Lands immediately adjacent to the Madison County Landfill properties are predominantly agricultural. Within the ARE Park site, Sites 1A and 1B have been approved for development as soil borrow areas for the Madison County Landfill, but will continue to be used for agriculture until they become unsuitable due to soil mining activities. Site 2 was purchased by Madison County during the mid-2000s. The site will remain primarily in agricultural use for the foreseeable future, until a soil borrow area is approved, or until the site is developed as an industrial park site.

Development of the ARE Park will transform existing undeveloped land, and land that will be mined for soil, into areas of active industrial and commercial businesses. Potential mining impacts to Sites 1A and 1B have been reviewed and approved as part of the permitted soil borrow plan for the County's landfill facility. In this document, the discussion of potential changes in land use, community character and community services in the DGEIS will focus on the utility corridors, and on Site 2 of the ARE Park.

4.5.1.2 Agricultural District Impacts

No lands affected by the proposed water main are located within the Madison County Agricultural District No. 2²³. No lands affected by the proposed sewer main are located within the Madison County Agricultural District No. 2.²⁴

Madison County Agricultural District No. 2 includes a total of 35,680 acres of land in the 2011 inventory. The landfill expansion removed approximately 200 acres from the Madison County Agricultural District No. 2. The impact of the removal of these properties was covered during the SEQRA review of that project.

The New York State Department of Agriculture and Markets reviewed the proposed ARE Park Sewer and Water lines and determined that the project met the criteria for the advance of public funds to construct these utilities.

4.5.1.3 Sanitary Sewer Service

At the present time, no significant domestic sanitary wastes are being generated by operations within the ARE Park foot print. Site 2 includes a complex of buildings which is presently served by conventional leach field septic disposal systems. Operations within the foot prints of Sites 1A and 1B currently do not generate domestic sanitary wastes. Land uses along the proposed sanitary sewer alignment to the City of Oneida are predominantly residential and agricultural. The residences and farmsteads are currently served by on-site sanitary waste disposal systems and do not contribute flows to the City of Oneida WWTP.

The City of Oneida operates a wastewater treatment plant with a design capacity of 3.75 MGD. The service area currently includes the City of Oneida, the Walmart Plaza on Upper Lenox

²³ Verified by checking parcel numbers against real property tax information, October 11, 2011.

²⁴ Ibid.

Avenue, the new Business Park, and the Turning Stone Casino in Verona. The H.P. Hood Dairy in Oneida, NY is the treatment plant's largest industrial user, contributing approximately 40% of the daily biological oxygen demand (BOD₅) load, conveyed in ± 5% of the plant's design flow. The City of Oneida has indicated that they have the capacity to accept up to 200,000 gallons per day of domestic sanitary waste from the ARE Park site and the Madison County Landfill.

An Intermunicipal agreement is being developed that will allow a dedicated force main to be constructed from the ARE Park and Madison County Landfill sites to connect with the City of Oneida's sanitary sewer system. The agreement would allow the Madison County Landfill and the ARE Park to dispose of up to 200,000 gallons of sanitary waste per day in the City's wastewater treatment plant.

The force main will take sanitary sewer waste from the ARE Park and landfill operations as well as leachate from the landfill to the City of Oneida's Wastewater Treatment System. No residential hook-ups are proposed for the force main. It is intended that the force main be used exclusively by the landfill to transport leachate from the landfill site and to carry sanitary waste from the ARE Park development.

The City of Oneida requires pre-treatment for all effluents that do not meet the criteria specified in Article XI of the City Code. Wastewater pretreatment will be required for industries in the ARE Park that generate high-strength effluents.

4.5.1.4 Water Systems

The Onondaga County Water Authority maintains a 1.5 MG storage tank on the east side of Oxbow Road at the south end of the Village of Canastota. An existing water main extends south for a distance of 0.5 mile along Oxbow Road to its current terminus, about 1,100 feet south of the Lenox/Lincoln Town Line. This water line is the southern limit of the OCWA-Canastota Water Service area. South of this point, existing homes and businesses are served by private wells.

The Onondaga County Water Authority (OCWA) indicated that approximately 0.4 million gallons per day of capacity is available from the supply at the Village of Canastota. However, that area is at the extreme south end of the OCWA service area.

OCWA reports that distribution system upgrades are required before water can be supplied at adequate pressures and quality. OCWA is currently working with the Town of Constantia along the North Shore Water System, which involves the extension of water transmission mains along the north portion of Oneida Lake. These new transmission mains will provide a hydraulic loop of Oneida Lake that will be capable of providing an increased transmission capacity of 1.75 MGD to the eastern limits of the OCWA service area. It is anticipated that the North Shore Water System project will be completed in 2016, resulting in additional capacity for OCWA to provide a water supply to the ARE Park.

Existing buildings and operations within the Madison County Landfill and the proposed ARE Park sites are served by individual water wells.

4.5.1.5 Other Site Utilities

Electrical service is provided to the project site by National Grid. It is anticipated that the capacity of transmission lines serving the project area will be sufficient to serve the needs of ARE Park occupants. Further coordination with electrical service providers may be required depending upon the power needs of individual businesses.

Natural gas service is not presently available to the ARE Park site. The nearest natural gas service connection is located approximately one mile north of the ARE Park site. It is anticipated that ARE Park occupants will not have a large need for commercial natural gas service for heating. However, should a connection be required, this will be addressed on a case-by-case basis.

4.5.2 *Impacts*

4.5.2.1 Agricultural District

A total of 197.48 acres of land were removed from the Madison County Agricultural District No. 2 when Madison County purchased several properties. This total represents approximately 0.5 percent of the total acreage contained in Agricultural District No. 2. This impact was considered acceptable.

The County filed a Notice of Intent to construct the water and sewer mains through the existing Agricultural District with the New York State Department of Agriculture and Markets. The

Department issued its certification that the requirements of Section 305(4)(g) had been met in May, 2011. A copy of this correspondence is contained in Appendix C. No other impacts are anticipated from the construction of the ARE Park.

4.5.2.2 Sanitary Sewer Impacts

The force main is expected to take sanitary sewer waste and leachate from the landfill and the ARE Park to the City of Oneida's Wastewater Treatment System. No residential hook-ups are proposed for the force main. It is intended that the force main be used exclusively to carry sanitary waste from the ARE Park development and to transport leachate from the landfill site. No additional demand, other than that created by the development of the ARE Park, is anticipated from the construction of the force main. The maximum volume of effluent that can be accepted by the Oneida City WWTP is 200,000 gallons per day.

Use of the force main to transport landfill leachate is expected to reduce the number of leachate transport trucks by approximately 3-4 trips/day. The excess capacity of the force main (approximately 180,000 gallons per day) will support and promote the development of the industrial park site.

4.5.2.3 Water Service Impacts

The construction of the preferred alternative for the water main will be capable of providing water service to 50-60 residences located along the alignment. These residences are located along Oxbow Road extending south from the southern limit of the existing OCWA transmission main, along Old County Road in the hamlet of Clockville, Timmerman Road to Tuttle Road, approximately 500 feet south along Tuttle Road, to the north property line of Madison County property to Buyea Road. The line would then be extended south along Buyea Road to serve the landfill offices, Johnson Brothers Lumber, and the WM LFGTE facility.

The Town of Lincoln is also considering the extension of a water main to service residential properties within the hamlet of Clockville. This action is being pursued independently and concurrently with the proposed ARE Park water line extension. The two proposed water main extensions follow essentially the same alignment down Oxbow Road to Old County Road, but the ARE Park water main continues east on Timmerman Road to Tuttle Road.

If construction of the OCWA water line must be delayed to wait for the completion of a looped distribution system (possibly until 2016 or later), other options for water service may be necessary.

Residential and small commercial uses could potentially require up to 18,000 gallons per day (3 persons/household x 100 gpd x 60 residences) if all properties along the proposed alignment are provided with service. However, residential water usage from this source may be limited to those properties outside of the Agricultural District (i.e., primarily those properties in the hamlet of Clockville) due to a restriction from the NYS Department of Agriculture and Markets.

Although OCWA has indicated that up to 0.4 MGD may be available from the source, it is anticipated that all potable water used at the ARE Park will be discharged into the sanitary sewer system. With that understanding, water usage at the ARE Park must be limited to 180,000 gpd or less to avoid exceeding the treatment capacity of the Oneida WWTP.

4.5.3 Proposed Mitigations

4.5.3.1 Sanitary Sewer Mitigations

Wastewater pretreatment will be required for industries in the ARE Park that generate effluent with a waste strength in excess of the City of Oneida WWTP pre-treatment permit requirements. Industrial pretreatment standards and requirements are regulated under 40 CFR Parts 405-471. Industrial process wastes will be treated to match the characteristics of typical domestic sanitary waste for biological oxygen demand, pH, and suspended solids. ARE Park occupants will be required to meet the criteria for a pre-treatment permit issued by the City of Oneida. A summary of those criteria is shown in Table 4.4.

Table 4.4 Industrial Pre-Treatment Limits		
Substance	Limit	Notes
Flammable or explosive substances	<25% of Lower Explosive Limit	Gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, carbides, hydrides and sulfides are specifically prohibited unless allowed by individual permit
Obstructions to flow		Grease, garbage with particles > 0.5 inch, animal guts/tissues, paunch manure, bones, hair, hides, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, gas, tar, asphalt residues, residues from refining or processing fuel or lubricating oil, mud or glass or stone grinding or polishing wastes prohibited unless allowed by permit
Wastewater	pH < 5.5 or > 10.0	Unless authorized by City Engineer
Noxious or malodorous solids, liquids or gases		Sufficient to create a public nuisance or hazard to life, or sufficient to prevent entry into sewers for maintenance or repair
Wastewater with objectionable color which is not removed in treatment process		Dye, wastes, vegetable tanning solutions
Oils and greases	Solid at 50 deg. F, petroleum oil or mineral oil > 100 mg/l	
Wastewater	Temperature > 150 deg. F.	Influent wastewater > 150 deg. F will kill biological treatment organisms
Radioactive wastes		Banned except as permitted by City Engineer and in compliance with applicable state and federal regulations
Flammable substances	Closed cup flash point < 140 deg. F	
Pollutants that result in formation of toxic gases, vapors or fumes that could cause worker health and safety problems		Chlorine, etc.
End of Pipe Limits	(mg/L)	
Arsenic	0.1	
Cadmium	0.2	
Chromium (hexavalent)	0.1	
Chromium (total)	2.0	
Copper	0.4	
Cyanide (complex)	0.8	
Cyanide (free)	0.2	
Lead	0.1	
Mercury	0.1	
Nickel	2.0	

Table 4.4 Industrial Pre-Treatment Limits		
Substance	Limit	Notes
Phenol	2.0	
Selenium	0.1	
Silver	0.1	
Zinc	0.6	
Other classes of compounds that may be limited	Limits are permit specific	
Alkanes, alkenes and alkynes		
Aliphatic and aromatic alcohols and acids		
Aliphatic and aromatic aldehydes and ketones		
Aliphatic and aromatic esters		
Aliphatic and aromatic halogenated compounds		
Aliphatic and aromatic nitro, cyano, and amino compounds		
Antibiotics		
Benzene derivatives		
Compounds which upon acidification, alkalization, oxidation or reduction in discharge or in admixture with wastewater and its components in the POTW produce toxic, flammable or explosive compounds		
Pesticides, including algicides, herbicides, fungicides, insecticides, rodenticides, and phthalates		
Polyaromatic and polynuclear hydrocarbons		
Total toxic organics as defined in 40 CFR 433.11		
Toxic organic compounds, regulated by federal pretreatment standards		
Unsaturated aliphatics, including those with an aldehyde, ketone, or nitrile functional group		
Viable pathogenic organisms from industrial processes or hospital procedures		

ARE Park occupants and businesses may be required to install grease, oil and sand interceptors. All interceptors must be of a type and capacity approved by the City Engineer and must be

easily accessible for cleaning and inspection. Park occupants will be responsible for inspection, cleaning and repair at their own expense.

Additional mitigation measures may include, but not be limited to:

- Re-use of industrial process water by other compatible industries (e.g., potential re-use of aquaculture wastewater by greenhouse operations, provided that waste strength and nutrient characteristics are compatible with greenhouse crops).
- Reduction of industrial process water volumes through the use of low-volume equipment
- Minimization of processes that require the use of water
- Use of low-volume toilets and flow restrictors on sinks and showers.

4.5.3.2 Water Service Mitigations

Within the ARE Park, water usage and disposal of domestic and process waste water are inexorably linked. Water usage within the ARE Park will therefore be limited to about 180,000 gallons per day. Mitigations to reduce demand include:

- Use of low flow toilets and faucets
- Use of automatic shut off valves on restroom faucets
- Incentivized rates for water conservation
- Use of green/sustainable design principles for equipment and processes
- Use of master meters and individual building/use meters to identify sources of water leakage
- Use of native plants and low impact development measures in landscaping on site to reduce or avoid the need for landscape watering

4.5.4 *Alternatives*

4.5.4.1 Sanitary Sewer Service

A sanitary sewer connection to the Village of Canastota was evaluated early in the project. This alternative was determined to be infeasible because the Canastota WWTP does not have adequate treatment capacity for domestic and process wastewater from the ARE Park as well as leachate from the Madison County landfill.

4.5.4.2 Water Service

A second water service alternative would involve development of one or more groundwater wells and the construction of a water treatment plant at a site on Tuttle Road approximately one mile southwest from the ARE Park site. If developed, this alternative could potentially meet the immediate needs of the ARE Park. At the present time, this alternative is not preferred because the County does not want to be responsible for a public water supply. This alternative may be feasible if the County determines that the construction time frame and cost of proceeding with the OCWA water supply makes that alternative infeasible.

4.6 Visual Resources

The Visual Impact Analysis (VIA) procedures utilized for the proposed ARE development project are consistent with methodologies developed by the NYSDEC and the U.S. Department of Transportation (USDOT). Viewshed mapping was completed using United States Geological Survey (USGS) 10-meter digital elevation model (DEM) data with ESRI's ArcInfo 10.0 desktop Geographic Information System (GIS) software in conjunction with ESRI's Spatial Analyst extension. This software allows the user to determine topographic limits to the viewable area from data contained in the digital elevation model. These viewshed maps define the maximum viewable areas from which any portion of the existing and proposed landfill on the project site could potentially be seen within the five (5) mile radius from the ARE development study area.

Two viewshed analyses were completed for the project area. The first viewshed analysis used only the topographic data contained in the DEM model. The second viewshed analysis was utilized topography as well as modeled vegetation for sight obstruction within the five-mile radius of the study area. For both analyses, proposed development areas a maximum building height of 50 feet was assumed throughout each of the sites.

4.6.1 Existing Conditions

The existing landscape of the project site is predominantly rural. Sites 1A and 1B are currently used for row crops. They are located along the east side of Tuttle Road, a low-traffic local road. Two residences are located in proximity to these sites. Site 2 is a larger, rural property with a mix of land uses, including row crops, hedgerows, wooded areas, wetlands and a stream channel. A handful of homesteads and private properties are located adjacent to Site 2. The existing landfill is visible from several vantage points around the project site, but several of the residential properties nearby are screened by hedgerows, topography, and other features.

Aesthetic resources within a 5 mile radius of the project site include:

- Lenox No. 4 School House (96NR00926), hamlet of Clockville – 1.5 miles distant
- DeFerriere House (06NR05598), City of Oneida – 3.0 miles distant

4.6.2 Visual Impacts

Significant aesthetic or visual impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place.

Figure 4.1 shows the area within a 5 mile radius of the project site that is visible under existing conditions, and under the ARE Park build out condition. This analysis indicates that the ARE Park will be visible to approximately 5% more of the 5 mile radius viewshed area than under the current condition, not taking into account the screening effects of vegetation. The Lenox No. 4 School House property may have a partial view of the ARE Park development. This impact will not cause a diminution of the public use or appreciation of this resource because it is over a mile distant from the proposed ARE Park.

The recently listed DeFerriere House in the City of Oneida will not have a view of the proposed ARE Park and therefore will not experience a visual impact. T

The 5% increase in visibility is not considered to be significant.

Properties adjacent to proposed utility corridors will not be adversely affected visually due to the installation of underground utilities.

Some ground surface disruption will occur during project construction, but these impacts will be temporary and will not be significant. The existing ground surface condition will be restored once construction is completed.

4.6.3 Potential Mitigation Measures

Placement of visual screens and maintenance of existing vegetative features such as hedgerows and forested areas will naturally reduce the visibility of the proposed ARE Park buildings. The viewshed analysis that incorporated the presence of vegetation screening showed that the visibility of the ARE Park would be reduced from 5% (with no vegetation) to 3% more than the undeveloped condition.

Visual impact mitigation strategies may include:

- a) Screening (berms, vegetation)
- b) Relocation (placement of buildings on site to minimize external visibility)
- c) Camouflage/Disguise (use of natural materials to reduce visual impacts)
- d) Low Profile Buildings (single story or partially earth covered)
- e) Use of non-reflective surfaces in building materials to prevent excess glare from windows, solar or thermal surfaces, etc.
- f) Use of down-lighting, and other methods to prevent off-site spillover of lighting from parking lots and buildings at night

4.7 Air Quality

4.7.1 Existing Conditions

The project site is located in the Town of Lincoln, Madison County, New York, which is classified as an attainment area for criteria air pollutants. Level 1 Ambient Air Quality Standards apply to this site per NYSDEC regulation 6 NYCRR Part 284.3. Level 1 air quality standards apply to areas dominated by timber, agricultural crops, dairy farming, or recreation, and residences and sparsely scattered industries.

Permitted air emission sources located adjacent to the project site include the Madison County Landfill, (a Title V Air Facility), and the Waste Management Renewable Energy Facility (a State Air Facility). Based upon a review of potential business park occupants and uses, it is likely that emissions resulting from the operation of the ARE Park could include combustion emissions from facility heating systems and minor, industrial,

process-specific emissions associated with each agricultural or food industry.

Potential Permitting Requirements

Air emissions from a new facility may be subject to air regulation by the NYSDEC or the USEPA. The NYSDEC air permitting program is required by the USEPA Clean Air Act, and is administered by the NYSDEC's Division of Air Resources (DAR). NYSDEC requires that sources operating in New York State obtain air permits prior to constructing and operating the source of air emissions, unless the activity or air source is specifically exempt from regulation. All non-exempt air emission sources are regulated under one of the following permitting structures:

- Title V Facility Permit
- State Facility Permit
- Air Facility Registration

Facilities which generate emissions greater than the Major Source Threshold Values summarized in Table 4.5 will be required to obtain a Title V permit. Title V Permits include facilities that are considered to be major by NYSDEC regulations, or that are subject to USEPA New Source Performance Standards (NSPS) or other requirements regulating hazardous air pollutants (HAPs) such as the National Emission Standards for Hazardous Air Pollutants (NESHAP). These two (2) programs maintain industry specific regulations that require permitting and control of regulated emissions sources.

Facilities emitting between 50% and 99% of the Major Source values are eligible for the State Facility permit. State facility permits are issued to facilities that are not considered to be major, and meet department specifications. Sources that accept federally enforceable limits on the potential to emit (PTE) of the facility to less than major source levels may also qualify for a State Facility Permit. Facilities emitting below 50% of the threshold values are eligible to obtain an Air Facility Registration.

Table 4.5 Summary of Major Source Threshold Values in New York	
Pollutant	Major Source Threshold (Tons per Year)
Volatile Organic Carbons (VOC)	50
Oxides of Nitrogen (NO _x)	100
Sulfur Dioxide (SO ₂)	100
Carbon Monoxide (CO)	100
Particulate Matter (PM ₁₀)	100
Total Hazardous Air Pollutants (HAP)	25
Individual HAP	10
Any Other Pollutant	100

The determination of source status must be made on a case by case basis prior to construction of the source. Facilities seeking air permits must conduct a detailed emission inventory and satisfy all the permitting requirements of the NYSDEC. It should be noted that actual permitting requirements and the review process can be complex and depend on site specific scenarios. In addition, for the purposes determining major source status, all contiguous operations operating under common control would be considered a single facility, which must also be determined on a case-by-case basis.

4.7.2 Impact Assessment

Based on potential project industries reviewed, emissions are anticipated to be less than major source thresholds. It is anticipated that combustion units such as facility boilers, heaters and process dryers will be the predominant emission sources from the project. Dependent upon the size and fuel type, these sources may be exempt from permitting, or subject to NSPS and/or NESHAP regulations. For example, NSPS regulates small boilers with a maximum heat input capacity between 10 million BTU/hr and 100 million BTU/hr. Currently, NYSDEC exempt activities (per 6 NYCRR Subpart 201-3) include stationary or portable combustion installations with a maximum rated heat input capacity less than 10 million BTU/hr burning fossil fuels, other than coal, and coal and wood fired stationary combustion units with a maximum heat input less than 1 million BTU/hr. These exempt sources do not specifically require permitting.

For any new industry there will also be minor particulate emissions from mobile sources (employee cars, truck traffic, site vehicles), which are

not subject to NYSDEC permitting, as well as minor particulate emissions from industrial process operations.

Emissions from potential industrial occupants of the ARE Park were reviewed from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emission Factors (AP-42)²⁵. Based on AP-42 emissions review, minor emissions of volatile organic compounds (VOCs) from the agricultural and food production processes could also occur. Currently exempt agricultural and food service industry processes includes (per 6 NYCRR Subpart 201-3):

- Feed and grain milling, cleaning, conveying, drying and storage operations including grain storage silos, where such silos exhaust to an appropriate emission control device, excluding grain terminal elevators with permanent storage capacities over 2.5 million U.S. bushels, and grain storage elevators with capacities above one million bushels.
- Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
- Flour silos at bakeries, provided all such silos are exhausted through an appropriate emission control device.
- Emissions from flavorings added to a food product where such flavors are manually added to the product.

It is anticipated that industrial process particulate emissions will be mitigated as required through operational practice, equipment installations and designed air pollution control strategies as required to prevent significant air quality impacts.

Table 4.6 summarizes common pollutants associated with certain manufacturing, commercial, and industrial practices likely to be located within the Project Site.

²⁵ United States Environmental Protection Agency. 2011. *Emissions Factors & AP 42, Compilation of Air Pollutant Emission Factors*. Accessed from: <http://www.epa.gov/ttnchie1/ap42/>.

Table 4.6 Summary of Emission Sources, Pollutants, and Control Strategies

Industry	Air Emission Source	Regulated Air Pollutants	Greenhouse Gas Emissions	Typical Regulated Air Pollutant Control Strategies
All	Heating Systems & Boilers (LP or fuel oil) Emergency Generators (LP or fuel oil)	Particulate Matter (PM) Sulfur Dioxide (SO ₂) Nitrogen Oxides (NO _x) Carbon Monoxide (CO) Volatile Organic Compounds (VOCs) Hazardous Air Pollutants (HAPs)	Carbon Dioxide (CO ₂) Methane (CH ₄) Nitrous Oxide (N ₂ O)	N/A
Food Processing Meat Processing, Smoking, Rendering	Scalding/Singeing Smoking Washing/Weighing	PM CO VOC HAPs NO _x	CO ₂	VOCs - Wet Scrubbers Dry Sorbents Cyclones PM - Venturi Scrubbers ESP CO - Afterburners
Cheese Production	Grating/Grinding Coagulation/Ripping	PM VOCs	CO ₂	PM - Wet Scrubbers Cyclones Fabric Filters
Fruit/Vegetable Canning Dehydrated Fruits/Vegetables Pickles/Sauces/Dressings Cereal/Pasta Manufacturing Deep Frying Operations	Solids Handling/Drying Cooking/Evaporation	PM VOCs	N/A	VOCs - Adsorption Absorption Afterburners PM - ESP Venturi Scrubbers Cyclones
Aquaculture	Fish Processing Dryers Water Recirculation	PM VOCs	CH ₄	VOCs - Chlorinated Scrubbers Afterburners PM - Cyclones
Commercial Greenhouses	Heating, Emergency Power	See All, above	See All, above	See All, above

Table 4.6 Summary of Emission Sources, Pollutants, and Control Strategies				
Industry	Air Emission Source	Regulated Air Pollutants	Greenhouse Gas Emissions	Typical Regulated Air Pollutant Control Strategies
Cold Storage Facility	Refrigeration Equipment	N/A	Hydrofluorocarbons (HFC) Chlorofluorocarbons (CFC)	N/A
Cellulosic Ethanol Production	Milling Grain Handling/Drying Fermentation	SO ₂ PM VOCs	CO ₂	SO ₂ - Wet Scrubbing PM - Mechanical Collectors Fabric Filters VOCs - Ionizing Wet Collectors
Office Space	Air Conditioning Refrigeration Heating	PM SO ₂ NO _x CO VOCs HAPS	CO ₂ CH ₄ N ₂ O HFC CFC	N/A

Potential GHG Emissions

Greenhouse Gas (GHG) emissions are currently regulated through the USEPA's "GHG Tailoring Rule". The final rule has three (3) steps for implementation, and presents GHG emission limits for stationary sources that trigger both Prevention of Significant Deterioration (PSD) of Air Quality regulations and Title V Permitting. Beginning July 1, 2011, facilities with potential carbon dioxide equivalent (CO₂e) emissions of 100,000 tons per year (tpy) or more are subject to Title V permitting requirements. This threshold is subject to review in the future to determine if changes are needed.

GHG emissions associated with the proposed industries for this project will consist predominately of carbon dioxide (CO₂) emissions from the combustion of fossil fuels from stationary sources such as heating systems and emergency generators. Minor emissions of refrigerant utilized in cold storage facilities and office air conditioning and refrigeration units may also emit very small amounts of HFCs and CFCs. The efficiency and proper maintenance of such units will be evaluated to ensure that they are operating to minimize GHG emissions. Emissions of GHGs alone are not anticipated to require permitting.

Looking at the project as a whole, there may be an increase in GHG emissions from the increase in the number of vehicles traveling to and from the site. Since the relative number of vehicles expected for the proposed project site are relatively small (on the order of 100s) and emissions from mobile sources are not subject to GHG permitting, the resulting GHG emissions from commuter vehicles and industrial trucks are expected to be minimal with no significant environmental impact.

A reduction in greenhouse gases will be achieved by the elimination of trucking leachate from the Madison County Landfill to the wastewater treatment plant in the City of Oneida.

Potential Temporary Impacts from Construction

Temporary air quality impacts may occur during the construction phases of the project. The impacts will primarily be the result of particulate matter (PM) emissions and dust generation from construction equipment and vehicles. These activities will be limited in duration, and will be controlled with engineering controls as necessary such as wetting of surfaces and construction roads with water trucks to minimize dust.

4.7.3 Potential Mitigation Measures

Mitigation measures for air pollutant emissions will be industry- and process-specific. The common emission control systems and technologies are summarized in Table 4.6. It is anticipated that best available or maximum achievable control technologies will be required as part of the individual site review process.

4.8 Traffic

4.8.1 Existing Conditions

Buyea Road (County Route 54) is owned and maintained by Madison County and is classified as a Minor Collector Road. Buyea Road has a north/south orientation through the ARE Park site, and includes a tangent and horizontal curve at the north end of the site. Land uses along Buyea Road in the vicinity of the ARE Park include the Madison County Landfill, scattered residential development and agriculture. The existing roadway consists of one, eleven foot wide travel lane in each direction with 2 foot paved shoulders. Terrain on Buyea Road is rolling, with limited sight distances, and includes a no-passing zone in the vicinity of the potential entrances to Site 2. The pavement on Buyea Road is in good condition. The access to Site 2 will be from Buyea Road.

Driveway entrances for Sites 1A and 1B will be from Tuttle Road. Tuttle Road is owned and maintained by the Town of Lincoln and is classified as a Local Rural Road. The section of Tuttle Road adjacent to the project site has a north-south orientation and consists of a horizontal tangent. Land use along Tuttle Road near the project site is predominantly agricultural, except for the Town of Lincoln Highway Garage. The Town of Lincoln highway garage is located immediately south of the proposed entrance point for Site 1A, approximately 660 feet south of the intersection of Timmerman Road.

Existing traffic data, including vehicle count, vehicle classification, and speed data, were collected on Buyea Road and Tuttle Road with traffic tubes in 2011. Traffic on Buyea Road (County Route 54) consists of local traffic, commercial trucks, and agricultural vehicles. Table 4.7 summarizes the existing traffic conditions.

Road Name	Average Annual Daily Traffic (AADT)	Design Hour Volume (vehicles/hour)	% Trucks	85 th Percentile Speed (mph)
Buyea Road (C.R. 54)	1251	188	10%	56
Tuttle Road	221	42	<1%	53

4.8.2 Traffic Impact Assessment

Future traffic volumes were estimated based on an analysis of the existing population growth trends for the Town of Lincoln and Madison County. These volumes represent future background traffic that would exist without construction of the ARE Park. Based on historical population growth in this area, a traffic growth rate of 0.5% per year was applied to the 2011 existing traffic volumes to determine background growth.

4.8.2.1 Future No Build Traffic Conditions

Under the future No-Build Alternative, Madison County Landfill will continue to operate in its current location. Truck traffic will continue in its current travel patterns. Traffic conditions for the future no-build alternative are summarized in Table 4.8.

Roadway	AADT (vpd)	DHV (VPH)	% Trucks
Buyea Road	1382	207	10
Tuttle Road	244	46	<1%

4.8.2.2 Build Out Traffic Impacts

The number of trips generated by the project site was estimated using the methodology of the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th edition. The study used land use code 130 (Industrial Park) to estimate the number of trips generated by the project. The number of employees expected to travel to and from the ARE Park is based upon the buildout assumptions stated in Table 2.6 of this DGEIS (582 employees). This number was used as the independent variable to estimate the number of trip ends during the AM and PM peak hours of traffic. The number of trips generated by the full build out of the ARE Park is summarized in Table 4.9.

Table 4.9 Trips Generated by ARE Park Businesses at Build Out (2031)			
	Entering	Exiting	Total
AM Peak Hour	248	40	288
PM Peak Hour	57	228	285

A Level of Service (LOS) analysis was completed for future no-build conditions and a future build out condition based on trip generation estimates. The distribution of entrances and exits from Sites 1A, 1B and 2 are based upon the percentage of the total developable acreage of the ARE Park site. The level of service evaluation was performed using Highway Capacity Software (HCS+, version 5.3) which automates the procedures contained in the 2000 Highway Capacity Manual.”

Level of service is a qualitative measure describing operational conditions within a traffic stream. It is based on service measures such as speed, travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Letters designate each level of service, with LOS “A” representing the best operating conditions and LOS “F” the worst. Each level of service represents a range of operating conditions and a driver’s perception of those conditions. Table 4.10 summarizes the level of service anticipated for Buyea Road and Tuttle Road under both the “No Build” and “Build Out” alternatives.

Table 4.10 Existing and Future Levels of Service			
Road Name	2011 Existing LOS	2031 No Build	2031 Build Out
Buyea Road	B	B	C
Tuttle Road	A	A	A

Thresholds for changes in the level of service on Tuttle and Buyea Road are presented in Tables 4.11.

4.11 Thresholds for Changes in Level of Service				
Buyea Rd	(with 100% no passing)			LOS
Year	AADT	DHV	% Trucks	
2011	1251	188	10%	B
2031	1382	207	10%	B
2011 Build	2763	392	10%	C
2031 Build	2894	411	10%	C
LOS C Threshold		264	10%	C
LOS D Threshold		747	10%	D
Tuttle Rd	with (50% no passing)			LOS
Year	AADT	DHV	% Trucks	
2011	221	42	1%	A
2031	244	46	1%	A
2011 Build	839	126	9%	A
2031 Build	862	130	9%	A
LOS B Threshold		166	9%	B
LOS C Threshold		409	9%	C

4.9 Noise

A Noise Assessment for the proposed ARE Park was conducted using the New York State Department of Environmental Conservation “Assessing and Mitigating Noise Impacts” policy document (NYSDEC, 2001). This document provides a general framework for noise assessment and guidance for the assessment of noise impacts. The noise impact assessment included (1) determination of existing “background” noise levels at locations surrounding the proposed site; and (2) the assessment of potential noise impacts from the development of the ARE Park site. Under existing conditions, background noise levels around the project site are predominately influenced by noise generated from traffic on surrounding roadways and minor contributions from the Madison County Landfill. Background data was collected during landfill operating hours as well as non-operating hours to separate the level of background noise generated by landfill activities from normal, non-operational background noise levels. As the data illustrates in Table 4.12, landfill activities had little effect on the background sound levels, which are largely attributed to traffic noise.

Quest SoundPro DL Type 1 Sound Level Meters were used to measure and record sound levels at three monitoring locations. Field measurements of temperature, humidity and wind speed were taken to verify that weather conditions were within operating parameters recommended by the meter manufacturer. Each meter was also calibrated before and after every sound

level reading with a Quest QC-10 calibrator. Equivalent steady state sound levels (Leq) were recorded by the meters to obtain background, or ambient sound levels. The Leq is the average sound energy over time, and is utilized in sound level studies as it is directly related to the effects of sound on human hearing. Observations were also manually recorded regarding specific noise sources that contributed to overall background noise levels (e.g., backup “beeping” of trucks, engine noise, and traffic noise).

4.9.1 Existing Conditions

One meter was set up along Tuttle Road west of the Madison County Landfill site between project Sites 1A and 1B. Two meters were set up at property lines near the closest receptors along Buyea Road. The predominant noise contributor observed at all locations was noise from vehicular traffic along Tuttle and Buyea Roads. Back-up beepers from landfill operational equipment were audible at Location 1 on Tuttle Road and Location 2 on Buyea Road. During the late afternoon, after the cessation of landfill operations, the honking of geese flying overhead and landing nearby was audible at the sites on Buyea Road. Background noise along Buyea Road is greater than background noise audible along Tuttle Road because traffic volumes are higher along Buyea Road. The results of background sound level monitoring at the ARE Park site are summarized in Table 4.12. The locations of noise monitoring sites are shown in Figure 4.3.

Location	Session Leq (dBA)	Operational Leq (dBA) (2-4 PM, 9/20/2011)	Non-Operational Leq (dBA) (4-5 PM, 9/20/2011)
Receptor 1*	51.6, 51.8	51.6, 49.8	52.9
Receptor 2	62.0	62.9	60.0
Receptor 3	63.2	63.8	62.1

*Receptor 1 had two recording sessions due to battery failure and replacement at 3:10 PM.

It was noted during noise monitoring that traffic noise from vehicles passing the monitoring sites was the greatest contributor to noise on each site.

4.9.2 Noise Impact Assessment

The proposed ARE Park is expected to attract industrial and commercial operations to the site location. Additional operations at the project site will increase the ambient noise levels surrounding the park.

Three categories of potential noise sources are associated with the proposed ARE Park:

- Fixed equipment operations
- Mobile equipment or process operations
- Transport movements of products, raw materials or waste

The major noise sources from the ARE Park are expected to be fixed noise sources such as heating, ventilating and air conditioning equipment (fans, motors, blowers, exhaust vents), and traffic noise associated with vehicles traveling in and out of the Park, and loading/unloading operations from mobile sources. Noise generated within the buildings by process operations and associated equipment will be attenuated by the building structure to a level that it will not contribute to an increase in exterior noise levels at surrounding properties. Mobile equipment and transport related noise will be limited in duration and is not likely to generate a significant increase in ambient noise levels.

The NYSDEC *Assessing and Mitigating Noise Impacts* policy document defines a significant sound pressure level impact as an increase of 6 decibels (dB) from ambient levels. An increase of 10 dB is perceived as a doubling of sound pressure level. For this analysis, an Leq sound level of 65 dBA at 50 feet from the noise source was utilized to evaluate potential impacts to nearby sensitive receptor locations (residences). In order to determine the affect of source noise to existing background noise, source sound levels were projected using the “inverse square law”. The “inverse square law” predicts that sound levels decrease at an incremental rate with the increase in distance from a noise source. This noise law states that after 50 feet from a noise source, the noise level decreases by 6 dBA (A-weighted decibels) with the doubling of the distance from the source (NYSDEC, 2001). Additional noise attenuation factors can influence perceived noise levels, such as ground cover (trees and shrubs), topography (for example, differences in elevation or barriers between the source and the receptor) to reduce noise levels. As such, this assessment provides a reasonable conservative estimate of source noise attenuation.

The procedure for predicting future noise levels using existing, ambient noise levels and predicted noise levels from proposed development is outlined in the NYSDEC policy document. Table 4.13 presents a summary of predicted noise levels and impacts using an assumed 65 dBA source measured at a distance of 50 feet.

Background Location	Source Leq at 50 feet (dBA)	Attenuation Distance (Ft.)	Source Leq at Attenuation Distance (dBA)	Background (Receptor) Leq (dBA)	Estimated Combined Leq at Receptor (dBA)	Estimated Change in Leq
Receptor-1	65.0	100	59.0	52.9	60.0	7.1
Receptor-1	65.0	200	53.0	52.9	56.0	3.1
Receptor-2	65.0	100	59.0	60.0	63.0	3.0
Receptor-2	65.0	200	53.0	60.0	61.0	1.0
Receptor-3	65.0	100	59.0	62.1	64.1	2.0
Receptor-3	65.0	200	53.0	62.1	63.1	1.0

The noise assessment shows that locations more than 200 feet away from a 65 dBA noise source will experience noise level increases of 3.1 dBA or less. The NYSDEC threshold for a significant noise impact is 6 dBA. Based upon predicted noise levels, a significant noise impact would be experienced with a sound level of 66 dBA along Buyea Road and a sound level of 58 dBA on Tuttle Road.

Noise generated from construction activities for the proposed ARE Park will be unavoidable, but limited in duration. Noise sources associated with construction will primarily consist of construction equipment and vehicles, and noise from site work and construction of access roads, utilities, parking lots, and buildings. These impacts are considered acceptable.

4.9.3 Potential Mitigation Measures

Should noise levels from ARE Park operations exceed acceptable predicted noise impact thresholds, based on analysis of actual noise sources to be installed, noise mitigation measures will likely be required. Potential noise mitigation measures include:

- Use of sound barriers
- Use of mufflers
- Use of building enclosures

Construction noise mitigation measures include:

- Limiting construction to daylight hours
- Use of mufflers for heavy equipment

5.0 Cumulative Impacts

This chapter evaluates the cumulative impacts of the preferred alternative. "Cumulative impact" is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Council on Environmental Quality (CEQ) has identified four basic types of effect that can lead to cumulative impacts.

- Type 1 – Repeated additive effects on a resource from a single project
- Type 2 – Stressors from a single project that have interactive (countervailing or synergistic) net effect on a resource
- Type 3 – Additive effects arising from multiple sources (projects, point sources, or general effects associated with development)
- Type 4 – Effects arising from multiple sources that affect resources in an interactive fashion.

For the purposes of this document, the cumulative impact analysis is generic and is limited to those environmental resources directly impacted by the proposed actions. The resources subject to a cumulative impact assessment in this document include: the development footprint of the proposed ARE Park site, local and county roadways adjacent to the project site, cultural resources located within the project footprint area, wetlands, water resources impacts, air resources impacts, visual impacts, noise impacts and impacts to community character.

Actions included within the scope of the ARE Park include:

- Extension of water service to serve the needs of the Madison County Landfill and ARE Park
- Extension of a dedicated force main sanitary sewer and support facilities to serve the needs of the ARE Park and the Madison County Landfill
- Development of Site 2 as a potential soil borrow area
- Reclamation of Sites 1A, 1B and Site 2
- Construction of internal roadways, storm water management facilities, and infrastructure within the ARE Park footprint
- Construction of buildings and operating processes of businesses occupying the ARE Park

Cumulative impact analysis requires an understanding of activities or plans that may reasonably be expected to affect the proposed project site independently of or in conjunction with the proposed project.

Other projects that are being considered independently of the ARE Park include:

- Town of Lincoln
 - Potential extension of public water from the Onondaga County Water Authority to the hamlet of Clockville
 - Potential rezoning of properties along proposed routes of water main extension from AR-2 to AR-1
- Madison County
 - Soil mining from designated areas of Sites 1A and 1B

No transportation improvement projects have been programmed for the Town of Lincoln, Madison County in the approved State Transportation Improvement Plan for 2011-2014²⁶. No new transportation improvement projects are proposed by the Town of Lincoln or Madison County Department of Public Works for roadways around the project site.

The methodology for analyzing the cumulative impact of the ARE Park utilizes the CEQ's eleven step process for cumulative impact assessment. The resource issues requiring a cumulative impact assessment were defined during a public scoping meeting in February, 2011 and in comments received from the Onondaga County Water Authority and others. This process is summarized in Table 5.1.

²⁶ <https://www.nysdot.gov/programs/stip/files/R2.pdf>

Table 5.1 Cumulative Impact Summary

Step No.	Cultural Resources	Noise	Visual Impacts	Traffic	Wetlands	Air Quality	Community Character
1 – Identify significant cumulative effects issues	Potential impacts to Native American artifacts or burials and early European settlement artifacts	Potential increases in ambient noise levels with operation of process and HVAC equipment	Visibility of industrial buildings will cause a change in view of rural landscape	Increased truck and passenger vehicle traffic on Tuttle and Buyea Roads	Potential loss of emergent marsh and scrub shrub habitat	Potential increased emission of VOCs, particulates, greenhouse gases	Change from agricultural use and use as soil borrow area to an industrial park; installation of public water
2 – Establish the geographic scope for the analysis	ARE Park parcels 1A, 1B, and 2 – areas as shown in report	Property perimeter on Tuttle Road and Buyea Road	5 mile radius of ARE Park site	Tuttle Road and Buyea Road adjacent to project site	ARE Park parcels and utility alignments	ARE Park parcels and immediate adjacent lands	ARE Park Sites 1A, 1B and 2; Town of Lincoln
3 – Establish the time frame for the analysis	Current	20 years	20 years	20 years	20 years	20 years	20 years
4 - Identify other actions affecting the resources	Soil mining	Potential construction of residential development on adjacent parcels	Build out of Madison County Landfill	More use of local roads by commuters; increased residential development	None	Increased use of landfill-generated methane for LFGTE fuel; conversion to CO ₂	Use of Sites 1A and 1B for soil borrow area; potential use of portions of Site 2 as a soil borrow area; continued agricultural use of all sites until used as soil borrow areas; continued use of portions of Site 2 for drop off of recycled materials
5 – Characterize resources in terms of ability to change and capacity to withstand stresses	Contextual integrity of cultural resource artifacts at risk without appropriate pre-construction investigation and conservation or project modification	Ambient noise levels very low; noise levels are likely to increase slightly for adjacent residential neighbors	Overall rural character of Town is not expected to change; local views will be altered as soil mining and construction of ARE Park continue	Existing road capacity will be sufficient for predicted increases in traffic	Alterations in surface drainage patterns may increase water supply to wetland in Site 1A	Madison County is currently in attainment status. Ambient conditions are not expected to change as a result of project.	Character of community outside of ARE Park is not likely to be affected; labor force is likely to be drawn from local labor pool

Table 5.1 Cumulative Impact Summary

Step No.	Cultural Resources	Noise	Visual Impacts	Traffic	Wetlands	Air Quality	Community Character
6 – Characterize stresses affecting these resources in relation to regulatory thresholds	Identification of sensitive cultural resources required by National Historic Preservation Act (36 CFR 800-812); New York State Historic Preservation Act (Section 14.09)	29CFR 1910.95 Occupational exposure limits: 8 hr TWA < 90 dbA Maximum exposure limit 140 dbA 6 NYCRR Part 360-1.14 sets noise thresholds at the property line of permitted solid waste facilities. Rural noise thresholds: 7 A.M.-10 P.M. – 57 dBA 10 P.M.-7:00 A.M. – 47 dBA Note: Town of Lincoln Local Law does not apply in IC district	6 NYCRR Part 617 – requires assessment of visual impact. Local community determines standard of acceptability and mitigation requirements	NYS Vehicle and Traffic Laws Town of Lincoln Highway Superintendents Driveway Approval NYSDOT Road Design Standards Threshold for impact: Change in LOS from B to D	Impact threshold for wetland mitigation: 0.1 acre (Sec. 404 Clean Water Act) Water quality standards in 6 NYCRR Part 703 apply for trout waters	6 NYCRR Subpart 201.3 Exempt and Trivial Activities 6 NYCRR Subpart 201.4 – Minor Facility Registrations 6 NYCRR Subpart 201.5 – State Facility Permits 6 NYCRR Subpart 201-6 Title V Air Permits Madison County is currently in compliance with Ambient Air Quality Standards	Sanitary sewer use: -Compliance with City of Oneida Pretreatment Standards (Article XI, Sec. 139) Acceptable sewer use threshold: ≤ 180K GPD Water usage: -Compliance with OCWA water use requirements Acceptable water use threshold: ≤ 400K GPD Building height restriction: ≤ 50 feet (Town of Lincoln code) Lot setbacks: may require variances as discussed in Chapters 2 and 3
7 – Define baseline condition	Refer to Chapter 4	Refer to Chapter 4	Refer to Chapter 4	Refer to Chapter 4	Refer to Chapter 4	Refer to Chapter 4	Private non-farm employment (2008) - 18,234 – down 9% from 2000 No of firms – 5,810 (2007) Unemployment rate (2010) – 8.4%
8 – Identify cause and effect relationships	No impacts anticipated. Soil mining, utility installation and ARE Park development activities areas will avoid areas that are determined to be sensitive for cultural resources	Operation of HVAC equipment and process equipment; temporary construction-related noise. Effects will be mitigated to levels below acceptable impact threshold	Buildings in ARE Park likely to be screened by vegetation, partially screened to east by new landfill, and mitigated by height restrictions	Increased truck traffic and vehicle trips/day expected as ARE Park is built out	Site 1A – Existing wetland may become wetter with increase in surface water runoff	Operation of process equipment could create low level emissions of VOCs, particulates and greenhouse gases	Full build out of ARE Park is likely to generate 506 full time jobs and 25 new or relocated businesses

Table 5.1 Cumulative Impact Summary							
Step No.	Cultural Resources	Noise	Visual Impacts	Traffic	Wetlands	Air Quality	Community Character
9 – Determine magnitude and significance of cumulative effects	Cultural resources investigation of Area of Potential Effect shows little likelihood of encountering significant historic or prehistoric artifacts. Consultation with Oneida Indian Nation and NYS Historic Preservation Office is on-going to determine significance	The maximum noise increase predicted receptors on Tuttle Road is 3.1 dBA (Leq). Maximum noise increase predicted on Buyea Road is 3.0 dBA (Leq). The acceptable threshold of impact is 6 dBA. Expected impacts are not significant.	ARE Park buildings will be visible to 3% more area within 5 mile viewshed analysis radius.	No change existing level of service on Tuttle Road. LOS changes from B to C on Buyea Road under build out condition. Tuttle Road threshold for LOS B: 166 vph Buyea Road threshold for LOS C: 411 vph	No wetland impacts anticipated. Wetlands will be avoided	Operations within the ARE Park are not likely to exceed regulatory thresholds for hazardous air pollutants or GHGs	The number of jobs is expected to increase approximately 3% over 2008 employment total. These jobs are expected to reduce the current unemployment level and increase real wages.
10 – Modify or add alternatives to avoid, minimize or mitigate significant cumulative effects	Soil mining operations in Site 2 and ARE Park development areas will avoid identified areas that are deemed sensitive for cultural resources	Mitigation measures will be required for impacts in excess of these thresholds	Landscaped buffers, berms, and other measures will be incorporated into site plan to reduce adverse visual impacts. Buildings may be designed with green roofs or other visual elements to be compatible with rural environment	Site Plan Approval from the Town of Lincoln required prior to construction. Traffic impacts in excess of designated thresholds will likely require mitigations such as the addition of turn lanes	Soil mining operations and ARE Park development plans may be modified to avoid impacts to federal jurisdictional wetlands	Air impacts are not likely to trigger regulatory thresholds. Mitigation will be required and incorporated on a case-by-case basis	No adverse cumulative impacts anticipated.
11 – Monitor cumulative effects of the selected alternative	Oneida Indian Nation cultural resource specialist will be involved in evaluation of the alternatives	Noise will be monitored from the site as development proceeds	Town of Lincoln site plan regulations will govern types of screening used.	Town of Lincoln and Madison County Highway Superintendent will monitor traffic and report on need for corrective measures	No adverse impacts anticipated	All operations within ARE Park will be required to comply with applicable air quality regulations	County officials will monitor the effects on the local economy

6.0 Unavoidable Adverse Impacts

This chapter discusses potential adverse impacts for which mitigation is either not available or not feasible. These impacts were identified during the environmental review process and are summarized in this chapter. The magnitude of these impacts will also be discussed.

6.1 Agricultural Impacts

6.1.1 Impacts to the Agricultural District

The construction of the ARE Park and associated utilities will not result in the removal of any additional lands from Madison County's Agricultural District No. 2. The purchase of the Cordell properties by Madison County in 2006 resulted in the removal of 197.48 acres of land from the Madison County Agricultural District No. 2. This environmental impact was counted as part of the expansion plan for the Madison County Landfill. Over a period of time, this land will be permanently taken out of agricultural production and committed for use as soil borrow areas to support landfill operations, and then reclaimed for use as an industrial and business park. The removal of this land from the Madison County Agricultural District No. 2 represents a reduction of 0.5 percent of the total acreage in the Agricultural District. This impact cannot be mitigated feasibly by the project sponsor. It is possible that additional lands may be added to the Agricultural District as they are brought back into production by private parties, but these actions would occur independently as a result of private enterprise, and are not under the control of the project sponsor.

6.1.2 Impacts to Agricultural Production

The development of soil borrow areas on Sites 1A and 1B are not considered as part of this action. These impacts were previously described as part of the Soil Borrow Area Use Plan that was approved in 2009.

Approximately 145 acres of Site 2 are currently in agricultural use. It is estimated that approximately 110 acres of land will be taken out of production as a result of this project. This reduction in usable agricultural land is expected to occur over a period of 20 years or more, and will not occur immediately.

As of 2009, 186,400 acres were reported to be in agricultural production in Madison County²⁷. The removal of 110 acres from this total represents approximately 0.06% of the existing inventory of agricultural lands in production. This impact is unavoidable and cannot be mitigated by the project sponsor. The impact is considered to be acceptable by the project sponsor and the NYS Department of Agriculture and Markets.

6.2 Cultural Resource Impacts

Impacts to areas with sensitive cultural resources will be avoided. These areas have been identified and protective measures will be taken as part of the ARE Park development plan. No sensitive cultural resources were identified as part of Sites 1A and 1B.

²⁷ United States Department of Agriculture, National Agricultural Statistical Service.
http://www.nass.usda.gov/Statistics_by_State/New_York/Publications/County_Estimates/2010/2010%20page78%20-%20Farm%20Land.pdf

7.0 Growth-Inducing Impacts

7.1 Population and Employment

Businesses within the ARE Park could employ up to 582 workers based upon build out projections (refer to Chapter 2 for underlying assumptions and source data). Employees for ARE Park businesses are likely to be drawn from the local labor pool, as well as recent high school and college graduates entering the work force. Some individuals (estimated at up to 10% of the employees) with specific skill sets may be recruited or attracted to Madison County for high tech and professional positions that may be created at the ARE Park. Some of the jobs at the ARE Park are expected to be seasonal (food processing, for example) or temporary. These positions may be filled by students, retirees needing part-time work and others who require a flexible work schedule.

The park's orientation toward green, value-added, agri-businesses and new energy technologies is expected to create interest among business entrepreneurs and young graduates in technical fields such as sustainable development, local food marketing, aquaculture, and production of high-value, specialty food products.

7.2 Economic

Mean salaries for employees in industries targeted for marketing by Madison County were reviewed to estimate the economic impact of employment generated by the ARE Park. These data are presented in Table 7.1.

Industry	Mean Annual Salary (\$)
Meat Processing	37,390 ²⁸
Aquaculture	26,990 ²⁹
Food Processing	28,700 ³⁰
Warehouse	42,260 ³¹

²⁸United States Department of Labor, Bureau of Labor Statistics, *Occupational Employment and Wages, May 2010, 51-3021 Butchers and Meat Cutters*. <http://www.bls.gov/oes/current/oes513021.htm#st>

²⁹United States Department of Labor, Bureau of Labor Statistics, *Occupational Employment and Wages, May 2010, 45-2093 Farmworkers, Farm, Ranch, and Aquacultural Animals*, <http://www.bls.gov/oes/current/oes452093.htm>

³⁰Ibid., 51-3093 Food Cooking Machine Operators and Tenders, <http://www.bls.gov/oes/current/oes513093.htm>

³¹Ibid., 53-7199 Material Moving Workers, All Other, <http://www.bls.gov/oes/current/oes537199.htm>

Industry	Mean Annual Salary (\$)
General Manufacturing	36,990 ³²
Office	36,850 ³³

A recent study of the meat processing industry in Iowa showed that every job in the meat processing industry produced an additional 1.3 jobs outside of that industry³⁴. The multiplier effect is likely to be similar in Madison County, since it has similar demographic and occupational/industrial characteristics to rural areas of the State of Iowa. If this multiplier effect were applied to the 582 employees anticipated at the ARE Park under full build out conditions, an additional 756 jobs could be generated.

Based upon this estimate, the ARE Park has the potential to create up to 1,338 jobs in Madison County. These jobs will include highly skilled, technical and professional positions as well as entry-level jobs for unskilled or minimally skilled individuals.

Once the ARE Park parcels are sold to individual property owners, these lots will be returned to taxable status. An assessment of the assessed valuation or the tax revenues that will be generated is not possible because exemptions are allowed for industrial buildings and improvements in Madison County. Valuations of these improvements cannot be made at this time.

7.3 Traffic

The ARE Park will generate up to 255 additional trips per day during the AM peak hour, and 254 trips per day during the PM peak hour. For the build out condition, the Level of Service along Buyea Road will change from Level of Service B to Level of Service C, based upon the traffic impact assessment. The Level of Service on Tuttle Road will not change as a result of the construction of the ARE Park. These impacts are considered acceptable.

³² Ibid., 311100 - Animal Food Manufacturing, http://www.bls.gov/oes/current/naics4_311100.htm

³³ Ibid., 43-0000 Office and Administrative Support Occupations (Major Group), <http://www.bls.gov/oes/current/oes430000.htm>

³⁴ Swenson, David. April, 2011. *Exploring Small Scale Meat Processing Expansions in Iowa*. Leopold Center for Sustainable Agriculture, Iowa State University, p. 15.

7.4 Energy Usage

It is anticipated that the ARE Park will be one of the first industrial parks of its type in the central New York area. It will take advantage of opportunities for small scale, distributed energy generation facilities and combined heat and power (CHP) for use by industries in the park. Some localized increases in energy usage are likely as a result of the operations at the ARE Park, but they are likely to be offset by an increase in distributed generating capacity that will reduce any adverse effects on the energy grid.

The vehicle miles traveled (VMT) is not expected to increase as a result of the operation of the ARE Park because the work force is expected to be drawn from the local area. If anything, the VMT may be reduced if the work force is not required to travel outside of Madison County for employment, as many of them do now.

7.5 Greenhouse Gas (GHG) Emissions

In 2009, Governor David Paterson signed Executive Order 24 “Establishing a Goal to Reduce Greenhouse Gas Emissions Eighty Percent by the Year 2050 and Preparing a Climate Action Plan”. This document set the ambitious goal of reducing the current greenhouse gas emissions from all sources within the State eighty percent (80%) below levels emitted in the year nineteen hundred ninety (1990) by the year two-thousand fifty (2050). All prospects that will consider buildings within the ARE Park will be encouraged to use designs that meet LEED standards for energy conservation and reduction of GHGs.

It is reasonable to think that some ARE Park businesses will use biomass, co-generation, wind, solar, and/or LFGTE-generated electricity to supplement grid-supplied electricity to heat buildings and power operations. Emissions from use of biomass or biofuels are not expected to be significant because all emissions will be treated using best available technologies to capture or transform GHGs to non-GHG forms. Extensive use of energy conservation measures throughout the design, building and operating phases of the project will further reduce the potential for greenhouse gas emissions.

8.0 Commitment of Resources

8.1 Land Use

The proposed project will result in the conversion of approximately 65 acres of land from Sites 1A and 1B from soil borrow area to industrial park. The agricultural areas of Sites 1A and 1B have already been committed for use as soil borrow areas; therefore, the loss of this land is not counted as an impact on agricultural resources. Site 2 currently has approximately 145 acres of land in agricultural use. Development of the ARE Park will likely convert approximately 110 acres of this land to industrial park.

9.0 Energy Use and Conservation

This section of the DGEIS examines the availability of green energy at the ARE Park that could potentially be utilized by ARE Park tenants. Green energy is energy that comes from renewable energy sources. It includes natural energy sources such as wind, sun, water (hydroelectric and steam), and geothermal heat. This section also discusses opportunities for energy conservation within the project and resulting from changes in the landfill operation.

Biomass is also considered a renewable energy source because once harvested, the land can be replanted and used to grow additional plant materials for use as a fuel source. A portion of the ARE Park may be used for the production of wood pellets or biodiesel.

The use of methane generated by decomposition of waste materials contained in the landfill to generate electricity can also be considered a “green” energy source. The production of carbon dioxide from this source is considered less environmentally damaging to the atmosphere than the uncontrolled emission of methane from the landfill source.

Landfill Gas to Energy. A landfill gas to energy plant located at the Madison County Landfill currently produces about 900 KW of electricity³⁵. This electrical energy is currently sold back to the electrical grid pursuant to an agreement between the LFGTE plant owner, Waste Management Energy, and Madison County. Waste heat from this source is currently used by Madison County to heat its operations buildings, and will be used by the Johnson Brothers Lumber Company to dry lumber in a kiln located adjacent to the LFGTE plant. It is likely that this heat source could also be made available to businesses that could co-locate in Site 2, adjacent to the existing LFGTE plant.

Solar. Madison County recently completed the installation of a Spectro PowerCap™ Exposed Geomembrane Solar Cover on the south side of one of the landfill cells³⁶. The one-acre demonstration system features a three-ply, scrim-reinforced Geomembrane integrated with a south-facing 40 kilowatt-peak (kWp) direct current solar photovoltaic array powered by Uni-Solar®. This system is expected to offset nearly all of the power requirements of the Madison County ARC Recycling Facility located on site. If it proves feasible, the County may expand the use of photovoltaic cells as a source of renewable energy at the landfill and at the ARE Park.

Wind. Madison County officials have discussed the possibility of including wind power as one of the green energy alternatives for the ARE Park. A feasibility study will

³⁵ Chad W. Hutton, P.E., Barton and Loguidice, P.C., e-mail communication to John Condino, Barton and Loguidice, P.C., September 2, 2011.

³⁶ <http://www.greentechmedia.com/industry/read/carlisle-energy-services-madison-county-ny-landfill-solar-pro-20820/>

be required to determine the optimum placement and type of wind powered energy generator. Madison County currently hosts two wind power projects, a 30 MW facility in the Town of Fenner, and a 11.55 MW facility in the Town of Madison.

9.1 Energy Conservation Resulting from Change in Madison County Landfill Operations

Construction and operation of a business park at the ARE Park site will require the construction of a dedicated sanitary force main from the ARE Park to the City of Oneida wastewater treatment collection system. Construction of this force main will also eliminate the consumption diesel fuel used by trucks to transport leachate from the Madison County Landfill to the City of Oneida wastewater treatment plant.

9.2 Individual Options for Energy Use and Conservation

It is expected that many of the businesses choosing to locate in the ARE Park will select professionally accredited Leadership in Energy and Environmental Design (LEED) designers and builders for their buildings. Working with LEED accredited designers and builders, the business will have access to many new technologies, building materials and methods, and design techniques to minimize energy usage, and develop on-site, customized energy generation units. On-site energy generating options may include, but are not limited to:

- Use of solar photovoltaic cells, solar and solar-assisted hot water, passive and active solar heating techniques within the building footprint.
- Use of small-commercial sized wind turbines on-site (10 kW to 100+ kW).
- Use of fuel cells or battery backup energy storage.
- Co-generation of power from waste heat generated by processes or heating plants.
- Use of biodiesel fueled generators, biomass-fired heating plants.
- Use of geothermal heat exchangers.

Energy conservation is also likely to be a hallmark of businesses in the ARE Park. On-site energy conservation measures may include, but are not limited to:

- Extensive use of natural lighting in new buildings.
- Use of super-insulating building materials and methods.

- Location on building lot to take advantage of natural shelter belts for wind protection, and southern exposures for windows and solar panels.
- Use of earth-sheltered building techniques.
- Use of high-efficiency lighting such as light emitting diodes.
- Use of low flow water fixtures, auto-shutoff switches, and programmable equipment to limit power consumption during down times.

Energy conservation measures may also include:

- Inclusion of the ARE Park site on the Madison County Transit schedule and encouraging employees to use the transit system.
- Encouragement of car-pooling and van-pooling for other workers who do not have ready access to mass transit.

Where feasible, allow employees to work remotely from home to minimize the need for trips to and from work.

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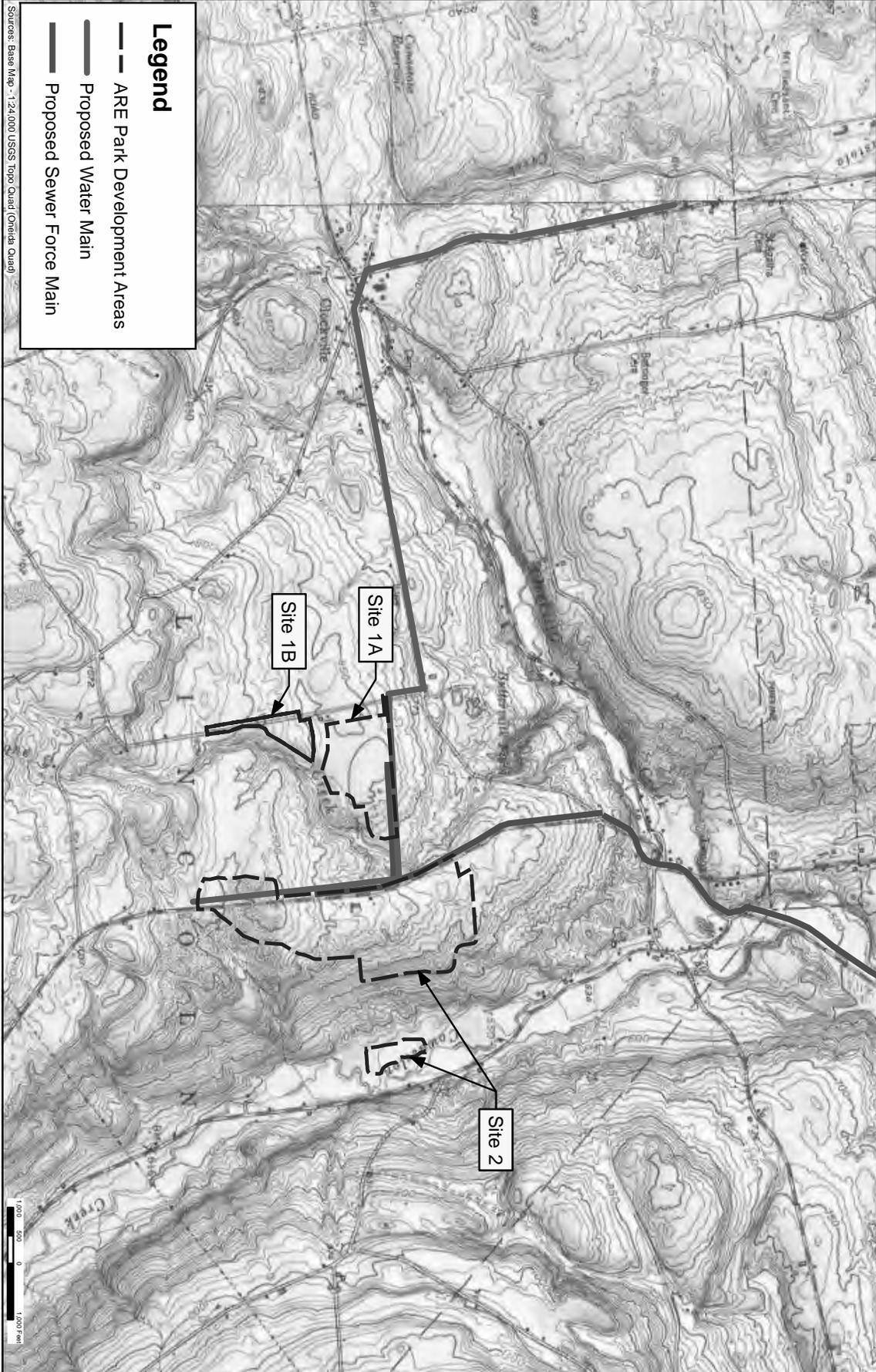
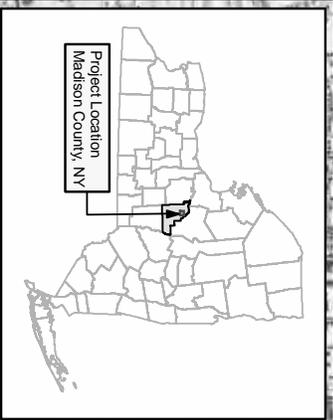
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Figures

Figure 1.1
Project Location Map



Legend

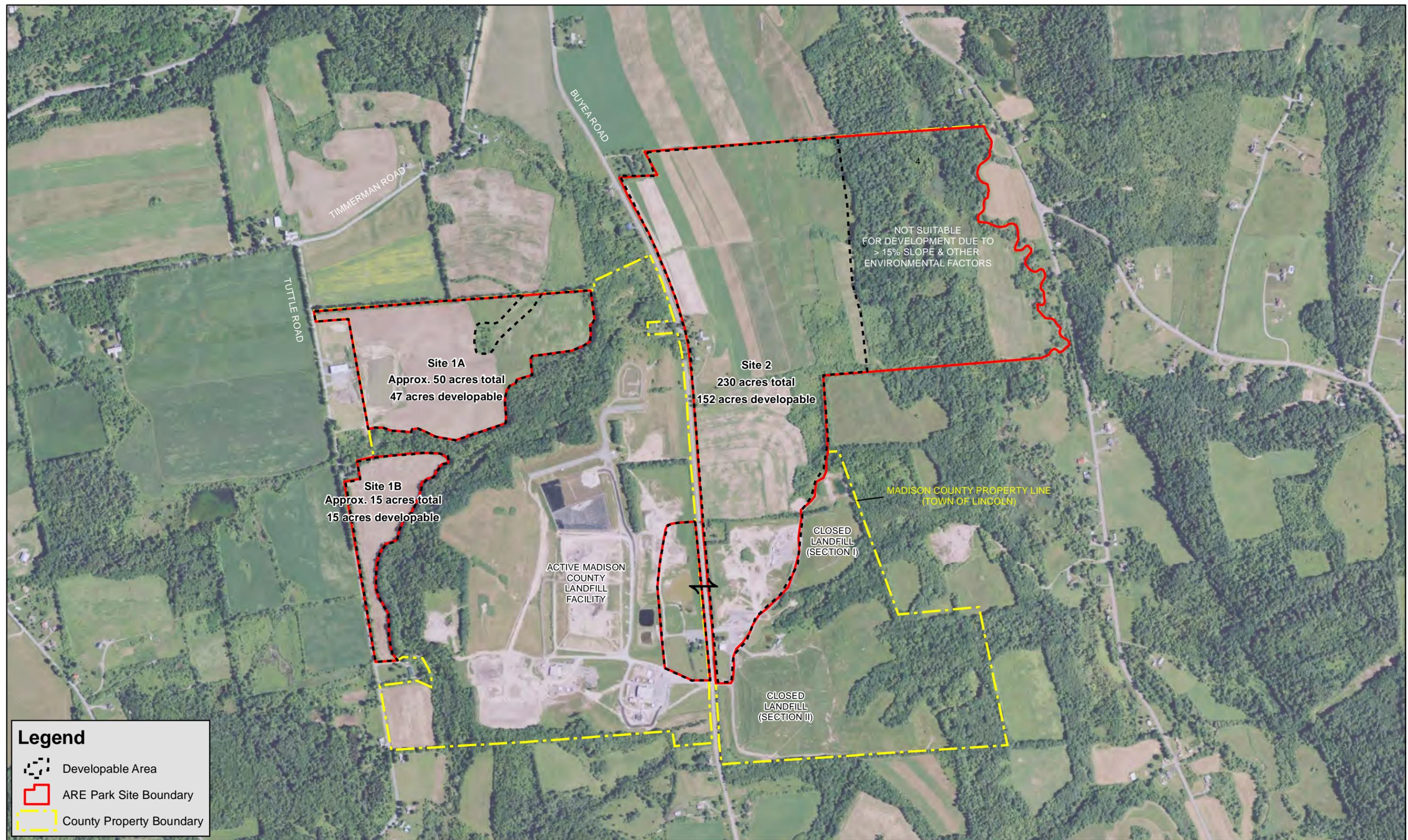
- ARE Park Development Areas
- Proposed Water Main
- Proposed Sewer Force Main

Sources: Base Map - 1:24,000 USGS Topo Quad (Oneda Quad)



<p>Madison County ARE Park</p> <p>Project Location Map</p>		<p>Madison County, New York</p>
<p>Date</p> <p>September, 2011</p>	<p>Scale</p> <p>As Shown</p>	<p><i>Engineers • Environmental Scientists • Planners • Landscape Architects</i></p>
<p>Figure Number</p> <p>1.1</p>	<p>Project Number</p> <p>154.091</p>	<p>Town of Seneca</p>

Figure 1.2
Conceptual Site Plan



Legend

- Developable Area
- ARE Park Site Boundary
- County Property Boundary

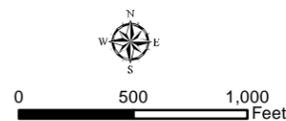
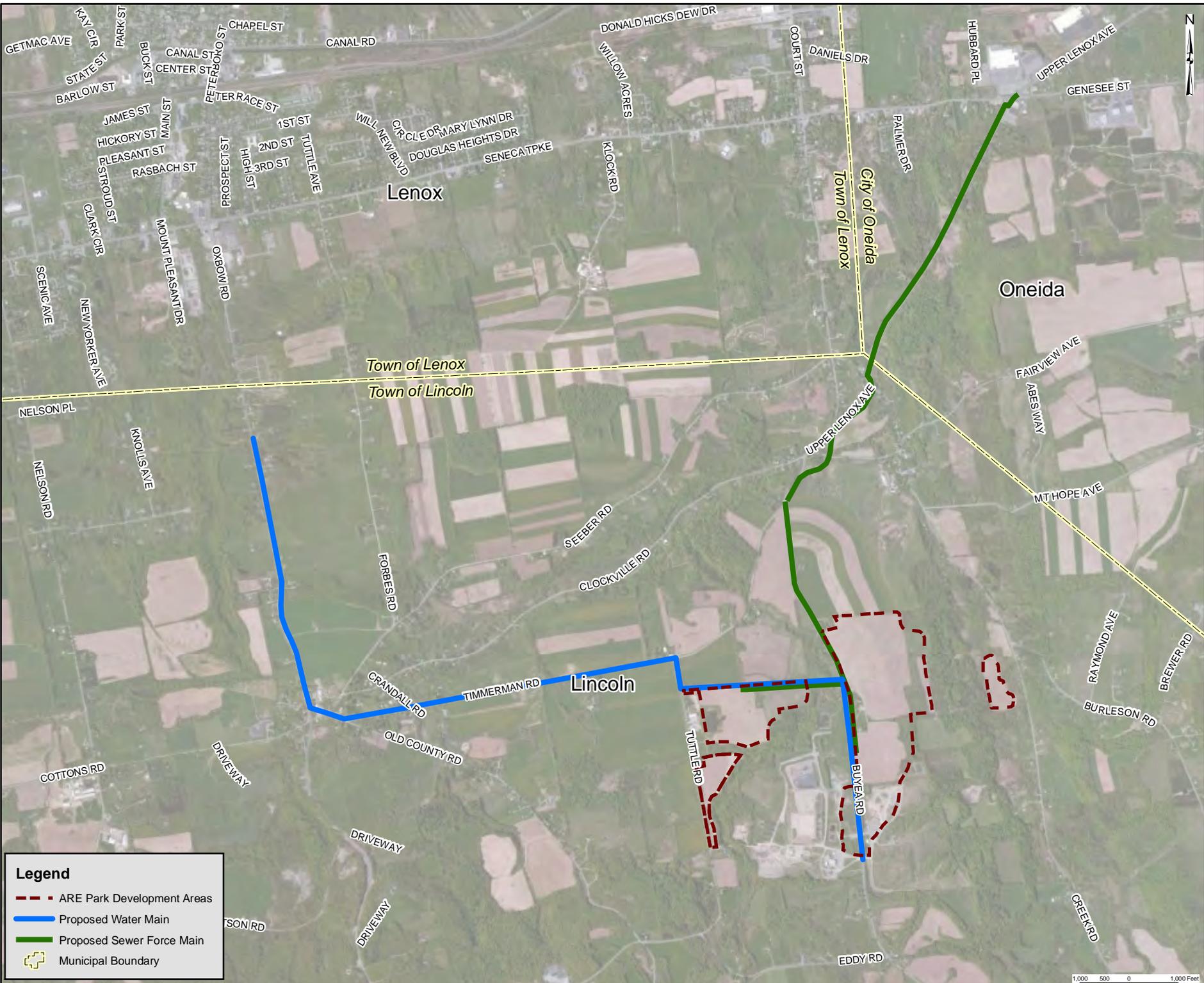


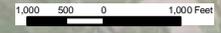
Figure 2.1
Site Location Map



Legend

- - - ARE Park Development Areas
- Proposed Water Main
- Proposed Sewer Force Main
- Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps)



Madison County, New York

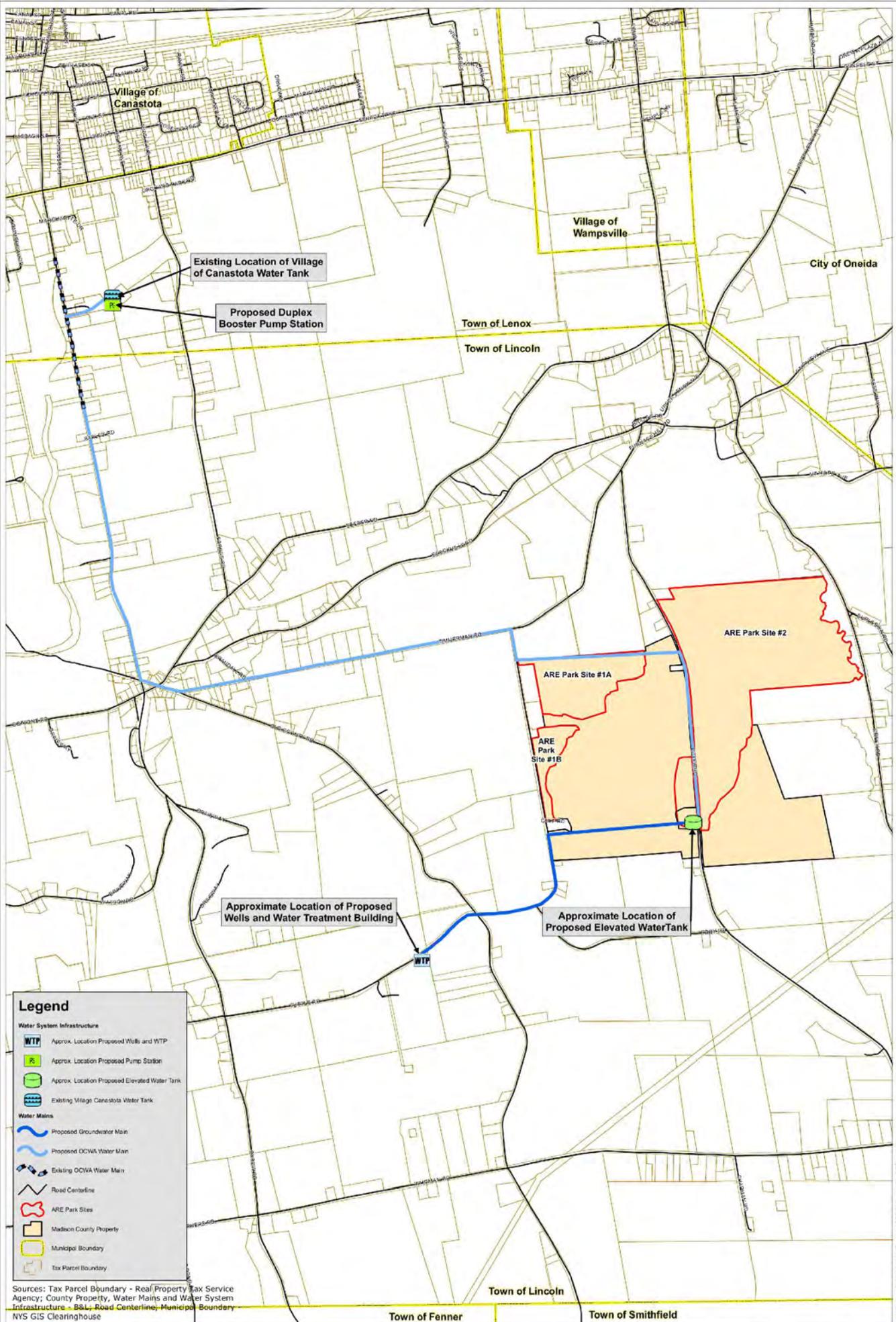
Town of Seneca

Madison County ARE Park

Site Location Map

Date	September, 2011
Scale	As Shown
Figure Number	2.1
Project Number	154.091

Figure 2.2
Water Service Alternatives



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Legend

Water System Infrastructure

- WTP - Approx. Location Proposed Wells and WTP
- R - Approx. Location Proposed Pump Station
- Approx. Location Proposed Elevated Water Tank
- Existing Village Canastota Water Tank

Water Mains

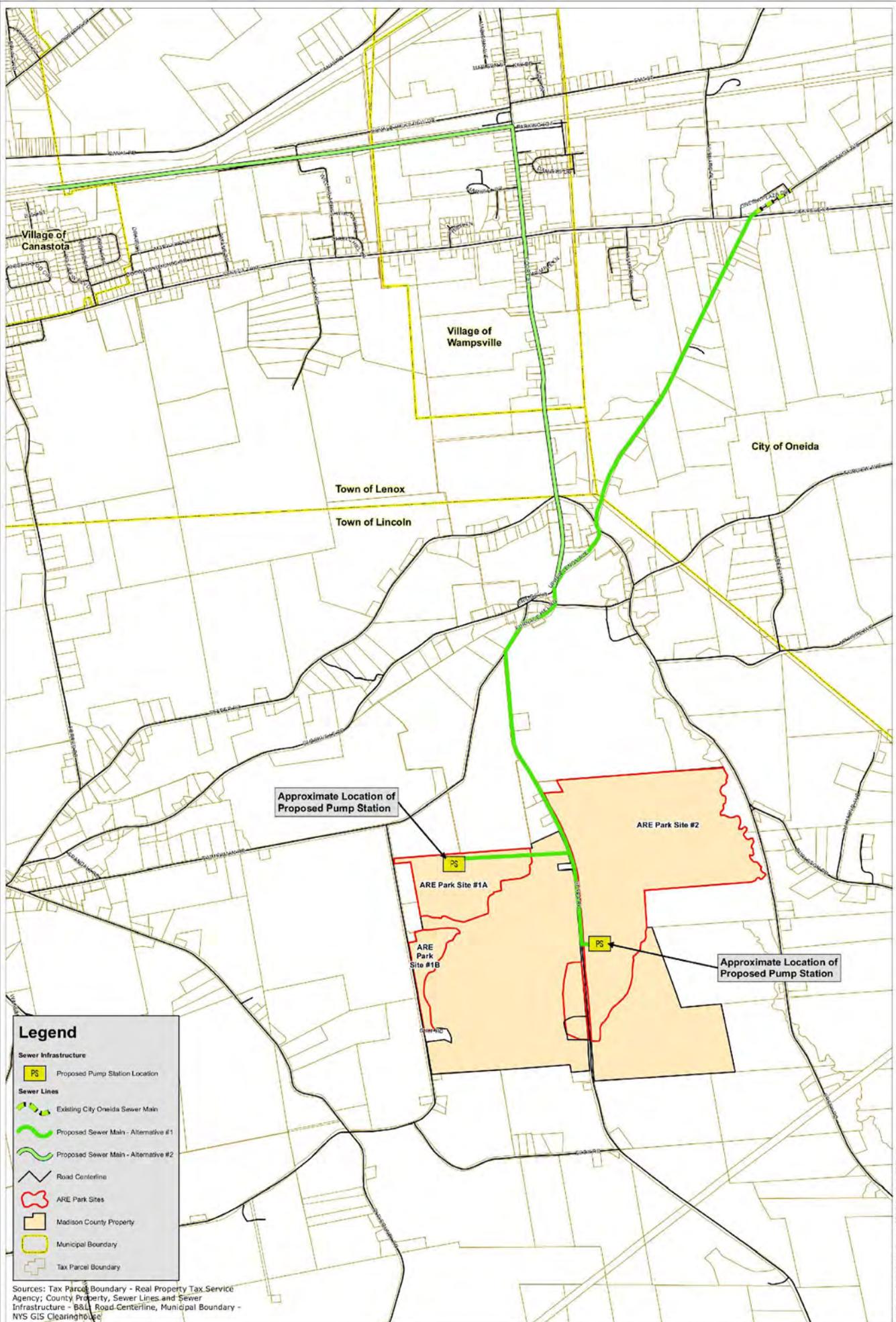
- Proposed Groundwater Main
- Proposed OCWA Water Main
- Existing OCWA Water Main

Other Features

- Road Centerline
- ARE Park Sites
- Madison County Property
- Municipal Boundary
- Tax Parcel Boundary

Sources: Tax Parcel Boundary - Real Property Tax Service Agency; County Property, Water Mains and Water System Infrastructure - B&L; Road Centerline, Municipal Boundary - NYS GIS Clearinghouse

Figure 2.3
Sewer Line Alternatives



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Legend

Sewer Infrastructure

- PS Proposed Pump Station Location

Sewer Lines

- Existing City Oneida Sewer Main
- Proposed Sewer Main - Alternative #1
- Proposed Sewer Main - Alternative #2

Road Centerline

- Road Centerline

ARE Park Sites

- ARE Park Site

Madison County Property

- Madison County Property

Municipal Boundary

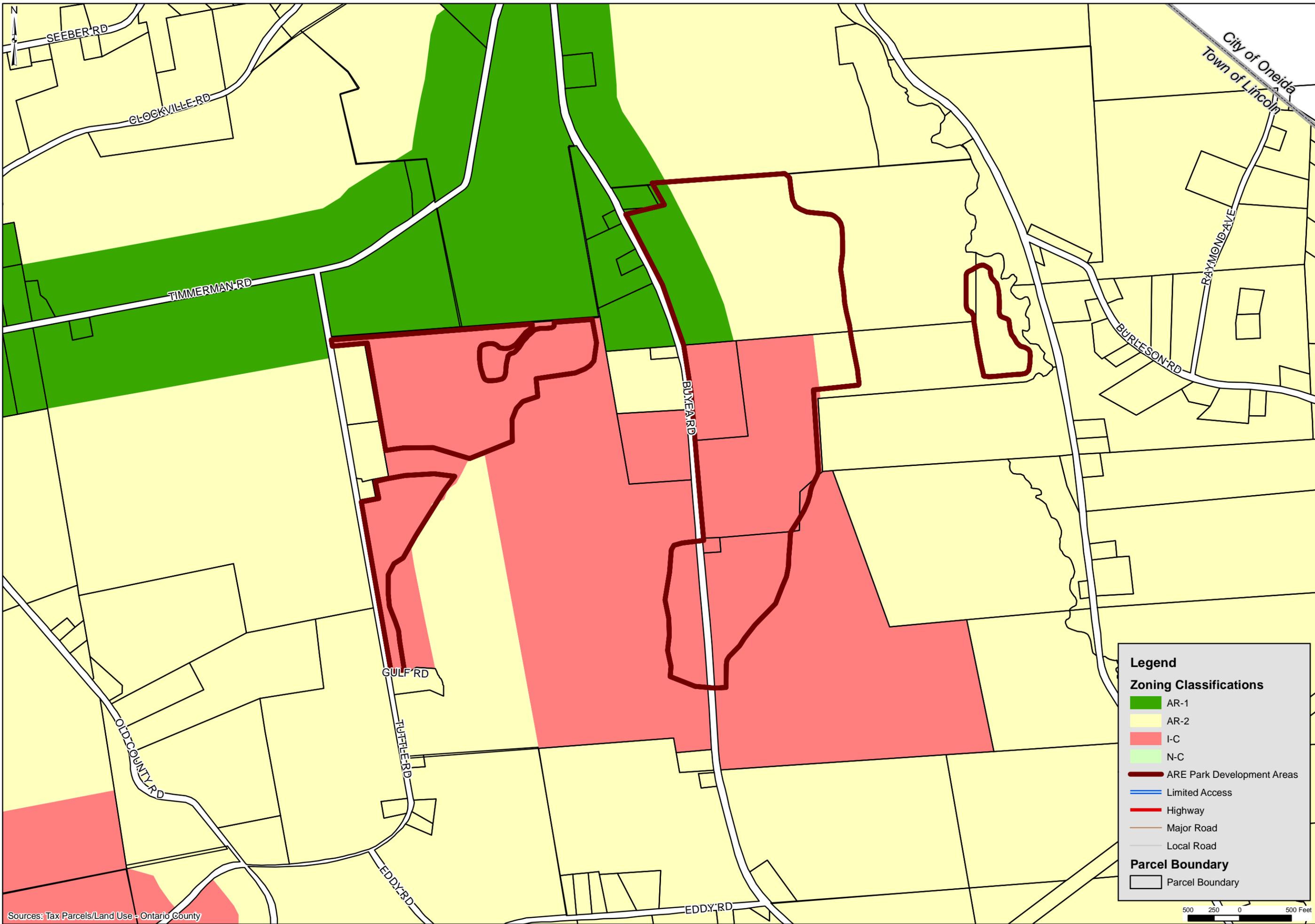
- Municipal Boundary

Tax Parcel Boundary

- Tax Parcel Boundary

Sources: Tax Parcel Boundary - Real Property Tax Service Agency; County Property, Sewer Lines and Sewer Infrastructure - B&L Road Centerline, Municipal Boundary - NYS GIS Clearinghouse

Figure 2.4
Existing Zoning



Sources: Tax Parcels/Land Use - Ontario County

Legend

Zoning Classifications

- AR-1
- AR-2
- I-C
- N-C
- ARE Park Development Areas
- Limited Access
- Highway
- Major Road
- Local Road

Parcel Boundary

- Parcel Boundary



Madison County ARE Park

Existing Zoning

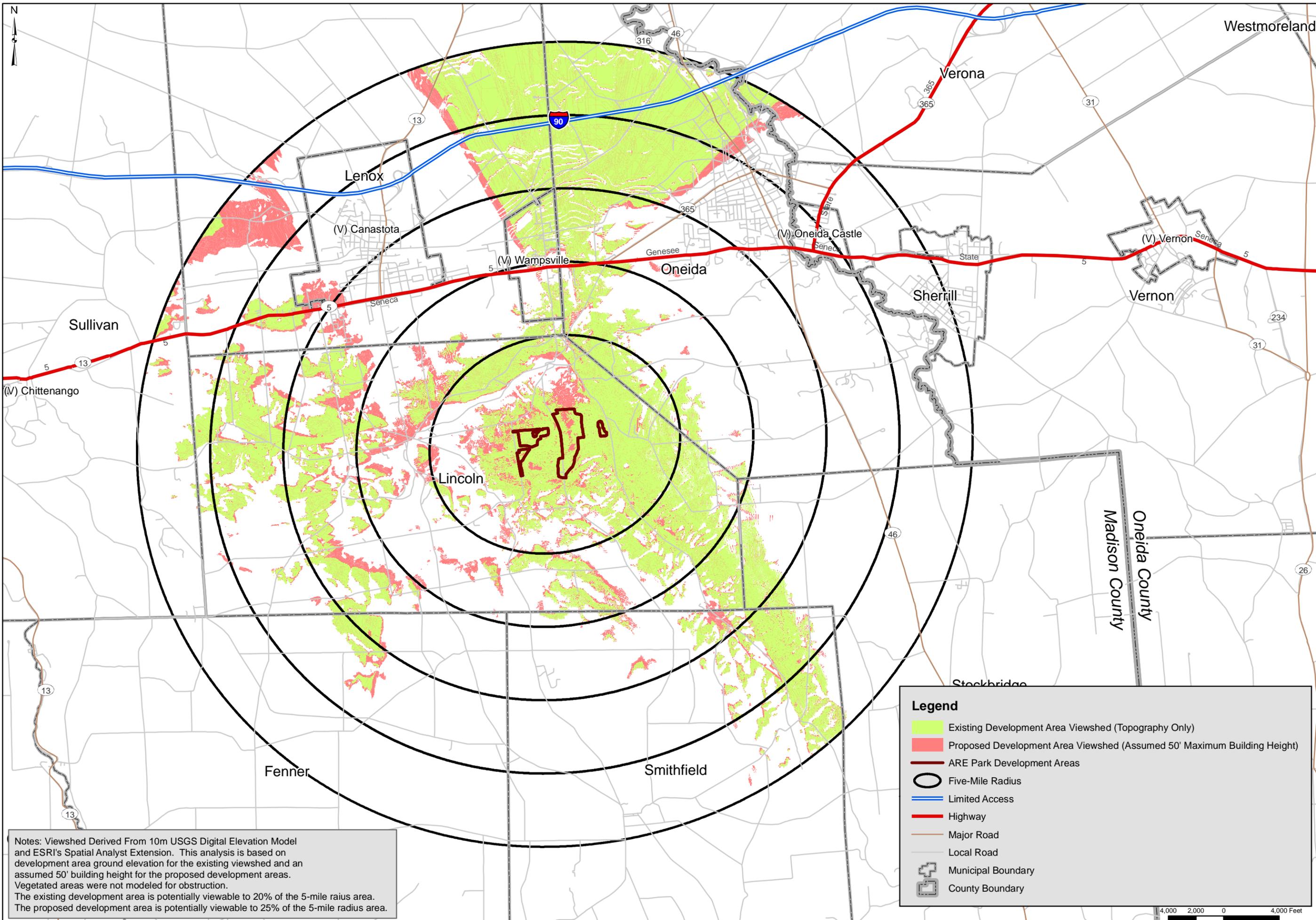
Madison County, New York

Town of Seneca

Date	September, 2011
Scale	As Shown
Figure Number	2.4
Project Number	154.091

Figure 4.1

**Existing and Proposed ARE Park Development Watershed
(No Modeled Vegetation)**



Notes: Viewshed Derived From 10m USGS Digital Elevation Model and ESRI's Spatial Analyst Extension. This analysis is based on development area ground elevation for the existing viewshed and an assumed 50' building height for the proposed development areas. Vegetated areas were not modeled for obstruction. The existing development area is potentially viewable to 20% of the 5-mile radius area. The proposed development area is potentially viewable to 25% of the 5-mile radius area.

Legend

- Existing Development Area Viewshed (Topography Only)
- Proposed Development Area Viewshed (Assumed 50' Maximum Building Height)
- ARE Park Development Areas
- Five-Mile Radius
- Limited Access
- Highway
- Major Road
- Local Road
- Municipal Boundary
- County Boundary



Madison County ARE Park
Existing and Proposed ARE Park Development Viewshed
(No Modeled Vegetation)

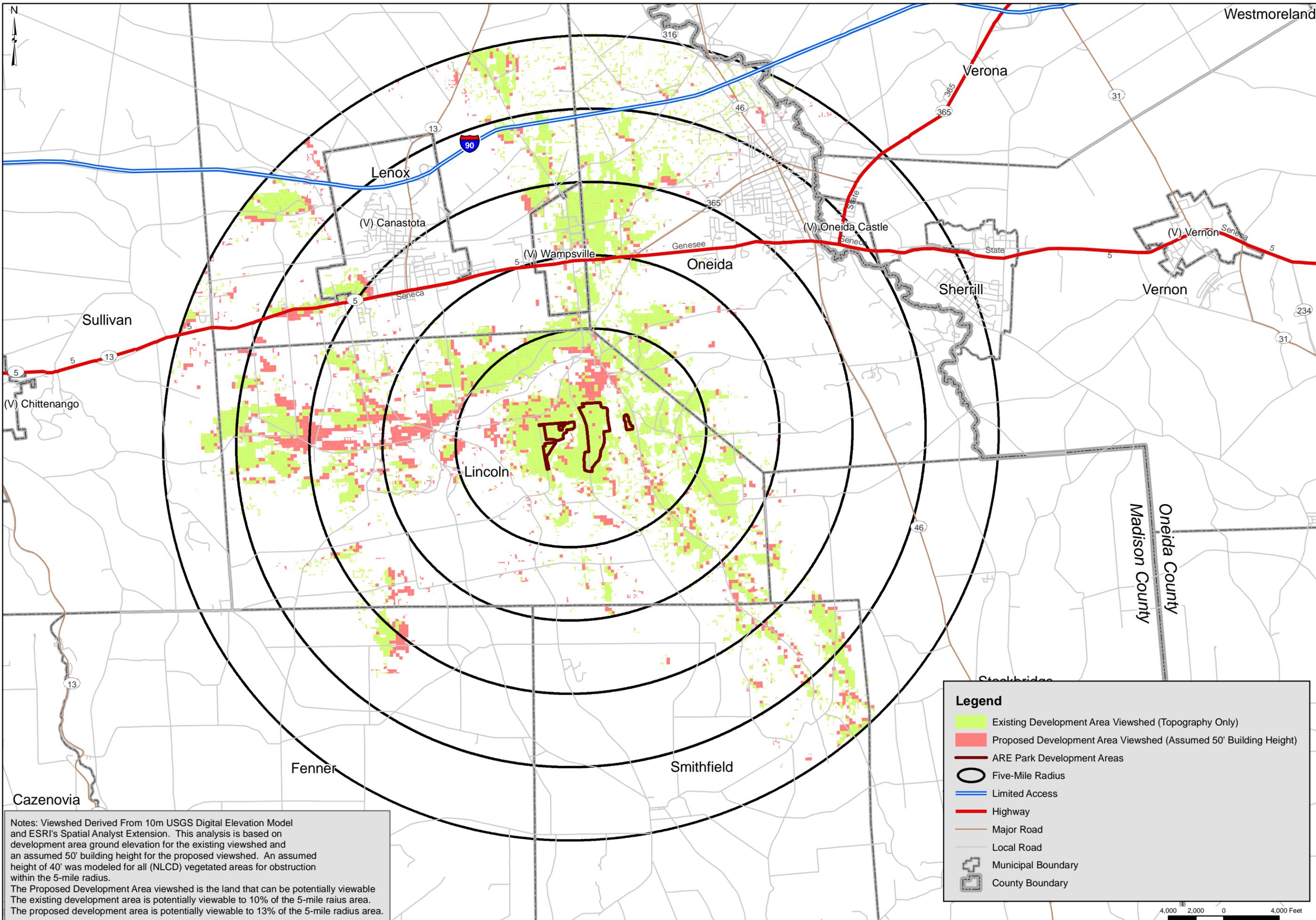
Madison County ARE Park
Town of Seneca

Madison County, New York

Date	September, 2011
Scale	As Shown
Figure Number	4.1
Project Number	154.091

Figure 4.2

**Existing and Proposed ARE Park Development Watershed
(With Modeled Vegetation)**



Notes: Viewshed Derived From 10m USGS Digital Elevation Model and ESRI's Spatial Analyst Extension. This analysis is based on development area ground elevation for the existing viewshed and an assumed 50' building height for the proposed viewshed. An assumed height of 40' was modeled for all (NLCD) vegetated areas for obstruction within the 5-mile radius.
 The Proposed Development Area viewshed is the land that can be potentially viewable
 The existing development area is potentially viewable to 10% of the 5-mile radius area.
 The proposed development area is potentially viewable to 13% of the 5-mile radius area.

Legend

- Existing Development Area Viewshed (Topography Only)
- Proposed Development Area Viewshed (Assumed 50' Building Height)
- ARE Park Development Areas
- Five-Mile Radius
- Limited Access
- Highway
- Major Road
- Local Road
- Municipal Boundary
- County Boundary

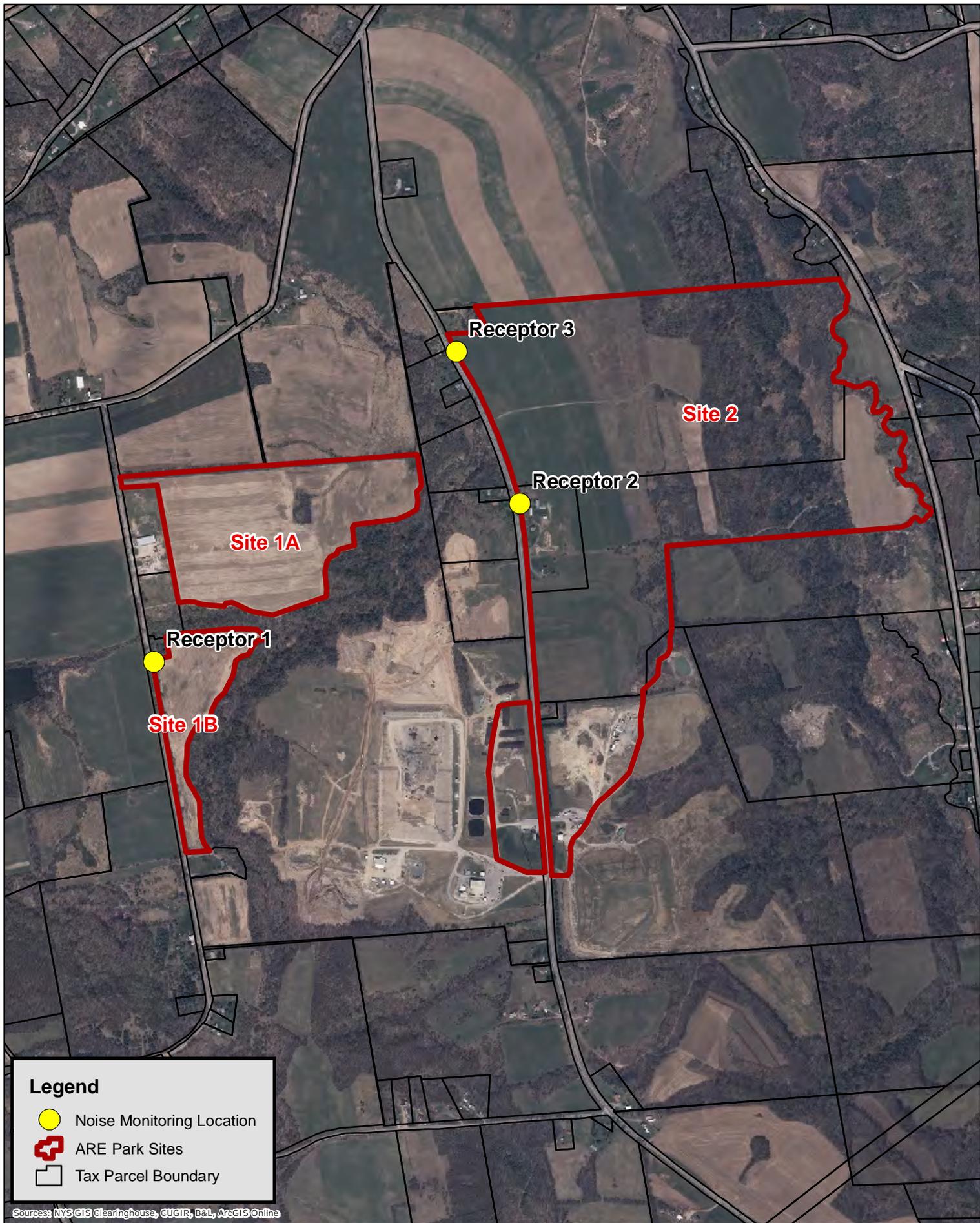


Madison County ARE Park
 Existing and Proposed ARE Park Development Viewshed
 (With Modeled Vegetation)

Madison County, New York
 Town of Seneca

Date	September, 2011
Scale	As Shown
Figure Number	4.2
Project Number	154.091

Figure 4.3
Noise Monitoring Locations



Legend

- Noise Monitoring Location
- ⊕ ARE Park Sites
- Tax Parcel Boundary

Sources: NYS GIS Clearinghouse, GUGIR, B&L, ArcGIS Online



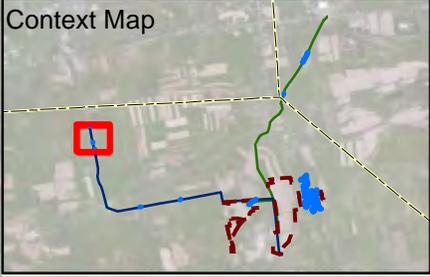
0 500 1,000
 Feet

Noise Monitoring Locations

Madison County September 2011 New York

Figure
4.3
 Project No.
 154.091.003

Figures 5a-h
Delineated Wetlands



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park

Delineated Wetlands

Madison County, New York

Town of Seneca

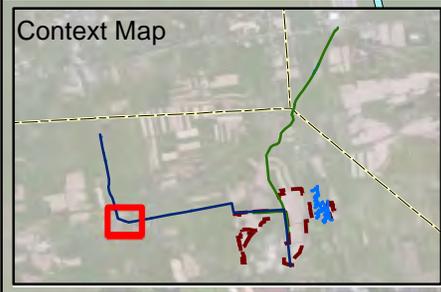


Date
September, 2011

Scale
As Shown

Figure Number
5a

Project Number
154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park

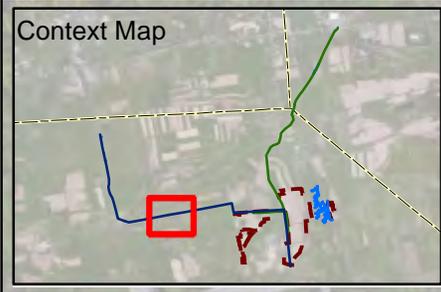
Delineated Wetlands

Madison County, New York

Town of Seneca

B&L Barton Engineering, P.C.
Environmental Services - Planning - Construction

Date	September, 2011
Scale	As Shown
Figure Number	5b
Project Number	154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
 Delineated Wetlands - B&L



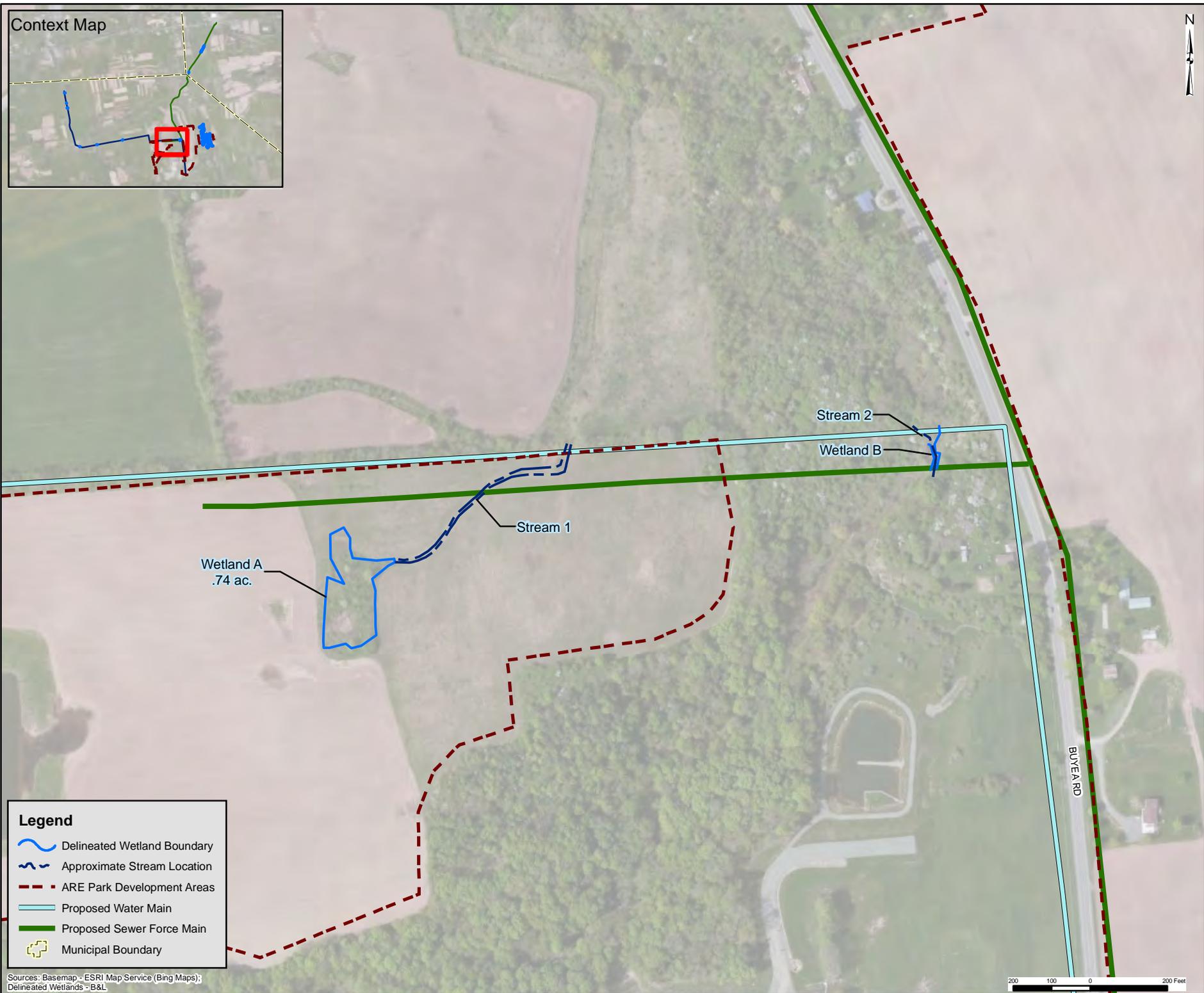
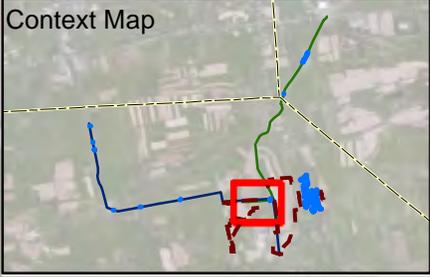
Madison County ARE Park

Delineated Wetlands

Town of Seneca

Madison County, New York

Date	September, 2011
Scale	As Shown
Figure Number	5c
Project Number	154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Wetland A
.74 ac.

Stream 1

Stream 2

Wetland B

BUYEA RD

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park
Delineated Wetlands

Madison County, New York

Town of Seneca

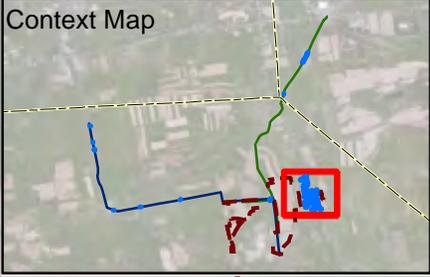


Date
September, 2011

Scale
As Shown

Figure Number
5d

Project Number
154.091



Legend

-  Delineated Wetland Boundary
-  Approximate Stream Location
-  ARE Park Development Areas
-  Proposed Water Main
-  Proposed Sewer Force Main
-  Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park

Delineated Wetlands

Madison County, New York

Town of Seneca

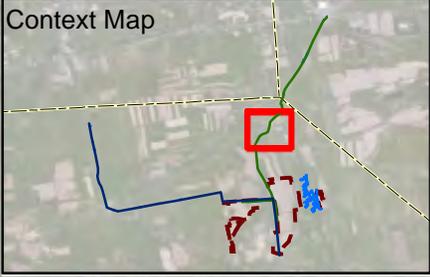


Date
September, 2011

Scale
As Shown

Figure Number
5e

Project Number
154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park
Delineated Wetlands

Madison County, New York

Town of Seneca

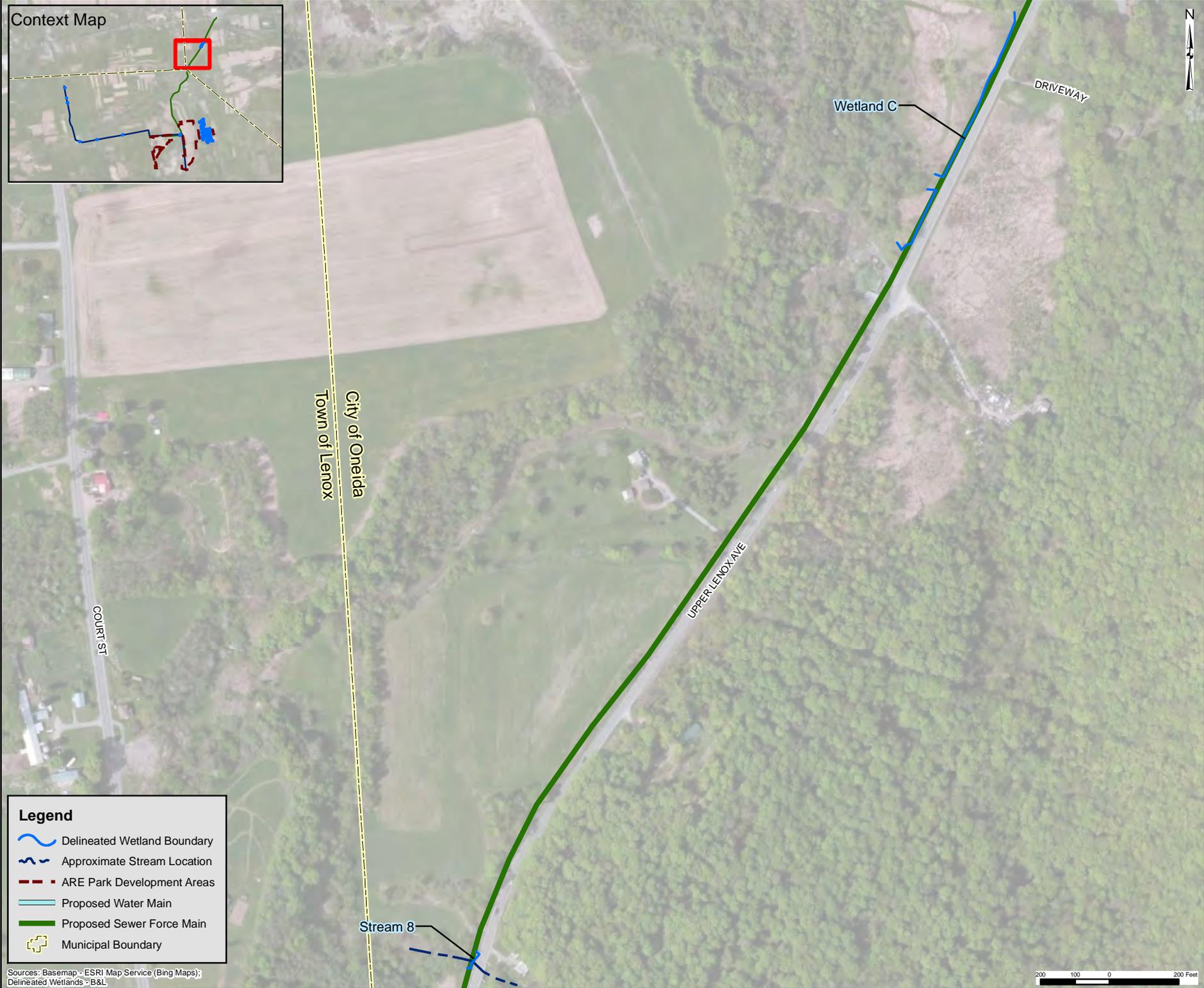


Date
September, 2011

Scale
As Shown

Figure Number
5f

Project Number
154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park

Delineated Wetlands

Madison County, New York

Town of Seneca



Date
September, 2011

Scale
As Shown

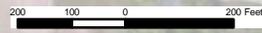
Figure Number
5g

Project Number
154.091



- Legend**
- Delineated Wetland Boundary
 - Approximate Stream Location
 - ARE Park Development Areas
 - Proposed Water Main
 - Proposed Sewer Force Main
 - Municipal Boundary

Sources: Basemap - ESRI Map Service (Bing Maps);
Delineated Wetlands - B&L



Madison County ARE Park Delineated Wetlands

Date September, 2011
Scale As Shown
Figure Number 5h
Project Number 154.091

Madison County, New York
Town of Seneca