

FULL ENVIRONMENTAL ASSESSMENT FORM
FOR
100 KILOWATT WIND TURBINE
AT THE SUFFOLK COUNTY WATER AUTHORITY'S
LAUREL LAKE WELL FIELD

Location

North of Main Road, east of Aldrich Lane, Hamlet of Laurel
Town of Southold, County of Suffolk
SCTM No. 1000-121-5-5.1

Lead Agency

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Table of Contents

I.	Summary	4
A.	Description of the Proposed Action	4
B.	Significant Beneficial and Adverse Impacts	4
C.	Mitigation Measures Proposed	4
D.	Matters to Be Decided	5
II.	Description of the Proposed Action	6
A.	Project Purpose, Need and Benefits; Social and Economic Considerations	6
1.	Background and History	6
2.	Public Need for the Project	6
3.	Objectives of the Project Sponsor	7
4.	Benefits of the Proposed Action	7
5.	Social and Economic Considerations	7
B.	Location	7
1.	Geographic Boundaries of Project	7
2.	Access to the Project Site	7
C.	Design and Layout	8
1.	Total Project Site Area	8
2.	Structures	8
D.	Construction and Operation	8
1.	Duration of Construction	8
2.	Operation	8
E.	Jurisdiction and Approvals	9
III.	Environmental Setting	13
A.	Natural Resources	13
1.	Description of the Topography of the Project Site	13
2.	Description of the Topography of the Surrounding Area	13
3.	Terrestrial Ecology	13
a.	Wildlife	13
b.	Vegetation	14
B.	Human Resources	14
1.	Aesthetic Resources	14
a.	Visual Resources	14
IV.	Evaluation of the Importance of Impacts	16
A.	Four Categories of Visual Impact	16
1.	Description of the Existing Visual/Scenic Environment	16
2.	Identification of the Degree to which the Proposed Wind Turbine will be Visible	16
3.	Determination of who will See the Wind Turbine and in what Context, e.g.	

	Worker, Tourist, Local Resident	17
4.	Identification of the Degree of Visual Compatibility or Incompatibility of the Wind Turbine with the Existing or Projected Environment	17
B.	Assessment of Visual Impacts	17
1.	Probability of the Impact Occurring	18
2.	Duration of the Impact	18
3.	Project's Irreversibility, including Permanently Lost Resources of Value	18
4.	Whether the Impact can or will be Controlled	18
5.	Regional Consequences of the Impact	19
6.	Potential Divergence from Local Needs and Goals	19
7.	Whether Known Objections to the Project Relate to this Impact	19
C.	Impacts to Natural Resources	19
1.	Terrestrial Ecology	19
a.	Impacts to Wildlife	19
2.	Impacts to Laurel Lake	20
D.	Impacts to Human Resources	21
1.	Aesthetic Resources	21
a.	Impacts to Visual Resources	21
i.	Impacts to the Physical Character of the Community ...	21
ii.	Impacts to Natural Areas of Significant Scenic Value ..	23
E.	Growth Inducing Aspects	23
F.	Impacts to the Use and Conservation of Energy	23
V.	Mitigation Measures	24
A.	Potential Mitigation Measures	24
1.	Natural Resources	24
2.	Visual Resources	24
VII.	Appendices	25

I. Summary

A. Description of the Proposed Action

This action involves the construction of a Northern Power Systems 100 kilowatt wind turbine at the Suffolk County Water Authority's (the "SCWA") Laurel Lake well field in the hamlet of Laurel on New York State Route 25, or Main Road, in the Town of Southold (the "Project"). The wind turbine will generate renewable energy to operate six existing public drinking water supply wells and associated treatment facilities at the well field. The turbine's nacelle will swivel based on the prevailing wind direction and the rotation of its rotor will vary depending on wind speed creating a dynamic and constantly changing feature.

Based on estimates of the wind resources at the Laurel Lake well field, the SCWA projects that the wind turbine will generate 151,000 kilowatt hours (kWh) of electricity per year. Energy projections prepared by Northern Power Systems, predict that the system will generate, on average, 169,000 kWh/year. See Exhibit A. For the years 2009 and 2010 (the last years where SCWA has complete LIPA billing data), the water supply and treatment equipment at the Laurel Lake well field have consumed 158,760 and 199,080 kWhs of energy respectively. Depending on the amount of energy produced, the system may be able to make the well field fully energy self sufficient.

B. Significant Beneficial and Adverse Impacts

Significant beneficial impacts of the action are the reduction in the amount of fossil fuel based energy consumed at the facility and a concomitant reduction in carbon emissions through the use of a renewable wind energy. The wind turbine is projected to generate 151,000 kWh of electricity per year. This will offset carbon dioxide emissions by 104 metric tons annually. The Project demonstrates the SCWA's commitment to utilize renewable energy sources to operate its facilities in the water supply distribution system where feasible.

Parts 1 and 2 of the Long Environmental Assessment Form identified potential impacts on visual resources from public and private viewsheds. These impacts are consistent with those created by the installation of two other Northern Power System 100 kW wind turbines installed at the same height at two other locations within 6.5 miles of the Laurel Lake well field.

C. Mitigation Measures Proposed

In order to mitigate the potential impacts on visual and natural resources, the following mitigation measures are proposed: (1) the wind turbine will be installed 200 feet from the SCWA's property line and 800 feet from New York State Route 25, (2) the turbine will be situated on a 94 acre SCWA holding to minimize potential offsite visual impacts of the structure on residential or private properties, (3) the turbine and its rotor will be painted white to minimize the visibility of the turbine when viewed at a distance, (4) the SCWA will plant evergreen trees along the south side of its property to minimize the view of the base of the turbine from the

intersection of Bray Avenue and NYS Route 25, and (5) a monopole support tower with limited perching spots will be used to limit the places birds can land or nest on the monopole.

D. Matters to Be Decided

Matters to be decided include the completion of the State Environmental Quality Review Act (“SEQRA”) process, selection of a contractor to install the wind turbine, and the SCWA Board approval of the Project.

II. Description of the Proposed Action

A. Project Purpose, Need and Benefits; Social and Economic Considerations

1. Background and History

The Project calls for the construction of a North Power System's 100 kW wind turbine at the SCWA's Laurel Lake public water supply and treatment facility to generate electricity to operate the pumps and treatment equipment at the well field. Currently, the facility is powered by electricity supplied by the Long Island Power Authority ("LIPA") and generated, in large measure, by burning fossil fuels. The proposed wind turbine will consist of three visible components: a 117 foot steel tower, a nacelle atop the monopole and a rotor attached to the nacelle hub (collectively the "Wind Turbine" or "Turbine"). See Exhibit B. The nacelle is constructed of fiberglass reinforced polyester, and is approximately 8 feet high. The three bladed rotor is 68 feet in diameter. Therefore each blade will be approximately 34 feet in length. Each of the blades will also be made of fiberglass reinforced polyester. A poured concrete foundation will anchor the Wind Turbine at the site.

2. Public Need for the Project

The existing facility currently utilizes electrical power generated, in large measure, from oil or gas fired plants. Under the proposed action, the fossil fuel based power will be displaced with sustainable non-carbon based renewable energy, windpower. The SCWA is a significant consumer of energy resources in the operation of its public water supply facilities. The implementation and use of renewable resources in its organizational structure will benefit the SCWA and its rate payers and the environment by reducing carbon based fuel consumption. Carbon dioxide emissions, alone, are estimated to decrease by 104 metric tons a year. See Exhibit C.

There will be periods of time when the Wind Turbine produces more electricity than is needed to operate the Laurel Lake water supply facility. During these times, the extra electricity will automatically be placed into the Long Island Power Authority's ("LIPA") system for distribution to other LIPA customers. Conversely, there will be times when the energy produced by the Wind Turbine is insufficient to power all of the components of the water supply and treatment facility. During these times, the energy produced by the Turbine will be supplemented with power from LIPA.

The SCWA projects that the Wind Turbine will generate, on an annual basis, nearly enough electricity to operate the water production and treatment systems at the Laurel Lake well field without supplementation with energy from the LIPA system. As such the Laurel Lake well field will be nearly energy self sustaining once the Wind Turbine is placed into service.

3. Objectives of the Project Sponsor

The SCWA's objective is to develop a sustainable and renewable energy source of power for all of the supply and treatment facilities at the Laurel Lake wellfield.

4. Benefits of the Proposed Action

The Project's benefits include creating a nearly self sustaining water treatment facility and the progression of the SCWA's effort to utilize renewable resources where appropriate and feasible. An interpretative display will be installed along the recreational trail the Town has installed on the SCWA's Laurel Lake well field to describe the Wind Turbine and how the electricity generated by the Wind Turbine provides the energy to run the water supply and treatment systems at the well field.

5. Social and Economic Considerations

The Project will utilize wind power, a renewable and sustainable energy source, to power the facilities at the Laurel Lake well field. Implementation of the Project will reduce the amount of emissions generated from the consumption of fossil fuels to provide energy to the well field.

B. Location

1. Geographic Boundaries of Project

The project site is located north of Main Road, east of Aldrich Lane, in the Hamlet of Laurel, in the Town of Southold, in the County of Suffolk. In total the SCWA owns approximately contiguous 94 acres at the site arranged in four adjacent parcels. Collectively these four parcels are hereinafter referred to as the "Project Site." A 70 foot wide vacant parcel between two commercial enterprises and opposite Bray Avenue on Main Road is also owned by the SCWA (the "SCWA Main Road Parcel"). The SCWA Main Road Parcel is on the south side of the Long Island Rail Road's Greenport line which forms the southerly border of the SCWA other holdings. See Exhibit D.

To the west, north and east of the Project Site is the Laurel Lake Preserve (the "Preserve"). The Preserve contains an aggregation of approximately 660 acres of public property owned by the State of New York, County of Suffolk and the Town of the Southold. The Wind Turbine will be approximately 1,700 feet to the east of Laurel Lake and 1.4 miles to the east of the Northern Power 100kW wind turbine installed at Half Hollow Nursery. See Exhibit E.

2. Access to the Project Site

Access to the Project Site is provided by two semi-improved (crushed concrete) access roads. The normal access is across a right of way located between the Project Site and Main

Road. Access through this route is limited by a rail road trestle through which only small trucks and passenger vehicles can safely pass. Access to the Project Site is also available across municipally owned land to the west. This access is only used to transport large vehicles and supplies that cannot safely fit through the trestle. Since there is no railroad crossing between the Project Site and the SCWA Main Road Parcel, it cannot be used as an access point to the Project Site.

C. Design and Layout

1. Total Project Site Area

As noted, the SCWA owns approximately 94 acres at the Project Site. However, the Wind Turbine will only cover a very small portion of the Project Site since the diameter of the base of its monopole is estimated to be 6.56 feet wide. The base of the monopole will be affixed to a spread concrete foundation approximately 30 feet in diameter. No new clearing of native vegetation is required for the Project because the Wind Turbine will be constructed in a previously cleared area. To prepare the Project Site, approximately 2,000 square feet of maintained grass area will be disturbed. This area is surrounded by a six foot high chain link fence, other cleared areas and public water supply equipment and structures. It is not accessible to the general public. See Exhibit F.

2. Structures

A cross section of the Wind Turbine or line of sight profile illustrates that the Turbine at the center of its rotor on the nacelle will be 121 feet above grade. The monopole supporting the nacelle is 117 feet tall. The diameter of the rotor is 68 feet on center. At the highest point in their arc, one of the blades will extend 155 feet above the ground. See Exhibit B.

D. Construction and Operation

1. Duration of Construction

The entire construction period is expected to last approximately three months. If the Project is approved, construction is anticipated to commence in the Spring of 2012.

2. Operation

Once the Project is completed, the Wind Turbine will operate every day that the wind speed at the Project Site is 8 miles per hour or more. As a safety feature, the Wind Turbine is designed to shut down and its blades will not spin if the wind at the Project Site exceeds 56 miles per hour. While operating, the Wind Turbine will produce 55 dBA of noise as measured from 40 meters from its base.

E. Jurisdiction and Approvals

The Project Site is more than 600 feet from the nearest New York State Department of Environmental Conservation (the “DEC”) regulated wetland and thus beyond the DEC’s jurisdiction. No approvals are required from other New York State agencies, Suffolk County, or the Town of Southold. While a rebate application will be submitted to the LIPA, the review associated with the application will be ministerial in nature.

Wind energy systems may be developed in the Town of Southold. Such systems may be constructed on parcels containing seven acres or more of area in the Agricultural-Conservation and Low Density Residential R-80, R-120, or R-200 Districts if the parcel is dedicated primarily to uses necessary for bona fide agricultural production. (Town Code §280-13(A)(5)). Chapter 277 of the Town Code entitled “Wind Energy” sets forth construction and design standards for wind turbines in the Town. The Wind Turbine fully complies with the Town’s Chapter 277 standards. While the Project Site is not used for agricultural production, the SCWA parcel is within the R-80 zoning district and the Wind Turbine is wholly compliant with the Town standards. If the SCWA property was used for agricultural production the Project would not require any Town review except for the ministerial issuance of a building permit.

Ordinarily a development of a land use not permitted by a Town’s zoning ordinance may not commence without relief from the Town. Thus, if a person in the Town proposed developing a wind turbine on a piece of property not dedicated primarily to uses necessary for bona fide agricultural production they would need the Town’s approval. However, there is an exception to this general proscription for non-Town governmental units constructing facilities within the Town based upon the balancing of interests test established in the New York Court of Appeals’ *Matter of the County of Monroe v. City of Rochester* decision. (72 N.Y.2d 388 (1988)).

Monroe’s balancing of public interests approach resolves land use questions between the “zoning ordinance of one political unit and the statutory authority of another unit to perform a designated function.” Here the interests of the SCWA’s authority to supply water to the people of Suffolk County, an essential governmental function and the power to do all things necessary or convenient for such purposes conflicts with whether the SCWA must comply with the Town’s Code. Factors to be analyzed under the balancing of public interests test include: (1) the nature and scope of the instrumentality seeking immunity, (2) the kind of land use involved, (3) the extent of the public interest to be served thereby, (4) the effect local land use regulation would have upon the enterprise concerned, (5) the impact upon legitimate public interests, (6) the legislative grant of authority of the entity proposing the facility, (7) alternative locations for the facility in less restrictive zoning areas, and (8) alternative methods of providing the facility.

The Court of Appeals identified two additional “important” factors to consider in applying the *Monroe* test which are the intergovernmental participation in the development process and the ability of the public to be heard on the Project. Lastly it noted that one factor could be more influential than another or so significant as to completely overshadow the other elements. (*Monroe* at 343).

Applying the factors set down by the Court, first, the SCWA's purpose is to develop a public water supply and distribution system for the residents of Suffolk County. The "carrying out of [the SCWA's] powers, purposes and duties are in all respects for the benefit of the people of the county of Suffolk, and the state of New York, for the improvement of their health, welfare and prosperity and that the said purposes are public purposes and that the authority is and will be performing an essential governmental function in the exercise of the powers conferred upon it by this title." (Public Authorities Law §1077(3)).

Second, the involved land use is the development of the wind energy system, a permitted use in the Town of Southold. The only distinction between the SCWA parcel and parcel on which a conforming system could be developed is that the SCWA parcel is used for water supply purposes instead of agricultural purposes. In all other respects the SCWA proposal conforms with the Town Code provisions governing wind energy systems including the technical specifications contained in Town Code Section 277.

Third, development of the Wind Turbine will foster the public interest in several ways: the amount of energy provided by LIPA to serve the facility will be nearly eliminated resulting in lessened demand for fossil fuel based energy, which will result in a annual 104 metric ton reduction in carbon dioxide emissions, and it will establish the SCWA's first energy independent public water supply facility. Achieving these goals will significantly serve the public interest at large and are not solely the concerns of the SCWA.

Fourth, given that the development of the Wind Turbine is consistent with the Town's Standards, subjecting the SCWA to the Town's review process will have nominal effect of the enterprise proposed beyond subjecting the SCWA to local review. As noted if the SCWA used the property for agricultural production, the Project would be entitled to a building permit, as of right. Subjecting the SCWA to the Town's review processes when the SCWA proposes to undertake activities related to its purpose of supplying water to the public is inconsistent with the SCWA functions and purpose of providing water to all of the residents of Suffolk County, an "essential governmental function." There are 10 towns and 33 villages in Suffolk County. Requiring the SCWA to obtain local land use approval for every one of its actions could unnecessarily restrict and constrain the SCWA in performing its statutory responsibilities. In this instance, such review is unwarranted because the SCWA has designed its wind energy system to be fully compliant with the Town's standards. This SEQRA Review and the public hearing prescribed by Public Authorities Law §1078 also ensure public involvement and participation in the proposal.

Fifth, development of the Wind Turbine will have minimal impact on legitimate public interests given its demonstrated consistency with the Town Code's Standards. If the Project Site was used primarily for agricultural production, a wind energy system could be constructed on it without Town action beyond the issuance of a building permit. Instead the Project Site is used primarily for water supply purposes. As noted, the SCWA's broad legislative grant to do all things necessary or convenient, empowers it to develop the Wind Turbine to generate power for

water supply operations as being necessary to performing its essential governmental functions and advances important public policy goals.

Sixth, New York State provided the SCWA wide ranging powers and duties to perform its essential governmental purpose. (Public Authorities Law §1078). These powers and duties include, the power and duty to “construct, develop and operate any water supply system, water distribution system, including plants, works, instrumentalities, or parts thereof, and appurtenances thereto, . . ., pumping stations and equipment.” The SCWA may also do “all things necessary or convenient to carry out the powers expressly given or necessarily implied” by its authorizing act. (Public Authorities Law §1078). Implicit within the power to operate a water supply system is the right to acquire energy to power the water supply system. The SCWA currently generates its own power at multiple sites with backup generators. This will be its first wind powered generator. Thus, the SCWA has the power to acquire energy and in the instant case, has decided to acquire energy from a renewable and sustainable source.

Seventh, the SCWA carefully selected the Laurel Lake well field as the site of the Wind Turbine based on the wind resources of the North Fork and the size of the Project Site. In reviewing the SCWA holdings to determine appropriate location for its Wind Turbine, two considerations were paramount, parcel size, with a premium for larger parcels, and the available wind resources at a parcel. Large parcels are favorable because their size allows for greater setbacks between the Wind Turbine and neighboring land uses. Some areas of Suffolk County are windier than others. Placing a wind turbine at a windy site will increase the amount of energy it can produce. The Project Site scores very high in both considerations. It contains approximately 94 acres of area and is surrounded by other large parcels. Although the Wind Turbine will be located near the border of the Project Site, the nearest adjoining land uses are commercial and industrial and thus development of the system is within the local community character.

Eighth, the average wind speed at 120 feet at the Project Site is 5.5 meters per second according to a Preliminary Annual Energy Production Estimate prepared by Northern Power Systems. See Exhibit A. Utilizing this wind energy the model indicates that the Wind Turbine will produce 169,000 kWh. The SCWA estimates that the system will produce 151,000 kWh per year. For the years 2009 and 2010 (the last years where SCWA has complete LIPA billing data), the Laurel Lake well field has consumed 158,760 and 199,080 kWhs of energy respectively. Based on these projections, the SCWA estimates that the well field will be nearly self-sustaining on an energy produced to energy consumed basis.

The SCWA explored developing a turbine with a hub height of 100 feet. Northern Power prepared a Preliminary Annual Energy Production Estimate for a 100 foot system. The Estimate indicates that at the 100 foot elevation the average wind speed at the Project Site is 5.15 meter per second, 0.35 meters per second slower than the 121 foot winds. A slower average wind speed means that the same 100 kW system would produce less power. Northern Power estimates that such a system would produce 25,000 kWh less electricity if placed at 100 feet above grade rather than 121 feet above grade. See Exhibit G.

The SCWA scores highly the other “important” factors identified by the Court in *Monroe*: intergovernmental participation in the process and the ability of the public to be heard on the Project. First, to foster intergovernmental participation, the SCWA contacted the Town on December 6, 2011 and informed it of the Project. Subsequently, at the Town’s request the SCWA provided a copy of the Request for Proposal for the Wind Turbine to it.

The combined December 22 and 29, 2011 edition of The Suffolk Times reported that the members of the Southold Town Board discussed the SCWA proposal at a December 2011 meeting. The article stated that the SCWA’s proposal was forwarded to the Town’s Planning Department and the Town’s Land Preservation Committee for their reviews.

Second, public participation has been solicited by the SCWA in accordance with Public Authorities Law §1078. The SCWA is holding a public hearing on January 18, 2012 at the Mattituck-Laurel Public Library to receive comments on the proposed facility. Notice of the hearing was placed in Newsday a paper of general circulation in the Town of Southold, on December 26, 2011 and January 2, 2012. In addition to giving the minimum notice required by the Public Authorities Law, the SCWA also placed legal notices of the hearing in the Suffolk Times on January 5 and 12, 2012. Moreover, the proposal has also been noted in The Suffolk Times article which would also highlight the Project to the public.

III. Environmental Setting

A. Natural Resources

1. Description or the Topography of the Project Site

The base elevation of the Wind Turbine will be approximately 30 feet above mean sea level. The Environmental Assessment Form (EAF) Parts I and II contain a description of the Project, Project Site data, and existing resources. There are pockets of the Project Site that are 40 feet above mean sea level.

2. Description of the Topography of the Surrounding Area

Elevations in the vicinity of the Project Site range from 0 feet to 100 feet above mean sea level. Nearby is Laurel Lake, a 30 acre, 47 foot deep kettle hole. As is typical with kettle holes, the surface of the Lake is situated at a lower elevation than its sloped banks and the area immediately surrounding it.

The Project Site is flat with an elevation of 30 feet above sea level. Most of the area in the immediate vicinity of the Project Site is also 30 feet above sea level. However, there a few spots to the north and south of the Project Site where the topography reaches 40 feet or higher above sea level. These areas are between Laurel Lake Drive and Kirkup Lane and within the Laurel Links Country Club. See Exhibit H.

3. Terrestrial Ecology

a. Wildlife

A request was made, in 1998, to the New York Natural Heritage Program for biological information concerning the Project Site. The Program is an “ongoing scientific inventory whose goal is to compile and maintain systematic information on New York State's native rare plants and animals and significant ecological communities.” (New York State Department of Environmental Conservation website, www.dec.state.ny.us/website/dfwmr/heritage/about.htm). The Program archives contain one report of a sighting of a native rare animal in the vicinity of the Project Site. The animal, a beetle, last seen in the mid-1940s is an unprotected species by New York State Law. However, the beetle has a global rank of G3. Moreover, the beetle has not been observed in the State in at least the 15 years prior to 1998. The global rank reflects the rarity of the species throughout the world. Species with a global rank of G3 are “either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restriction range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.” (Users Guide to Natural Heritage Data)

No other threatened or endangered species were identified at the Project Site according to the Heritage Program data.

Notwithstanding the absence of rare, threatened or endangered species at the Project Site, migratory species may utilize the areas surrounding the Project Site for brief periods during their migrations. Wildlife that utilize the Preserve are commensurate with the different habitat types that exist in the Preserve. Hawks and a variety of avian species utilize the Preserve for breeding, foraging, and migratory activities. As is all of Long Island, the Preserve is within the Atlantic Flyway. Deer, cottontail rabbits, red fox, squirrels, and woodchucks may be seen in the old field areas. (Town of Southold Trail Guide).

b. Vegetation

The primary community type throughout the SCWA's holding and the Preserve is mixed hardwood forest dominated by oaks, hickories, beeches, and maples. Many areas of the preserve contain a dense canopy structure and have reached the climax stage of the ecological succession, whereas, other areas are composed of shrubland with pioneer species such as eastern red cedar and open grassland habitat. There is an area of the Project Site that has been previously cleared and is in the midst of successional revegetation.

B. Human Resources

1. Aesthetic Resources

a. Visual Resources

The southerly boundary of the Project Site is the Long Island Rail Road track. Between the railroad track and New York State Route 25 is a developed commercial and industrial transportation corridor. This will not be the first wind turbine constructed on the north side of Main Road in the Town. Two other Northern Power System 100 kW wind turbines of the same height exist in the community, with the nearest system 1.4 miles to the west of the Project Site.

The southern SCWA property line is 200 feet from the proposed base of the Wind Turbine. New York State Route 25 is approximately 800 feet from the proposed base of the Wind Turbine. The nearest residence, located at the southwest intersection of Bray Avenue and New York State Route 25 is approximately 1,000 feet from the proposed base of the Wind Turbine.

The Wind Turbine will be 121 feet in height at its hub and 155 feet in height at the tip of a blade at its highest point in its arc around the hub and approximately 68 feet in diameter from blade tip to blade tip. In order to determine the extent to which the proposed structure would be visible, on December 1, 2011, the SCWA floated a large red balloon above the Project Site. The center of the balloon was approximately 150 feet above the Project Site to represent the view of the height of the rotor at its highest point in its arc around the Turbine's hub. Pictures were taken from various points surrounding the Project Site from where the balloon was visible. The pictures were then digitized into a computer format, and a depiction of the proposed Wind Turbine was superimposed into the digitized pictures. Computer generated depictions of the structure were completed. See Exhibit I.

A request was made to the Federal Aviation Administration (FAA) for a determination as to whether any navigational lighting would need to be placed on the Turbine. The FAA has not yet responded to the SCWA inquiry.

IV. Evaluation of the Importance of Impacts

A. Four Categories of Visual Impact

The New York State Department of Environmental Conservation's SEQR Handbook states that a Visual EAF Addendum should focus on four categories for examining the visual significance of an action. The section below elaborates on the four categories.

1. Description of the Existing Visual/Scenic Environment

The existing visual/scenic environment of the proposed Wind Turbine is listed in the EAF. Immediately surrounding the Project Site is the Preserve and the Long Island Rail Road tracks. A commercial and industrial corridor exists to the south of the rail road tracks on New York State Route 25. South of Main Road are residential areas and the Laurel Links Country Club.

The Wind Turbine will be installed 200 feet to the north of the SCWA-Long Island Railroad property line. The SCWA Main Road Parcel is within the commercial and industrial corridor directly south of the Project Site. New York State Route 25 is 800 feet from the base of the Wind Turbine. On the south side of New York State Route 25 across from the SCWA Main Road Parcel and approximately 1,000 feet from the base of the Wind Turbine is the nearest residence.

Half Hollow Nursery's wind turbine is 1.4 miles west of the Project Site and Pindar Vineyards' wind turbine is approximately six and one half miles to the east. Both of these wind turbines are at the same height and elevation as the Wind Turbine.

2. Identification of the Degree to which the Proposed Wind Turbine will be Visible

A variety of land uses are present within the vicinity of the Project Site. The Long Island Railroad's Greenport line crosses a bridge over Main Road to the southwest of the Project Site and forms the southerly boundary of the Project Site. To the east of the bridge, the Project Site is located to the north of the railroad. Land uses between the railroad line and Main Road are comprised of a mix of industrial and commercial. To the west of the trestle, are located agricultural lands, a town park, and a former recreational camp. On the south side of Main Road is the Laurel Links Country Club, which also contains 29 homes, some currently under construction, within the confines of the course.

Upper portions of the Wind Turbine will be visible above the tree canopy from various points surrounding the Project Site, all year long, most prominently from Main Road, approximately 0.7 miles west of the Project Site, from Laurel Links Country Club and Laurel Lake Estates (a residential subdivision on the golf course), from the two northerly houses along the east of Kirkup Lane on the west side of Laurel Lake, and distant views from public parks in the Mattituck Park District on Aldrich Lane and Peconic Bay Boulevard. Only distant and

obstructed views of the nacelle and rotor will be visible along Main Road to the east of the commercial and industrial corridor.

3. Determination of who will See the Wind Turbine and in what Context, e.g. Worker, Tourist, Local Resident

Residents, visitors to the area, and business travelers on Main Road may observe the upper portions of the Wind Turbine, including the hub and portions of the blades during their arc. Upper portions of the Wind Turbine, including its blades, will be visible from certain locations within the Laurel Links Country Club, from some of the residences with the Country Club and from the two northerly houses on Kirkup Lane. Most of the Wind Turbine will be visible across the SCWA's Main Road parcel from the house located at the corner of Bray Avenue and Main Road. Workers at the commercial and industrial enterprises located directly south of the Wind Turbine will be able to see the Wind Turbine across the SCWA Main Road parcel from their businesses. Obstructed views of the nacelle and the rotor may be visible from the businesses along Main Road near its intersection with Factory Avenue. Distant views of the Turbine will be available to users of either of the Mattituck Park District's facilities.

Users of the Laurel Lake Preserve should not be able to see unobstructed views of the Wind Turbine because of the extensive forest cover on the Preserve. However, since the SCWA has allowed the Town to create walking trails on the SCWA's property that are near the SCWA water supply and treatment facilities, the Wind Turbine will be visible to those individuals who travel on the SCWA property. For those individuals, the Wind Turbine will be another piece of equipment at the SCWA facility. Information on the Wind Turbine will be provided by an interpretative display at this location.

4. Identification of the Degree of Visual Compatibility or Incompatibility of the Wind Turbine with the Existing or Projected Environment

The Turbine is visually compatible with the existing environment as it is located adjacent to a commercial and industrial corridor and within close proximity to two other wind turbines of the same size and design. For most observers, the Wind Turbine will be a distant feature appearing above the tree canopy and only the upper portions of the Turbine and its blades will be visible. Moreover, since the nacelle will rotate based on the prevailing wind direction and the rotor speed will vary based on wind speed the Turbine will create ever changing views.

B. Assessment of Visual Impacts

The EAF Part III offers the following questions to consider and elaborate on the potential impacts identified in the EAF Part II (i.e., potential small to moderate impacts on aesthetic resources were identified in the EAF Part II).

1. Probability of the Impact Occurring

The Project will modify the visual conditions on the Project Site from certain identifiable locations.

2. Duration of the Impact

The duration of the impact would occur as long as the Wind Turbine exists on the Project Site. If the Turbine is removed from the Project Site at some time in the future, any potential impacts associated with it would concomitantly be removed. Moreover, the impact will be ever changing based on the prevailing wind speed and direction and time of year.

3. Project's Irreversibility, including Permanently Lost Resources of Value

The Project is not irreversible since the Wind Turbine could be removed at a future time. Northern Power's design life for the system based on average wind speed of 5.5 meters per second is 20 years. If the average wind speed is less the system will have a longer design life. At the end of the functional life, the system will be dismantled or refurbished.

Any visual impacts associated with the Turbine will be temporary given the unit's dynamic functionality. As wind speed and direction change, the nacelle will automatically shift its position atop its tower so that the blades are pointing into the prevailing wind direction. The speed of the blades themselves will change as the wind speed varies.

No scenic views from within the Laurel Lake Preserve will be lost because it is unlikely that the whole Wind Turbine will be visible from within the Preserve. Upper portions of the Turbine will likely be visible from certain locations within the Preserve. Views across the Preserve, either from the northerly residences on Kirkup Lane or from the Mattituck Park at the intersection of Aldrich Lane and Main Road will be mitigated by the distance between the Wind Turbine and either vantage point. These views are likely to be of the top of the tower, the nacelle and the rotor.

4. Whether the Impact can or will be Controlled

The SCWA will mitigate the visual impacts of the base of the Wind Turbine by planting evergreens along the border of the Project Site to the north of the commercial and industrial uses on New York State Route 25. Over time, as the trees grow, the ability to directly view the SCWA facility and the base of the Turbine across the SCWA's Main Road Parcel will be significantly reduced. By careful site design, the Wind Turbine will be approximately 1,000 feet from the nearest residence thus controlling visual impacts to the occupants of the house. In addition, since the view across the SCWA's Main Road Parcel and New York State Route 25 is only somewhat obstructed, the proposed plantings will provide significant visual relief.

5. Regional Consequences of the Impact

With the exception of the beneficial impacts to SCWA and larger environmental benefits (e.g., the 104 metric ton reduction in carbon dioxide emissions, reduced demand for fossil fuels and creation of a nearly self sustaining public water supply facility), no significant adverse impacts or regional consequences would be expected as a result of the Project.

Significant adverse visual impacts to the Preserve are not expected due to the vegetative cover characteristics of the Preserve. Since Laurel Lake is a kettle hole with steeply sloped banks surrounded by mature forest, individuals recreating on the lake should not be able to see to the Turbine. There will be localized, non-significant impacts, to views across the Preserve from Kirkup Lane and from some locations to the south of the Project Site. No impact to the water quality or quantity of Laurel Lake will occur from the Project's implementation.

6. Potential Divergence from Local Needs and Goals

There will be no divergence between local needs and goals caused by the Project. Anticipated benefits from the Project are consistent with local needs and goals in that the reduction in carbon fuel emissions, reduction in demand for fossil fuels and sustainability are both local and regional goals. Careful adherence with the Town's standards governing wind energy systems harmonize the regional and local needs and goals. Although the Project is not subject to local ordinances, local zoning regulations or goals would not be adversely impacted by the Wind Turbine because it fully complies with the Town's standards governing wind energy systems.

7. Whether Known Objections to the Project Relate to this Impact

A public hearing is scheduled for January 18, 2012. At the hearing the SCWA will present to interested individuals information about the Project. A summary of any comments received at the hearing will be provided to the SCWA Board for their consideration.

C. Impacts to Natural Resources

1. Terrestrial Ecology

a. Impacts to Wildlife

No significant adverse impacts to wildlife are expected. Construction of the Wind Turbine will not cause a loss of habitat or forest fragmentation because only 2,000 square feet of maintained area will be disturbed. This area is surrounded by chain link fence. The area to be affected is surrounded by existing public water supply distribution facilities and visited daily by a SCWA employee. No clearing, except for 2,000 square feet of maintained grass area, is proposed for the construction and installation of the Wind Turbine.

The National Academy of Sciences, in addressing the impact wind turbines have on bird and bat species, noted that far more deaths of these species are due to impacts with other structures. They note, “[c]ollisions with buildings kill 97 to 976 million birds, perhaps more than 1 billion; collisions with communications towers kill between 4 and 5 million based on “conservative estimates,” but could be as high as 50 millions; cars may kill 80 million birds per year; and collisions with wind turbines killed an estimated 20,000 to 37,000 birds per year in 2003, with all but 9,200 of those deaths occurring in California. Toxic chemicals, including pesticides, kill more than 72 million birds each year, while domestic cats are estimated to kill hundreds of millions of songbirds and other species each year. Clearly, bird deaths caused by wind turbines are a minute fraction of the total anthropogenic bird deaths - less than 0.003% in 2003.” (National Academy of Sciences, Environmental Impacts of Wind-Energy Projects at 71-72 (2007)).

Wind resources generally increase with elevation so that taller turbines produce more energy than shorter ones in the same location. This general observation is true for the Project Site as demonstrated by the energy projections prepared for the Project Site. See Exhibits and G. But the Academy has documented increased impacts to birds in the Eastern United States from wind turbines placed on forested ridges. (Academy at 75). And the Academy notes that migrating songbirds tend to fly above 400 feet. (Id. at 77). Bat fatalities associated with wind turbines in the eastern United States are highest at forest ridge top turbines. (Id. at 95).

To reduce the number of potential bird-turbine collisions, the SCWA has not placed the Turbine at the points of the highest elevation on the Project Site and the overall height of the Turbine is 155 feet which will help mitigate impacts to migrating song birds.

The surrounding environment contains habitat for wildlife including avian species, and the existing habitat is expected to continue to provide foraging and breeding habitat for wildlife including avian species. Although the Wind Turbine may pose minimal direct or indirect adverse threats to resident and migratory birds or bats, no population-wide adverse impacts are anticipated as a result of the Project. Further mitigating this potential loss, is the benefit provided by the SCWA’s large, relatively undisturbed, 94 acre holding.

2. Impacts to Laurel Lake

There will be no impacts to the quality or quantity of the waters of Laurel Lake. There will be no construction related impacts to the Lake because it is over 1,700 feet from the Project Site.

D. Impacts to Human Resources

1. Aesthetic Resources

a. Impacts to Visual Resources

The Proposed Project will result in non-significant impacts to visual resources. The Wind Turbine at its hub will be 121 feet in height from grade and its rotor will be approximately 68 feet in diameter. The structure will be located on the south side of the existing well building on the SCWA property. The SCWA owns approximately 94 acres in Laurel however, the Turbine will be installed in an existing cleared area on the southern boundary of the overall Project Site where it is adjacent to developed areas. The base of the Turbine should not be visible except where it is in full view across the SCWA's Main Road Parcel and from users of the recreational trail on the Project Site.

As previously discussed and listed in the Visual EAF Addendum, portions of the Wind Turbine will be visible from public viewing areas including state, county, and local roads and public open spaces (e.g., state, county, and town parklands). Upper portions of the Wind Turbine will be visible on a daily basis by residents and visitors to certain identifiable locations in the vicinity of the Project Site. Visibility of the Turbine may be slightly reduced when deciduous trees are in full bloom and when the atmospheric conditions reflect a grey sky.

The Federal Aviation Administration has not yet responded to SCWA's inquiry regarding the Project.

i. Impacts to the Physical Character of the Community

As one approaches the Project Site from the west on New York State Route 25 the nacelle and portions of the rotor will be visible in the distant from approximately 0.7 miles at the intersection of Old Main Road and Route 25. As one travels east on New York State Route 25, from near the intersection of Old Main Road and New York State Route 25, the Turbine's nacelle and rotor will be visible because Main Road crests a small hill at this point. From atop the hill and as one travels to the east on Main Road, these views should diminish as the road curves to the southeast and as one gets closer to the Project Site due to the height of the trees and viewing angles.

The nacelle and portions of the rotor will be visible from the parking lots of the DEC Fishing Access at Laurel Lake and Laurel Lake Preserve on Route 25. At the Long Island Railroad bridge across Main Road, Main Road is lower than the surrounding area and the Project Site and thus no portions of the Wind Turbine will be visible.

As one continues east on Main Road beyond the railroad bridge, the character of Main Road changes as it passes through a commercial and industrial corridor. Most of the Wind Turbine will be visible across the SCWA's 70 foot wide Main Road Parcel between the

commercial uses on the north side of Main Road. Most of the Wind Turbine will also be visible across the SCWA's Main Road parcel from the intersection of Bray Avenue and Main Road as it is nearly opposite this open area. This vantage point also has full view of the commercial and industrial uses on Main Road and the rest of the SCWA water supply and treatment facilities.

Bray Avenue is a north-south road from Main Road that slopes away from the Bray-Main Road intersection. Mature trees line Bray Avenue and the residential lots on Bray are heavily wooded. Therefore, although the Wind Turbine will be visible from the Bray Avenue-Main Road intersection, it will become less visible a short distance south of this intersection.

As one travels eastward on New York State Route 25, past the SCWA's Main Road Parcel, at most, obscured and distant views of the nacelle and its rotor may be visible. Land uses between the Kreiger site and Factory Avenue are a mix of vacant forest lands and commercial uses. Along this portion of Main Road there is a naturally wooded area west of the existing Capital One office facility in Mattituck. Factory Avenue runs between Main Road and Sound Avenue. The Wind Turbine will not be visible from Factory Avenue.

North of the Project Site as one travels westerly along Sound Avenue, the Wind Turbine will not be visible until a distant sighting of the Turbine's rotor may be visible from the intersection of Cox Neck Road and Sound Avenue (County Route 48). Travelers on the middle portion of Kirkup Lane will be able to see the nacelle and its rotor above the forest canopy as will individuals using the two northerly residential properties on Kirkup Lane.

Distant views of the upper portions of the Turbine may be visible from Aldrich Lane across the recreational ball fields of Mattituck Park District. Distant views will also be visible from the south side of Horton Creek and Mattituck Park District on Peconic Bay Boulevard, west of Sigsbee Road.

Due to the topographically elevated nature of the Laurel Links Country Club portions of the monopole, the nacelle and its rotor will be visible above the tree line when viewed from the Country Club and its residential subdivision.

Neither shadow flicker nor sound associated with the Wind Turbine will affect any residence due to the distance between the Wind Turbine and the nearest residence. Shadow flicker is caused when rotating turbine blades come between the viewer and the sun, causing a moving shadow.

According to Northern Power the Wind Turbine will produce 55 dBA of noise as measured at a distance of 40 meters from its base. For comparison purposes, conversational speech at 1 meter produces 60 dBA. While the amount of noise that may be associated with the Wind Turbine is not significant, it is unlikely that the Wind Turbine will have any significant noise impact because it is located 243 meters from Project Site's property line with the Long Island Railroad. The noise associated from traffic on Main Road and the commercial enterprises will have more of an impact to the commercial enterprises and residential areas on Main Road

than the noise produced by the Wind Turbine. For example, the noise level measured 5 meters from a busy road is 80 dBA. And the noise produced by a diesel truck measures 90 dBA.

ii. Impacts to Natural Areas of Significant Scenic Value

The land owned by Suffolk County to the north and west of Laurel Lake Drive is mostly successional fields covered by small vegetation with a scattering of trees and dense vegetation. Visitors to these lands should not be able to see the base of the Wind Turbine because of the dense vegetation between these areas and the Wind Turbine. Distant views of the top of the Turbine may be available from certain discrete spots.

The Town of Southold owns approximately 11 acres to the west of the Project Site. Adjacent to the Town parcel, further to the west of the Project Site, is approximately 14 acres owned by the State of New York. Both parcels are used for recreational purposes. The Town land has two ballfields on it and a Visitor Center, with the remainder covered by mature trees. The State land, covered by mature trees has a fishing access point. The base of the Turbine will not be visible from the parcels given the dense vegetation in the area. From points on both parcels, distant views of the rotor and the nacelle may be visible.

The surface of Laurel Lake is less than ten feet above mean sea level. The surrounding banks range up to 35 feet above mean sea level. Laurel Lake is relatively small and given the steepness of the slopes surrounding it, the banks should obscure the majority of the Wind Turbine. The top portion of the Wind Turbine will be visible from Kirkup Lane.

E. Growth Inducing Aspects

The Town of Southold has ratified a Water Supply Management & Watershed Protection Strategy. This plan outlines measures the Town can adopt to ensure that development within the Town is undertaken in a manner that is consistent with the groundwater resources of the Town. The construction of the Wind Turbine will not alter the development pattern of the Town. Operation of the Wind Turbine will not increase the amount of water produced by the SCWA in the Town, it will only displace the existing energy sources used to power the water supply and treatment systems at the Laurel Lake well field.

F. Impacts to the Use and Conservation of Energy

The Project will have a beneficial impact to the use and conservation of energy. The Project will help reduce the consumption of fossil fuels through the use of renewable energy resources to supply public water and create a self sustaining public water supply facility. Implementation of the Project will conserve energy and annually offset carbon dioxide emissions by 104 metric tons.

V. Mitigation Measures

A. Potential Mitigation Measures

1. Natural Resources

No significant adverse impacts are expected to occur to natural habitat nor to populations of avian species or other species.

2. Visual Resources

To reduce the potential adverse visual impacts of the Project, the Turbine will be set back from the road and be painted white to be visually consistent with the predominant sky color, particularly when observed in the viewshed at a distance due to the angles in the landscape and atmospheric conditions. Visibility of the Wind Turbine from the areas to the west, north and east of the Project Site will be obscured by the vegetation and topographically features of the Preserve and the Project Site. There will be distant views of the top of the Wind Turbine above the tree canopy from the locations identified in this Full Environmental Assessment Form.

To mitigate the visual impacts of the Turbine from Bray Avenue and Main Road intersection, the SCWA will install evergreen landscaping on the southern property boundary of the Project Site on the north side of the railroad tracks opposite from the SCWA's Main Road Parcel to shield the base of the Turbine when observed from this location. With the exception of the southerly adjacent developed area, mitigating the view of the Turbine from viewpoints within approximately one mile, such as Aldrich Lane, is the distance between the Turbine and the area from which it is viewed.

All viewsheds from which the Turbine will be observed contain deciduous trees whose leaves will be absent in the late fall, winter, and early spring months. In the late spring and at the height of summer, when leaves are in bloom, it is likely that the potential impacts on visual resources will be slightly reduced by the presence of such vegetation. However, in the late fall, winter, and early spring months, slight visual impacts will exist. To some observers, the Wind Turbine may render a negative response and to those individuals cause a subjective impact on existing visual and aesthetic resources. To others, although the blades of the Turbine will remain visible above the treeline at all times of the year, the blade movement will reduce the massing of the structure, and subjectively, to these viewers, the presence and observation of the Wind Turbine will be a beneficial sight and will blend in with the views of the area.

To reduce the availability of bird perching or nesting spots, a monopole will be used to support the nacelle and rotor.

VII. Appendices

617.20
Appendix A
State Environmental Quality Review
FULL ENVIRONMENTAL ASSESSMENT FORM

Purpose: The full EAF is designed to help applicants and agencies determine, in an orderly manner, whether a project or action may be significant. The question of whether an action may be significant is not always easy to answer. Frequently, there are aspects of a project that are subjective or unmeasurable. It is also understood that those who determine significance may have little or no formal knowledge of the environment or may not be technically expert in environmental analysis. In addition, many who have knowledge in one particular area may not be aware of the broader concerns affecting the question of significance.

The full EAF is intended to provide a method whereby applicants and agencies can be assured that the determination process has been orderly, comprehensive in nature, yet flexible enough to allow introduction of information to fit a project or action.

Full EAF Components: The full EAF is comprised of three parts:

- Part 1:** Provides objective data and information about a given project and its site. By identifying basic project data, it assists a reviewer in the analysis that takes place in Parts 2 and 3.
- Part 2:** Focuses on identifying the range of possible impacts that may occur from a project or action. It provides guidance as to whether an impact is likely to be considered small to moderate or whether it is a potentially-large impact. The form also identifies whether an impact can be mitigated or reduced.
- Part 3:** If any impact in Part 2 is identified as potentially-large, then Part 3 is used to evaluate whether or not the impact is actually important.

THIS AREA FOR LEAD AGENCY USE ONLY

DETERMINATION OF SIGNIFICANCE -- Type 1 and Unlisted Actions

Identify the Portions of EAF completed for this project: Part 1 Part 2 Part 3

Upon review of the information recorded on this EAF (Parts 1 and 2 and 3 if appropriate), and any other supporting information, and considering both the magnitude and importance of each impact, it is reasonably determined by the lead agency that:

- A. The project will not result in any large and important impact(s) and, therefore, is one which **will not** have a significant impact on the environment, therefore **a negative declaration will be prepared.**
- B. Although the project could have a significant effect on the environment, there will not be a significant effect for this Unlisted Action because the mitigation measures described in PART 3 have been required, therefore **a CONDITIONED negative declaration will be prepared.***
- C. The project may result in one or more large and important impacts that may have a significant impact on the environment, therefore **a positive declaration will be prepared.**

*A Conditioned Negative Declaration is only valid for Unlisted Actions

Wind turbine at SCWA Laurel Lake Wellfield

Name of Action

Suffolk County Water Authority

Name of Lead Agency

Jeff Szabo

CEO

Print or Type Name of Responsible Officer in Lead Agency

Title of Responsible Officer

Signature of Responsible Officer in Lead Agency

Signature of Preparer (If different from responsible officer)

December __, 2011

Date

PART 1--PROJECT INFORMATION

Prepared by Project Sponsor

NOTICE: This document is designed to assist in determining whether the action proposed may have a significant effect on the environment. Please complete the entire form, Parts A through E. Answers to these questions will be considered as part of the application for approval and may be subject to further verification and public review. Provide any additional information you believe will be needed to complete Parts 2 and 3.

It is expected that completion of the full EAF will be dependent on information currently available and will not involve new studies, research or investigation. If information requiring such additional work is unavailable, so indicate and specify each instance.

Name of Action Wind turbine at SCWA Laurel Lake Wellfield

Location of Action (include Street Address, Municipality and County)

South side of Sound Avenue, 434 feet west of Cox Neck Road, Hamlet of Laurel, Town of Southold, Suffolk County

Name of Applicant/Sponsor Suffolk County Water Authority

Address 4060 Sunrise Highway

City / PO Oakdale State NY Zip Code 11769

Business Telephone (631) 563-0219

Name of Owner (if different) _____

Address _____

City / PO _____ State _____ Zip Code _____

Business Telephone _____

Description of Action:

Construct and install a 120 foot tall, 100 kW grid connected wind turbine to generate renewable electric power to operate two existing public water supply wells at the site of the SCWA Laurel Lake pump station.

Please Complete Each Question--Indicate N.A. if not applicable

A. SITE DESCRIPTION

Physical setting of overall project, both developed and undeveloped areas.

1. Present Land Use: Urban Industrial Commercial Residential (suburban) Rural (non-farm)
 Forest Agriculture Other Public Water Supply

2. Total acreage of project area: 92 acres.

APPROXIMATE ACREAGE	PRESENTLY	AFTER COMPLETION
Meadow or Brushland (Non-agricultural)	<u>65.83</u> acres	<u>No change</u> acres
Forested	_____ acres	_____ acres
Agricultural (Includes orchards, cropland, pasture, etc.)	_____ acres	_____ acres
Wetland (Freshwater or tidal as per Articles 24,25 of ECL)	<u>18.7</u> acres	_____ acres
Water Surface Area	_____ acres	_____ acres
Unvegetated (Rock, earth or fill)	<u>4.7</u> acres	_____ acres
Roads, buildings and other paved surfaces	_____ acres	_____ acres
Other (Indicate type) <u>Cleared well field, building, road, facilities</u>	<u>2.8</u> acres	_____ acres

3. What is predominant soil type(s) on project site? _____

- a. Soil drainage: Well drained 100 % of site Moderately well drained _____ % of site.
 Poorly drained _____ % of site

b. If any agricultural land is involved, how many acres of soil are classified within soil group 1 through 4 of the NYS Land Classification System? _____ acres (see 1 NYCRR 370).

4. Are there bedrock outcroppings on project site? Yes No

a. What is depth to bedrock _____ (in feet)

5. Approximate percentage of proposed project site with slopes:

- 0-10% 25 % 10- 15% 70 % 15% or greater 5 %

6. Is project substantially contiguous to, or contain a building, site, or district, listed on the State or National Registers of Historic Places? Yes No

7. Is project substantially contiguous to a site listed on the Register of National Natural Landmarks? Yes No

8. What is the depth of the water table? 45 (in feet)

9. Is site located over a primary, principal, or sole source aquifer? Yes No

10. Do hunting, fishing or shell fishing opportunities presently exist in the project area? Yes No

11. Does project site contain any species of plant or animal life that is identified as threatened or endangered? Yes No

According to:

Identify each species:

12. Are there any unique or unusual land forms on the project site? (i.e., cliffs, dunes, other geological formations?)

Yes No

Describe:

13. Is the project site presently used by the community or neighborhood as an open space or recreation area?

Yes No

If yes, explain:

14. Does the present site include scenic views known to be important to the community? Yes No

Laurel Lake and the surrounding preserved lands

15. Streams within or contiguous to project area:

N/A

a. Name of Stream and name of River to which it is tributary

16. Lakes, ponds, wetland areas within or contiguous to project area:

Laurel Lake, a kettle hole, lies northwest of the SCWA wellfield

b. Size (in acres):

Laurel Lake is 30 acres, 47 feet deep (source: NYS DEC website, <http://www.dec.ny.gov/outdoor/24175.html>)

17. Is the site served by existing public utilities? Yes No
- a. If YES, does sufficient capacity exist to allow connection? Yes No
- b. If YES, will improvements be necessary to allow connection? Yes No
18. Is the site located in an agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? Yes No
19. Is the site located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL, and 6 NYCRR 617? Yes No
20. Has the site ever been used for the disposal of solid or hazardous wastes? Yes No

B. Project Description

1. Physical dimensions and scale of project (fill in dimensions as appropriate).
- a. Total contiguous acreage owned or controlled by project sponsor: 92 acres.
- b. Project acreage to be developed: 200 square feet acres initially; 200 square feet acres ultimately.
- c. Project acreage to remain undeveloped: 84.53 acres.
- d. Length of project, in miles: N/A (if appropriate)
- e. If the project is an expansion, indicate percent of expansion proposed. N/A %
- f. Number of off-street parking spaces existing N/A ; proposed _____
- g. Maximum vehicular trips generated per hour: _____ (upon completion of project)? **No Additional Trips**
- h. If residential: Number and type of housing units:
- | | One Family | Two Family | Multiple Family | Condominium |
|------------|------------|------------|-----------------|-------------|
| Initially | _____ | _____ | _____ | _____ |
| Ultimately | _____ | _____ | _____ | _____ |
- i. Dimensions (in feet) of largest proposed structure: 120 feet height; 64 feet width; _____ length.
- j. Linear feet of frontage along a public thoroughfare project will occupy is? N/A ft.
2. How much natural material (i.e. rock, earth, etc.) will be removed from the site? 0 tons/cubic yards.
3. Will disturbed areas be reclaimed Yes No N/A
- a. If yes, for what intended purpose is the site being reclaimed?
-
- b. Will topsoil be stockpiled for reclamation? Yes No
- c. Will upper subsoil be stockpiled for reclamation? Yes No
4. How many acres of vegetation (trees, shrubs, ground covers) will be removed from site? N/A acres.

5. Will any mature forest (over 100 years old) or other locally-important vegetation be removed by this project?

Yes No

6. If single phase project: Anticipated period of construction: 3 months, (including demolition)

7. If multi-phased:

a. Total number of phases anticipated _____ (number)

b. Anticipated date of commencement phase 1: _____ month _____ year, (including demolition)

c. Approximate completion date of final phase: _____ month _____ year.

d. Is phase 1 functionally dependent on subsequent phases? Yes No

8. Will blasting occur during construction? Yes No

9. Number of jobs generated: during construction 10; after project is complete 0

10. Number of jobs eliminated by this project 0.

11. Will project require relocation of any projects or facilities? Yes No

If yes, explain:

12. Is surface liquid waste disposal involved? Yes No

a. If yes, indicate type of waste (sewage, industrial, etc) and amount _____

b. Name of water body into which effluent will be discharged _____

13. Is subsurface liquid waste disposal involved? Yes No Type _____

14. Will surface area of an existing water body increase or decrease by proposal? Yes No

If yes, explain:

15. Is project or any portion of project located in a 100 year flood plain? Yes No

16. Will the project generate solid waste? Yes No

a. If yes, what is the amount per month? _____ tons

b. If yes, will an existing solid waste facility be used? Yes No

c. If yes, give name _____; location _____

d. Will any wastes not go into a sewage disposal system or into a sanitary landfill? Yes No

e. If yes, explain:

17. Will the project involve the disposal of solid waste? Yes No

a. If yes, what is the anticipated rate of disposal? _____ tons/month.

b. If yes, what is the anticipated site life? _____ years.

18. Will project use herbicides or pesticides? Yes No

19. Will project routinely produce odors (more than one hour per day)? Yes No

20. Will project produce operating noise exceeding the local ambient noise levels? Yes No

21. Will project result in an increase in energy use? Yes No

If yes, indicate type(s)

22. If water supply is from wells, indicate pumping capacity N/A gallons/minute.

23. Total anticipated water usage per day N/A gallons/day.

24. Does project involve Local, State or Federal funding? Yes No

If yes, explain:

SCWA and LIPA will fund the project

25. Approvals Required:

			Type	Submittal Date
City, Town, Village Board	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
City, Town, Village Planning Board	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
City, Town Zoning Board	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
City, County Health Department	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
Other Local Agencies	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	SCWA _____	_____
			_____	_____
			_____	_____
Other Regional Agencies	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
State Agencies	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____
Federal Agencies	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	_____	_____
			_____	_____
			_____	_____

C. Zoning and Planning Information

1. Does proposed action involve a planning or zoning decision? Yes No

If Yes, indicate decision required:

- | | | | |
|---|---|--|--------------------------------------|
| <input type="checkbox"/> Zoning amendment | <input type="checkbox"/> Zoning variance | <input type="checkbox"/> New/revision of master plan | <input type="checkbox"/> Subdivision |
| <input type="checkbox"/> Site plan | <input type="checkbox"/> Special use permit | <input type="checkbox"/> Resource management plan | <input type="checkbox"/> Other |

2. What is the zoning classification(s) of the site?

Residential (R-80)

3. What is the maximum potential development of the site if developed as permitted by the present zoning?

N/A

4. What is the proposed zoning of the site?

No change

5. What is the maximum potential development of the site if developed as permitted by the proposed zoning?

N/A

6. Is the proposed action consistent with the recommended uses in adopted local land use plans? Yes No

N/A

7. What are the predominant land use(s) and zoning classifications within a ¼ mile radius of proposed action?

Open space preserved lands, single-family residential, active recreation (golf course), farmland (vineyards, row crops, horse farms), and small business/commercial land uses on the Route 25 corridor

8. Is the proposed action compatible with adjoining/surrounding land uses with a ¼ mile? Yes No

9. If the proposed action is the subdivision of land, how many lots are proposed? N/A

a. What is the minimum lot size proposed? _____

10. Will proposed action require any authorization(s) for the formation of sewer or water districts? Yes No

11. Will the proposed action create a demand for any community provided services (recreation, education, police, fire protection)?
 Yes No

a. If yes, is existing capacity sufficient to handle projected demand? Yes No

12. Will the proposed action result in the generation of traffic significantly above present levels? Yes No

a. If yes, is the existing road network adequate to handle the additional traffic. Yes No

D. Informational Details

Attach any additional information as may be needed to clarify your project. If there are or may be any adverse impacts associated with your proposal, please discuss such impacts and the measures which you propose to mitigate or avoid them.

E. Verification

I certify that the information provided above is true to the best of my knowledge.

Applicant/Sponsor Name Suffolk County Water Authority Date _____

Signature _____

Title Deputy CEO for Operations

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment.

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Construction or expansion of a sanitary landfill.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Construction in a designated floodway.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Construction of a 120 foot tall, 100 kW wind turbine to generate renewable energy to power the existing SCWA public water supply wells on site.

2. Will there be an effect to any unique or unusual land forms found on the site? (i.e., cliffs, dunes, geological formations, etc.)

NO YES

• Specific land forms:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
------------------------	--------------------------	--------------------------	--

Impact on Water

3. Will Proposed Action affect any water body designated as protected? (Under Articles 15, 24, 25 of the Environmental Conservation Law, ECL)

NO YES

Examples that would apply to column 2

• Developable area of site contains a protected water body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Dredging more than 100 cubic yards of material from channel of a protected stream.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Extension of utility distribution facilities through a protected water body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Construction in a designated freshwater or tidal wetland.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

4. Will Proposed Action affect any non-protected existing or new body of water?

NO YES

Examples that would apply to column 2

• A 10% increase or decrease in the surface area of any body of water or more than a 10 acre increase or decrease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Construction of a body of water that exceeds 10 acres of surface area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
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5. Will Proposed Action affect surface or groundwater quality or quantity?

NO YES

Examples that would apply to column 2

Proposed Action will require use of a source of water that does not have approval to serve proposed (project) action.

D D Yes No

Proposed Action requires use of a source of water that does not have approval to serve proposed (project) action.

D D Yes No

Proposed Action requires water supply from wells with greater than 45 gallons per minute pumping capacity.

D D Yes No

Construction or operation causing any contamination of a water supply system.

D D Yes No

Proposed Action will adversely affect groundwater.

D D Yes No

Liquid effluent will be conveyed off the site to facilities which presently do not exist or have inadequate capacity.

D D Yes No

Proposed Action would use water in excess of 20,000 gallons per day.

D D Yes No

Proposed Action will likely cause siltation or other discharge into an existing body of water to the extent that there will be an obvious visual contrast to natural conditions.

D D Yes No

Proposed Action will require the storage of petroleum or chemical products greater than 1,100 gallons.

D D Yes No

Proposed Action will allow residential uses in areas without water and/or sewer services.

D D Yes No

Proposed Action locates commercial and/or industrial uses which may require new or expansion of existing waste treatment and/or storage facilities.

D D Yes No

Other impacts:

D D Yes No

1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
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6. Will Proposed Action alter drainage flow or patterns, or surface water runoff?

NO YES

Examples that would apply to column 2

Proposed Action would change flood water flows

Yes No

Proposed Action may cause substantial erosion.

Yes No

No

Proposed Action is incompatible with existing drainage patterns.

Yes No

No Proposed Action will allow development in a designated

Yes

No floodway.

Other impacts:

Yes No

IMPACT ON AIR

7. Will Proposed Action affect air quality?

NO YES

Examples that would apply to column 2

Proposed Action will induce 1,000 or more vehicle trips in any given hour.

Yes No

Proposed Action will result in the incineration of more than 1 ton of refuse per hour.

Yes No

Emission rate of total contaminants will exceed 5 lbs. per hour or a heat source producing more than 10 million BTU's per hour.

Yes No

Proposed Action will allow an increase in the amount of land committed to industrial use.

Yes No

Proposed Action will allow an increase in the density of industrial development within existing industrial areas.

Yes No

Other impacts:

Yes No

IMPACT ON PLANTS AND ANIMALS

8. Will Proposed Action affect any threatened or endangered species?

NO YES

Examples that would apply to column 2

Reduction of one or more species listed on the New York or Federal List, including those on the New York or Federal List, on the site, or found on the site.

Yes No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Removal of any portion of a critical or significant wildlife habitat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Application of pesticide or herbicide more than twice a year, other than for agricultural purposes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

9. Will Proposed Action substantially affect non-threatened or non-endangered species?

NO YES

Examples that would apply to column 2

• Proposed Action would substantially interfere with any resident or migratory fish, shellfish or wildlife species.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Proposed Action requires the removal of more than 10 acres of mature forest (over 100 years of age) or other locally important vegetation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Potential adverse impacts will occur on individual avian and bat species. However, impacts at the population level are not expected. See attached Part III

IMPACT ON AGRICULTURAL LAND RESOURCES

10. Will Proposed Action affect agricultural land resources?

NO YES

Examples that would apply to column 2

• The Proposed Action would sever, cross or limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Construction activity would excavate or compact the soil profile of agricultural land.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• The Proposed Action would irreversibly convert more than 10 acres of agricultural land or, if located in an Agricultural District, more than 2.5 acres of agricultural land.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• The Proposed Action would disrupt or prevent installation of agricultural land management systems (e.g., subsurface drain lines, outlet ditches, strip cropping); or create a need for such measures (e.g. cause a farm field to drain poorly due to increased runoff).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

IMPACT ON AESTHETIC RESOURCES

11. Will Proposed Action affect aesthetic resources? (If necessary, use the Visual EAF Addendum in Section 617.20, Appendix B.)

NO YES

Examples that would apply to column 2

• Proposed land uses, or project components obviously different from or in sharp contrast to current surrounding land use patterns, whether man-made or natural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Proposed land uses, or project components visible to users of aesthetic resources which will eliminate or significantly reduce their enjoyment of the aesthetic qualities of that resource.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Project components that will result in the elimination or significant screening of scenic views known to be important to the area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Construction of a 120 foot tall, 100 kW wind turbine to generate renewable energy to power the existing SCWA public water supply wells on site. See Attached Exhibit ____– Renderings of the proposed structure viewed from the surrounding environment.

IMPACT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES

12. Will Proposed Action impact any site or structure of historic, prehistoric or paleontological importance?

NO YES

Examples that would apply to column 2

• Proposed Action occurring wholly or partially within or substantially contiguous to any facility or site listed on the State or National Register of historic places.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Any impact to an archaeological site or fossil bed located within the project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Proposed Action will occur in an area designated as sensitive for archaeological sites on the NYS Site Inventory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
-------------------------------------	-----------------------------------	--

Other impacts:

D

D

Yes No

IMPACT ON OPEN SPACE AND RECREATION

13. Will proposed Action affect the quantity or quality of existing or future open spaces or recreational opportunities?

NO YES

Examples that would apply to column 2

The permanent foreclosure of a future recreational opportunity.

D

D

Yes No

A major reduction of an open space important to the community.

D

D

Yes No

Other impacts:

D

D

Yes No

IMPACT ON CRITICAL ENVIRONMENTAL AREAS

14. Will Proposed Act on impact the exceptional or unique characteristics of a critical environmental area (CEA) established pursuant to subdivision 6 NYCRR 617.14(g)?

NO YES

List the environmental characteristics that caused the designation of the CEA

Examples that would apply to column 2

Proposed Action to locate within the CEA?

D

D

Yes No

Proposed Action will result in a reduction in the quantity of the resource?

D

D

Yes No

Proposed Act on will result in a reduction in the quality of the resource?

D

D

Yes No

Proposed Act on will impact the use, function or enjoyment of the resource?

D

D

Yes No

Other impacts:

D

D

Yes No

1	2	3
Small to Moderate Impact	Potential Large Impact	Can Impact Be Mitigated by Project Change

IMPACT ON TRANSPORTATION

15. Will there be an effect to existing transportation systems?

NO YES

Examples that would apply to column 2

- | | | | | |
|--|--------------------------|--------------------------|------------------------------|-----------------------------|
| • Alteration of present patterns of movement of people and/or goods. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Proposed Action will result in major traffic problems. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Other impacts: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

IMPACT ON ENERGY

16. Will Proposed Action affect the community's sources of fuel or energy supply?

NO YES

Examples that would apply to column 2

- | | | | | |
|---|--------------------------|--------------------------|------------------------------|-----------------------------|
| • Proposed Action will cause a greater than 5% increase in the use of any form of energy in the municipality. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Proposed Action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two family residences or to serve a major commercial or industrial use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Other impacts: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

The wind turbine will reduce consumption of fossil fuels to generate power to operate two existing SCWA public water supply wells at the Laurel Lake wellfield property. The project supports the use of sustainable and renewable energy resources.

NOISE AND ODOR IMPACT

17. Will there be objectionable odors, noise, or vibration as a result of the Proposed Action?

NO YES

Examples that would apply to column 2

- | | | | | |
|--|--------------------------|--------------------------|------------------------------|-----------------------------|
| • Blasting within 1,500 feet of a hospital, school or other sensitive facility. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Odors will occur routinely (more than one hour per day). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Proposed Action will produce operating noise exceeding the local ambient noise levels for noise outside of structures. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Proposed Action will remove natural barriers that would act as a noise screen. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| • Other impacts: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact Be Mitigated by Project Change
• Proposed Action will set an important precedent for future projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Proposed Action will create or eliminate employment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Other impacts:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

The visual impact of a 120 foot tall wind turbine. See attached Exhibit _ – Renderings of the proposed structure.

20. Is there, or is there likely to be, public controversy related to potential adverse environment impacts?

NO YES

If Any Action in Part 2 Is Identified as a Potential Large Impact or If you Cannot Determine the Magnitude of Impact, Proceed to Part 3

II. VISUAL EAF ADDENDUM

617.20
Appendix B
State Environmental Quality Review
VISUAL EAF ADDENDUM

This form may be used to provide additional information relating to Question 11 of Part 2 of the Full EAF.

(To be completed by Lead Agency)

Visibility		Distance Between Project and Resource (in Miles)				
		0-¼	¼-½	½-3	3-5	5+
1.	Would the project be visible from:					
!	<i>A parcel of land which is dedicated to and available to the public for the use, enjoyment and appreciation of natural or man-made scenic qualities?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>An overlook or parcel of land dedicated to public observation, enjoyment and appreciation of natural or man-made scenic qualities?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>A site or structure listed on the National or State Registers of Historic Places?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
!	<i>State Parks?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>The State Forest Preserve?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>National Wildlife Refuges and State Game Refuges?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>National Natural Landmarks and other outstanding natural features?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>National Park Service lands?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>Rivers designated as National or State Wild, Scenic or Recreational?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>Any transportation corridor of high exposure, such as part of the Interstate System, or Amtrak?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>A governmentally established or designated interstate or inter-county foot trail, or one formally proposed for establishment or designation?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>A site, area, lake, reservoir or highway designated as scenic?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>Municipal park, or designated open space?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>County road?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>State road?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
!	<i>Local road?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<i>Is the visibility of the project seasonal? (i.e., screened by summer foliage, but visible during other seasons)</i>					
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
3.	<i>Are any of the resources checked in question 1 used by the public during the time of year during which the project will be visible?</i>					
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

DESCRIPTION OF EXISTING VISUAL ENVIRONMENT

4. From each item checked in question 1, check those which generally describe the surrounding environment.

	*¼ mile	Within	*1 mile
Essentially undeveloped	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Forested	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Agricultural	<input type="checkbox"/>		<input type="checkbox"/>
Suburban Residential	<input type="checkbox"/>		<input type="checkbox"/>
Industrial	<input type="checkbox"/>		<input type="checkbox"/>
Commerical	<input type="checkbox"/>		<input type="checkbox"/>
Urban	<input type="checkbox"/>		<input type="checkbox"/>
River, Lake, Pond	<input type="checkbox"/>		<input type="checkbox"/>
Cliffs, Overlooks	<input type="checkbox"/>		<input type="checkbox"/>
Designated Open Space	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Flat	<input type="checkbox"/>		<input type="checkbox"/>
Hilly	<input type="checkbox"/>		<input type="checkbox"/>
Mountainous	<input type="checkbox"/>		<input type="checkbox"/>
Other	<input type="checkbox"/>		<input type="checkbox"/>

NOTE: add attachments as needed

5. Are there visually similar projects within:

*½ mile Yes No 1 mile Yes No 2 miles Yes No 3 miles Yes No

Wind turbine at Half Hollow Nursery just west of the border of the Towns of Riverhead and Southold

*Distance from project site is provided for assistance. Substitute other distances as appropriate.

EXPOSURE

6. The annual number of viewers likely to observe the proposed project is N/A?

NOTE: When user data is unavailable or unknown, use best estimate.



CONTEXT

7. The situation or activity in which the viewers are engaged while viewing the proposed action is:

FREQUENCY

Activity	Daily	Weekly	Holidays/ Weekends	Seasonally
Travel to and from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Involved in recreational activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Routine travel by residents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At a residence	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At worksite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exhibit A

PRELIMINARY ANNUAL ENERGY PRODUCTION ESTIMATE				
Latitude, Longitude	40.97957	-72.54804	Prepared By	Trevor Atkinson
Address	Street		Date	6/29/2011
	City	Laurel		
	State	NY	Zip	
	Wind Speed Variation			
	σ (m/s)	0.35		
	Height (m)	Wind Speed (m/s)		
Hub Height	37	m		
Average Annual Temp	52	F		
Elevation	7	m		
Air Density (ρ) Adjustment	101.3%	($\rho = 1.241 \text{ kg/m}^3$)		
Turbine Availability	98.0%			
Site Availability	99.0%			
Site Losses	4%			
Wind Distribution Parameters	$-\sigma$	Mean	$+\sigma$	
Weibull Scale Factor, A	5.825	6.222	6.619	Weibull Shape Factor, k 2.141
Shear Factor, α	0.34	0.32	0.30	
Wind Speed*	5.2	5.5	5.9	m/s
Annual Energy Production (AEP) Estimates				
Theoretical AEP**	157	183	210	MWh/yr
Expected AEP***	150	176	203	MWh/yr
Net Usable AEP****	144	169	195	MWh/yr

* Wind speed and variability estimates from AWS Truepower. Refer to https://www.windnavigator.com/cms/images/stories/White_Papers/awst_using_simulated%20wind%20data%20from%20a%20mesoscale%20model%20in%20mcp.pdf for description of wind speed & variability source & methodology.

** No derates:
100% Availability, standard temperature (15°C) & pressure (sea level), Rayleigh (Weibull "k" = 2.0) wind distribution

*** At the base of the tower (derate for air density, turbine availability, site availability, & wind distribution)

**** At the electrical service utility entrance (derate for site losses)



Wind Distribution & Expected AEP

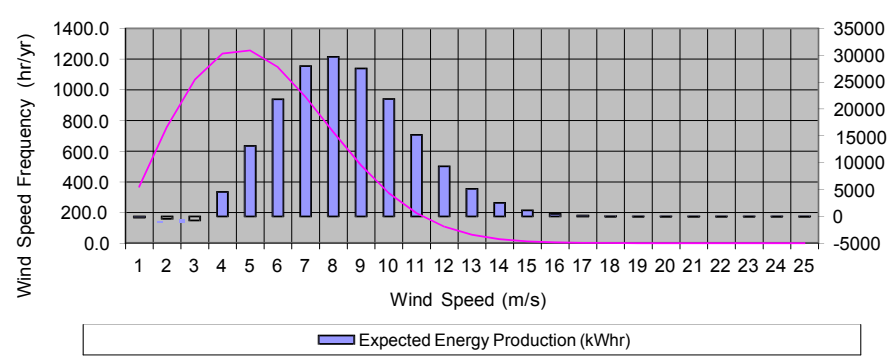
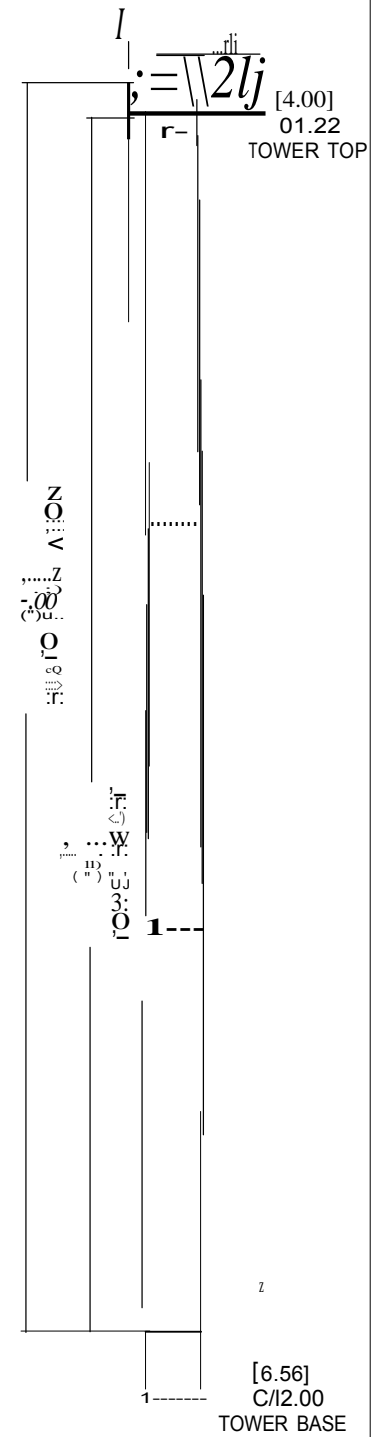
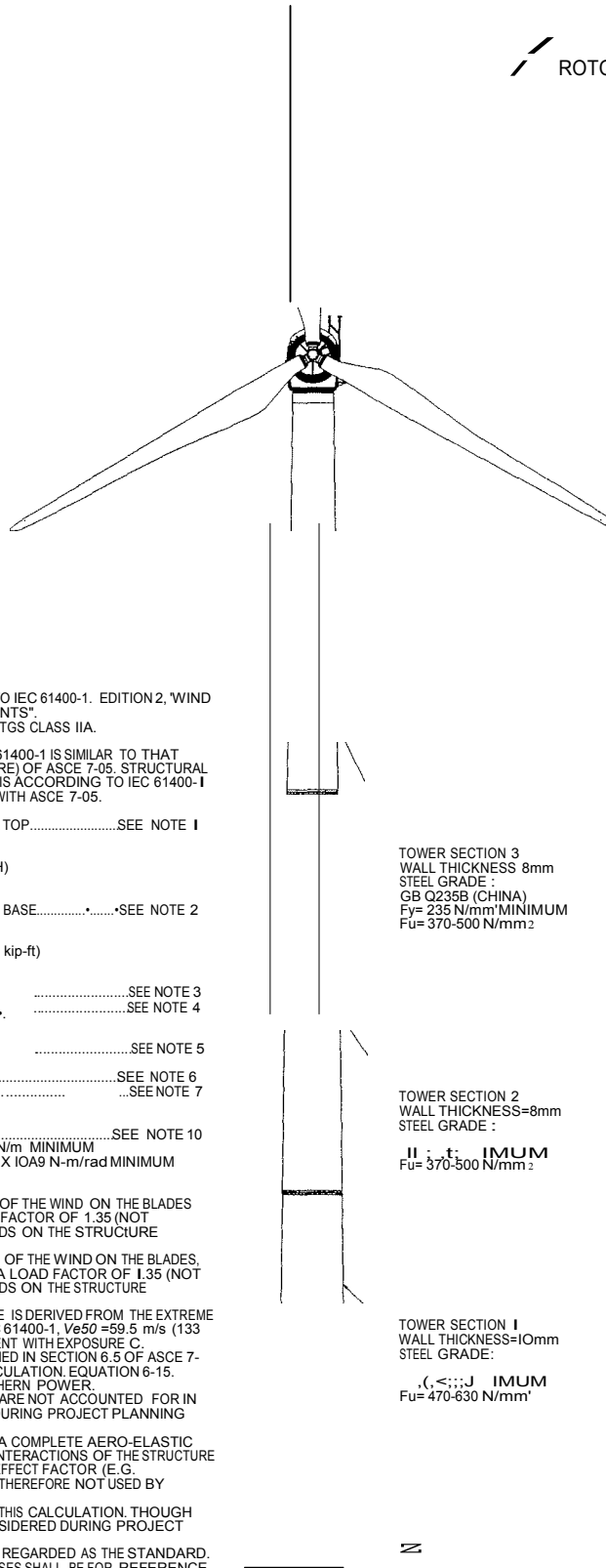


Exhibit B

[155]
47.1
BLADE TIP HEIGHT
(FROM FOUNDATION)

[68]
C/120.7
ROTOR DIAMETER



STRUCTURAL DESIGN IS PERFORMED ACCORDING TO IEC 61400-1, EDITION 2, WIND TURBINE GENERATOR SYSTEMS SAFETY REQUIREMENTS*. EXTREME WIND CONDITIONS ARE DEFINED BY IEC WTGS CLASS IIA.

TOWER LOAD CALCULATION ACCORDING TO IEC 61400-1 IS SIMILAR TO THAT DESCRIBED BY SECTION 6.5 (ANALYTICAL PROCEDURE) OF ASCE 7-05. STRUCTURAL DESIGN INFORMATION USED BY NORTHERN POWER IS ACCORDING TO IEC 61400-1 AND IS PRESENTED BELOW IN A FORM CONSISTENT WITH ASCE 7-05.

CHARACTERISTIC & UNFACTORED LOADS AT TOWER TOP.....SEE NOTE 1

- Mxy (Overturning Moment): 35.6 kN-m (26.2 kip-ft)
- Mz (Torsional Moment): 10.3 kN-m (7.6 kip-ft)

CHARACTERISTIC (UNFACTORED) LOADS AT TOWER BASE.....SEE NOTE 2

- Fxy (Shear): 124.4 kN (28.0 kip)
- Fz (Weight): -194.1 kN (-43.6 kip)
- Mxy (Overturning Moment): 3352.8 kN-m (2471.0 kip-ft)
- Mz (Torsional Moment): 10.3 kN-m (7.6 kip-ft)

BASIC WIND SPEED, V= 51.9 m/s (116 mph).....SEE NOTE 3

WIND DIRECTIONALITY FACTOR, Kd= 1.0.....SEE NOTE 5

TOWER HEIGHT, h= 35.7 m (117 ft).....SEE NOTE 6

TOPOGRAPHIC FACTOR, Kz= 1.0.....SEE NOTE 6

GUST EFFECT FACTOR, G= 1.0.....SEE NOTE 7

TOWER FORCE COEFFICIENT, Cf = 0.6

FOUNDATION STIFFNESS REQUIREMENTS.....SEE NOTE 10

- LATERAL FOUNDATION STIFFNESS, Kxy = 5 X 10A7 N/m MINIMUM
- ROTATIONAL FOUNDATION STIFFNESS, K8,xy = 2.5 X 10A9 N-m/rad MINIMUM

NOTES

- TOWER TOP LOADS PROVIDED INCLUDE EFFECTS OF THE WIND ON THE BLADES AND NACELLE. NORTHERN POWER USED A LOAD FACTOR OF 1.35 (NOT INCLUDED ABOVE) FOR ALL AERODYNAMIC LOADS ON THE STRUCTURE ACCORDING TO IEC 61400-1.
- TOWER BASE LOADS PROVIDED INCLUDE EFFECTS OF THE WIND ON THE BLADES, NACELLE, AND TOWER. NORTHERN POWER USED A LOAD FACTOR OF 1.35 (NOT INCLUDED ABOVE) FOR ALL AERODYNAMIC LOADS ON THE STRUCTURE ACCORDING TO IEC 61400-1.
- BASIC WIND SPEED IS AT h=10m (33 H). THIS VALUE IS DERIVED FROM THE EXTREME WIND SPEED AT HUB HEIGHT ACCORDING TO IEC 61400-1, Ve50 = 59.5 m/s (133 mph), USING A POWER LAW EXPONENT CONSISTENT WITH EXPOSURE C.
- STANDARD AIR DENSITY IS NOT EXPLICITLY IDENTIFIED IN SECTION 6.5 OF ASCE 7-05.11 IS IMPLICIT IN THE VELOCITY PRESSURE CALCULATION, EQUATION 6-15.
- A DIRECTIONALITY FACTOR IS NOT USED BY NORTHERN POWER.
- EFFECTS OF LOCAL TOPOGRAPHY ON THE WIND ARE NOT ACCOUNTED FOR IN THIS CALCULATION. THEY MUST BE CONSIDERED DURING PROJECT PLANNING AND SITE REVIEW.
- THE TOWER LOADS LISTED ARE PREDICTED USING A COMPLETE AERO-ELASTIC SIMULATION WHICH ACCOUNTS FOR DYNAMIC INTERACTIONS OF THE STRUCTURE AND THE APPLIED LOADS. AN ADDITIONAL GUST EFFECT FACTOR (E.G. ACCORDING TO SECTION 6.5.8 OF ASCE 7-15) IS THEREFORE NOT USED BY NORTHERN POWER.
- SEISMIC ACTIONS ARE NOT ACCOUNTED FOR IN THIS CALCULATION. THOUGH TYPICALLY NON-GOVERNING, THEY MUST BE CONSIDERED DURING PROJECT PLANNING AND SITE REVIEW.
- THE VALUES STATED IN METRIC (SI) UNITS SHALL BE REGARDED AS THE STANDARD. THE INCH-POUND (IP) UNITS SHOWN IN PARENTHESES SHALL BE FOR REFERENCE ONLY.
- NORTHERN POWER IS CONTINUALLY DEVELOPING PRODUCT UPGRADES, MODIFICATIONS, AND IMPROVEMENTS. AND AS A RESULT RESERVES THE RIGHT TO CHANGE OR ALTER THESE SPECIFICATIONS AT ANY TIME. REFER TO DOCUMENT A01465 "NORTHWIND 100 GENERAL SPECIFICATION" AND DOCUMENT A00298 "NORTHWIND100 APPLICATION REQUIREMENTS" FOR FURTHER INFORMATION.

TOWER SECTION 3
WALL THICKNESS 8mm
STEEL GRADE :
GB Q235B (CHINA)
Fy= 235 N/mm² MINIMUM
Fu= 370-500 N/mm²

TOWER SECTION 2
WALL THICKNESS=8mm
STEEL GRADE :
IMUM
Fu= 370-500 N/mm²

TOWER SECTION 1
WALL THICKNESS=10mm
STEEL GRADE :
IMUM
Fu= 470-630 N/mm²

[6.56]
C/12.00
TOWER BASE

NORTHWIND 100
STRUCTURAL LOADS AND GEOMETRY
HUB HEIGHT: 37m
ROTOR DIAMETER: 21m

SCALE 1:50
WHEN PRINTED ON ISO A0

ALL DIMENSIONS IN METERS AND [FEET]
COPYRIGHT 2010 NORTHERN POWER SYSTEMS

REV	DESCRIPTION	DATE	ENG	CHK	APR
D	RELEASE FOR CUSTOMER USE. ADDED 21/30 CONFIGURATION	5FEB10	CBC	NMS	OWR
E	RELEASE FOR CUSTOMER USE. ADD TOWER SECTION NOTES	15JUL09	DAH	CBC	WEN
A	RELEASE FOR CUSTOMER USE	30JUN09	CBC	WEN	CAM

DRAWING NUMBER: 1006225

Northern
POWERSYSTEMS

REVISION: D SHEET: 1 OF 2
29 Phoenix Road
Boire, VT 05641 USA
WWW.northpower.com

This drawing and specification contains information, proprietary and confidential, of Northern Power Systems, Inc. and is to be used only for the project and for the completion of services. If you are not an authorized user, you are prohibited from copying, distributing, or otherwise using this information.

Exhibit C



Clean Energy



[Contact Us](#) **Search:** All EPA This Area

You are here: [EPA Home](#) » [Climate Change](#) » [Clean Energy](#) » [Clean Energy Resources](#) » Greenhouse Gas Equivalencies Calculator

Greenhouse Gas Equivalencies Calculator

UPDATED May 2011. New NYUP sub region and national average non-baseload emissions rates updated. See the [revision history page](#) for more details.

Did you ever wonder what reducing carbon dioxide (CO₂) emissions by 1 million metric tons means in everyday terms? The greenhouse gas equivalencies calculator can help you understand just that, translating abstract measurements into concrete terms you can understand, such as "equivalent to avoiding the carbon dioxide emissions of 183,000 cars annually."

This calculator may be useful in communicating your greenhouse gas reduction strategy, reduction targets, or other initiatives aimed at reducing greenhouse gas emissions.

Other Calculators

There are a number of other web-based calculators that can estimate greenhouse gas emission reductions for

- [individuals and households](#)
- [waste](#), and
- [transportation](#).

For basic information and details on greenhouse gas emissions, visit the Emissions section of [EPA's climate change site](#).

Enter Your Data Below

There are two options for entering reduction data into this calculator.

Option 1: If You Don't Have Emissions Data

1. If you are starting with data in units of "gallons of gasoline consumed," "kilowatt-hours of electricity," "therms of natural gas," or "passenger vehicles per year" instead of a quantity of emissions of specific greenhouse gases, use this option.
2. Enter a quantity and pick the desired unit below; and
3. Click on the "Calculate Equivalent" button to convert your value to [Carbon Dioxide Equivalent](#).
4. If you are entering kilowatt-hours of electricity, please be sure to read the caveats and explanations on the [Calculations and Reference page](#).
5. Please note that these estimates are approximate and should not be used for emission inventory or formal carbon footprinting exercises.

kilowatt-hours of electricity

[? Click Here for Calculations and References](#)

Option 2: If You Already Know the Quantity of Emissions

If you have already estimated the quantity of emissions (e.g., metric tons of carbon dioxide equivalent), you can input the amount of emissions and select the appropriate units for the corresponding greenhouse gas type.

Amount	Unit	Gas
	Metric Tons	CO ₂ - Carbon Dioxide or CO₂ Equivalent*
	Tons	Carbon or Carbon Equivalent
	Tons	CH ₄ - Methane
	Tons	N ₂ O - Nitrous Oxide
	Tons	HFC-23 - Hydrofluorocarbon gases

Clean Energy Home

Basic Information

Energy and You

Clean Energy Programs

Clean Energy Resources

Site Map

Tons CF₄ - [Perfluorocarbon gases](#)Tons SF₆ - [Sulfur Hexafluoride](#)

* If your estimated emissions of methane, nitrous oxide, or other non-CO₂ gases are already expressed in [CO₂ equivalent or carbon equivalent](#), please enter your figures in the row for CO₂ or carbon equivalent.

The sum of the greenhouse gas emissions you entered above is
Metric Tons of Carbon Dioxide Equivalent.

This is equivalent to one of the following:

Equivalency Results

Click on the question mark [?](#) link to read the explanation of that particular calculation. [Read about all calculations.](#)

The information you entered above is equivalent to one of the following statements:

Annual greenhouse gas emissions from passenger vehicles [?](#) (*click to read more about this calculation*)

CO₂ emissions from gallons of gasoline consumed [?](#)

CO₂ emissions from barrels of oil consumed [?](#)

CO₂ emissions from tanker trucks' worth of gasoline [?](#)

CO₂ emissions from the *electricity* use of homes for one year [?](#)

CO₂ emissions from the *energy* use of homes for one year [?](#)

Carbon sequestered by tree seedlings grown for 10 years [?](#)

Carbon sequestered annually by acres of pine or fir forests [?](#)

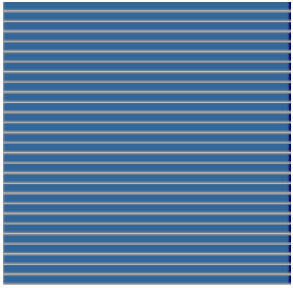
Carbon sequestered annually by acres of forest preserved from deforestation [?](#)

CO₂ emissions from propane cylinders used for home barbeques [?](#)

CO₂ emissions from burning railcars' worth of coal [?](#)

Greenhouse gas emissions avoided by recycling tons of waste instead of sending it to the landfill [?](#)

Annual CO₂ emissions of coal fired power plants [?](#)



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<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>
[Print As-Is](#)

Last updated on Tuesday, June 21, 2011

This document will now print as it appears on screen when you use the File » Print command.
Use View » Refresh to return to original state.

Exhibit D

Exhibit E



Distance between wind turbines at Half Hollow Tree Nursery and SCWA Laurel Lake wellfield: approximately 1.4 miles

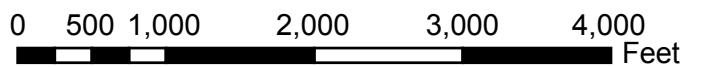
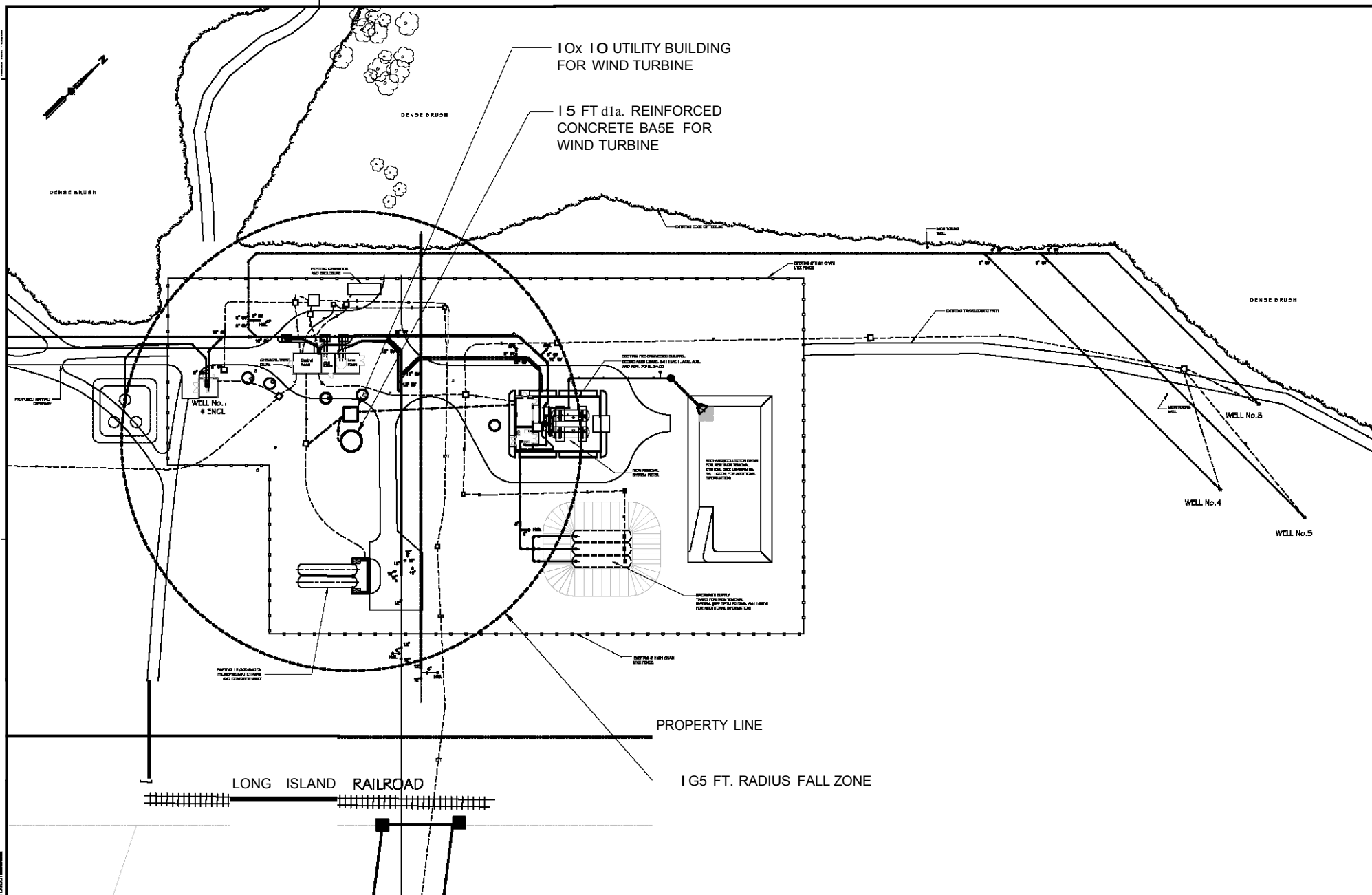


Exhibit F



NOTE
 THE EDUCATION DEPARTMENT OF THE STATE OF NEW YORK PROHIBITS ANY REVISION FROM BEING APPLIED TO THESE CHANGES UNLESS ACCOMPANIED BY SPECIFICATIONS UNDER THE JURISDICTION OF A LICENSED PROFESSIONAL ENGINEER. THE CONTRACT PROFESSIONAL ENGINEER MUST SEAL, DATE AND SIGN THE EDUCATION OF THE CHANGES AND/OR SPECIFICATIONS SECTION FROM PAID.



No.	DATE	BY	WSES #	REVISION	No.	DATE	BY	WSES #	REVISION	No.	DATE	BY	WSES #	REVISION
1	06/01/10	SPC	00000010	ISSUE SETTING FOR WELLS & BAS										
2	06/08/10	MC	00000010	ISSUE SETTING FOR WELLS & BAS										

APPROVED _____

ALITHPROX
 CIVIL ENGINEERS & ARCHITECTS
 1115 W. 111th St.
 Great Neck, NY 11040
 Tel: (516) 466-1111

SITE PLAN		PRESSURE SEWER
PARTIAL PLOT PLAN AND GENERAL LAYOUT LAUREL LAKE WELL FIELD AND PUMP STATION LAUREL		SOUTHOLD LOW
TOWN OF SOUTHOLD WESTHAMPTON DISTRICT	DATE: 7/26/09	DIST MAP: 18-N
	DRAWN BY: KAP	PROPERTY #: 274
	CHECKED BY:	WELL # CWB-06-116
		UNAPPROVED # 04116003

Exhibit G

PRELIMINARY ANNUAL ENERGY PRODUCTION ESTIMATE					
Latitude, Longitude	40.97957	-72.54804	Prepared By	Trevor Atkinson	
Address	Street		Date	1/12/2012	
	City	Laurel			
	State	NY	Zip		
	Wind Speed Variation				
	σ (m/s)	0.35			
	Height (m)	60		Wind Speed (m/s)	
	30	5.15			
Hub Height	30	m			
Average Annual Temp	52	F			
Elevation	7	m			
Air Density (ρ) Adjustment	101.3%	($\rho = 1.241 \text{ kg/m}^3$)			
Turbine Availability	98.0%				
Site Availability	99.0%				
Site Losses	4%				
Wind Distribution Parameters	$-\sigma$	Mean	$+\sigma$		
Weibull Scale Factor, A	5.419	5.815	6.210	Weibull Shape Factor, k 2.094	
Shear Factor, a	0.34	0.32	0.30		
Wind Speed*	4.8	5.15	5.5	m/s	
Annual Energy Production (AEP) Estimates					
Theoretical AEP**	130	156	183	MWh/yr	
Expected AEP***	125	150	177	MWh/yr	
Net Usable AEP****	120	144	170	MWh/yr	

* Wind speed and variability estimates from AWS Truepower. Refer to https://www.windnavigator.com/cms/images/stories/White_Papers/aws_using_simulated%20wind%20data%20from%20a%20mesoscale%20model%20in%20mcp.pdf for description of wind speed & variability source & methodology.

** No derates:
100% Availability, standard temperature (15°C) & pressure (sea level), Rayleigh (Weibull "k" = 2.0) wind distribution

*** At the base of the tower (derate for air density, turbine availability, site availability, & wind distribution)

**** At the electrical service utility entrance (derate for site losses)



Wind Distribution & Expected AEP

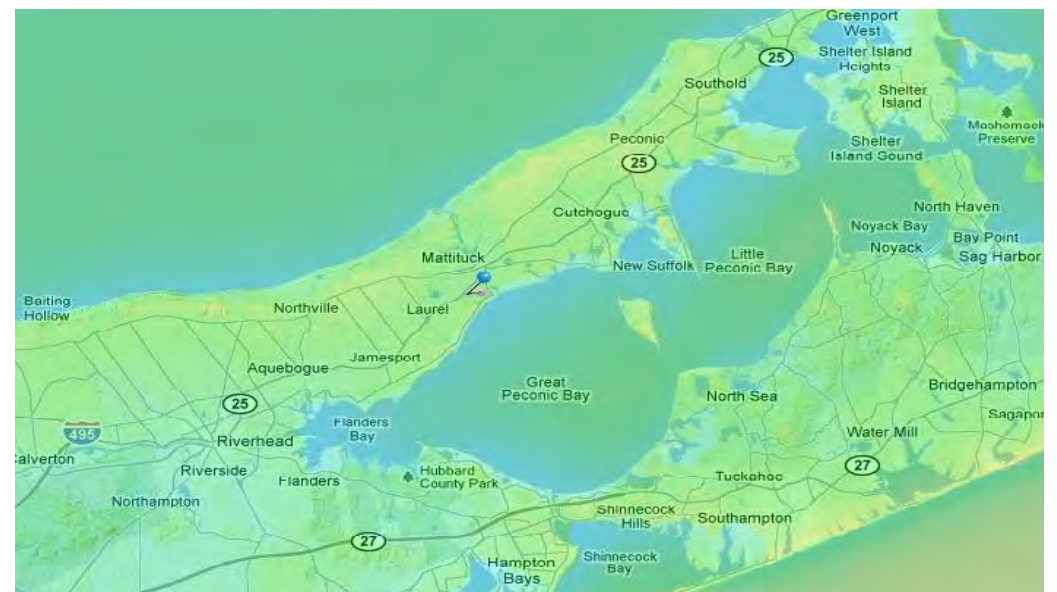
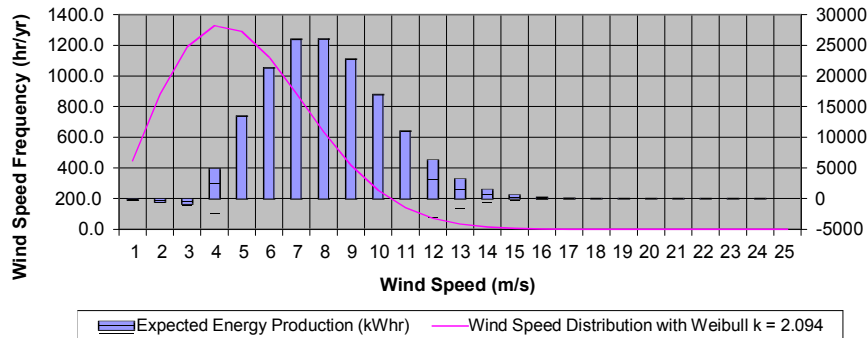
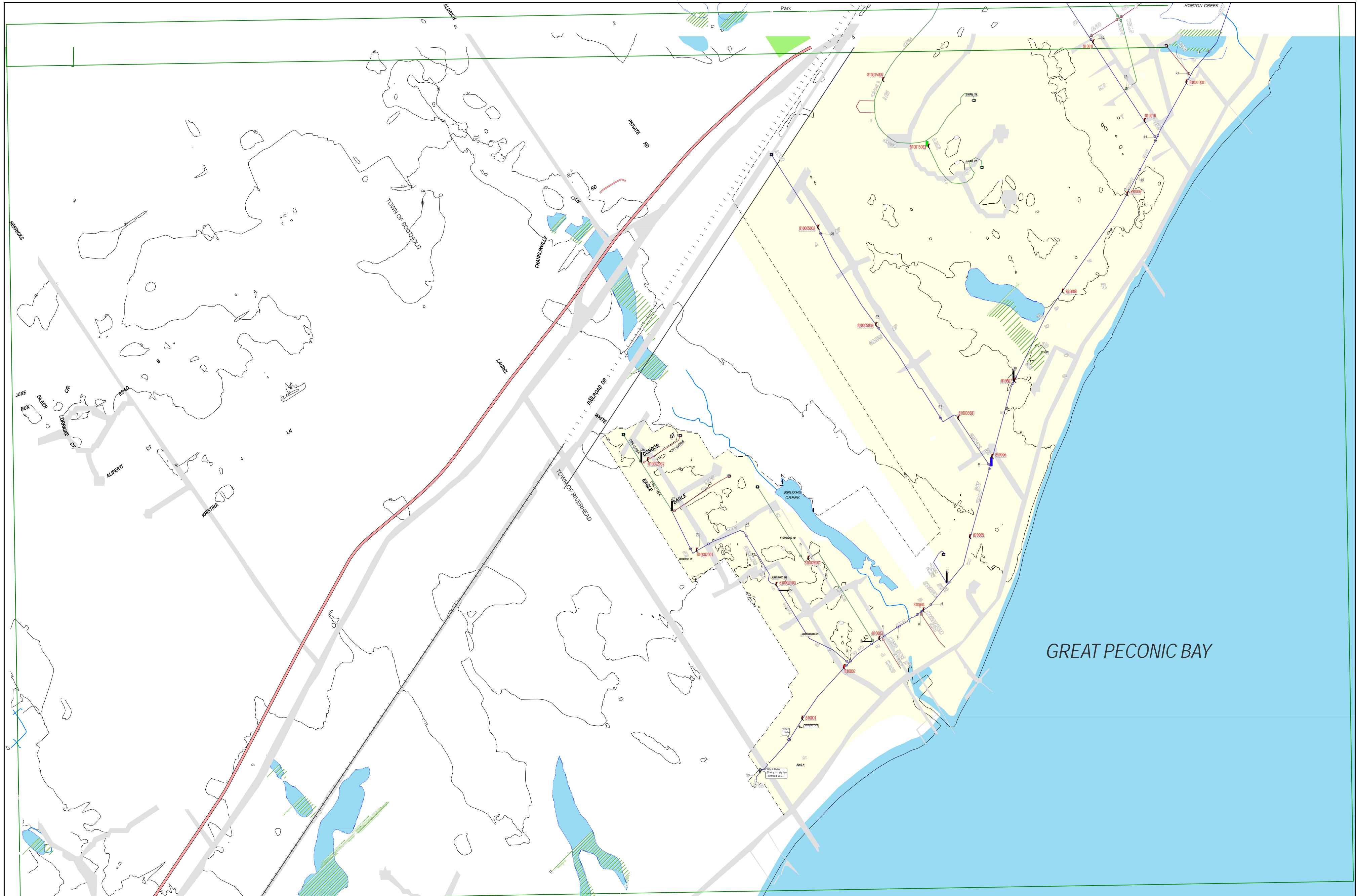


Exhibit H









REVISIONS					
		May 4, 2004	WJR		
		February 20, 2008	WJR	May 1, 2009	GIS
June 11, 2001	RTB	February 10, 2006	WJR		
June 10, 2002	WJR	February 14, 2007	GIS		
May 4, 2003	WJR	February 14, 2008	GIS		



- ◀ LOW ZONE
- ◀ INTERMEDIATE ZONE
- ◀ HIGH ZONE
- ◀ VERY HIGH ZONE

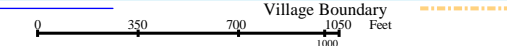

SUFFOLK COUNTY WATER AUTHORITY
 CONSTRUCTION MAINTENANCE DEPARTMENT
 4060 SUNRISE HIGHWAY
 OAKDALE, NY 11769

LEGEND

- 4" or Smaller
- 6"
- 8"
- 10"
- 12" or Larger

 Valve
 Hydrant
 SCWA Wells
 Zone Boundary
 Town Boundary
 Village Boundary

 Blow-off
 Blow-off

 0 350 700 1050 Feet

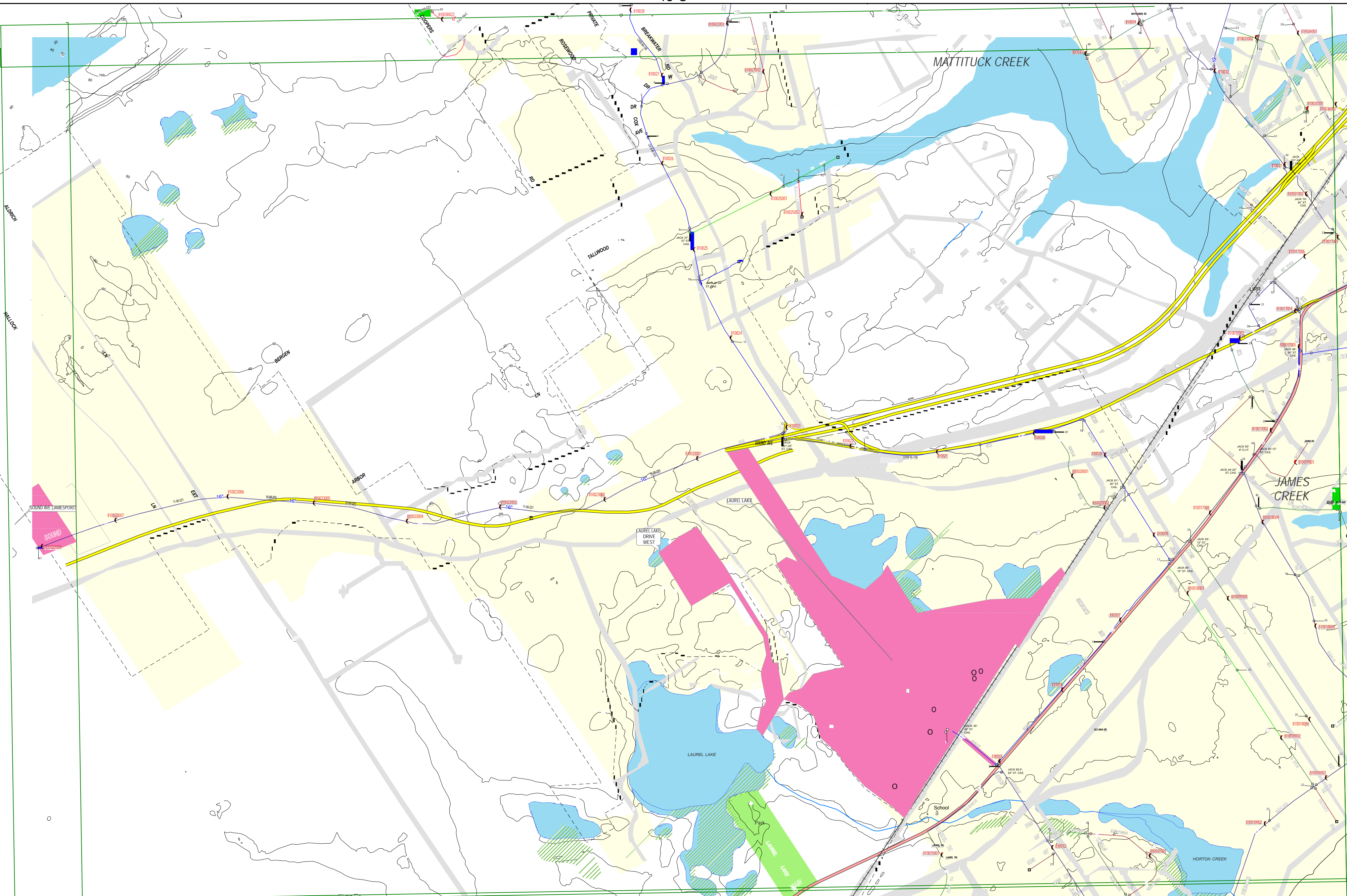
APPROVED:

[Signature]
 Chief Executive Officer

[Signature]
 Deputy CEO Operations

SUFFOLK COUNTY WATER AUTHORITY
WATER DISTRICT
LAUREL / MATTITUCK
TOWN OF SOUTHOLD

LOW ZONE
 JAN 3, 2009 18-M



REVISIONS		May 4, 2004	WJR		
DATE	BY	February 20, 2005	WJR	May 1, 2009	GIS
June 11, 2001	RTB	February 10, 2006	WJR		
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- ◀ LOW ZONE
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- ◀ HIGH ZONE
- ◀ VERY HIGH ZONE



- 4" or Smaller
- 6"
- 8"
- 10"
- 12" or Larger

LEGEND

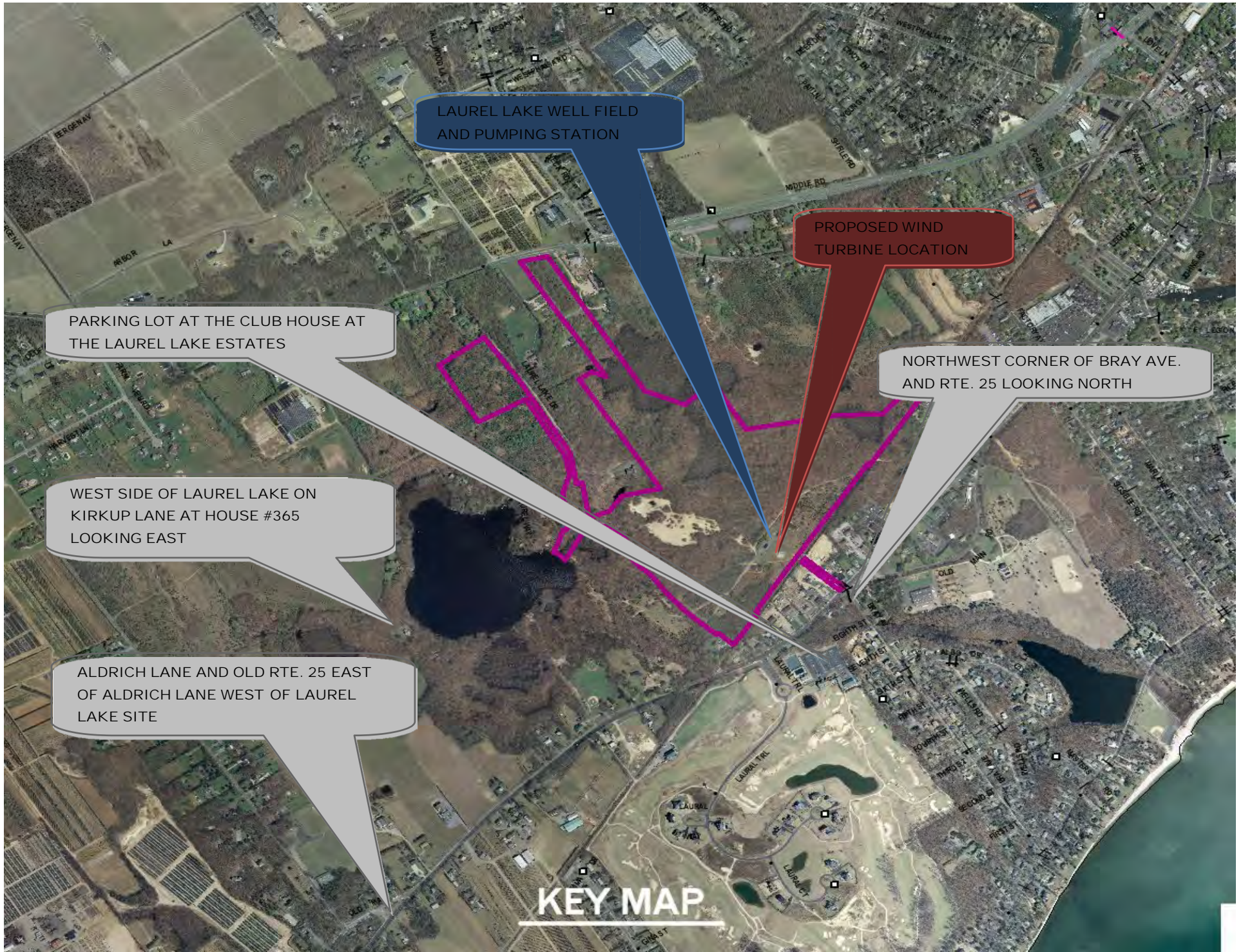
- Valve
- Hydrant
- Zone Boundary
- Town Boundary
- Village Boundary
- SCWA Wells

APPROVED:
 Chief Executive Officer
 Deputy CEO Operations

SUFFOLK COUNTY WATER AUTHORITY
 WATER DISTRICT
 LAUREL / MATTITUCK
 TOWN OF SOUTHOLD

LOW ZONE

Exhibit I



LAUREL LAKE WELL FIELD
AND PUMPING STATION

PROPOSED WIND
TURBINE LOCATION

PARKING LOT AT THE CLUB HOUSE AT
THE LAUREL LAKE ESTATES

NORTHWEST CORNER OF BRAY AVE.
AND RTE. 25 LOOKING NORTH

WEST SIDE OF LAUREL LAKE ON
KIRKUP LANE AT HOUSE #365
LOOKING EAST

ALDRICH LANE AND OLD RTE. 25 EAST
OF ALDRICH LANE WEST OF LAUREL
LAKE SITE

KEY MAP



**ALDRICH LANE AND OLD RTE 25 EAST OF
ALDRICH LANE WEST OF LAUREL LAKE SITE**

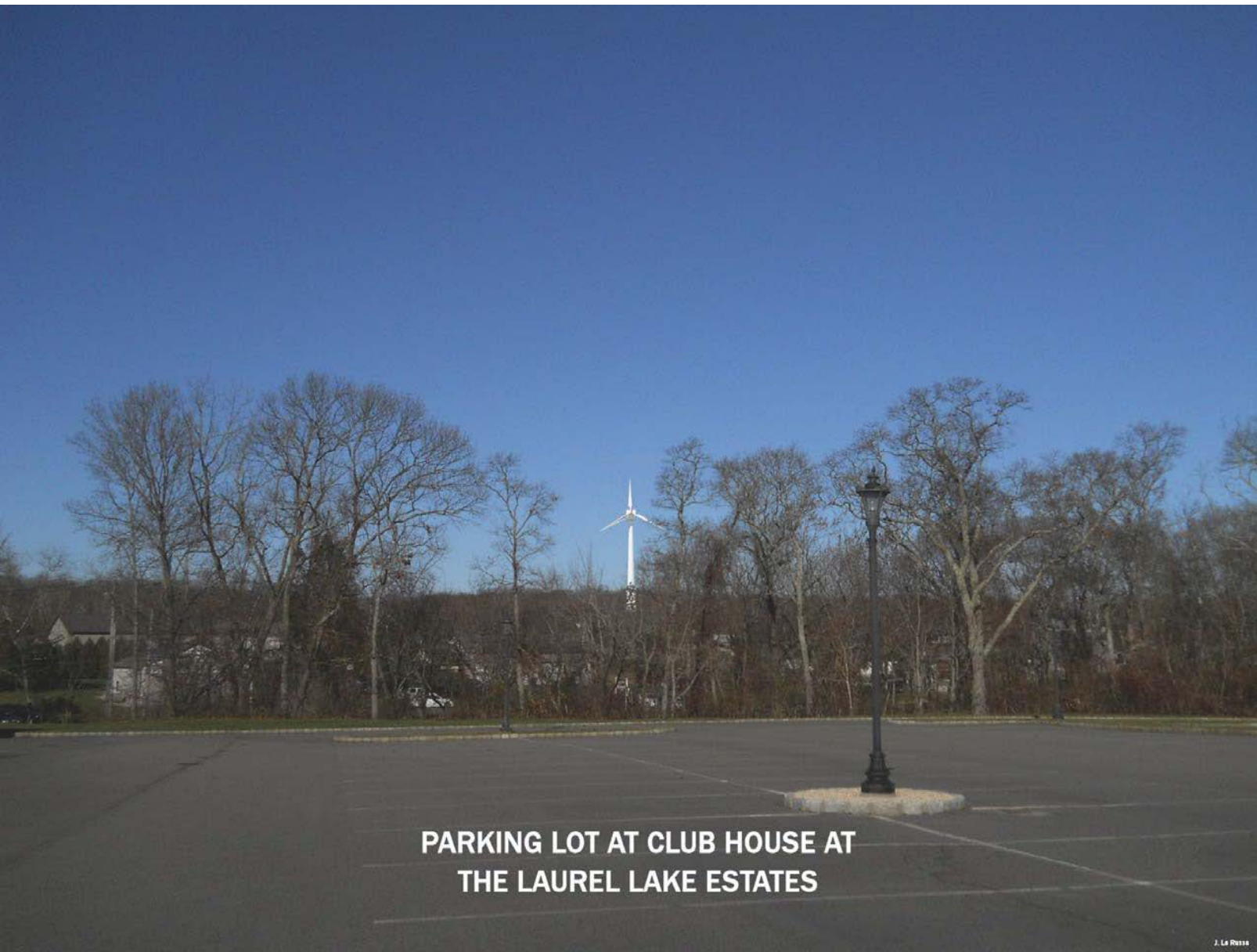


**PROPOSED
WIND TURBINE**

**WEST SIDE OF LAUREL LAKE ON KIRKUP LANE
AT HOUSE #365 LOOKING EAST**



**NORTHWEST CORNER OF BRAY AVE.
AND RTE. 25 LOOKING NORTH**



**PARKING LOT AT CLUB HOUSE AT
THE LAUREL LAKE ESTATES**