Environmental Impact Assessment

For

Farrington Farm Solar Electric Power Plant

PREPARED FOR:

STRATA SOLAR, LLC

SOLAR TECH SOUTH

1119 US 15-501 HWY SOUTH, SUITE 101

CHAPEL HILL, NC 27517

PREPARED BY:

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ENGINEERING AND SURVEYING

319 CHAPANOKE ROAD, SUITE 106

RALEIGH, NC 27603

Proposed Project Description and Need

1) Describe the overall project in detail, including all proposed phases.
This project is a solar electric power plant. The existing site was previously graded and compacted and served as a construction operation site for the Governors Club Development. The site will be dressed up and smoothed out to eliminate drainage ruts that have formed from lack of upkeep. Posts for the solar panels will be driven into the ground. Then the solar panels and equipment pads will be connected through wiring that will be placed in trenches and covered. Finally the site will be dressed with mulch and seeding. The power produced will leave the site through existing Progress energy power lines.

2) Provide a project location map showing surrounding areas.
See attachments. (A-1)

3) Provide a project site plan showing existing and proposed facilities.
See Attachments. (C001)

4) Describe how this project fits into larger plans or connects with adjacent projects.
The redevelopment of this site will stabilize the surrounding area with a more permanent neighbor. This is a standalone site that will provide electricity to Progress Energy.

5) List and describe any public facilities or public benefits provided by the project.
This project will provide a source of "Green" energy to Progress Energy costumers.

6) Discuss the land acreage to be disturbed during each phase.
The current site is disturbed. Very little vegetation has been established from the previous construction site. Some scouring and drainage ditches have formed on the unprotected site. The grading for this site is to be done in one phase. This will be more of a dressing up of the site than grading as very few areas will be graded more than a foot in depth. The total proposed area to be disturbed is 6.36 acres. This includes 1.33acres of land currently impervious that is to be reclaimed to a natural state.

7) List square footage and height (in stories) of new buildings.
No new building are proposed

8) Describe proposed uses of all buildings and proposed facilities.
The new facilities will provide a source of solar generated electric power. The existing buildings will continue to serve as accessory uses for the company.

9) Show number of parking spaces in parking lots and decks.
No new parking spaces, lots nor decks are proposed.

10) Show areas to be cleared, graded, filled, paved, and landscaped.
See attachments. (C001)

11) Show connections to existing utility and sewer lines or new utilities.
See attachments. (C003)
12) Show wastewater management systems on a map.
The existing wastewater is tied into the Governors Club facility and will not be altered. No new wastewater management is proposed.
13) Show proposed areas of impervious and semi-pervious surfaces.
See attachments. (C001)
14) Show and describe any proposed stormwater control devices.
The County's stormwater requirements are being met by reclaiming of existing impervious areas. Twenty percent of the total impervious area is planned to be reclaimed to a natural state. This will lower total suspended solids, total suspended nitrogen and the rate of runoff of the entire site. The site is being made more environmentally friendly then it exists now.

Alternatives Analysis

1) Discuss and compare all reasonable development alternatives (site selection, facility layout, utilities, stormwater management, construction methods, open space preservation, and any other pertinent alternative considerations).
The nature of this type of development requires access to high power utility lines, very clear unobstructed land free of shading for solar panels. This limits possible site selections. The fact that this site was previously developed and met the above requirements meant this site was ideal. Access, utilities, layout and construction were complete. The only pertinent discussion was about stormwater. The owners chose to reduce the impervious area of the site by 20% to meet the stormwater requirement. The alternatives would have resulted in more construction than needed.
2) Discuss how the preferred alternative was selected and its benefits relative to other alternatives (including a no-build alternative, if applicable).
The design that is proposed now came about after discussion and an onsite meeting with County staff. The plan now is to wrap the downhill areas of the project area in silt fencing and provide armored outlets. The stormwater plan is to reclaim twenty percent of the impervious areas. These methods allow the developer to have a minimal impact on the site. If silt basins were to be installed they could fail and erode into the steep slopes along the perimeter of the property and require extensive grading in them. The installation of a permanent stormwater device would also involve extensive grading. This could also create a new discharge point from the site by concentrating flow to small part of the site for storage. By removing existing impervious, the site meets the intent as well as the letter of the ordinance.

Existing Environment and Project Impacts

For each resource topic below, describe:

A. Existing resources and conditions.
   This site is currently a mixture of compacted gravel, concrete pads, asphalt drives, a warehouse, exposed soil, overgrown areas, and a bike shop with trees along the perimeter.
B. Anticipated impacts (short-term construction impacts, long-term operation impacts, and indirect or secondary impacts).
   The short term impact in the site would be the disturbance of soil to smooth the ground for the instillation of solar panels and to reclaim impervious areas. There will be no impact to adjacent properties. The long term impacts will include a lower runoff rate, lower pollutant laden runoff, and a source of green energy for the area.
C. Discuss how potential impacts to the resource will be avoided and minimized through alternative selection, design strategies, construction methods, and long-term maintenance procedures.
   Since the site was previously developed no new impacts are being proposed. By locating the solar panels on an area of the site that is mostly flat and mostly uncovered the impacts to the site will be minimized by utilizing alternative erosion control and stormwater measures the total amount of soil disturbance will be lessened. By not working near the perimeter or the lower side of the site the chance of creating new areas of disturbance or concentrated runoff flows are avoided.
D. For unavoidable impacts, describe whether any compensatory mitigation is planned or required.
   There is no compensatory mitigation planned or required.

1) Geography

- Discuss the geographic setting, geology, and topography of the project area and adjacent areas.
  The natural geography of the area is rolling. This site however had been graded flat by the previous owners and used as a construction staging site.
- Provide a topographic map of the property and surrounding area, use the county GIS website topography (2' contour interval) data at a scale appropriate for the project size, i.e., 1" = 100', etc.).
  See attachment. (A-2)
- Identify any 100-year floodplains (FEMA Special Flood Hazard Areas) on or adjacent to the property. If present, provide an appropriate-scale map of these flood-prone areas defined by the NC Flood Mapping Program.
  There are no floodplains on the site.
- Show areas that will be graded or filled, and provide estimated cut/fill volumes.
  See construction plan. (C001) Because the site had been graded very minimal cut/fills are anticipated. No soil will be exported or imported from the site. The site will be balanced. Cut/Fill estimates are expected to average less than one foot.

- If the project includes pond or dam work, show areas that will be flooded.
  This project does not include a pond or dam work.

2) Soils and Prime Farmlands
   - Identify dominant soils in the project area (County GIS or NRCS website) and show on a map.
     See attachment. (A-3, A-8)
   - Discuss any soil constraints (fill, wetland soils, septic suitability, slopes, etc.), and indicate those areas on a map.
     Since the site was previous developed and minimal grading is required no soil constraints are anticipated.
   - Describe any soil disturbance or contamination expected as a result of this project.
     No Contamination is expected.
   - If contamination is expected, discuss containment plans and procedures.
     No Contamination is expected.
   - If soil will be relocated, specify the number of square yards/feet to be moved, and its relocation site.
     No soil will be removed or added to the site.
   - Describe runoff management plans for the project.
     Runoff for the project will be controlled by silt fencing and armored outlets while the soil is disturbed. When the site is stabilized the runoff will follow the natural drainage pattern.
   - If soil disturbance is proposed, describe the off-site impacts expected from this activity.
     There will be no offsite impact from soil disturbance.
   - Provide a map of any prime or unique farmland soils in the project or service areas, and include references used to make this determination.
     No prime or unique farmlands exist on this site.
     Previous construction eliminated any farm use of the soils.
   - Describe impacts to prime or unique farmland soils, including acreage estimates of lost farmland soils and retained farmland soils.
     No prime or unique farmlands exist on this site.
     Previous construction eliminated any farm use of the soils.

3) Land Use
   - Provide a map showing current use of land on the site and surrounding properties.
     See attachments. (A-4)
   - Discuss how the current land use fits into the surrounding area (conservation, development, ecological function, etc).
     The current land use supported the development of the Govenor's Club project. The site served as the construction operation center and storage yard.

- Provide the current zoning of the project site and the surrounding area.
  See attachments. (A-9) The current site is Zoned CU-Ind L. The northern side of the site is zoned residential R-1. The southern and eastern side is zoned R-1. The western side is US Army Corp of Engineer Property.
- Discuss how the proposed uses fit into the intended land use of the area (conservation, development, ecological function, quality of life).
  The proposed use will not alter the spirit of the existing use. This will in some ways still be a development construction operations site. It will however be geared towards a green utility alternative instead of a residential/commercial operations center.
- Indicate whether zoning or local land use plans will need to be changed after project completion.
  Land use will not need to be altered at the completion of this site work.

4) Wetlands
- Indicate whether wetlands are present; describe the basis for this determination and the identity of the person who made the determination.
  No wetlands are present on this site. The site has been graded and no natural features exist. An onsite visit by County staff and this office confirmed the existing conditions.
- Show identified wetlands on a map, and describe all relevant details, such as acreage, types, delineation, function, etc.).
  N/A
- If wetlands are to be filled, specify the number of acres that will be affected.
  N/A
- List all required permits and permitting agencies.
  No wetland permitting will be required.
- If any diversions/additions/withdrawals of surface water will affect wetlands, describe those activities.
  N/A

5) Public Lands and Scenic, Recreational, and State Natural Areas
- Provide a map of County or municipal parks, scenic, recreational, or state natural areas (SNHAs, State or Federal Forests, etc.) on or adjacent to the site/project area.
  See attachments. (A-5) The Army Corp land for Jordan land is adjacent to this site. No additional impacts will occur.

6) Areas of Archaeological or Historical Value
- Discuss any archaeological or historical studies of the project location; provide relevant references.

N/A The site has been previously graded.

- Describe and identify on a map any structures (i.e., walls, buildings, etc.) on the site and provide estimated ages of those structures.
  See attachments for locations and sizes. No structures are or age to have any historical value. (C003)
- Describe all impacts to any archaeological or historical resources in the proposed project area.
  No impacts
- Describe plans for demolishing or rebuilding any structures.
  N/A
- Provide photographs of any significant resources, including all structures older than 50-years.
  N/A
- Provide relevant correspondence with the Chatham County Historical Association and NC SHPO.
  N/A

7) Air Quality

- Describe the project's impacts on ambient air quality.
  No additional impacts from this site will occur.
- Describe plans for any open burning during or after construction.
  N/A
- Indicate the number of proposed parking spaces, if applicable.
  N/A
- Describe whether the project will increase odor levels, or the likelihood of odor complaints.
  No additional impacts from this site will occur.
- Provide a copy of any required traffic studies.
  N/A

8) Noise Levels

- Discuss current noise levels; use a benchmark, if possible.
  Typical noise levels for construction sites. Heavy trucks and equipment are intermittently loud during the workday hours.
- Describe any increases in noise levels expected from this project.
  No additional noise. Site should have significant reduction in noise levels due to the nature of the solar panel operation.
- Specify the distance at which the increased noise will be heard.
  N/A
- Discuss whether surrounding properties will be affected by noise levels.
  No additional noise will affect the surrounding sites.
- If commercial uses are proposed, specify the hours of operation.
  No additional operation hours.

9) Light Levels
- Describe lighting plans for the project, including how lighting will impact adjacent residents and wildlife.
  No additional lights for the site are proposed.

10) Surface and Groundwater Resources (discuss separately)
- Identify and provide a map of surface waters in the project area. Describe groundwater (aquifers) in the project area.
  Groundwater will not be affected as no proposed drilling or excessive grading will occur.
- Include names, locations, classifications, and use support ratings for surface waters.
  There are no surface waters on this site nor any that will be affected by this site.
- Specify and show on a map the river basin in which the project is located.
  See attachments (A-6). Site is within the Jordan Lake water shed. The entire site is within the County watershed WS-IV PA.
- Discuss any known groundwater quality issues.
  N/A
- Discuss drinking water sources.
  The site currently is connected to an approved Public Water Supply and will continue to receive drinking water from the Governors Club Community system.

11) Fish and Aquatic Habitats
- Describe fish and aquatic habitats in and adjacent to the site/project area.
  No fish or aquatic habitats exist on this site. The adjacent Jordan Lake Site is managed by the Corp of Engineers.
- Discuss impacts to fish and aquatic life and their habitats, including a map showing those habitats.
  No impacts.

12) Wildlife and Natural Vegetation
- Describe and provide a map of natural community types on and adjacent to the site/project area.
  See attachments. (A-7) Wooded natural land is adjacent to the property and contains native hardwoods and wildlife including Deer. Site has been previously developed and most of the data shown in the County GIS is out of date for the site.
- List the species of dominant plants and animals observed on the site that typify those communities.
  See attachments for plant types. (A-7) No animals have been observed on site.

- Evaluate and discuss whether suitable habitat exists for rare, threatened, and/or endangered species, as described by the NC Natural Heritage Program.
  There are no suitable habitats on site.
- If wildlife will be displaced, discuss any limitations of adjacent areas to support them.
  No wildlife will be displaced.
- Identify, list, and describe the distribution of the invasive species present on the site. Consult the NC Botanical Garden's Web page, "Plants to Avoid in the Southeast US" for a list of invasive species common to the region.
  No invasive species have been found on site.
- If forests will be cleared, discuss the extent of planned deforestation and specify the forestry methods to be used, including BMPs.
  There will be no forests cleared on site.

13) Hazardous Materials

- List all hazardous materials to be stored or introduced during construction or operation.
  There will be no hazardous materials stored or introduced on site.
- For each hazardous material, other than in deminimis quantities or for routine housekeeping purposes, describe the procedures to be used to ensure their proper management, storage, and disposal.
  There will be no hazardous materials stored or introduced on site.

References

Exhibits (Maps, Figures, Tables, Photos, etc.)

State and Federal Permits Required

A. Topographic Map

A topographic map with contours at vertical intervals of not more than five (5) feet, at the same scale as the First Plat, for all major subdivisions unless not deemed necessary by staff. Staff may require a topographic map for other subdivisions if necessary for adequate review. The date and method of preparing the topographic survey shall be stated.
See attachment. (C-001)

B. Soils Evaluation

A soils evaluation shall be performed by a certified/licensed soil scientist or persons approved by the Health Department to perform such evaluations or investigations. Such evaluations shall be performed unless a central sewage disposal system is proposed. A soils map showing the location of suitable soils and a letter of explanation shall be submitted to perform such evaluations or investigations.

There are no planned waste water treatment, septic systems or drinking water wells for this project.

C. Utility Plans

Plans of proposed utility layouts for sewer and water where applicable, showing feasible connections to the existing utility system, or any proposed utility system.

No new sewer or water connections or changes are proposed with this project.

D. U.S. Army Corps of Engineers and Division of Water Quality Permits or Certifications

Indicate if US Army Corps of Engineers and/or NC Division of Water Quality permits or certifications will be required. These permits and/or certifications may be required when development improvements may involve the placement of excavated material or fill material into streams, creeks, lakes, or wetlands. If any of these permits or certifications will be required, copies of the approved permits shall be submitted at time of Construction Plan submittal.

There are no State or Federal permits required for this project.