Constructability Report:
Option 1b Proposals
2021 SAA Proposal Window to Support NJ OSW

September 19, 2022

For Public Use

The information contained herein is based on information provided in project proposals submitted to PJM by third parties through its 2021 SAA Proposal Window. PJM analyzed such information for the purpose of identifying potential solutions for NJ BPU's consideration as contemplated under the SAA Agreement, FERC Rate Schedule No. 49. Any decision made using this information should be based upon independent review and analysis, and shall not form the basis of any claim against PJM.

Table of Contents

Introduction

Background

As part of the 2021 SAA Proposal Window to support NJ Offshore Wind ("OSW"), PJM received proposals to meet New Jersey's goal of interconnecting up to 7,500 MW of offshore wind. The proposals were categorized into four options according to the function and location of the proposal.

- Option 1a proposals: Onshore transmission upgrades to resolve potential reliability criteria violations on PJM facilities in accordance with all applicable planning criteria (PJM, NERC, SERC, RFC, and Local Transmission Owner criteria).
- Option 1b proposals: Onshore new transmission connection facilities
- Option 2 proposals: Offshore new transmission connection facilities
- Option 3 proposals: Offshore new transmission network facilities

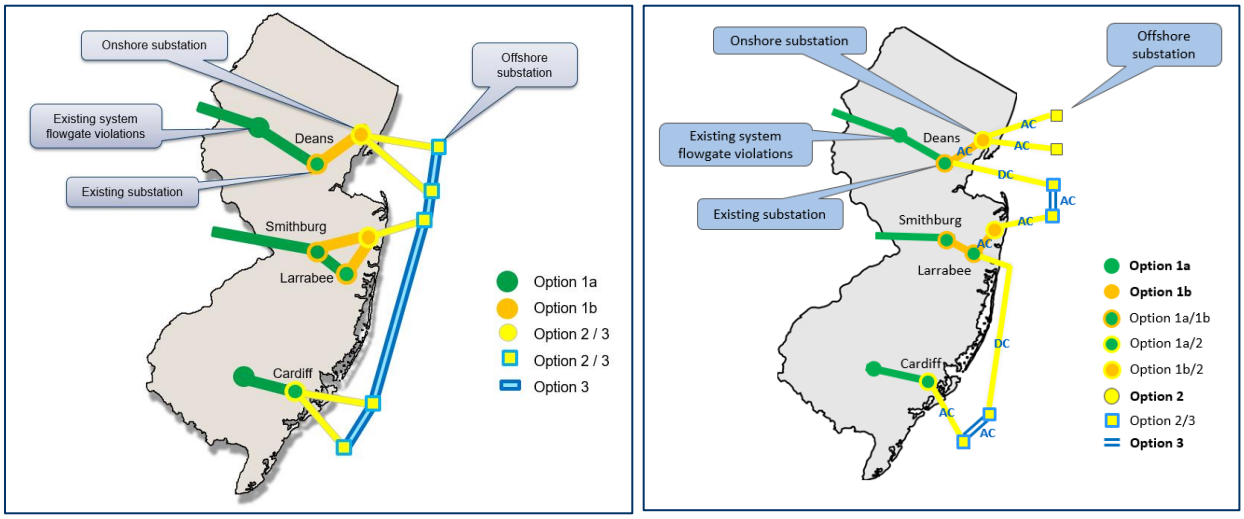


Figure 1 Potential Options for the NJ Offshore Wind Transmission Solution (Concepts depicted are for illustration purposes only; details of new lines and facilities are to be provided by sponsors in proposals to meet objectives of this solicitation.)

Altogether, PJM received a diverse set of 80 proposals submitted by 13 different entities each falling into one or more of the four Options described above.

Option 1b Problem Statement

This report focuses projects that were submitted to address the Option 1b problem statement, which shall cover all necessary upgrade and/or greenfield solutions from default or alternative POIs up to and including the new onshore substations. A complete proposal will focus on one default or alternative POI, any necessary substations to facilitate the transfer, and must be complete and responsive in fully addressing the transfer of offshore wind energy from any new onshore substations to the point of injection (POI) and include all tie-in work to POI substations.

Unless otherwise specified, Option 1b proposals shall include capability to accommodate the default injection amounts in the Proposal Window Overview document. Proposers may submit separate Option 1b proposals to

address different POIs or different solutions related to single POIs. Any interdependence issues or benefits relative to proposals for Options 1a, 2, 3, or other Option 1b proposals (for different POIs) should be clearly described in the proposal.

Objective

This report incorporates the results of reviews performed by PJM and its consultants to evaluate the extent to which each submitted Option 1b proposal identified, addressed, and mitigated the constructability, environmental, and permitting challenges of the proposed solution. These reviews included evaluation of project scope, complexity and constructability factors that impact the project cost and/or schedule including but not limited to right-of-way acquisition, land acquisition, siting and permitting requirements, project complexity, project coordination complexity, outage coordination and project schedule.

General Approach

PJM reviewed the information submitted by the proposing entities for each proposal, which included the following:

- Completed PJM Proposal Submittal Template (including project description, value proposition to NJ and cost control and risk mitigation measures)
- Completed BPU Supplemental Offshore Wind Transmission Proposals Data Collection Form – consisting of supplemental information related to proposals, including: a narrative description of the proposed project(s) and options; documentation of the projected benefits in terms of design, flexibility, ratepayer costs, and environmental impacts; an identification of major risks of (such as delay or non-completion risks, including the project-on-project risks created by the interdependence of the proposed project(s) and those of other transmission and offshore wind projects); strategies to limit risks to NJ customers; and cost recovery and containment provisions.
- Project diagrams and schedules
- Technical analysis files and documentation

With the submitted information, PJM and its consultants conducted a detailed review of each project, and the findings are detailed in this report. The following is an outline of the general approach followed for evaluation of the projects:

1. Environmental (Regulatory) Analysis: Examine each Project utilizing available public-sector data, aerial photographs, and internet based real estate records to determine if the Project is feasible and to identify potential regulatory permitting risks. The following is a list of the subtasks that are performed as part of this task:

    a) Conduct a desktop review to identify significant barriers that might add additional risk to the Project and determine whether the proposed Project area (a Study Area which is defined for each project) can support the economical construction of the electric transmission and/or substation facilities

    The following target information will be referenced by as required and as allowable by available public data sources:

    - National Wetland Inventory mapping from United States Fish and Wildlife Service (USFWS), which will include counts and acreages of:
        - Total Wetlands;

- Non-Tidal (Non-Forested) Wetlands;
- Non-Tidal (Forested) Wetlands;
- Total Non-Tidal Wetlands;
- Wetlands of Special State Concern; and
- Subaqueous Lands.

- Mapping of specially designated wetlands, streams, or rivers, which will include:
  - Non-Tidal Waterbodies (Count/Acres);
  - 100-Year Floodplain (Acres);
  - Watershed Boundaries (Count);
  - Outstanding and Exceptional Waters (Count);
  - Wild and Scenic Rivers (Count); and
  - United States Geologic Survey Blue Line Streams (Count).
- United States Department of Agriculture(USDA)/The Natural Resources Conservation Service (NRCS) Land Cover mapping, which will include acreages of:
  - Sub-Aquatic Vegetation;
  - Forested Uplands;
  - Unforested Uplands; and
  - Agricultural Lands.
- Land Use Mapping, which will include:
  - Residences within 100 feet (Count);
  - Residences within 250 feet (Count);
  - Land Zoned Conservation (Acres);
  - Rural Legacy (Acres);
  - Program Open Space (Acres);
  - Private Conservation Easements (Acres & Count);
  - Public Land (Acres & Count);
  - Parcels Crossed (Count);
  - Green Infrastructure/Green Acres program (Acres);
  - National Estuarine Research Reserve Project Areas (Acres & Count);
  - Natural Heritage Areas (Acres & Count);

- Environmental Trust Easements (Acres & Count);
- Forest Legacy Easements (Acres & Count); and
- Tidelands.

For projects located in NJ, using the NJDEP's Bureau of GIS' "State, Local and Nonprofit Open Space of New Jersey" dataset (2022) each Study Area was reviewed for US National Parks, NJ State Forests and Parks, NJ Fish and Wildlife management areas, Natural Lands Trust Preserves, and County, Municipal, and nonprofit preserves, conservation areas, parks, and recreation areas. This database was also used to identify NJ Green Acres Program encumberment status. NJ Farmland Preservation Program's preserved farmland database (2022) was reviewed for agricultural easements. NJ Coastal Management Program's list of Excluded Federal Lands was reviewed as was New Jersey Public Access Locations Search Tool for NJDEP's lands and waters subject to public trust rights.

- Public Lands Mapping Review, will include the types, counts, and acreages of the following:
  - State/National Forests;
  - Natural Areas;
  - Preserves;
  - Game Lands; and
  - Recreation Areas
- Cultural Resources Mapping Review, including the count of previously identified resources, which will include the types, counts, and acreages of the following:
  - Listed and Eligible Historic Structures;
  - Listed and Eligible Historic Districts; and
  - Listed and Eligible Archeological Sites.

  For projects located in NJ, the NJ Historic Preservation Office's data sets for historic districts, historic properties, and archaeological site grids were used to determine the presence of cultural resources in each the Study Area.
- Aquatic Resource Mapping, including the count of Submerged Historic Resources (if applicable);
- Online distribution data of Rare, Threatened, and Endangered species within a 0.5 mile radius of the Study Area;
  - This review was conducted utilizing the United States Fish and Wildlife Service (USFWS) maintained Information for Planning and Consultation (IPaC) online tool, NatureServe Explorer Pro online mapping tool, and the List of TE Species of NJ published by the NJDEP.
- Major utility and transportation (roads and rail lines) corridors.

b) Identify those permits and agency consultations that are complex and require long lead times, therefore, potentially significantly affecting the project in-service date. Specifically, evaluate federal and state authorizations required for potential impacts to sensitive environmental resources such as wetlands, rivers and streams, coastal zone management areas, critical habitats, wildlife refuges, conservation land, rare, threatened, and endangered species The assessment will result in a preliminary list of potential siting issues and permits that could impact cost and/or schedule including estimated Agency review times. Anticipated permit requirements may include the following:

- U.S. Army Corps of Engineers (USACE) – Section 404 Clean Water Act and Section 10 Rivers and Harbors Act;
- U.S. Fish and Wildlife Service (USFWS) – Section 7 Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Acts;
- U.S. Forest Service – National Forest Special Use Permit and Archaeological Protection Resources Act;
- National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service - Magnuson-Stevens Fishery Conservation and Management Act (MSA);
- U.S. Bureau of Ocean Energy Management
- U.S. Bureau of Land Management – Right-of-Way Grant and Archaeological Protection Resources Act;
- Federal Aviation Administration (FAA) – Obstruction Determination and FAA Hazard Evaluation;
- U.S. Coast Guard – Aids to Navigation;
- State Commission approvals;
- State Agency – Rare, threatened, and endangered species issues and clearance requirements;
- State Historic Preservation Office (SHPO) and clearance requirements;
- State Agency - Section 401 Water Quality Certifications and other applicable water permits;
- State Agency – National Pollutant Discharge Elimination System permit;
- Local and/or State floodplain permit requirements; and
- State Department of Transportation and clearance requirements.

c) Identify potential high-level risks and items that may require protracted permitting timeframes or that may raise serious issues during the permitting process.

2. Transmission Line Analysis: Review of transmission line modifications proposed based on desktop reviews investigating routing, conductor size and length, rights-of-way (ROW) and easements, structures, and construction required.

3. Substation Analysis: Review of substation modifications proposed based on industry practices to estimate the equipment, bus and general layout required.

4. Construction Schedule: Prepare a preliminary Project schedule for each Project. The Project schedule will be broken into four (4) project phases: Engineering; siting and major permit acquisition; long lead equipment procurement; and construction and commissioning. Any significant risks to the Project schedule will be discussed.

5. Cost Review: Prepare preliminary estimate for each project based on engineering expertise and the most recent material and equipment costs. Costs will be broken into seven (8) categories, as required: materials and equipment; engineering and design; construction and commissioning; permitting/routing/siting; right of-way (ROW)/land acquisition; construction management; company overheads and other miscellaneous costs; and project contingency. Prepare a summary of the cost estimating technique and assumptions used for the costs.

Atlantic City Electric Company (ACE) Proposal

Executive Summary

Exelon Corporation (Exelon), on behalf of its affiliate Atlantic City Electric Company (ACE), submitted one Option 1b proposal, along with 4 other Option 1a proposals in response to the PJM 2021 Off Shore Wind Proposal Window.

ACE's Option 1b solution offers the ability to bring 1,200MW of offshore wind from Great Egg Harbor to Cardiff substation using existing public ROW, with an anticipated project in-service date of Q1 2028. The project includes a new 275-230 kV substation to be located near the existing Cardiff substation and a set of three transmission lines routed from a transition point near the shore to the new substation. At the transition point near the shore will be located an underground vault to contain the transition from the off shore underground transmission to the on shore underground transmission. The new 275-230 kV substation will be located adjacent to a newly rebuilt Cardiff substation.

ACE's Option 1b proposal 797 (ACE 05) is intended as a stand-alone project that offers a path from the shore to Cardiff and is compatible with the Option 1a proposals 127 (ACE 03) and 929 (ACE 04), as well as any potential Option 2 proposals, or future offshore wind generation lead lines that only need to reach the proposed vault .

Table 1. **ACE Proposal 797**

Proposal ID(s)	Description(s)	Capability (MW)
797	ACE 05 (Option 1b) Compatible with the following Option 1a projects: ACE 03 (Option 1a) – Proposal ID 127 ACE 04 (Option 1a) – Proposal ID 929	1200 MW

Proposal 797

Project Overview

The proposed project is sized for 1,200W by utilizing three 400MW circuits inside a duct bank. The duct bank and the 275/230kV substation is designed to accommodate a fourth 400MW circuit. This empty duct bank circuit slot is intended to provide an additional 400MW of offshore wind transmission transfer capacity in the future.

This Option 1b's underground component is entirely underground along public right-of-way from the transition vault near the shore at Great Egg Harbor and Scull substation to Cardiff substation. The underground duct bank near ACE's Scull substation will take county route Atlantic 651 also known as Jeffers Landing Road, for approximately 1.3 miles until reaching the intersection of county route Atlantic 559, also known as Somers Point Road. The duct bank will then have a large sweep into the westerly direction by turning approximately 90 degrees onto Somers Point Road. The line will continue on Somers Point Road for approximately 1.9 miles until reaching the intersection of English Creek Avenue. At this point the duct bank will turn approximately 90 degrees again in a northerly direction onto English Creek Avenue for another 6.2 miles until reaching the ACE right-of-way into Cardiff substation. The entire route proposes to use a combination of public rights-of-way and ACE owned property.

The following is a description of the project scope:

- Install three (3) 275kV underground cables.
  - Install transition vault(s) at the intersection of Jobs Point Road & Jeffreys Landing Road.
  - Install 9.4 miles of three circuit 275kV underground cables from transition vault to Cardiff (CARD) substation.
- Cardiff 230kV Substation
  - Install four (4) bay breaker and a half (BAAH)
  - Install (4) 275kV Gas Insulated Switchgear (GIS) Busses with two (2) 275kV Bus Sectionalizing Circuit Breakers (CBs).
  - Install two (2) 275/230kV 1200 megavolt ampere (MVA) Transformers with high and low side CBs.
  - Install two (2) Shunt Reactors and two (2) Harmonic Filtering Banks.

Constructability Summary

Project 797 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.
- Components of this project run through Pineland management areas. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.

Schedule:

- The entity's overall project schedule of 65 months is adequate for the scope of the project.

Cost Review:

- Independent cost estimate: $ 293,014,655
- Entity's cost estimate: $ 232,712,805

Constructability Review

Proposal 797

Environmental (Regulatory) Analysis

Desktop Review

An analysis of the Primary Route, the transition vault, and the underground cable connecting the Cardiff Substation and transition vault, was performed to assist in the identification of major environmental and socioeconomic features

and to provide a base for the extrapolation and derivation of future construction, permitting, mitigation, and land costs studies for the overall Project. The Study Area is a 100-foot buffer centered on the Primary Route, the underground cable between the Cardiff Substation and planned transition vault, and the parcel for the planned transition vault. The results of the desktop review for this Study Area are discussed below, and summarized in Appendix A - Table 5.

Aerial Imagery was used to develop a high-level review of land use and cover in the Project Study Area. The Primary Route utilizes existing ROWs for its entire alignment, therefore, the land use impacted by the Primary Route is transmission line ROW.

These ROWs cross various types of commercial, residential, forested, and agricultural land. The Primary Route intersects an existing transmission line ROW that traverses a mixture of forested, agricultural, and commercial land. The Project is compatible with the land uses crossed. However, coordination with municipalities, and transmission line companies holding the existing ROW easements would need to be conducted to negotiate use of their ROW. These negotiations can be unpredictable regarding a willingness to collocate facilities and the requirements of the existing easement language.

Public and Protected Lands
Desktop reviews show that due to the project using existing easements, state lands and Green Acres do not appear to be impacted, however, given that some of ACE's easements go through Green Acres, Farmland preservation areas, and State wildlife management areas, any potential permanent or temporary easement expansions during construction activity impacting those areas may require additional permitting.

Special Landscape or Hazard Areas
Special hazard areas are areas that the DEP deems as having a known actual or potential hazard to public health, safety, and welfare, or to public or private property (NJDEP 2021). These areas include the navigable airspace around airports and seaplane landing areas, potential evacuation zones, hazardous material disposal sites, and areas of hazardous material contamination.

Review of special hazard areas within the Study Area showed that the Atlantic City airports were in the vicinity (approximately 3 miles) of the Study Area.

Based on the desktop review, a flood hazard region appears to be crossed by the Project. Specifically, the Atlantic Central Tidelands flood hazard region. This can impact Project permitting and construction. An on-site delineation would be required to determine the actual location and extent of the crossing and to assess permitting implications for jurisdictional features.

Waterbodies and Wetlands
The presence of wetlands can impact Project permitting and construction. In addition to the need to adopt special construction techniques (including avoidance) for specific wetland types and field conditions, the types of wetlands encountered has significant implications from a permitting and compensatory mitigation perspective.

Based on the desktop review, wetlands and waterbodies appear to be crossed by the Project. Depending on the type of crossings, permitting and construction schedules can be impacted. An on-site delineation would be required to determine the actual location and extent of wetlands and waterbodies present and to assess permitting implications for jurisdictional features.

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of approximately 32 federally- and state-listed species, and that coordination with state and federal agencies will be required. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources
The NJ Historic Preservation Office's data sets for historic districts, historic properties, and archaeological site grids were used to determine the presence of known cultural resources in the Study Area.

Coordination with NJ Historic Preservation Office will need to be conducted to required surveys (if any) to assess the extent of the Primary route's impact to the cultural resource. However, given that the Primary Route will be located underground in existing disturbed ROW, impacts to cultural resources are likely to be minimal.

Federal, State, and Local Environmental Permits
Table 5 (in the appendix) lists the environmental permits, authorizations, clearances, and consultations that could be required for the Project's components. For each authorization, the table identifies the administrating agency/authority, anticipated agency review timeframe, and additional information to be considered. The table represents a list of typically required permits for similar projects in the same area and is not specific to the Project.
Although the Project-specific details included in this report can assist in the planning stages of the Project, additional reviews should be conducted as the Project is further developed and the extent of environmental impacts is known.

Federal Permits and Authorizations
Depending on the outcome of the environmental survey and Division of Land Resource Protection (DLRP) inspection and the final design of Project facilities, the Project could require several federal permits, authorizations, and consultations prior to construction. In addition, USFWS consultations and authorizations under Section 7 of the Endangered Species Act (ESA) could also be required to be obtained prior to receiving federal permits. These consultation and concurrences are discussed below in greater detail.

USACE Section 404
In NJ, the NJDEP is the agency delegated responsibility to implement Section 404 of the Clean Water Act (33 U.S.C. 13574), which regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. The exception being an activity proposed in a tidal water or water designated under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403), for which the USACE has regulatory authority. The Project is located within the jurisdictional boundary of the New York District of the USACE. The New York District Office would need to be contacted to confirm if a Section 10 designated water is crossed by the Project.

USFWS Endangered Species Consultation and Clearance
For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered species and critical habitats are appropriately addressed under Section 7 of the ESA. The Project falls within the jurisdictional boundary of the USFWS NJ Ecological Services Field Office. Initial screening for many projects in NJ may be conducted online utilizing the IPaC online tool and county data compiled by the NJDEP. A "preliminary" screening for the Project has been completed, with results discussed in detail in the previous TE Species section of this report.

Typically, early consultation with USFWS will be of paramount importance. Coordination with the USFWS NJ Ecological Services Field Office will be required to determine the extent of survey and/or mitigation needed for each species.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, new or additional field surveys. Species-specific surveys and construction timeframes may be applicable.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #797 in Appendix A -Table 5.

State Permits
It is anticipated that the Project could require the following state environmental permits, consultations, clearances, and authorizations, including:

- State Protected Species Consultations
- State Historic Preservation Office (SHPO) Consultations and Clearances
- Freshwater Wetlands Permits
- Coastal Wetlands Permits
- Waterfront Development Permit
- Flood Hazard Area Permit
- Tidelands License
- Green Acres Program Diversion Permit
- NJ Pollutant Discharge Elimination System Permits (NJPDES) Basic Industrial Stormwater Permit
- Air Quality Permits

Green Acres Program Diversion Permit:
Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to New Jersey's state parks, forests, natural areas, and wildlife management areas. A diversion or disposal may be required if the substation is expanded onto Green Acres properties. Components of the Project are within existing maintained ROWs. Any expansion beyond the existing ROW may impact Green Acres areas.

Pinelands Management Area/ National Reserve
The Pinelands National Reserve is a 1.1-million-acre reserve and management area, which is overseen by the Pinelands Commission. The Pinelands Commission consists of federal, state and local representatives who maintain a comprehensive management plan to protect the unique ecosystem of the New Jersey Pinelands. The boundaries for the Pinelands National Reserve and Management Areas differ however the Study Area has been identified as within both the reserve and management area. If the Project does not comply with the Pinelands comprehensive management plan, the DLRP may not approve the other state permits. In addition, the Pinelands Commission is a commenting agency for projects within the Pinelands, and often reviews the Coastal Area Facility Review Act (CAFRA) and freshwater wetland permits in conjunction with DLRP. Environmental features within The Pinelands are often subject to more stringent regulations and both the DLRP and The Pinelands Commission would need to be consulted early in the permitting process. While the Project is proposed to be performed within an existing ROW and substation work is to be confined to the existing substation footprint, permits and coordination with the DLRP and Pinelands Commission are still anticipated to be necessary. If tree clearing is needed, it will be required to follow the Pinelands vegetation management ROW plan.

More information regarding the State regulatory review process can be found in the Permit Matrix prepared for Project #797 in Appendix A -Table 5.
Local Permits and Approvals
It is anticipated that the Project could require the following county and municipal permits, consultations, clearances, and authorizations:

- Zoning Permits,
- Road Permits,
- Building Permits, and
- Erosion and Sediment Control Plan.

Environmental (Regulatory) Risks

Right-of-Way and Easement Risks

- Construction within the road ROW, particularly in congested areas, may require significant coordination regarding foreign underground utility avoidance.
- Several public lands are crossed by the Primary Route utilizing existing public ROWs and Atlantic City Electric owned property, and presumably can be covered under the existing easements for the ROW. Supplemental easements may be necessary to augment the existing ROW or for the development of access roads, and the requirements or availability of obtaining supplemental easements is unclear until coordination with the property owner or review of the easement language is conducted.

Permitting Risks

- The underground components of the Project have the potential to impact environmental resources including streams and wetlands within coastal and freshwater ecosystems and impacts to these resources may require a number of permits from the state and county.
- While the project is proposed to be constructed within existing maintained ROWs, any expansion beyond the existing ROW may impact Green Acres areas.
- In addition, the Project crosses the Pinelands Reserve and Management Area which can result in more stringent regulations, if any expansion or clearing beyond the existing ROW during construction is required. Consultation with the NJDEP's Division of Land Resource Protection (DLRP) and the Pinelands Commission earlier in the Project's development will help mitigate risks by addressing permitting concerns and allowing for a larger consultation and permitting timeline.

TE Species Risks

- Review of various sources that maintain TE species records indicated the potential for numerous species to be located within the Project Study Area. The Project proponents should conduct an independent TE species review once the potential limits-of-disturbance and environmental impacts are better known to fully ascertain the requirements for mitigation associated with the sensitive species. Additionally, it is possible that new TE species location information may be added to the state and federal agency databases, and that the Project will be located within the new occurrence area. This could result in the need to conduct further consultation, and possibly the need to conduct surveys for the TE species. Depending on the results of the consultation and surveys, agencies could impose time-of-year restrictions on Project activities, require mitigation, or require another form of impact avoidance.

Transmission Line Risks

- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.

Substation Risks

- The proposal provided states that the existing Cardiff substation has sufficient space for the additional bays required to connect the underground transmission lines from the transition vault.

Construction Schedule

- For underground transmission lines, extensive construction in road ROW could introduce delays, as some of the two-lane roads that are on the cabling route may require installation on both sides of the roadway.
- The conceptual project schedule developed by the consultant indicates that the aspects of the Project will take approximately 65 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Schedule risks identified due to the permitting that may be required for the Green-acres and Pinelands Reserve and Management area that the project traverses, if additional expansions are required beyond the existing ROW proposed for the project.

Cost Review

Proposal 797

Proposal Cost Estimates

The total proposal cost for ACE's Proposal 797 is given below.

Category	Total Project
	$
Materials & Equipment	$78,075,118.00
Engineering & Design	$10,030,226.00
Construction & Commissioning	$83,478,842.00
Permitting/routing/siting	$3,815,000.00
ROW/Land Acquisition	$1,430,000.00
Construction Management	$10,578,531.00
Overhead & Misc. Costs	$45,305,088.00
Total Component Cost (Current Year)	$232,712,805.00

Independent Cost Estimates

- Costs were developed leveraging standardized units for construction, material, and land acquisition costs
- Costs for engineering, project management, construction management, and overheads utilized standard industry percentages for the size and type of project.
- Units and % were applied evenly across projects where like units were expected or detailed across projects.
- Project costs were evaluated at current year value as projected in the proposal reports.
- Proposal costs associated with Proposal 797 are within reasonable execution ranges with standard risk of underground construction, land development, site development, and scope clarity for components associated with brownfield upgrades.

The following is the independent cost estimate for ACE's proposal 797.

Category	Component 1	Component 2	Proposal Total
	$	$	$
Materials & Equipment	39,309,233	30,685,988	69,995,221
Engineering & Design	10,516,649	9,024,449	19,541,098
Construction & Commissioning	47,979,504	74,454,006	122,433,510
Permitting/routing/siting	350,000	700,000	1,050,000
ROW/Land Acquisition	0	330,000	330,000
Construction Management	4,907,769	5,759,722	10,667,491
Overhead & Misc. Costs	9,275,684	10,885,875	20,161,559
Contingency (20%)	22,467,768	26,368,008	48,835,776
Total	134,806,607	158,208,048	**293,014,655**

Jersey Central Power & Light Company (JCPL) Proposal

Executive Summary

Jersey Central Power & Light Company ("JCP&L") is a subsidiary of the electric public utility company FirstEnergy. JCP&L proposes one Option 1b proposal (Proposal ID 453), and an Option 1a proposal (Proposal ID 17), jointly to allow the injection of 6400 MW of offshore wind generation at the proposed POIs, and address the associated violations identified.

This report focuses on the results of the independent evaluation of Proposal ID 453 (Project), located in Monmouth and Ocean Counties, New Jersey (NJ). The Project includes expansions to address violations caused by off-shore wind points of injections at the Cardiff, Smithburg, Larrabee, and Atlantic substations. The Project components satisfy the violations caused by the injection of 6400 MW by upgrading and expanding the grid.

To provide a complete solution, JCP&L is collaborating with Mid-Atlantic Offshore Development (MAOD) (with Option 2 Proposal IDs: 431, 551, and 321) to integrate the construction of onshore and offshore converter stations with JCP&L's substations and transmission lines. MAOD plans to build the Larrabee Converter Station which is necessary for the JCP&L Projects.

Table 2. **JCPL Proposal 453**

Proposal ID(s)	Description(s)	Capability (MW)
453	2021 SAA Proposal to Support NJ OSW: Option 1b	2490 MW to Smithburg 1200 MW to Larrabee 1200 MW to Atlantic

Proposal 453

Project Overview

The scope of work for the Project consists of the following:

- Rebuilding, expanding, and upgrading equipment at Smithburg substation;
- Upgrading equipment, installing a new 230kV line terminal, and converting the Atlantic substation to a double-breaker double-bus configuration;
- Reconfigure Larrabee substation by upgrading equipment, installing two new breakers, and installing a new 230kV line terminal; modifying structures and installing new conductor between the Atlantic and Larrabee substations for the G1021 Atlantic – Smithburg 230kV circuit;
- Modifying structures and installing new conductor between the Atlantic and Larrabee substations for the R1032 Atlantic – Larrabee 230kV circuit;
- Modifying structures and installing conductor to create a 230kV circuit between the Atlantic and the new Larrabee Converter substations;
- Modifying structures and installing new conductor for a portion of the Larrabee – Oceanview 230kV circuit;
- Installing a new 230kV line between Larrabee and the new Larrabee Converter substation, and modify the B54 Larrabee – South Lockwood 34.5kV line to attach to the new 230kV line where the lines cross

- Constructing two new double-circuit 500kV/230kV lines between Larrabee and Smithburg substations by rebuilding the existing D2004 Larrabee – Smithburg No1 230kV, H2008 Larrabee – Smithburg No2 230kV, G1021 Atlantic – Smithburg 230kV, and E83 115kV lines;
- Rebuilding a portion of the B1042 Cookstown – Larrabee 230kV line as a triple circuit line with the L220 Hyson – Larrabee 34.5kV and K219 Hyson – Larrabee 34.5kV lines;
- Updating relay settings at Freneau, Smithburg, Oceanview, Red Bank, South River, Larrabee, and Lakewood Gen substations.

Constructability Summary

Project 453 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- If the existing structure conditions and new conductor loads warrant a rebuild, cost and schedule will be impacted.
- Reconductoring the lines instead of rebuilding could result in higher maintenance costs in the future
- Vertical design with 500kV over 230kV will result in very tall structures and could result in siting issues or FAA issues.
- Multiple outages and coordination will be required for all existing line reconductors and rebuilds.

Schedule:

- Using the longest component as the critical path, the project is estimated to take approximately 48 months.
- The entity's schedule does not include permitting timelines
- The entity's overall project schedule of 19 months seems aggressive.

Cost Review:

- Independent cost estimate: $ 212,757,352
- Entity's cost estimate: $620,161,325
- ROW costs for Component 14 (New Larrabee Converter-Atlantic 230kV lines) seem high.
- Overall costs seem high for Components 17 (Larrabee Converter-Larrabee 230kV), 18 (Larrabee Converter-Smithburg No1 500kV), and 19 (Larrabee Converter-Smithburg No2 500kV).
- Construction costs seem high for Component 20 (B1042 Cookstown-Larrabee 230kV), 21 (L220 Hyson-Larrabee 34.5kV), and 22 (K219 Hyson-Larrabee 34.5kV).
- Costs for Construction Management seem high across all components.

Constructability Review

Proposal 453

Environmental (Regulatory) Analysis

Desktop Review for Proposal 453

Project 453 is comprised of aerial transmission line work largely within existing rights-of-way (ROW) and a new converter station. For the purpose of the desktop review, the various Project components have been grouped by the substation-to-substation ROW they pass through or are associated with the New Larrabee Converter Station. Project components are grouped as follows:

Smithburg-New Prospect Road ROW (6.0 miles)

- Portion of G1021 Atlantic – Smithburg 230kV circuit (modifying structures and installing new conductor)
- Portion of the construction of two new double-circuit 500kV/230kV lines between Larrabee and Smithburg substations by rebuilding the existing D2004 Larrabee – Smithburg No1 230kV, H2008 Larrabee – Smithburg No2 230kV, G1021 Atlantic – Smithburg 230kV, and E83 115kV lines

New Prospect Road-Larrabee ROW (6.1 miles)

- Portion of G1021 Atlantic – Smithburg 230kV circuit (modifying structures and installing new conductor)
- Portion of the construction of two new double-circuit 500kV/230kV lines between Larrabee and Smithburg substations by rebuilding the existing D2004 Larrabee – Smithburg No1 230kV, H2008 Larrabee – Smithburg No2 230kV, G1021 Atlantic – Smithburg 230kV, and E83 115kV lines
- Rebuilding a portion of the B1042 Cookstown – Larrabee 230kV line as a triple circuit line with the L220 Hyson -Larrabee 34.5kV and K219 Hyson – Larrabee 34.5kV lines

Larrabee-Atlantic ROW (11.5 miles)

- Portion of G1021 Atlantic – Smithburg 230kV circuit (modifying structures and installing new conductor)
- R1032 Atlantic – Larrabee 230kV circuit (modifying structures and installing new conductor)
- New Atlantic – Larrabee Converter 230kV circuit (modifying structures and installing new conductor)
- Portion of Larrabee – Oceanview 230kV (modifying structures and installing new conductor)

Atlantic-Oceanview ROW (4.6 miles)

- Portion of Larrabee – Oceanview 230kV (modifying structures and installing new conductor)

Larrabee Converter Station new acquisition and ROW (18.4 acres)

- new 230kV line between Larrabee and the new Larrabee Converter substation
- modify the B54 Larrabee – South Lockwood 34.5kV line
- New Larrabee Conversion Station

Study Area

An analysis of the on-shore components of the Project mentioned above was performed to assist in the identification of major environmental and socioeconomic features and to provide a base for the extrapolation and derivation of future construction, permitting, mitigation, and land costs studies for the overall Project. A summary of the environmental and socioeconomic features are presented in Table 6 and Table 7 in the appendix. Those features that have a particularly significant direct or indirect bearing on the Project's development are discussed further below. As the on-shore components are proposed to be constructed within existing ROWs, it is not anticipated that their alignments will deviate significantly from the proposed locations. Therefore, the Study Area is a 500-foot buffer centered on the line routes and the area provided for the new Larrabee Conversion Station.

Land Use

Aerial Imagery was used to develop a high-level review of land use and cover in the Project Study Area. The majority of the Project's Study Area is within existing transmission line ROW. Adjacent land use to the Smithburg-New Prospect Road ROW is largely forested with some low density residential land use toward the east. Adjacent land

use to the New Prospect Road-Larrabee ROW is largely forested but passes by a mix of both low and high density residential land use and commercial land use. Adjacent land use to the Larrabee-Atlantic ROW is largely forested but passes by high density residential land use, commercial land use, industrial land use, agricultural land use, and transportation land use. Adjacent land use to the Atlantic-Oceanview ROW is largely forested but passes by a mix of both low and high density residential land use, commercial land use, industrial land use, and transportation land use. The proposed location of the Larrabee Converter Station is in forested land and adjacent to existing transmission line ROW.

The Project is compatible with the land uses crossed. As the various components are expected to be constructed largely in existing transmission line ROW, conflicts with land use are expected to be minimal. Coordination will be needed for the crossings of roadways. If ROWs are expanded, easements will need to be negotiated from adjacent land owners.

Public and Protected Lands

The desktop review showed that the Study Area crosses seven public lands. The Smithburg-New Prospect Road ROW crosses Turkey Swamp State Wildlife Management Area and Turkey Swamp County Park in Freehold Township. The New Prospect Road-Larrabee ROW crosses Edgewood Municipal Park and Woodland Municipal Park in Jackson Township as well as Linear County Park and three Municipal Open Spaces in Howell Township. The Larrabee-Atlantic ROW crosses Allaire State Park, Bear Swamp Municipal Natural Area, and a Municipal Open Space in Howell Township; and Shark River County Park in Wall Township. The Atlantic-Oceanview ROW crosses Sunnyfield Municipal Park in Neptune Township.

A review of the NJ Public Access Locations Search Tool showed that no waterways within the Project Study Area are subject to public trust rights.

The review of NJ Coastal Management Program's list of Excluded Federal Lands showed that no excluded federal lands are crossed by the Project. Review of NJ Farmland Preservation Program's preserved farmland database shows that Tullo Vaccaro Farm farmland conservation easement is crossed by the Larrabee-Atlantic ROW portion of the Project's Study Area.

Special Regulation Regions

Certain urban areas within NJ are deemed as "Special Areas" due to their importance for human use or stringent planning requirements. According to the Division of Land Resource Protection, these areas include Atlantic City, The Hudson River Waterfront Area, and "Special Urban Areas" which are areas the NJ Department of Community Affairs (DCA) defines as municipalities in urban aid legislation qualified to receive State aid to enable them to maintain and upgrade municipal services and offset local property taxes. The Project is not located within the boundaries of either Atlantic City or the Hudson River Waterfront Area. However, the Project crosses two municipalities, Lakewood Township and Neptune Township that qualify as Special Urban Areas (DCA 2022). NJ Admin Code 7:7-9.41 states that any development that would adversely affect the economic wellbeing of these areas is discouraged, when an alternative which is more beneficial to the Special Urban Area is feasible. As the Project is within existing transmission line ROW, adverse effects to the economic wellbeing of these Special Urban Areas is not anticipated.

Certain ecological regions have special protections and regulations administered by the state of NJ. The Pinelands Protection Area is designated for state regulation by the Pinelands Protection Act and the Hackensack Meadowlands District is designated for state regulation by the Hackensack Meadowlands Reclamation and Development Act. The Project is not located within the Hackensack Meadowlands District, or the Pinelands Protection Area.

Based on the desktop review it is not anticipated that the Project will have adverse effects on Special Regulations Regions.

Special Landscape or Hazard Areas

Special hazard areas are areas that the NJDEP deems as having a known actual or potential hazard to public health, safety, and welfare, or to public or private property (NJDEP 2021). These areas include the navigable airspace around airports and seaplane landing areas, potential evacuation zones, hazardous material disposal sites, and areas of hazardous material contamination. Review of special hazard areas within the Study Area showed that no seaplane landing areas or airports were in the vicinity of the Project. The Study Area does cross portions of several hurricane evacuation routes including the Garden State Parkway, NJ-18, and NJ-66 crossed by the Atlantic-Oceanview ROW; NJ-33 crossed by the Larrabee-Atlantic ROW; I-195 crossed by the Smithburg-New Prospect Road ROW and Larrabee-Atlantic ROW; and US-9 crossed by the New Prospect Road-Larrabee ROW.

The review found that the Project crosses four hazardous materials disposal sites. Monmouth County Reclamation Transfer Station, crossed by the Atlantic-Oceanview ROW, is a Transfer Station/Materials Recovery Facility. Rosano Howell Land, LLC is crossed by the Larrabee-Atlantic ROW and is a Class B Solid Waste Recycling Facility. John Blewett, Inc. is crossed by the Larrabee-Atlantic ROW and is a Class B Solid Waste Recycling Facility. Finally, Resource Engineering, LLC is crossed by the Larrabee-Atlantic ROW and the Larrabee Converter Station and is a Class B Solid Waste Recycling Facility.

Aerial imagery of the Project was reviewed for special landscape features, which include coastal bluffs, wet and dry borrow pits, dunes, erosional hazard areas, lagoon edges, and overwash areas. Based on the review it was determined that these special landscape features are not likely impacted by the Project. Furthermore, the Study Area was reviewed for mapped beaches. No beaches were located in Project's Study Area.

Dredged Material Management Areas and filled water's edge areas are also regulated by the NJDEP as special areas. A review of NJDEP's Bureau of GIS' Historic Fill in NJ Data set, and United States Army Corps of Engineers (USACE) data was used to determine the presence of these sites along the Project. Filled water's edge areas were found by cross referencing NJ Geographic Information Network (NJGIN) Wetlands of NJ Data set, the NJDEP Surface Water Quality Classification of NJ Data and Historic Fill in NJ Data sets, along with aerial photography to determine areas of filled water's edge. The review showed that there are 25 sites along the Project's Study Area where historic fill sites overlap with mapped wetlands and or streams and would constitute a filled water's edge. USACE data showed that the Project does not cross any dredged material management areas.

NJ Geodetic Controls are established as reference points used for mapping and charting activities. Review of the control locations showed that two are within the New Prospect Road-Larrabee ROW and one is within the Larrabee-Atlantic ROW.

Federal Emergency Management Agency's Floodplains and Floodways data was reviewed for coastal high hazard areas and flood hazard areas. The review showed that no coastal high hazard floodplains were crossed by the Project's Study Area. However, floodplains and floodways are crossed by all the components of the Project.

Based on the desktop review it is anticipated that the Project will cross Special Landscape or Hazard Areas. This may result in more rigorous permitting processes or special construction requirements. The construction of the Larrabee Converter Station in the Resource Engineering, LLC Class B Solid Waste Recycling Facility may require that a Phase 1 environmental site assessment be conducted.

Waterbodies and Wetlands

The presence of wetlands can impact Project permitting and construction. In addition to the need to adopt special construction techniques (including avoidance) for specific wetland types and field conditions, the types of wetlands encountered has significant implications from a permitting and compensatory mitigation perspective.

Based on the desktop review, wetlands and waterbodies appear to be crossed by the Project. Depending on the type of crossings, permitting and construction schedules can be impacted. An on-site delineation would be required to determine the actual location and extent of wetlands and waterbodies present and to assess permitting implications for jurisdictional features.

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

It is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required. The results of this review are included in Appendix A - Table 7. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

The NJ SHPO data sets for historic districts, historic properties, and archaeological site grids were used to determine the presence of known cultural resources in the Study Area. The review showed that the Project crosses through two historic districts, the NJ Southern Railroad Historic District crossed by the Larrabee-Atlantic ROW and the New Prospect Road-Larrabee ROW; and the Garden State Parkway Historic District crossed by the Atlantic-Oceanview ROW. The Study Area crosses five historic properties, including: Anthony Ventrua Studio crossed by the Atlantic-Oceanview ROW, Schneider Building and Collingwood Flea Market Building crossed by the Larrabee-Atlantic ROW, 154 Squankum Road, NJ Central Railroad Bridge crossed by the New Prospect Road-Larrabee ROW, and Traut House crossed by the Smithburg-New Prospect Road ROW.

While not pinpointing the exact location, the archaeological site grid identifies the presence of known archaeological resource within a half-mile by half-mile area. The Study Area crosses through six grids. The Atlantic-Oceanview ROW passes through one grid with identified resources. The Larrabee-Atlantic ROW passes through two grids with eligible resources and three grids with identified resources.

Impacts associated with cultural resources include both direct (physical) and indirect (viewshed) considerations. Utilization of existing ROWs for the Project should mitigate some potential concerns regarding both consideration types, however changes in tower heights and other necessary construction elements such as access roads or laydown yards must also be considered when assessing impacts. Coordination with NJ Historic Preservation Office will need to be conducted to determine required surveys (if any) to assess the extent of impact to cultural resources in the Project vicinity.

Federal, State, and Local Environmental Permits

Appendix A - Table 8 lists the environmental permits, authorizations, clearances, and consultations that could be required for the Project's components. For each authorization, the table identifies the administrating agency/authority, anticipated agency review timeframe, and additional information to be considered. The table represents a list of typically required permits for similar projects in the same area and is not specific to the Project.
Although the Project-specific details included in this report can assist in the planning stages of the Project, additional reviews should be conducted as the Project is further developed and the extent of environmental impacts is known.

Federal Permits and Authorizations

Depending on the outcome of the environmental survey and Division of Land Resource Protection (DLRP) inspection and the final design of Project facilities, the Project could require several federal permits, authorizations, and consultations prior to construction. In addition, USFWS consultations and authorizations under Section 7 of the

Endangered Species Act (ESA) could also be required to be obtained prior to receiving federal permits. These consultation and concurrences are discussed below in greater detail.

USACE Section 404

In NJ, the NJDEP is the agency delegated responsibility to implement Section 404 of the Clean Water Act (33 U.S.C. 13574), which regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. The exception being an activity proposed in a tidal water or water designated under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403), for which the USACE has regulatory authority. The Project is located within the jurisdictional boundaries of both the New York and Philadelphia Districts of the USACE, with the majority of the proposed work occurring in the Philadelphia District. No Section 10 waters are crossed in the Philadelphia District. The New York District Office would need to be contacted to confirm if a Section 10 designated water is crossed by the Project within their district.

USFWS Endangered Species Consultation and Clearance

For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered species and critical habitats are appropriately addressed under Section 7 of the ESA. The Project falls within the jurisdictional boundary of the USFWS NJ Ecological Services Field Office. Initial screening for many projects in NJ may be conducted online utilizing the IPaC online tool and county data compiled by the NJDEP. A “preliminary” screening for the Project has been completed, with results discussed in detail in the previous TE Species section of this report.

Typically, early consultation with USFWS will be of paramount importance. Coordination with the USFWS NJ Ecological Services Field Office will be required to determine the extent of survey and/or mitigation needed for each species.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, new or additional field surveys. Species-specific surveys and construction timeframes may be applicable.

State Permits

It is anticipated that the Project could require the following state environmental permits, consultations, clearances, and authorizations, including:

- State Protected Species Consultations
- State Historic Preservation Office (SHPO) Consultations and Clearances
- Freshwater Wetlands Permits
- Coastal Wetlands Permits
- Waterfront Development Permit
- Flood Hazard Area Permit
- Tidelands License
- Green Acres Program Diversion Permit
- NJ Pollutant Discharge Elimination System Permits (NJPDES) Basic Industrial Stormwater Permit
- Air Quality Permits

Green Acres Program Diversion Permit:

Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to NJ’s state parks, forests, natural areas, and wildlife management areas. The Larrabee–Atlantic and New Prospect Road – Smithburg components are encumbered by Green Acres properties. The Larrabee–Atlantic portion crosses

Allaire State Park and multiple municipal green spaces. The New Prospect Road – Smithburg portion also crosses multiple municipal green spaces and approximately 3.5 miles of Turkey Swamp State Park and Wildlife Management Area. All proposed impacts on Green Acres properties are within existing ROWs and agreements may already be in place for future diversions. A statute passed by the NJ state legislature in 2021 may grant the authority to the NJ Bureau of Public Utilities (NJBPU) to override the Green Acres regulations for the purpose of off-shore wind transmission projects.

Local Permits and Approvals
It is anticipated that the Project could require the following county and municipal permits, consultations, clearances, and authorizations:

- Zoning Permits,
- Road Permits,
- Building Permits, and
- Erosion and Sediment Control Plan.

Private Permits
Activities located within railroad ROWs require permits from the owner and operators of the rail lines. Multiple sections of the Project cross railroad lines. The Project's rail crossings are within existing ROWs and agreements may already be in place for the crossings.

Roadway Permits
Activities located within public road ROWs require permits from local, and state departments of transportation. Activities requiring permits could include the placement of overhead or underground transmission lines within road ROWs and temporary construction access points. Major highways crossed by the Project including Interstate 195 (twice), US 9, NJ 18, and the Garden State Parkway. Crossings of Interstate 195 will require permission of the Federal Highways Administration. The Garden State Parkway is managed by the NJ Turnpike Authority (NJTA) and requires a license to cross for utility lines as well as construction easements when NJTA property is impacted. Roadway permits carry an average review time of six months.

Environmental (Regulatory) Risks

Right-of-Way and Easement Risks

- Securing easements and using previously secured easements has been identified as a critical constraint. Easements can be held in perpetuity and may not allow additional development, depending on the easement type and language. Each parcel crossed by the transmission line ROW could have an easement with the property owner, which would need to be reviewed to identify the extent of the easement and the restrictions surrounding it. The majority of the rebuilds and reconductors associated with the Project are in existing ROWs and it is possible that there are existing agreements in place that would accommodate the Project.
- Supplemental ROW easements may be needed around the Larrabee Converter Station and connecting transmission line, and other agreements or easements may be required for the development of access roads. The requirements or availability of obtaining supplemental easements is unclear until coordination with the property owner or review of the easement language is conducted.

Permitting Risks

- The Project has the potential to impact environmental resources including streams and wetlands within coastal and freshwater ecosystems, and impacts to these resources outside of the existing ROW may require a number of permits.
- In addition, permits may be needed if the proposed construction activity is not covered under the blanket permit. If impacts to freshwater wetlands exceed a threshold of 0.5-acre for aboveground impacts, or one-acre of total wetland impact, general permits may not be applicable and an individual permit may need to be acquired, which will include a lengthier review time. Mitigation is also required if the Project permanently disturbs or impacts 0.1-acre or more of freshwater wetland.
- All linear components of the Project are within existing maintained ROWs. However, pending final design, the substation expansion and reconfigurations may extend outside existing ROW and may impact Green Acres areas requiring a Green Acres Program Diversion permit.
- Consultation with the NJDEP earlier in the Project's development will help mitigate risks by addressing permitting concerns and allowing for a larger consultation and permitting timeline. If helicopters are used to install or reconductor the electric transmission line structures, impacts to environmental areas of concern may be reduced.

TE Species Risks

- Review of various sources that maintain TE species records indicated the potential for numerous species to be located within the vicinity of the Project. The Project's proponents should conduct an independent TE species review once the potential limits of disturbance and environmental impacts are better known to fully ascertain the requirements for mitigation associated with the sensitive species. Additionally, it is possible that new TE species location information may be added to the state and federal agency databases, and that the Project will be located within the new occurrence area. This could result in the need to conduct further consultation, and possibly the need to conduct surveys for the TE species. Depending on the results of the consultation and surveys, agencies could impose time-of-year restrictions on Project activities, require mitigation, or require another form of impact avoidance.

Transmission Line Risks

- Rebuilding or reconductoring the existing lines within the existing ROW minimizes construction and design risks.
- For the lines between Atlantic and Larrabee substations, it is assumed that the existing structures are in good condition and can be reused with the proposed conductors. It is assumed that a portion of the existing towers will need to be reinforced.
- If a rebuild is needed due to structure conditions, over-stressed structures, or clearance violations caused by the proposed conductor; costs and schedule will be affected.

Substation Risks

- Schedule risks identified based on outage windows for the existing 230kV and 500kV substations and transmission lines.

Construction Schedule

- The conceptual project schedule developed by the consultant indicates that the Project will take approximately 48 months to complete, from Project initiation to energization.

- It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.

Cost Review

Proposals 453

Proposal Cost Estimates

The total proposal cost for JCP&L proposal 453 is provided below.

Category	Full Project
	$
Materials and Equipment	$104,409,933.66
Engineering and Design	$15,286,080.88
Construction and Commissioning	$234,264,910.42
Permitting/Routing/Siting	$1,700,062.41
ROW/Land Acquisition	$1,502,944.00
Construction Management	$38,908,403.60
Overheads/Misc. Cost	$178,141,712.24
Contingency	$45,947,278.19
Total Cost (Current Year)	**$620,161,325.40**

Independent Cost Estimates

As part of this study, PJM's consultant performed a high-level conceptual cost estimate for the Project. The consultant's estimate is based on a high-level assessment of probable costs for the current conceptual design and is reflective of their previous experience with substation engineering, transmission line engineering, and construction. The total does include a contingency of 30 percent as it is a concept level estimate.

The Independent estimates for JCP&L's Proposal 453 are summarized in the table below:

Category	Full Project

	$
Materials and Equipment	$50,791,532.58
Engineering and Design	$8,653,868.39
Construction and Commissioning	$88,140,868.05
Permitting/Routing/Siting	$2,929,824.83
ROW/Land Acquisition	$997,000.00
Construction Management	$14,101,664.59
Overheads/Misc. Cost/ Contingency	$47,142,593.42
Total Cost (Current Year)	**$212,757,351.86**

Cost Estimate Comparison

- Independent cost estimate: $212,757,352
- Entity's cost estimate: $620,161,325

Independent evaluation of JCP&L Proposal cost estimates:

- ROW costs for Component 14 (New Larrabee Converter-Atlantic 230kV lines) seem high.
- Overall costs seem high for Components 17 (Larrabee Converter-Larrabee 230kV), 18 (Larrabee Converter-Smithburg No1 500kV), and 19 (Larrabee Converter-Smithburg No2 500kV).
- Construction costs seem high for Component 20 (B1042 Cookstown-Larrabee 230kV), 21 (L220 Hyson-Larrabee 34.5kV), and 22 (K219 Hyson-Larrabee 34.5kV).
- Costs for Construction Management seem high across all components.

Assumptions for Proposal 453 Independent Cost Estimates

Component 1: Atlantic Substation:

- The existing substation will not need to be expanded to accommodate the new equipment
- The substation upgrade will contain the following equipment:
  - Twenty-one 230kV Circuit Breakers
  - Forty 230kV Group Operated Disconnect Switches
  - Ten 230kV Motor Operated Disconnect Switches
  - Thirty-three 230kV CCVTs
  - Thirty-three 230kV Surge Arresters
  - One 230kV dead end structure
  - Ten Line Relay Panels
  - Twenty-one Breaker Control Panels

    - One Control Building
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 2: Freneau Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 3: Smithburg Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 4: Oceanview Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 5: Red Bank Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 6: South River Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 7: Larrabee Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 8: Atlantic Substation - Install line terminal

- The existing substation will not need to be expanded to accommodate the new terminal
- The substation upgrade will contain the following equipment:
    - Two 230kV Circuit Breakers
    - Five 230kV Group Operated Disconnect Switches
    - Three 230kV CCVTs
    - Three 230kV Surge Arresters
    - One 230kV dead end structure
    - One Line Relaying Panel
    - Two Breaker Control Panels
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 9: Larrabee Substation - Reconfigure substation

- The existing substation will not need to be expanded to accommodate the new equipment
- The substation upgrade will contain the following equipment:
    - One 230kV Circuit Breaker
    - Two 230kV Group Operated Disconnect Switches
    - One Line Relaying Panel
    - One Breaker Control Panel
- The existing relays will be re-used and settings will be adjusted.
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 10: Larrabee substation: 230kV equipment for direct connection

- The existing substation will not need to be expanded to accommodate the new equipment
- The substation upgrade will contain the following equipment:
    - One 230kV Circuit Breaker
    - Two 230kV Group Operated Disconnect Switches
    - One 230kV Motor Operated Disconnect Switch
    - Three 230kV CCVTs
    - Three 230kV Surge Arresters
    - One 230kV dead end structure

  - One Line Relaying Panel
  - One Breaker Control Panel
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 11: Lakewood Gen Substation - Update relay settings

- The existing relays will be re-used and settings will be adjusted.

Component 12: G1021 Atlantic – Smithburg 230kV Line

- Relocate the circuit to a new bay position at Atlantic substation.
- Reconfigure 7.9 miles of the G1021 Atlantic - Smithburg 230kV line to move the circuit to the west side of the structures, on the west side of the ROW corridor, between Atlantic substation and Structure 15179. The top phase on the west side of the structures is already 1590 ACSR 45/7 conductor. Two additional phases of 1590 ACSR 45/7 conductor shall be installed on the middle and bottom phase locations.
- Deadend and angle structures will need to have arms installed in the middle and bottom phase positions.
- Existing shield wire to remain.
- To reduce future maintenance costs and outages, all hardware and insulators will be installed or replaced for all three phases on 17 deadend and 44 suspension structures.
- One new structure outside of Atlantic substation will be a self-supporting steel monopole deadend with a drilled shaft foundation.
- The existing structures are in good condition and can be reused. The steel monopoles between Atlantic substation and Structure 15179 were designed as double circuit, but presently only support the G1021 (Atlantic-Smithburg) 230kV circuit. The existing lattice towers between Structure 15179 and Larrabee substation are in good condition and require no modifications.
- The line will use the existing corridor and no additional ROW will be needed.

Component 13: R1032 (Atlantic-Larrabee) 230kV Line

- Reconfigure 7.9 miles of the R1032 Atlantic – Larrabee 230kV line to move the circuit to the east side of the structures, on the west side of the ROW corridor, between Atlantic substation and Structure 15179.
- Three phases of new 1590 ACSS/TW 42/19 conductor will be installed.
- Existing shield wire to remain.
- Deadend and angle structures will need to have one arm installed in the bottom phase position.
- To reduce future maintenance costs and outages, all hardware and insulators shall be installed or replaced for all three phases on 17 deadend and 44 suspension structures.
- Zero new structures included with this component.
- The existing structures are in good condition and can be reused. The steel monopoles between Atlantic substation and Structure 15179 were designed as double circuit, but presently only support the G1021 (Atlantic-Smithburg) 230kV circuit. The existing lattice towers between Structure 15179 and Larrabee substation are in good condition and require no modifications.
- The line will use the existing corridor and no additional ROW will be needed.

Component 14: New Larrabee Converter-Atlantic 230kV Line

- Install 11.6 miles of new double-bundle 636 ACSS 26/7 conductor between the new Larrabee Converter substation and Atlantic substation. The line will be installed on the east side of the existing structures, on the east side of the ROW corridor, starting at Structure 15207, located just outside of Larrabee substation, and will continue north to Atlantic substation.
- For 3.7 miles, between Structure 15207 and Structure 63, the existing steel monopoles structures will need to be modified to accommodate the new bundled circuit by installing three braced post insulator assemblies

on tangent structures and six deadend insulator assemblies on the existing vacant arms of deadend structures.

- For the 7.9 miles between Structure 63 and Atlantic Substation, the new circuit will be supported on lattice towers. The angle and deadend structures will require reinforcement to accommodate the bundled conductor.
- There is a total of 24 deadends, 21 tangent steel monopoles with braced posts, and 49 tangent lattice towers.
- Existing shield wire to remain. 0.3-mile of new Optical Ground Wire (OPGW) will be needed to connect to the new Larrabee Converter substation.
- Two new self-supporting steel monopole deadend structures with drilled shaft foundations will be utilized to get from the new Larrabee Converter substation to the existing Atlantic-Larrabee ROW.
- The existing steel monopole structures and tangent lattice towers are in good condition and can be reused with no modifications.
- The line will use the existing corridor and no additional ROW will be needed, with the exception of 0.3-mile of new ROW to accommodate the termination of the line into the Larrabee converter substation.

Component 15: Larrabee-Oceanview 230kV Line

- Modify structures in the first 3.7 miles north of Larrabee substation to carry the Larrabee-Oceanview 230kV circuit on the west side of the steel poles located on the east side of the ROW corridor.
- Between Structures 15207 and 63, the existing steel monopole structures will need to be modified to accommodate the circuit by installing one braced post insulator assembly on tangent structures and two deadend insulator assemblies on a new davit arm on deadend structures for the bottom phase.
- Install one phase of 1590 ACSS/TW 42/19 conductor in the bottom phase location. The top two existing phases are currently 1590 ACSS/TW 42/19 conductor and require no modifications.
- North of Structure 63 the Larrabee-Oceanview 230kV circuit is supported on the west side of the eastern 230kV structures until it leaves the ROW just south of Atlantic Substation and heads to Oceanview substation. No modifications will be required north of Structure 63.
- There is a total of 9 deadends and 21 tangent steel monopoles with braced posts.
- Existing shield wire to remain.
- No new structures are included with this component.
- The existing steel monopole structures and lattice towers are in good condition and can be reused with no modifications.
- The line will use the existing corridor and no additional ROW will be needed.

Component 16: B54 Larrabee-South Lockwood 34.5kV Line Transfer

- Remove one existing tangent structure and transfer the existing conductor and shield wire onto a newly built 230kV deadend monopole structure, which is part of Component 17's new Larrabee Converter-Larrabee 230kV Line.
- The existing wires are in good condition and can be reused.
- Zero new structures included with this component.
- No additional ROW will be needed.

Component 17: Larrabee Converter-Larrabee 230kV New Line

- Construct a new 0.3-mile 230kV line from the Larrabee Converter Substation to the Larrabee substation.
- Conductor will be double-bundled 2312 ACSR 76/19 with OPGW shield wire.
- New structures will be single-circuit self-supporting steel poles with drilled shaft foundations. New structures include:

  - 2 – Deadend monopole with davit arms
  - 2 – Custom monopole horizontal deadend structure
  - 1 – Two-pole deadend structure
- The line will be on substation property and require no additional ROW.
- Minimal clearing will be required.

Component 18: Larrabee Converter-Smithburg No1 500kV Line

- Construct a new 12.2-mile 500kV line from the Larrabee Converter Substation to Smithburg substation.
- The line will be double circuited with the G1021 Atlantic – Smithburg 230kV Line, which is included in project component 24. The structures will be on the north side of the shared transmission line corridor, replacing the Atlantic – Smithburg 230kV line, and the 500kV line will be on the south side of the structures.
- Conductor will be double-bundled 2493 ACAR 54/37 with OPGW shield wire.
- New suspension structures will be double-circuit self-supporting steel poles with drilled shaft foundations and new deadend structures will consist of two single-circuit self-supporting steel monopoles with drilled shaft foundations. New structures include:
  - 15 – Deadend monopole structures
  - 3 – Two-pole H-frame deadend structures
  - 56 – Suspension structures
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- Structure removals are included in other project components.
- Minimal clearing will be required.

Component 19: Larrabee Converter-Smithburg No2 500kV Line

- Construct a new 12.2-mile 500kV line from the Larrabee Converter Substation to Smithburg substation.
- The line will be double circuited with the D2004 Larrabee – Smithburg No1 230kV Line, which is included in project component 26. The structures will be on the south side of the shared transmission line corridor, replacing the Larrabee – Smithburg 230kV double circuit line, and the 500kV line will be on the south side of the structures.
- Conductor will be double-bundled 2493 ACAR 54/37 with OPGW shield wire.
- New suspension structures will be double-circuit self-supporting steel poles with drilled shaft foundations and new deadend structures will consist of two single-circuit self-supporting steel monopoles with drilled shaft foundations. New structures include:
  - 15 – Deadend monopole structures
  - 2 – Two-pole H-frame deadend structures
  - 2 – Three-pole deadend structures
  - 56 – Suspension structures
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- Structure removals are included in other project components.
- Minimal clearing will be required.

Component 20: B1042 Cookstown-Larrabee 230kV Line

- Rebuild 3.2 miles of the B1042 Cookstown-Larrabee 230kV Line between Larrabee substation and Structure 20.
- The line will be triple circuited with the L220 Hyson-Larrabee 34.5kV and K219 Hyson-Larrabee 34.5kV lines, which are included in project components 21 and 22. The structures will be on the south side of the shared transmission line corridor, replacing the existing B1042 Cookstown-Larrabee-Whitings 230KV, K219 34.5kV, and L220 34.5kV lines.

- Conductor will be 1590 ACSR 45/7 with OPGW shield wire.
- New structures will be self-supporting steel monopoles with drilled shaft foundations. The 230kV circuit is assumed to be framed with delta suspension arms above double circuit 34.5kV lines shall be supported on davit arms. New structures include:
    - 7 – Deadend monopole structures
    - 13 – Suspension structures
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- Existing lattice towers to be removed.
- Minimal clearing will be required.

Component 21: L220 Hyson-Larrabee 34.5kV Line

- Rebuild 3.2 miles of the L220 Hyson-Larrabee 34.5kV Line between existing Structures 8 and 95.
- The line will be underbuilt on the B1042 Cookstown-Larrabee 230kV Line, which is project component 20. The structures will be on the south side of the shared transmission line corridor, replacing the existing B1042 Cookstown-Larrabee-Whitings 230KV, K219 34.5kV, and L220 34.5kV lines.
- Conductor will be 795 ACSR 26/7.
- One new single circuit self-supporting steel monopole deadend structure with a drilled shaft foundation is included in this component.
- New triple-circuit structures will be self-supporting steel monopoles with drilled shaft foundations, included in component 20. The 34.5kV lines shall be supported on davit arms. This component shall include arms, insulators, and hardware for the 34.5kV circuit on:
    - 7 – Deadend structures
    - 13 – Suspension structures
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- 86 existing wood pole structures to be removed, split with component #22.
- Minimal clearing will be required.

Component 22: K219 Hyson-Larrabee 34.5kV Line

- Rebuild 3.2 miles of the K219 Hyson-Larrabee 34.5kV line between existing Structures 8 and 95.
- The line will be underbuilt on the B1042 Cookstown-Larrabee 230kV Line, which is project component 20. The structures will be on the south side of the shared transmission line corridor, replacing the existing B1042 Cookstown-Larrabee-Whitings 230KV, K219 34.5kV, and L220 34.5kV lines.
- Conductor will be 795 ACSR 26/7.
- One new single circuit self-supporting steel monopole deadend structure with a drilled shaft foundation is included in this component.
- New triple-circuit structures will be self-supporting steel monopoles with drilled shaft foundations, included in component 20. The 34.5kV lines shall be supported on davit arms. This component shall include arms, insulators, and hardware for the 34.5kV circuit on:
    - 7 – Deadend structures
    - 13 – Suspension structures
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- 86 existing wood pole structures to be removed, split with component #21.
- Minimal clearing will be required.

Component 23: E83 Line 115kV Line (Not In Service)

- Remove approximately 7.7 miles 115kV transmission line.

- The line includes:
  - 67 single circuit wood h-frames structures
  - 10 single circuit wood three-pole structures

Component 24: G1021 Atlantic-Smithburg 230kV Line

- Construct a new 12.2-mile 230kV line from Atlantic substation to Smithburg substation.
- The line will be double circuited with the Larrabee Converter-Smithburg No1 500kV Line, which is included in project component 18. The structures will be on the north side of the shared transmission line corridor, replacing the Atlantic – Smithburg 230kV line, and the 230kV line will be on the north side of the structures.
- Conductor will be 1590 ACSR 45/7 with OPGW shield wire.
- New suspension structures will be double-circuit self-supporting steel poles with drilled shaft foundations (cost included on component 18) and new deadend structures will consist of two single-circuit self-supporting steel monopoles with drilled shaft foundations. New structures include:
  - 18 – Deadend monopole structures
  - 56 – Suspension structures (arms and insulator assemblies only)
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- Structure removals are included in other project components.
- Minimal clearing will be required.

Component 25: H2008 Larrabee Smithburg No2 230kV Line

- Remove approximately 12.2 miles 230kV transmission line.
- The line includes:
  - 65 single circuit wood h-frames structures
  - 10 single circuit wood three-pole structures
  - 25 lattice towers

Component 26: D2004 Larrabee-Smithburg No1 230kV Line

- Construct a new 12.2-mile 230kV line from Larrabee substation to Smithburg substation.
- The line will be double circuited with the Larrabee Converter-Smithburg No2 500kV Line, which is included in project component 19. The structures will be on the south side of the shared transmission line corridor, replacing the Larrabee – Smithburg 230kV double circuit line, and the 230kV line will be on the north side of the structures.
- Conductor will be 1590 ACSR 45/7 with OPGW shield wire.
- New suspension structures will be double-circuit self-supporting steel poles with drilled shaft foundations (cost included on component 18) and new deadend structures will consist of two single-circuit self-supporting steel monopoles with drilled shaft foundations. New structures include:
  - 12 – Deadend monopole structures
  - 2 – Two-pole H-frame deadend structures
  - 56 – Suspension structures (arms and insulator assemblies only)
- The line will utilize an existing shared ROW corridor and no additional ROW will be needed.
- Structure removals are included in other project components.
- Minimal clearing will be required.

Component 27: Smithburg Substation 500 kV Expansion

- The existing substation will not need to be expanded to accommodate the new equipment.
- The substation upgrade will contain the following equipment:
  - One 500kV Circuit Breaker
  - Two 500kV Motor Operated Disconnect Switch

  - Fifteen 500kV CCVTs
  - Nine 500kV Surge Arresters
  - One 500kV dead end structure
  - One Line Relaying Panel
  - One Breaker Control Panel
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 28: Larrabee Substation

- The existing substation will not need to be expanded to accommodate the new equipment.
- The substation upgrade will contain the following equipment:
  - Replacement wiring for various breakers and yard equipment
- The existing relays will be re-used and settings will be adjusted.
- The contractor will be performing the testing of major material, relays, and construction labor.

Component 29: Smithburg Substation 500kV 3 Breaker Ring Bus

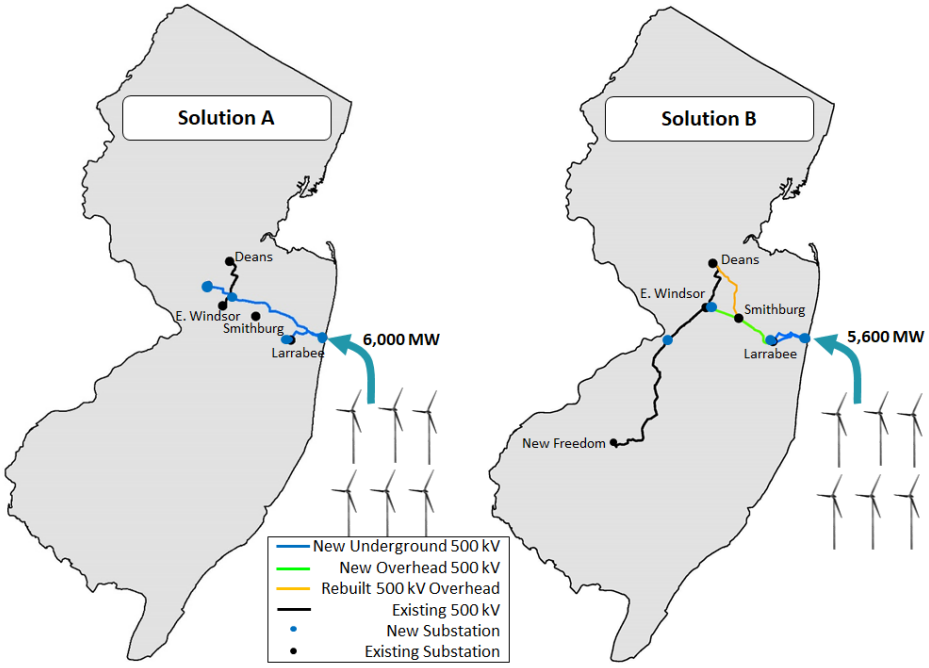
- The existing substation will be expanded to accommodate new equipment. The expansion will be entirely within existing JCPL owned real estate.
- The substation expansion will contain the following equipment:
  - Three 500kV Circuit Breakers
  - Six 500kV Breaker Disconnect Switches
  - Three 500kV Motor Operated Disconnect Switches
  - Three 500kV dead end structures
  - Nine 500kV CCVTs
  - Nine 500kV Surge Arresters
  - Two 500kV Wave Traps and line tuners
  - Nine 230kV Circuit Breakers
  - Seven 230kV dead end structures
  - Eighteen 230kV Breaker Disconnect Switches
  - Six 230kV Motor Operated Disconnect Switches
  - Twenty-four 230kV CCVTs
  - Eighteen 230kV Surge Arresters
  - Two 230kV Station Service Transformers
  - Four 34.5kV Circuit Breakers
  - Seven 34.5kV Manual Disconnect Switches
  - Two 34.5kV Motor Operated Disconnect Switches
  - Three 34.5kV Bus PTs
  - Two 34.5kV dead end structures
  - Six 34.5kV Surge Arresters
  - One 34.5kV Capacitor Bank
- The contractor will be performing the testing of major material, relays, and construction labor.

LS Power Grid Mid-Atlantic (CNTLTM) Proposals

Executive Summary

LS Power Grid Mid-Atlantic, LLC's (LSPG) provided six proposals to integrate offshore wind generation into the New Jersey transmission system. These six proposals consist of five onshore transmission solutions (Option 1b) and one offshore solution (Option 2). Each Option 1b proposal can be implemented independently or combined with the Option 2 proposal – in either case the solution is labeled the "Clean Energy Gateway".

LSPG identified two solutions (A and B) for their Option 1b proposals, which both provide a new high voltage substation near the shore with connections to the Larrabee substation and the existing 500 kV system via new 500 kV transmission circuits in existing rights-of-way. Both solutions can facilitate the integration of OSW selected in BPU Solicitation 2 and allow New Jersey to exceed its 7,500 MW OSW goal. The Option 1b solutions are represented in the figure below and summarized below.



- Solution A (Proposal ID 781) delivers up to 6,000 MW with the lowest impact to the environment and communities and most resilience by placing all new transmission underground. This solution eliminates the need to rebuild existing infrastructure limiting construction outages and providing simplified outage sequencing to reduce risk and energy market impacts during construction.
- Solution A – Light (Proposal ID 294) reflects phasing the project in a manner to achieve an initial delivery of 4,200 MW with the remaining portion to be constructed at a later date to achieve the full capability.
- Solution B (Proposal ID 629) provides an alternative utilizing new overhead transmission construction in existing rights-of-way to achieve the lowest upfront cost. This solution removes existing 230 kV transmission lines and replaces them with 500 kV transmission lines without expanding existing rights-of-way.
- Solution B – Light (Proposal ID 627) reflects phasing the project in a manner to achieve an initial delivery of 4,200 MW with the remaining portion to be constructed at a later date to achieve the full capability.
- Solution B – Alternate (Proposal ID 72) increases system connectivity with an additional overhead 500 kV transmission line in existing rights-of-way to enhance system stability.

Table 3. **LSPG Option 1b Proposals**

Proposal ID(s)	Description(s)	Capability (MW)
781	**Clean Energy Gateway - Solution A**	**6000 MW**
294	Clean Energy Gateway - Solution A Light	4200 MW
629	**Clean Energy Gateway - Solution B**	**5600 MW**
627	Clean Energy Gateway - Solution B Light	4200 MW
72	**Clean Energy Gateway - Solution B-Alt**	**5600 MW**

Due to expected similarities in constructability results between the Option 1b Solution A and Solution A Light proposals (Proposals 781 and 294), only the full Solution A Proposal 781 for 6,000 MW is addressed in this report. Similarly, for the Option 1b Solution B and Solution B Light proposals (Proposals 629 and 627), only the full Solution B Proposal 629 for 5,600 MW is addressed in this report. Solution B-Alt (Proposal 72) is also addressed in this report due to the additional scope of work at Smithburg, and additional Greenfield line compared to Solution B.

Proposal 781 (Solution A)

Project Overview

Project #781 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey. The project consists of the following components:

- Four (4) proposed onshore green-field substations: Lighthouse, Crossroads, Gateway, Wells Landing.
- 450 MVAR STATCOM at Gateway
- One (1) on-shore Midpoint compensation station
- Four (4) 500kV underground circuits in two duct banks in the same corridor from Lighthouse to Midpoint to Gateway substations.
- Two (2) 500kV underground circuits in one duct bank, from Gateway to Wells Landing.
- Two (2) 500kV underground circuits in one duct bank, from Lighthouse to Crossroads.
- One (1) network upgrade at existing substation Larrabee

Note that the scope of work for Proposal 294 (Solution A Light) is identical to Proposal 781, with the following difference:

- Does not include Cross Roads green-field substation and the 2 Lighthouse – Cross Roads 500 kV underground circuits.

Constructability Summary

Project 781 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.

Substation Analysis:

- Lighthouse substation will require significant scheduling support when purchasing the high voltage equipment. The quantities of extra-high-voltage equipment within this single substation will require careful coordination and sourcing of the required materials as one vendor may not be able to provide all components in a timely fashion.

Schedule:

- Using the longest component as the critical path, the project is independently estimated to take approximately 112 months.
- The entity's overall construction schedule of 68 months seems aggressive for the scope of work described.

Cost Review:

- Independent cost estimate: $1,432,288,712
- Entity's cost estimate: $1,771,904,677

Proposal 629 (Solution B)

Project Overview

Project #629 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey. The project consists of the following components:

- Four (4) proposed onshore green-field substations: Lighthouse, Crossroads, Garden View, Old York.
- 450 MVAR Synchronous condensers at Crossroads
- Lighthouse to Crossroads Corridor 1, four (4) circuit 500kV UG Transmission Line
- Lighthouse to Crossroads Corridor 2, two (2) circuit 500kV UG Transmission Line
- Crossroads to Smithburg OH 500kV Line, re-built on existing ROW
- Crossroads to Gardenview OH 500kV Line, re-built on existing ROW
- Three (3) network upgrades at existing substations: Larrabee, Smithburg, Deans.

Note that the scope of work for Proposal 627 (Solution B Light) is identical to Proposal 629, with the following difference:

- Does not include Lighthouse to Crossroads Corridor 3 (2 Lighthouse – Cross Roads 500 kV underground circuits).

Constructability Summary

Project 629 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.
- Project assumes right-of-way from incumbent transmission owner's line Smithburg to New Prospect to New Atlantic 230kV, indicating that the line will be removed and rebuilt onto a double circuit structure that will also contain the new 500kV Crossroads - Smithburg transmission line.
- Project also assumes right-of-way from incumbent transmission owner's line Larrabee to Smithburg to East Windsor 230kV, indicating that the line will be removed and retired making room for the new 500kV Crossroads - Gardenview transmission line.
- No details provided indicating that the incumbent transmission owner has been consulted about the proposed removal/rebuild/retirement of their lines.

Substation Analysis:

- Lighthouse substation will require significant scheduling support when purchasing the high voltage equipment. The quantities of extra-high-voltage equipment within this single substation will require careful coordination and sourcing of the required materials as one vendor may not be able to provide all components in a timely fashion.

Schedule:

- Using the longest component as the critical path, the project is independently estimated to take approximately 100 months.
- The entity's overall construction schedule of 77 months seems aggressive for the scope of work described.

Cost Review:

- Independent cost estimate: $ 1,313,534,588.27
- Entity's cost estimate: $ 1,568,114,351.07

Proposal 72 (Solution B-Alt)

Project Overview

Project #72 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey. The project consists of the following components:

- Four (4) on-shore green-field substations: Lighthouse, Crossroads, Garden View, Old York.
- Reduce Crossroads synchronous condensers to 225 MVAR
- Lighthouse to Crossroads Corridor 1, two (2) circuit 500kV UG Transmission Line
- Lighthouse to Crossroads Corridor 2, two (2) circuit 500kV UG Transmission Line
- Lighthouse to Crossroads Corridor 3, two (2) circuit 500kV UG Transmission Line

- Crossroads to Smithburg OH 500kV Line, re-built on existing ROW
- Crossroads to Gardenview OH 500kV Line, re-built on existing ROW
- Smithburg to Deans OH 500kV Line
- Interconnect the new Crossroads to Gardenview 500kV OH line into the Smithburg substation.
- Three (3) network upgrades at existing substations: Larrabee, Smithburg, Deans.

Constructability Summary

Project 72 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.
- Project assumes right-of-way from incumbent transmission owner's line Smithburg to New Prospect to New Atlantic 230kV, indicating that the line will be removed and rebuilt onto a double circuit structure that will also contain the new 500kV Crossroads - Smithburg transmission line.
- Project also assumes right-of-way from incumbent transmission owner's line Larrabee to Smithburg to East Windsor 230kV, indicating that the line will be removed and retired making room for the new 500kV Crossroads - Gardenview transmission line.
- No details provided indicating that the incumbent transmission owner has been consulted about the proposed removal/rebuild/retirement of their lines.

Substation Analysis:

- Lighthouse substation will require significant scheduling support when purchasing the high voltage equipment. The quantities of extra-high-voltage equipment within this single substation will require careful coordination and sourcing of the required materials as one vendor may not be able to provide all components in a timely fashion.

Schedule:

- Using the longest component as the critical path, the project is independently estimated to take approximately 88 months.
- The entity's overall construction schedule of 65 months seems aggressive for the scope of work described.

Cost Review:

- Independent cost estimate: $ 1,313,534,588.27
- Entity's cost estimate: $ 1,568,114,351.07

Constructability Review

Proposal 781

Environmental (Regulatory) Analysis

Desktop Review

Project #781 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey.

Study Area

The environmental review consisted of mapping and assessing the water/wetlands resources, biological resources, public lands, cultural resources, existing infrastructure, soils and farmland resources within a ¼ mile of the proposed Project centerline (henceforth known as the Study Area).

Land Use

According to the USGS National Land Cover Database (NLCD, 2019), the 3,811-acre Study Area is mainly comprised of land classified as Developed, Low Intensity and Developed, Open Space.

Land Cover Type	Area (Acres)	Percent of Total
Developed, Low Intensity	887.75	23.29
Developed, Open Space	795.71	20.88
Cultivated Crops	536.18	14.07
Developed, Medium Intensity	504.31	13.23
Deciduous Forest	449.74	11.80
Woody Wetlands	271.53	7.12
Developed, High Intensity	115.15	3.02
Mixed Forest	107.79	2.83
Pasture/Hay	61.53	1.61
Shrub/Scrub	33.15	0.87
Grassland/Herbaceous	22.47	0.59
Evergreen Forest	16.24	0.43
Emergent Herbaceous Wetlands	4.72	0.12
Open Water	2.54	0.07
Barren Land	2.35	0.06
Total	3,811.15	100

*Values rounded to the nearest hundredth.

Public and Protected Lands

A total of 68 parcels of public and conservation lands are located within the Project Area or a 0.25-mile buffer of the Project Area. These public and conservation lands include 31 township or county parks, Allaire and Monmouth Battlefield State Parks, New Jersey YMCA's Camp Zehnder, Manasquan River State Wildlife Management Area, several Conservation Focal Areas (CFAs): North Pinelands Fringe CFA, Greater Barnegat Bay CFA, Shark and Navesink Rivers Watershed CFA, Lower Raritan Watershed CFA, and Millstone and South Branch Raritan Rivers CFA, 26 conservation or agricultural easements, and Spring Meadow and Howell Park Golf Courses. No federal wildlife refuges, military lands, or other federal public lands are located within one mile of the Project Area (PADUS 2019).

Special Landscape or Hazard Areas

A search for known environmental contaminants within ¼-mile of the Project Area was completed using the New Jersey Department of Environmental Protection: NJ-GeoWeb and the U.S. Environmental Protection Agency: MyEnvironment online application. Several environmental hazards, such as underground storage tanks, two superfund sites, active remediation sites, groundwater contamination areas, and underground storage tanks have been identified within the aforementioned buffer. These should not cause issues but will need to be avoided in design, construction, and access planning. Soil testing should be conducted to avoid construction within an area of contaminated groundwater or other contamination.

Floodplains, Waterbodies and Wetlands

According to FEMA Flood Insurance Rate Map (FIRM), there are 229.0 acres of mapped 100-year floodplain (Zones A and AE) and 60.2 acres of mapped 500-year floodplain (Zone X) within the project boundary. There are 9 mapped floodways (Zone AE) totaling 36.6 acres within the Study Area, which are concentrated along Haystack Brook, Millstone River, Judas Creek, Long Brook, Manalapan Brook, and unnamed tributaries to the Manasquan River. Most of the 100-year and 500-year floodplains are associated with Millstone River, Manalpan Brook, and Manasquan River and their respective tributaries.

According to NWI data, 259 wetlands totaling 233.36 acres were identified within the Study Area. Wetlands are classified as Freshwater Emergent, Freshwater Forested/Shrub, Freshwater Pond, Freshwater Farmed, Tidal Riverine, and Non-Tidal Riverine wetlands. No NWI-classified Estuarine or Marine wetlands were recorded. It is worth noting that the NWI dataset identified freshwater and non-tidal riverine wetlands within the boundaries of the New Jersey Department of Environmental Protection (NJDEP) Tidelands Claim Line. The tidelands claim line identifies areas that are tidally influenced within the state. Within the Study Area, portions of Manasquan River and Judas Creek are identified as tidally influenced, which is inconsistent with the NWI classification of those systems. Below is a breakdown of NWI wetland types and their respective acreages within the Study Area.

Wetland Classification		Count	Acres within Study Area
Tidal Wetlands	Tidal Riverine	1	0.44
	Total	***1***	***0.44***
Non-Tidal, Non-Forested Wetlands	Freshwater Farmed	1	0.01
	Freshwater Emergent	22	18.51
	Freshwater Pond	19	10.75
	Non-Tidal Riverine	93	15.24
	Total	***134***	***44.5***
Non-Tidal, Forested Wetlands	Freshwater Forested/Shrub	124	188.42
	Total	***124***	***188.42***

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required.

Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

This preliminary investigation into cultural resources was limited to a desktop review of publicly available online data. The Study Area included a ¼-mile buffer around the Study Area and included a review of the Archaeological Site Grid, Historic Properties, Historic Property Features, and Historic Districts geospatial datasets maintained by the NJ Historic Preservation Office (HPO). Initial research utilized LUCY, the New Jersey Cultural Resources GIS (NJCRGIS) Online Map Viewer. The four sets of data were also downloaded from the NJ Department of Environmental Protection's (NJDEP) Bureau of GIS to map the resources in relation to the Project.

The results of the review for previously recorded archaeological sites and historic resources within the Project Area and the ¼-mile buffer are summarized below.

Archaeological Sites

According to the Archaeological Site Grid, there is a possibility for 70 archaeological sites located within ¼-mile of the Study Area (13 are NRHP eligible and 1 is listed). Forty-three of these sites may intersect the Study Area (9 are NRHP eligible). Specific locational data is confidential; a file request with HPO and a formal cultural resources literature review would be required to acquire precise site locations.

Historic Resources

Two-hundred forty-one (241) Historic Properties are within ¼-mile of the Study Area (45 are NRHP eligible and 70 are listed). Nearly all the resources are in historic districts. Three properties intersect the Study Area (1 NRHP eligible). One-hundred one (101) properties are adjacent to the Study Area (9 are NRHP eligible, 6 are listed, and 12 of those are historic district resources).

Three-hundred eleven (311) Historic Property Features are within ¼-mile of the Study Area (55 NRHP eligible and 109 listed). Nearly all the resources are in historic districts. Two Historic Property Features intersect the Project (unevaluated for NRHP). Sixty-six (66) Historic Property Features are adjacent to the Study Area (7 NRHP eligible, 11 listed, and all but one are resources in historic districts)

Fourteen Historic Districts are within ¼-mile of the Study Area (8 are NRHP eligible, 2 are listed, 1 is locally designated, and 1 is an NHL). Ten of the districts intersect the Project (6 NRHP eligible, 1 listed, 1 local). One NRHP eligible resource is adjacent to the Project.

Federal, State, and Local Environmental Permits

Federal Permits

Depending on the outcome of wetland and stream delineations and the final design, Project #781 could require federal permits, authorizations, and consultations prior to construction. These include but are not limited to the US Army Corps of Engineers (USACE) Section 404 permits for dredge and fill activities in wetlands and other waters of the US and USACE Section 10 permits for structure construction along the banks of or within, over, or under navigable waters. In addition, USFWS consultations and authorizations under Section 7 of the ESA could also be required. To be in compliance with these federal permits, consultation and concurrence typically needs to be received from state agencies as well.

The National Environmental Policy Act (NEPA) requires the review of the environmental effects of all federal, federally assisted, and federally licensed actions in an open manner, with meaningful public participation. The level of review given different kinds of projects varies with the likelihood of serious impact:

- For a project that is anticipated to have no or minimal impacts to the environment, federal agencies may exclude certain classes of action from detailed review. These are referred to as Categorical Exclusions.

- For projects with the potential for moderate to significant environmental impacts, an Environmental Impact Statement (EIS) is required. An EIS must be prepared on all "major federal actions significantly affecting the quality of the human environment."

For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered terrestrial species and critical habitats are appropriately addressed under Section 7 of the ESA.

Early consultation with USFWS will be of paramount importance. Agency feedback, along with information acquired through preliminary field reconnaissance and detailed review of maps and aerial photographs, will be used to identify the scope of any subsequent species or habitat-specific field surveys that may be required. Given the limited seasonal timeframes that exist for many such surveys, early planning is vital. Likewise, construction schedules can be impacted by agency-stipulated seasonal restrictions reflecting nesting, breeding, and other behavioral patterns. In the absence of Project-specific agency consultation and a preliminary field assessment of habitat availability within the Study Area, any species-related impacts on construction schedules cannot be ascertained.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, additional field surveys. Species-specific surveys and construction timeframes may be applicable. Due to Project #781 being within the range of federally-listed species, it is possible that field surveys and potentially other timeframe restrictions may be needed for compliance.

The Federal Aviation Administration (FAA) requires an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) to be completed and with the submission of notice at least 45 days prior to construction for proposed structures entering the airspace based on a variety of factors including height, proximity to airports, location, and frequencies emitted from structures. More specifically, if the structure will exceed 200 feet above ground level, the FAA must be notified prior to construction. The FAA is notified through submittal of the Notice of Proposed Construction or Alteration, FAA Form 7460-1 (FAA, 2019). Early consultation with the FAA regarding the proposed Project tower heights and locations is highly encouraged to ensure the required approvals are met in a timely manner prior to the start of construction.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #781 in Appendix A -Table 9.

State Permits

Potential approvals required for Project development include the 5G3 - Construction Activity Stormwater General Permit; Freshwater Wetlands (FWW) Individual Permit and FWW General Permits; Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits and Permit-by-Rule (PBR) 33; Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit; and the Tidelands License/Grants Approval.

Additionally, Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to New Jersey's state parks, forests, natural areas, and wildlife management areas. A diversion or disposal may be required if the substation is expanded onto Green Acres properties. Components of the Project are within existing maintained ROWs. Any expansion beyond the existing ROW may impact Green Acres areas.

More information regarding the State NJDEP regulatory review process can be found in the Permit Matrix prepared for Project #781 in Appendix A - Table 9.

A Cultural and Historic Resource Review from the New Jersey Historic Preservation Office (HPO) will be required for any State or Federal undertakings. Review may be triggered by a variety of NJDEP approvals for water resource impacts.

If any of the local permit issuing municipalities do not possess code enforcement licenses of the appropriate class, a review from the NJ Department of Community Affairs would be required in place of municipal review. A Departmental plan review (typically referred to as a Construction Permit) shall not be required except when the Department acts as the enforcing agency. An Application should be made to the local construction office, not the Department.

New Jersey Department of Transportation (NJDOT) permits and approvals are required for oversize/overweight vehicles, driveway access roads, utility openings, and highway occupancies. Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles. Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Typically, these types of permits will be sought out by the contractor responsible for transporting materials. An Application for Utility Opening (MT17A) will be required for installation of utility infrastructure via highway openings. Project #781 crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required. In addition, it is likely that Highway Occupancy Permit (MT120A) will be required for utility infrastructure occupancies of State-managed roadways. The minimum clearances for overhead power and communication lines must be no less than the standards prescribed by the National Electrical Safety Code (NESC) under N.J. Admin Code 16:25-10.4.

More information regarding the state regulatory review process can be found in the Permit Matrix prepared for Project #781 in Appendix A - Table 9.

Local Permits and Approvals

At the local level, Project #781 crosses eleven different Boroughs Townships in the State of New Jersey. All identified Boroughs and Townships will be the local authority having jurisdiction of Project development in the applicable corporate boundaries. Consultant reviewed each Borough and Township Government Website regarding zoning, land use ordinances, and potential Borough-level permitting for transmission line projects. Common approvals amongst the local jurisdictions include Zoning and/or Conditional Land Use Permits for construction of electric transmission infrastructure across a variety of agricultural, residential, industrial, and other zoning districts present in the proposed route. Site Plan Reviews demonstrating compliance with all zoning and land use regulations are required in local jurisdictions. A Construction Permit in accordance with the New Jersey State Uniform Construction Code will also be necessary for each jurisdiction. Prior to construction, Building Permits may also be required in local jurisdictions. Other identified approvals from local jurisdictions include Tree Removal Permits and Street Opening Applications.

Ultimately, consultation with each identified local jurisdiction is recommended to ensure Project designs adhere to local regulations and all permitting requirements are met.

At the County-level, the Project is sited in Monmouth, Ocean, and Middlesex Counties. Any proposed developments abutting a County road or County drainage structure will require a County Site Plan Review Approval in addition to all borough and township permitting requirements. Consultant determined that the Project does abut County roadways and/or County drainage systems and therefore, it is likely that Site Plan Reviews from the aforementioned Counties would be required. In addition, right-of-way permitting will be necessary from each County for infrastructure placed in the ROW of County roadways.

Construction activities resulting in one or more acres of earth disturbance require Soil Erosion and Sediment Control (SESC) Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.

More information regarding the local regulatory review process can be found in the Permit Matrix prepared for Project #781 in Appendix A - Table 9.

Infrastructure

The Project crosses numerous major highways, including US Interstate 195, US Highways 9 and 130, and numerous state and county roadways.

A review of aerial photography indicates that numerous residences, commercial buildings, and other buildings are present in close proximity to the Project Area.

Three railroads are crossed by the proposed Project.

One water well is located adjacent to the Project Area. Several wellhead protection areas for public community and public non-community water supplies are present in the Project Area.

No oil or gas wells are mapped in or within the Project Area. Three natural gas pipelines are crossed in the central portion of the proposed Project.

Nine substations are crossed or located in close proximity to the Project Area. Thirty-six existing transmission lines are crossed or run parallel to the proposed Project. Identified transmission lines range from 69 kV up to 500 kV.

Twenty-four airports are mapped within five miles of the Project Area. The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.

Environmental (Regulatory) Risks

A summary of the environmental risks that may impact the Project are summarized in the table below.

Risk Analysis		
Category	**Items of Note**	**Significant Constraints/Hurdles**
Floodplain	The Study Area has FEMA mapped floodways, 100-year floodplains, and 500-year floodplains.	State and local permits are required for any development within a floodway or 100-year floodplain.
Water Resources	Potential wetlands and other regulated waters, transition areas, and tidelands are most likely present in the Project Area. Navigable Waters, Outstanding Natural Resource Waters, and EPA Priority Wetlands are located within the Project.	Water resources should be avoided to the degree practicable.
Water resources regulations	If jurisdictional wetlands/waterways are present, project infrastructure should be sited to avoid water resources to the degree practicable. There are impaired waters and within the Project Area. Navigable Waters, Outstanding Natural Resource Waters, and EPA Priority Wetlands are located within the Project.	State and Federal permits will be required for impacts to jurisdictional waters. Additional stormwater best-management-practices (BMPs) are likely. Additional restrictions are likely for construction. EPA involvement if the project impacts any Priority Wetlands or Outstanding Natural Resource Waters.

Sensitive Biological Resources	Nine species were identified by the IPaC: American chaffseed, northern long-eared bat (NLEB), bog turtle, Piping Plover, Rufa Red Knot, Knieskern's beaked-rush, seabeach amaranth, swamp pink, and monarch butterfly. Bald Eagle was also included. Likelihood of occurrence within the Project Area are as follows: **High:** NLEB, bog turtle, swamp pink, monarch butterfly, Bald Eagle. **Moderate:** Piping Plover, Rufa Red Knot, Knieskern's beaked-rush, seabeach amaranth. **Low:** American chaffseed	Tree clearing should be avoided; if necessary, restrict to the northern long-eared bat inactive season (November 1 – March 31), or at a minimum outside of the pup-rearing season (June 1 – July 31). A Phase I bog turtle habitat assessment should be completed; all potentially suitable wetlands should be avoided until it is determined that a Phase II survey should be conducted. Rare plant surveys may be necessary. An Eagle Nest Survey should be performed. If present, all in-use (active) eagle nests require at least a 660' no-construction buffer. Alternate (inactive) nests may also require a buffer.
Archaeological and Historic Resources	Forty-three archeological sites (14 of which are eligible or listed in the NRHP) may intersect or be adjacent to the Project Area. Eleven historic districts intersect or are adjacent to the Project Area (of which 7 are NRHP eligible, 1 is listed, 1 is local). More than 300 Historic Property Features have been inventoried within ¼ mile of the Project, nearly all of which are resources in historic districts. Three historic properties intersect the Project Area (1 NRHP eligible). One-hundred one (101) properties are adjacent to the Project Area (9 are NRHP eligible, 6 are listed).	Consultant recommends avoiding archaeological sites and historic districts.
Public Lands	A total of 63 parcels of public and conservation lands are located within the Project Area or a 0.25-mile buffer of the Project Area. These public and conservation lands include 31 township or county parks, Allaire and Monmouth Battlefield State Parks, New Jersey YMCA's Camp Zehnder, Manasquan River State Wildlife Management Area, five Conservation Focal Areas (CFAs), 26 conservation or agricultural easements, and Spring Meadow and Howell Park Golf Courses. No federal wildlife refuges, military lands, or other federal public lands are located within one mile of the Project Area.	Public lands and conservation areas may have specific permits and/or land use restrictions. Project will need to confirm any restrictions/setbacks during design process to avoid and/or implement controls/setbacks as necessary.
Land Cover	The Study Area is mainly comprised of varying degrees of developed land.	None identified.

Zoning and Land Use	The Project Area is located across 11 different Townships and Boroughs in the State of New Jersey. A variety of local permits may be required including: Zoning, Conditional Use, Site Plan Reviews, Construction, Tree Removal, and roadway permits. An assortment of permits are administered by the State and Federal Government Agencies, see Appendix A - Table 10 for further information and discussions.	Consultant recommends additional coordination with regulatory agencies and permitting authorities as the plans for this Project develop.
Infrastructure	The proposed Project crosses numerous major highways, three railroads, three pipelines, numerous substations, and abundant transmission lines.	Avoidance or setbacks from structures may be necessary. Crossing agreements with other utility operators may be required.
Soils	All areas are prime farmland, not prime farmland, farmland of statewide importance, farmland of statewide importance if drained, farmland of unique importance, and farmland of local importance all occur within the Study Area.	None identified.
Environmental Hazards	Several active remediation sites, underground storage tanks, areas of immediate environmental concern, and groundwater contamination areas were found within the quarter-mile buffer of the Project Area.	Avoidance or setbacks from environmental hazards may be necessary.

Transmission Line Risks

Conceptual Design Summary, Potential Transmission Line Component Constraints, and Risks

The transmission elements proposed under Proposal #781 are listed in detail below.

OSW Connection / Landfall Consideration

- All LS Power proposal reviews include consideration for the connection of the Offshore Wind (OSW) to the proposed Lighthouse substation. This small line is approximately 1200FT to 1800FT from the shore to the proposed Lighthouse substation and is indicated as an underground connection using horizontal directional drilling (HDD).
- All connections from the shoreline to offshore facilities including offshore transmission and generation are discussed in the LS Power proposals as Option 2 proposal (Proposal ID 594)
- Should Options 2 not be selected, LS Power would still install the duct banks from Lighthouse to the shore in order to coordinate with any future OSW connections from other entities.

Lighthouse to Crossroads – Underground 500kV Lines

- The Lighthouse to Crossroads lines are proposed 11.1 mile underground double circuit 500kV lines in a single duct bank connecting the proposed Lighthouse substation to the proposed Crossroads substation. The offshore wind facilities will land and connect at the Lighthouse Substation. From there, the 500kV underground line will traverse approximately West to the proposed Crossroads substation.

- The lines will be placed in one duct banks in the same corridor. The duct bank will be buried between1.5FT to 3FT to the top of duct bank. The duct bank will use thermally rated concrete, grout and backfill.

- Cables proposed are listed below and will be pulled and spliced using manholes. The LS Power proposal documentation does not identify exact manhole locations. However, LS Power indicates the manholes shall be placed approximately every 1800FT to 2000FT. This report has assumed 1800FT to be conservative.
- Trenchless (directional bore) construction is planned at all major road crossings.

Lighthouse to Crossroads - UG 500kV Route

Length:	11.1 miles
Duct Bank:	Single Duct Bank
Circuits:	2
Manholes:	33
Major Crossings:	5
NOTE:	This route is the same Route 1 in Proposal #629

Line Rating Info

UG Conductor: 2500MM XLPE Copper Milliken Shape per Phase

Winter Rating

Normal:	1229 MVA
Emergency:	1757 MVA

Summer Rating

Normal:	1125 MVA
Emergency:	1608 MVA

<u>Lighthouse to Gateway #1 & #2 – Underground 500kV Lines</u>

- The Lighthouse to Gateway lines are proposed 30 mile underground four circuit 500kV lines in two (2) separate duct banks connecting the proposed Lighthouse substation to the proposed Gateway substation. The offshore wind facilities will land and connect at the Lighthouse Substation. From there, the 500kV underground line will traverse North-West to the proposed Gateway substation.
- The circuits will be built in two separate phases. The first duct bank, Lighthouse to Gateway 2, with two (2) circuits will be constructed during Module #3, and a second duct bank, Lighthouse to Gateway 2, with two (2) additional circuits will be constructed during Module #4. However, these circuits will be identical in nature.
- The duct banks will be buried between1.5FT to 3FT to the top of duct bank. The duct banks will use thermally rated concrete, grout and backfill.
- Cables proposed are listed below and will be pulled and spliced using manholes. The LS Power proposal documentation does not identify exact manhole locations. However, LS Power indicates the manholes shall be placed approximately every 1800FT to 2000FT. This report has assumed 1800FT to be conservative.
- Trenchless (directional bore) construction is planned at all major road crossings.

Lighthouse to Gateway 1 & 2 - UG 500kV Route

Length:	30 miles
Duct Bank:	Single Duct Bank
Circuits:	2
Manholes:	88
Major Crossings:	9

Line Rating Info

UG Conductor: 2500MM XLPE Copper Milliken Shape per Phase

Winter Rating
Normal: 1229 MVA
Emergency: 1757 MVA
Summer Rating
Normal: 1125 MVA
Emergency: 1608 MVA

Gateway to Wells Landing – Underground 500kV Lines

- The Gateway to Wells Landing lines are proposed 8 mile underground double circuit 500kV line in a single duct bank connecting the proposed Lighthouse substation to the proposed Gateway substation. The offshore wind facilities will land and connect at the Lighthouse Substation. From there, the 500kV underground line will traverse North-West to the proposed Gateway substation.
- The circuits will be placed in one duct bank. The duct bank will be buried between1.5FT to 3FT to the top of duct bank. The duct bank will use thermally rated concrete, grout and backfill.
- Cables proposed are listed below and will be pulled and spliced using manholes. The LS Power proposal documentation does not identify exact manhole locations. However, LS Power indicates the manholes shall be placed approximately every 1800FT to 2000FT. This report has assumed 1800FT to be conservative. Trenchless (directional bore) construction is planned at all major road crossings.

Gateway to Wells Landing - UG 500kV Route
Length: 8 miles
Duct Bank: Single Duct Bank
Circuits: 2
Manholes: 21
Major Crossings: 3

Line Rating Info
UG Conductor: 2500MM XLPE Copper Milliken Shape per Phase
Winter Rating
Normal: 1229 MVA
Emergency: 1757 MVA
Summer Rating
Normal: 1125 MVA
Emergency: 1608 MVA

Incumbent Required Changes to Existing Infrastructure

To fully implement the LS Power Clean Energy Gateway project, certain required system upgrades have been identified. Each upgrade must be coordinated with the existing incumbent transmission owner/operator.

a. Larrabee Substation: Will be expanded to receive two (2) new 230 kV circuits from Crossroads Substation. The incumbent TO has already developed a plan for this expansion.
b. Deans – East Windsor 500kV Interconnection: To connect the existing OH 500 kV transmission line to Gateway Substation.
c. Trenton – Brunswick 230kV Interconnections: To connect the existing 230 kV transmission lines to Wells Landing Substation.
d. Gilbert-Springfield 230 kV Transmission Line: Terminal equipment will be upgraded to increase the winter emergency line rating (currently 903 MVA) to match its existing conductor rating (1,031 MVA)

e. Remove Larrabee-Smithburg 230 kV Transmission Circuit: This is only applicable to the Generation Scenario where up to 9000 MW of OSW generation is interconnected. In that event, one of the two existing circuits between Larrabee and Smithburg will be switched out of services and left in place as a spare
f. Windsor-Clarksville 230 kV Transmission Line: This is only applicable to the Generation Scenario where up to 9000 MW of OSW generation is interconnected. In that event, the terminal equipment will be upgraded to increase the summer emergency line rating (currently 813 MVA) to match its conductor rating (869 MVA)

Potential Transmission Line Component Constraints and Risks

- LS Power has indicated the lines will be designed with XLPE conductor. They also commit to keeping spare conductor maintained within the project area for quick emergency repair.
- Consideration was given for many of the concerns that typically hamper transmission projects. Material lead times, permitting, and access could lead to significant delays. In addition, outage coordination and impacts were fully considered, and a plan was created to avoid such issues.
- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.

Substation Risks

Conceptual Design Summary, Potential Substation Component Constraints, and Risks

Lighthouse Substation
The Lighthouse substation is a proposed 345kV/500kV substation yard. This substation shall consist of two (2) 345kV indoor gas-insulated-substations. Consisting of one (1) four (4) bay breaker-and-a-third GIS substation terminating eight (8) underground 345kV feeders equipped with 345kV reactors as well as two (2) 345/500kV main power transformers and one (1) three bay breaker-and-a-third GIS substation consisting of seven (7) underground 345kV feeders equipped with 345kV reactors and two (2) 345/500kV main power transformers. The two (2) 345kV GIS substation shall be equipped with bus tie circuit breakers to connect the 345kV substations together.

Included within the Lighthouse substation is an indoor 500kV gas-insulated-substation consisting of five (5) bay of breaker-and-a-third terminating four (4) 345/500kV main power transformers and six (6) 500kV transmission lines equipped with 500kV reactors. Provisions have been included to connect three (3) dynamic var compensation devices. The capabilities of the dynamic car compensation devices are to be determined during the design phase of the project.

Lighthouse substation is proposed to be constructed on Sea Girt Ave, between 1st Ave. and 2nd Ave. The property is to the southwest of Sea Girt Ave adjacent to the National Guard Training Center. The property is already clear of trees and should be suitable for the construction of the substation.

Gateway Substation
The Gateway substation is a proposed 500kV substation yard. This substation shall consist of one (1) 500kV indoor gas-insulated-substation. Consisting of a three (3) bay breaker-and-a-third GIS substation terminating eight (8) 500kV transmission lines equipped with six (6) 500kV.

Gateway substation is proposed to be constructed on Wycoff Mills road, between Brick Yard Road and Wyckoffs Mills Applegarth Road. The property is to west of Wycoff Mills Road in an open farm field. The property should not present undue challenges for development.

Well's Landing Substation

The Well's Landing Substation is a proposed 230/500kV substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation consisting of two (2) single circuit breakers each terminating a 500kV transmission line with one (1) 500kV 115MVAR reactor. The two (2) circuit breakers each feed one (1) 230/500kV main power transformers. Also within the Wells Landing Substation one (1) 230kV gas-insulated-substation consisting of a two (2) bay breaker-and-a-third layout substation terminating four (4) 230kV transmission lines and providing two (2) terminals for the 230/500kV main power transformers described above.

The Well's Landing Substation is proposed to be constructed beside Grovers Mill Road in the open field to the north of the Derry Meeting Drive intersection. The property is an open field and should not provide undue technical challenges for development. One consideration for the siting of the proposed substation is the location at the entrance of a housing development, this may present some siting challenges with the local residents.

Crossroads Substation

The Crossroads Substation is a proposed 230/500kV substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation consisting of two (2) single circuit breakers each terminating a 500kV transmission line with one (1) 500kV 150MVAR reactor. The two (2) circuit breakers each feed one (1) 230/500kV main power transformers. Also within the Crossroads Substation one (1) 230kV gas-insulated-substation consisting of a two (2) single circuit breakers each terminating a single 230kV transmission line. Each 230kV circuit breaker is connected one (1) 230/500kV main power transformer described above.

Crossroads substation is proposed to be constructed on Lakewood Farmingdale Road between Alexander Ave. and Waverly Pl. on the west side of Lakewood Farmingdale Road. The Crossroads substation will be constructed to the northwest of the existing Larrabee substation. This location is moderately wooded and has existing structures that will need to be cleared for the main substation yard. Reviewing the google earth image of the site, some remedial work may be required to clean up any ground contamination from the current use of the property.

Midpoint Reactor Station

The Midpoint Reactor Station is a proposed 500kV reactive compensation substation. This station will consist of one (1) gas-insulated-substation consisting of four (4) single switching devices that can disconnect between four (4) terminals, one (1) 'upstream' feeder circuit, one (1) 'downstream' feeder circuit and two (2) 500kV 215MVAR reactors. This station is being installed to provide reactive compensation for four (4) 500kV underground feeders. The Midpoint Reactor Station is proposed to be constructed on Route 524 between Havens Bridge Road and Vanderveer Road on the south side of Route 524. The property is an open field presenting few challenges to prepare the site for development.

Potential Substation Component Constraints and Risks

- For the Lighthouse substation the proposed yard of approximately 13.5 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Gateway substation, the proposed substation yard of approximately 3.9 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Well's Landing substation, the proposed substation yard of approximately 3.1 acres as shown in the original proposal documents is adequate. The 500kV GIS building should work given that there is only one breaker per circuit in there. The 230kV GIS building should work if the buswork is able to be ran left to right as shown in the original proposal drawing.

- For the Crossroads substation, the proposed substation yard of approximately 4.0 acres as shown in the original proposal documents is adequate. The 500kV GIS building should work given that there is only one breaker per circuit.
- For the Midpoint reactor station, the proposed substation yard of approximately 1.7 acres as shown in the original proposal documents is adequate. The proposed layout should work as well.

Construction Schedule

- The conceptual project schedule developed by the onshore consultant indicates that the on-shore aspects of the project will take approximately 112 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Review of the environmental factors indicate that construction of the proposed lines are feasible due to necessary permits and potential access issues. Permitting will likely be a lengthy process, but no major issues are expected in getting permit approvals.

Proposal 629

Environmental (Regulatory) Analysis

Desktop Review

Project #629 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey.

Study Area

The environmental review consisted of mapping and assessing the water/wetlands resources, biological resources, public lands, cultural resources, existing infrastructure, soils and farmland resources within a ¼ mile of the proposed Project centerline (henceforth known as the Study Area).

Land Use

According to the USGS National Land Cover Database (NLCD, 2019), the 3,165-acre Project Area is mainly comprised of land classified as Woody Wetlands and Deciduous Forest.

Land Cover Type	Area (Acres)	Percent of Total
Woody Wetlands	790.50	24.98
Deciduous Forest	603.32	19.06
Developed, Open Space	444.53	14.04
Developed, Low Intensity	404.61	12.78
Developed, Medium Intensity	237.88	7.52
Cultivated Crops	199.60	6.31
Pasture/Hay	154.46	4.88
Mixed Forest	133.11	4.21
Developed, High Intensity	71.18	2.25
Shrub/Scrub	40.55	1.28

Evergreen Forest	34.77	1.10
Grassland/Herbaceous	32.92	1.04
Emergent Herbaceous Wetlands	12.12	0.38
Barren Land	2.90	0.09
Open Water	2.70	0.09
Total	3,165.15	100

*Values rounded to the nearest hundredth.

Public and Protected Lands

A total of 52 parcels of public and conservation lands are located within a 0.25-mile buffer of the Project Area. These public and conservation lands include 24 township or county parks, Allaire State Park, New Jersey YMCA's Camp Zehnder, Manasquan and Turkey Swamp Wildlife Management Areas, Charleston Spring Golf Course, and 23 conservation or agricultural easements.

Special Landscape or Hazard Areas

A search for known environmental contaminants within ¼-mile of the Project Area was completed using the New Jersey Department of Environmental Protection: NJ-GeoWeb and the U.S. Environmental Protection Agency: MyEnvironment online application. Several environmental hazards, such as underground storage tanks, two superfund sites, active remediation sites, groundwater contamination areas, and underground storage tanks have been identified within the aforementioned buffer. These should not cause issues but will need to be avoided in design, construction, and access planning. Soil testing should be conducted to avoid construction within an area of contaminated groundwater or other contamination.

Floodplains, Waterbodies and Wetlands

According to FEMA Flood Insurance Rate Map (FIRM), there are 401.9 acres of mapped 100-year floodplain (Zones A and AE) and 35.7 acres of mapped 500-year floodplain (Zone X) within the project boundary. There are 11 mapped floodways (Zone AE) totaling 149.3 acres within the Project Area, which are concentrated along the North Branch Metedeconk River, Manalapan Brook, and an unnamed tributary in the Lower Manasquan River watershed. Most of the 100-year and 500-year floodplains are associated with the North Branch Metedeconk River, Lower Manasquan River, and Rocky Brook watercourses and their respective tributaries.

According to NWI data, 184 wetlands totaling 486.42 acres were identified within the Project Area. Wetlands are classified as Freshwater Emergent, Freshwater Forested/Shrub, Freshwater Pond, Tidal Riverine, and Non-Tidal Riverine wetlands. No NWI-classified Estuarine or Marine wetlands were recorded. It is worth noting that the NWI dataset identified freshwater and non-tidal riverine wetlands within the boundaries of the New Jersey Department of Environmental Protection (NJDEP) Tidelands Claim Line. The tidelands claim line identifies areas that are tidally influenced within the state. Within the Project Area, portions of Manasquan River and Judas Creek are identified as tidally influenced, which is inconsistent with the NWI classification of those systems. Below is a breakdown of NWI wetland types and their respective acreages within the Study Area.

Wetland Classification		Count	Acres within Project Area
Tidal Wetlands	Tidal Riverine	1	0.44
	Total	***1***	***0.44***
Non-Tidal, Non-Forested Wetlands	Freshwater Emergent Wetland	24	104.14
	Freshwater Pond	18	11.59
	Non-Tidal Riverine	87	13.78
	Total	***129***	***129.51***

Non-Tidal, Forested Wetlands	Freshwater Forested/Shrub Wetland	184	486.42
	Total	***184***	***486.42***

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

This preliminary investigation into cultural resources was limited to a desktop review of publicly available online data. The Study Area included a ¼-mile buffer around the Study Area and included a review of the Archaeological Site Grid, Historic Properties, Historic Property Features, and Historic Districts geospatial datasets maintained by the NJ Historic Preservation Office (HPO). Initial research utilized LUCY, the New Jersey Cultural Resources GIS (NJCRGIS) Online Map Viewer. The four sets of data were also downloaded from the NJ Department of Environmental Protection's (NJDEP) Bureau of GIS to map the resources in relation to the Project.

The results of the review for previously recorded archaeological sites and historic resources within the Project Area and the ¼-mile buffer are summarized below.

Archaeological Sites

According to the Archaeological Site Grid, there is a possibility for 12 archaeological sites located within ¼-mile of the Project Area (3 are NRHP eligible). Eight of these sites may intersect the Project Area (2 NRHP eligible). Specific locational data is confidential; a file request with HPO and a formal cultural resources literature review would be required to acquire precise site locations

Historic Resources

Sixty-nine Historic Properties are within ¼-mile of the Project Area (28 are NRHP eligible and 7 are listed). Five properties intersect the Project. Sixteen Historic Properties are adjacent to the Project (5 NRHP eligible, 1 listed). Most of the individual resources are elements of historic districts in the vicinity.

Sixty-one Historic Property Features are within ¼-mile of the Project Area (31 are NRHP eligible, 5 are listed). Two resources intersect the Project. Ten resources are adjacent to the Project (5 NRHP eligible). Most of the individual resources are elements of historic districts in the vicinity.

Seven Historic Districts are within ¼-mile of the Project Area (6 NRHP eligible, 1 listed). They all intersect the Project Area.

Federal, State, and Local Environmental Permits

Federal Permits

Depending on the outcome of wetland and stream delineations and the final design, Project #629 could require federal permits, authorizations, and consultations prior to construction. These include but are not limited to the US Army Corps of Engineers (USACE) Section 404 permits for dredge and fill activities in wetlands and other waters of the US and USACE Section 10 permits for structure construction along the banks of or within, over, or under navigable waters. In addition, USFWS consultations and authorizations under Section 7 of the ESA could also be

required. To be in compliance with these federal permits, consultation and concurrence typically needs to be received from state agencies as well.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, additional field surveys. Species-specific surveys and construction timeframes may be applicable. Due to Project #629 being within the range of federally-listed species, it is possible that field surveys and potentially other timeframe restrictions may be needed for compliance.

The Federal Aviation Administration (FAA) requires an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) to be completed and with the submission of notice at least 45 days prior to construction for proposed structures entering the airspace based on a variety of factors including height, proximity to airports, location, and frequencies emitted from structures. More specifically, if the structure will exceed 200 feet above ground level, the FAA must be notified prior to construction. The FAA is notified through submittal of the Notice of Proposed Construction or Alteration, FAA Form 7460-1 (FAA, 2019). Early consultation with the FAA regarding the proposed Project tower heights and locations is highly encouraged to ensure the required approvals are met in a timely manner prior to the start of construction.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #629 in Appendix A -Table 10.

State Permits

Potential approvals required for Project development include the 5G3 - Construction Activity Stormwater General Permit; Freshwater Wetlands (FWW) Individual Permit and FWW General Permits; Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits and Permit-by-Rule (PBR) 33; Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit; and the Tidelands License/Grants Approval.

Additionally, Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to New Jersey's state parks, forests, natural areas, and wildlife management areas. A diversion or disposal may be required if the substation is expanded onto Green Acres properties. Components of the Project are within existing maintained ROWs. Any expansion beyond the existing ROW may impact Green Acres areas.

A Cultural and Historic Resource Review from the New Jersey Historic Preservation Office (HPO) will be required for any State or Federal undertakings. Review may be triggered by a variety of NJDEP approvals for water resource impacts.

If any of the local permit issuing municipalities do not possess code enforcement licenses of the appropriate class, a review from the NJ Department of Community Affairs would be required in place of municipal review. A Departmental plan review (typically referred to as a Construction Permit) shall not be required except when the Department acts as the enforcing agency. An Application should be made to the local construction office, not the Department.
New Jersey Department of Transportation (NJDOT) permits and approvals are required for oversize/overweight vehicles, driveway access roads, utility openings, and highway occupancies. Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles. Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Typically, these types of permits will be sought out by the contractor responsible for transporting materials. An Application for Utility Opening (MT17A)

will be required for installation of utility infrastructure via highway openings. Project #629 crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required. In addition, it is likely that Highway Occupancy Permit (MT120A) will be required for utility infrastructure occupancies of State-managed roadways. The minimum clearances for overhead power and communication lines must be no less than the standards prescribed by the National Electrical Safety Code (NESC) under N.J. Admin Code 16:25-10.4.

More information regarding the state regulatory review process can be found in the Permit Matrix prepared for Project #629 in Appendix A - Table 10.

Local Permits and Approvals

At the local level, Project #629 crosses nine (9) different Boroughs and Townships in the State of New Jersey. All identified Boroughs and Townships will be the local authority having jurisdiction of Project development in the applicable corporate boundaries. Consultant reviewed each Borough and Township Government Website regarding zoning, land use ordinances, and potential Borough-level permitting for transmission line projects. Common approvals amongst the local jurisdictions include Zoning and/or Conditional Land Use Permits for construction of electric transmission infrastructure across a variety of agricultural, residential, and other zoning districts present in the proposed route. Site Plan Reviews demonstrating compliance with all zoning and land use regulations are required in local jurisdictions. A Construction Permit in accordance with the New Jersey State Uniform Construction Code will also be necessary for each jurisdiction. Prior to construction, Building Permits may also be required in local jurisdictions. Other identified approvals from local jurisdictions include Tree Removal Permits and Street Opening Applications.

Ultimately, consultation with each identified local jurisdiction is recommended to ensure Project designs adhere to local regulations and all permitting requirements are met.

At the County-level, the Project is sited in Monmouth, Ocean, and Mercer Counties. Any proposed developments abutting a County road or County drainage structure will require a County Site Plan Review Approval in addition to all borough and township permitting requirements. Consultant determined that the Project does abut County roadways and/or County drainage systems and therefore, it is likely that Site Plan Reviews from the aforementioned Counties would be required. In addition, right-of-way permitting will be necessary from each County for infrastructure placed in the ROW of County roadways.

Construction activities resulting in one or more acres of earth disturbance require Soil Erosion and Sediment Control (SESC) Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.

More information regarding the local regulatory review process can be found in the Permit Matrix prepared for Project #629 in Appendix A - Table 10.

Infrastructure

The Project crosses numerous major highways, including US Interstate 195, US Highway 9, and numerous state and county roadways.

A review of aerial photography indicates that numerous residences, commercial buildings, and other buildings are present in close proximity to the Project Area.

Two railroads are crossed by the proposed Project in the eastern portion of the Project Area.

One water well is located adjacent to the Project Area. Several wellhead protection areas for public community and public non-community water supplies are present in the Project Area.

No oil or gas wells are mapped in or within the Project Area. Two natural gas pipelines are crossed in the central portion of the proposed Project.

Twelve substations are crossed or located in close proximity to the Project Area. Fifteen existing transmission lines are crossed or run parallel to the proposed Project. Identified transmission lines range from 69 kV up to 500 kV.

Sixteen airports are mapped within five miles of the Project Area. The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.

Environmental (Regulatory) Risks

A summary of the environmental risks that may impact the Project are summarized in the table below.

Risk Analysis		
Category	**Items of Note**	**Significant Constraints/Hurdles**
Floodplain	The Project Area has FEMA mapped floodways, 100-year floodplains, and 500-year floodplains.	An NJDEP permit is required for any development within a floodway or 100-year floodplain. A local floodplain development permit may be required within the Borough of Roosevelt.
Water Resources	Potential wetlands and other regulated waters, transition areas, and tidelands are most likely present in the Project Area. Navigable Waters, Outstanding Natural Resource Waters, and EPA Priority Wetlands are located within the Project.	Water resources should be avoided to the degree practicable.
Water resources regulations	If jurisdictional wetlands/waterways are present, project infrastructure should be sited to avoid water resources to the degree practicable. There are impaired waters and within the Project Area. Navigable Waters, Outstanding Natural Resource Waters, and EPA Priority Wetlands are located within the Project.	State and Federal permits will be required for impacts to jurisdictional waters. Additional stormwater BMPs are likely. Additional restrictions are likely for construction. EPA involvement if the project impacts any Priority Wetlands or Outstanding Natural Resource Waters.
Sensitive Biological Resources	Nine species were identified by the IPaC: American chaffseed, northern long-eared bat (NLEB), bog turtle, Piping Plover, Rufa Red Knot, seabeach amaranth, swamp pink, Knieskern's beaked-rush, and monarch butterfly. Likelihood of occurrence within the Project Area are as follows: **High:** NLEB, bog turtle, swamp pink, monarch butterfly, Bald Eagle. Candidate species are not currently afforded any statutory protections. **Moderate:** Piping Plover, Rufa Red Knot **Low to Moderate:** Knieskern's beaked-rush, seabeach amaranth.	Tree clearing should be avoided; if necessary, restrict to the northern long-eared bat inactive season (November 1 – March 31), or at a minimum outside of the pup-rearing season (June 1 – July 31). If wetlands cannot be avoided, a Phase I bog turtle habitat assessment should be completed. If the Project Area will be requiring wetlands permitting, swamp pink habitat evaluation or surveys may be required.

	Low: American chaffseed	Eagle nest surveys are recommended. If present, the USFWS typically recommends a 660' buffer around active eagle nests.
Archaeological and Historic Resources	There is a potential for eight archaeological sites to intersect the Project Area, of which two are NRHP eligible. Six NRHP eligible or listed historic districts intersect the Project. No historic resources intersect, but there are six NRHP eligible or listed resources adjacent to the Project Area.	Consultant recommends avoiding archaeological sites and historical districts.
Public Lands	52 parcels of public and conservation lands lie within a 0.25-mile buffer of the Project Area. These public and conservation lands include 24 township or county parks, Allaire State Park, New Jersey YMCA's Camp Zehnder, Manasquan and Turkey Swamp Wildlife Management Areas, Charleston Spring Golf Course, and 23 conservation or agricultural easements.	None identified. Early coordination with owners of properties that may be permanently or temporarily impacted is recommended.
Land Cover	The Project Area is mainly comprised of woody wetlands and deciduous forest.	None identified.
Zoning and Land Use	The Project Area is located across nine different Townships and Boroughs in the State of New Jersey. A variety of local permits may be required including: Zoning, Conditional Use, Land Use, Site Plan Reviews, Construction, Tree Removal, and roadway permits. An assortment of permits are administered by the State and Federal Government Agencies, see Appendix A - Table 10 for further information and discussions.	Consultant recommends additional coordination with regulatory agencies and permitting authorities as the plans for this Project develop.
Infrastructure	The proposed Project crosses numerous major highways, two railroads, two pipelines, numerous substations, and abundant transmission lines.	Avoidance or setbacks from structures may be necessary. Crossing agreements with other utility operators may be required.
Soils	Soils are classified as not prime farmland, all areas are prime farmland, farmland of statewide importance, farmland of unique importance, farmland of local importance, and farmland of statewide importance, if drained	None identified.
Environmental Hazards	Several active remediation sites, underground storage tanks, areas of immediate environmental concern, and groundwater contamination areas were found within the quarter-mile buffer of the Project Area.	Avoidance or setbacks from environmental hazards may be necessary.

Transmission Line Risks

Conceptual Design Summary, Potential Transmission Line Component Constraints, and Risks

The transmission elements proposed under Proposal #629 are listed in detail below.

OSW Connection / Landfall Consideration

- All LS Power proposal reviews include consideration for the connection of the Offshore Wind (OSW) to the proposed Lighthouse substation. This small line is approximately 1200FT to 1800FT from the shore to the proposed Lighthouse substation and is indicated as an underground connection using horizontal directional drilling (HDD).
- All connections from the shoreline to offshore facilities including offshore transmission and generation are discussed in the LS Power proposals as Option 2 proposal (Proposal ID 594).
- Should Option 2 not be selected, LS Power would still install the duct banks from Lighthouse to the shore in order to coordinate with any future OSW connections from other entities.

Lighthouse to Crossroads – Underground 500kV Lines

- The Lighthouse to Crossroads 500kV UG lines are proposed to be built within 2 corridors. Both span from the Lighthouse Substation to the Crossroads Substation but take different routes. The northern corridor (Corridor 1) is 11.1 miles (same route as proposed for project #781 – Solution A), and the southern corridor (Corridor 2) is 10.3 miles. The offshore wind facilities will land and connect at the Lighthouse Substation. From there, the 500kV underground lines will traverse approximately West to the proposed Crossroads substation.
- For Corridor 1, the lines will be placed in two separate duct banks in the same corridor. Each duct bank will have 2 lines, for a total of 4 lines. The duct banks will be buried between1.5FT to 3FT to the top of duct bank. The duct banks will use thermally rated concrete, grout and backfill. Corridor 1 will be constructed during Modules 1 & 2 of the project.
- For Corridor 2, the lines will be placed in one duct bank in the corridor. The duct bank will have 2 lines, and will be buried between1.5FT to 3FT to the top of duct bank. The duct bank will use thermally rated concrete, grout and backfill. Corridor 3 will be constructed during Module 3 of the project.
- Cables proposed are listed below and will be pulled and spliced using manholes. The LS Power proposal documentation does not identify exact manhole locations. However, LS Power indicates the manholes shall be placed approximately every 1800FT to 2000FT. This report has assumed 1800FT to be conservative.
- Trenchless (directional bore) construction is planned at all major road crossings.

Lighthouse to Crossroads – UG 500kV Route 1 & 2

Route 1 / Corridor 1 – Constructed during Modules 1 & 2

Length:	11 miles
Circuits:	4
Manholes:	33
Major Crossings:	2

Route 2 / Corridor 2 – Constructed during Module 3

Length:	10.3 miles
Circuits:	2
Manholes:	32
Major Crossings:	5

Line Rating Data (All Underground Routes & Circuits)
UG Conductor: 2500MM XLPE Copper Milliken Shape per Phase
Winter Rating
Normal: 1229 MVA
Emergency: 1757 MVA
Summer Rating
Normal: 1125 MVA
Emergency: 1608 MVA

Crossroads to Smithburg 500kV OH Line on Existing ROW

- The existing Smithburg to New Prospect to New Atlantic 230kV steel transmission towers are to be removed. A new line will be built in the existing corridor using single engineered steel poles on drilled concrete piers. The line will be approximately 12 miles of two (2) adjacent 230kV/500kV double circuit transmission lines.
- The new line from Crossroads to Smithburg will essentially be two lines (one line with side by side structures). The two adjacent lines will be constructed as single pole engineered steel davit arm structures on drilled concrete piers, with the outside circuit being a vertical 500kV and the inside circuits being a vertical 230kV. The lines include the existing 230kV Smithburg to New Prospect to Atlantic circuit as well as the new proposed Crossroads to Smithburg 500kV circuit with room for a future 230kV line.
- The new Crossroads to Smithburg line running angle and tangent structures will be single engineered steel poles on drilled concrete piers. The dead end structures will be two-pole engineered steel poles on drilled concrete piers.

500kV Line Design Elements

Conductor:	Three (3) Triangular Bundled 1272 KCMIL ACSS 45/7 MA3 “Bittern” Per Phase
Min/Max Operating Temps:	250°C / 482°F
OPGW:	DNO-10164, 48 Fiber CentraCore CC-40/49/555

230kV Line Design Elements

Conductor:	Single (1) 1590 KCMIL ACSS 45/7 “Lapwing” Per Phase
Min/Max Operating Temps:	100°C / 212°F

The piers will have a 2FT reveal. Hardware used will be high temp EHV corona free hardware for both the 500kV and 230kV conductors.

Crossroads to Gardenview 500kV OH Line on Existing ROW

The new Crossroads to Gardenview 500kV OH line will be built on the existing Larrabee to Smithburg to East Windsor 230kV transmission corridor between Smithburg and Gardenview substations. The existing Larrabee to Smithburg 230kV transmission towers (both circuits) will be removed along with the existing Smithburg to East Windsor 230kV towers. The Larrabee to Smithburg to East Windsor 230kV circuits will no longer be necessary and will be retired.

The new Crossroads to Gardenview 500kV OH line will be single pole engineered steel poles on drilled concrete piers. The line will be approximately 21 miles.

500kV Line Design Elements

Conductor:	Three (3) Triangular Bundled 1272 KCMIL ACSS 45/7 MA3 “Bittern” Per Phase
Min/Max Operating Temps:	250°C / 482°F
OPGW:	DNO-10164, 48 Fiber CentraCore CC-40/49/555

Potential Transmission Line Component Constraints and Risks

- LS Power has indicated the lines will be designed with XLPE conductor. They also commit to keeping spare conductor maintained within the project area for quick emergency repair.
- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.
- Project assumes right-of-way from incumbent transmission owner's line Smithburg to New Prospect to New Atlantic 230kV, indicating that the line will be removed and rebuilt onto a double circuit structure that will also contain the new 500kV Crossroads - Smithburg transmission line.
- Project also assumes right-of-way from incumbent transmission owner's line Larrabee to Smithburg to East Windsor 230kV, indicating that the line will be removed and retired making room for the new 500kV Crossroads - Gardenview transmission line.
- No details provided indicating that the incumbent transmission owner has been consulted about the proposed removal/rebuild/retirement of their lines.

Substation Risks

Conceptual Design Summary, Potential Substation Component Constraints, and Risks

Lighthouse Substation

The Lighthouse substation is a proposed 345kV/500kV substation yard. This substation shall consist of two (2) 345kV indoor gas-insulated-substations. Consisting of one (1) four (4) bay breaker-and-a-third GIS substation terminating eight (8) underground 345kV feeders equipped with 345kV reactors as well as two (2) 345/500kV main power transformers and one (1) three bay breaker-and-a-third GIS substation consisting of seven (7) underground 345kV feeders equipped with 345kV reactors and two (2) 345/500kV main power transformers. The two (2) 345kV GIS substation shall be equipped with bus tie circuit breakers to connect the 345kV substations together.

Included within the Lighthouse substation is an indoor 500kV gas-insulated-substation consisting of five (5) bay of breaker-and-a-third terminating four (4) 345/500kV main power transformers and six (6) 500kV transmission lines equipped with 500kV reactors. Provisions have been included to connect three (3) dynamic var compensation devices. The capabilities of the dynamic car compensation devices are to be determined during the design phase of the project.

Lighthouse substation is proposed to be constructed on Sea Girt Ave, between 1st Ave. and 2nd Ave. The property is to the southwest of Sea Girt Ave adjacent to the National Guard Training Center. The property is already clear of trees and should be suitable for the construction of the substation.

Crossroads Substation

The Crossroads Substation is a proposed 230/500kV substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation consisting of two (2) single circuit breakers each terminating a 500kV transmission line with one (1) 500kV 150MVAR reactor. The two (2) circuit breakers each feed one (1) 230/500kV main power transformers. Also within the Crossroads Substation one (1) 230kV gas-insulated-substation consisting of a two (2) single circuit breakers each terminating a single 230kV transmission line. Each 230kV circuit breaker is connected one (1) 230/500kV main power transformer described above.

Crossroads substation is proposed to be constructed on Lakewood Farmingdale Road between Alexander Ave. and Waverly Pl. on the west side of Lakewood Farmingdale Road. The Crossroads substation will be constructed to the northwest of the existing Larrabee substation. This location is moderately wooded and has existing structures that

will need to be cleared for the main substation yard. Reviewing the google earth image of the site, some remedial work may be required to clean up any ground contamination from the current use of the property.

Gardenview Substation

The Gardenview substation is a proposed 500kV switching substation yard. This substation shall consist of one (1) 500kV indoor gas-insulated-substation. Consisting of one (1) three (3) bay breaker-and-a-half GIS substation terminating five (5) 500kV feeders.

Gardenview substation is proposed to be constructed on Windsor Perrineville Road, between Bradford Road and Cedarville Road. The property is to the southwest of the existing East River substation. The property is heavily tree covered and will require clearing prior to construction of the substation. The greatest scheduling consideration for the Gardenview substation will be the outage coordination with the East Windsor substation for interconnection of the Gardenview substation to the East Windsor main power transformers. Constructability of this location may require additional easement considerations with the land owner to the south of the substation as review in google earth appears to show access to the substation may only be possible on a private driveway or through easement with the property owner to the west of the East Windsor substation.

Old York Substation

The Old York substation is a proposed 230/500kV switching substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation, consisting of one (1) two (2) bay breaker-and-a-half GIS substation terminating two (2) 500kV transmission lines, and two (2) 230/500kV main power transformers; one (1) 230kV gas-insulated-substation consisting of a two (2) bay breaker-and-a-third substation terminating two (2) 230/500kV transformers powered from the 500kV portion of the substation and four (4) 230kV transmission lines.
Old York substation is proposed to be constructed on Old York Road between the New Freedom substation and the East Windsor substation along the 500kV transmission line. This location is heavily wooded and will need to be cleared for the main substation yard. The greatest scheduling concern will be coordinating with the owner of the New Freedom-East Windsor 500kV transmission line. The available outage window for a transmission line of this level will be a significant effort to coordinate with the utility.

Upgrades at Larrabee Substation

Two upgrades are being proposed at the existing Larrabee substation. For this project, two (2) 230kV circuit breaker are to be installed to create additional transmission line positions. In reviewing the google earth image sufficient space appears to exist to install these two circuit breakers without expanding the substation fence. One (1) circuit breaker is to be installed on the 230kV buswork on the west side of the substation north of the existing transmission line. This additional will include two (2) air insulated group operated disconnect switches for circuit breaker isolation, three (3) voltage instrument transformers, one (1) air insulated group operated disconnect switches for transmission line isolation and one (1) 230kV dead-end structure. The second 230kV circuit breaker will be installed on the southern 230kV buswork to the west of the existing transmission line. Included with the second circuit breaker will be two (2) 230kV air insulated group operated disconnect switches for circuit breaker isolation.

The Larrabee substation as viewed in google earth has sufficient space to install the new equipment without requiring additional property. The installation of the circuit breakers will require sections of the 230kV buswork to be taken out of service to allow for the new equipment to be installed. Network stability during these outages will need to be coordinated with the utility that owns the Larrabee substation.

Upgrades at Smithburg Substation

Eight (8) 500kV circuit breakers are to be installed within the existing substation. Reviewing the google earth imagery the Smithburg substation 500kV equipment is outdoor gas-insulated-substation equipment. In order to install the uprated GIS substation equipment new GIS equipment will be ordered. The new equipment will need to be constructed in stages in coordination with the utility that owns the Smithburg substation.

The Smithburg substation as reviewed in google earth has sufficient space to install the new equipment assuming that the new equipment is installed in the region currently being used for the 500kV GIS equipment. Since the Smithburg equipment being replaced is 500kV the utility that owns the substation will have to coordinate the outage sequence to facilitate the stability of the local grid as the equipment is being removed from service and upgraded with the new equipment. Outage considerations for this project may cause significant schedule constraints as this level of equipment is typically a critical part of the bulk electrical grid.

Upgrades at Deans Substation

Two (2) 500kV circuit breakers are to be installed at the existing substation, creating one (1) new bay of 500kV equipment. Included with the circuit breakers four (4) group operated disconnect switches, three (3) voltage instrument transformers, and one (1) 500kV dead-end structures.

In review of the google earth imagery it is shown that the existing substation does have enough area within the substation fence to install the new equipment. Consideration must be given to where the existing on-site equipment storage is to be moved prior to expanding the 500kV substation equipment. Of most concern there appears to be an equipment enclosure shown on the google earth image that will be in conflict with the new substation equipment. The purpose of this enclosure needs to be confirmed, and a determination needs to be made on if this can be removed or needs to be relocated. If the existing permanent structures cannot be relocated or removed a custom bus design may be required, however sufficient space does appear to exist within Deans substation to install the new equipment.

Potential Substation Component Constraints and Risks

- For the Lighthouse substation the proposed yard of approximately 13.5 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Old York substation, the proposed substation yard of approximately 4.2 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Crossroads substation, the proposed substation yard of approximately 4.0 acres as shown in the original proposal documents is adequate. The 500kV GIS building should work given that there is only one breaker per circuit.

Construction Schedule

- The conceptual project schedule developed by the onshore consultant indicates that the on-shore aspects of the project will take approximately 100 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Review of the environmental factors indicate that construction of the proposed lines are feasible due to necessary permits and potential access issues. Permitting will likely be a lengthy process, but no major issues are expected in getting permit approvals.

Proposal 72

Environmental (Regulatory) Analysis

Desktop Review

Project #72 is located within Sea Girt, Manasquan, Brick, Allenwood, and Howell Townships in Monmouth County, New Jersey.

Study Area

The environmental review consisted of mapping and assessing the water/wetlands resources, biological resources, public lands, cultural resources, existing infrastructure, soils and farmland resources within a ¼ mile of the proposed Project centerline (henceforth known as the Study Area).

Land Use

According to the USGS National Land Cover Database (NLCD, 2019), the 3,165-acre Project Area is mainly comprised of land classified as Woody Wetlands and Deciduous Forest.

Land Cover Type	Area (Acres)	Percent of Total
Woody Wetlands	790.50	24.98
Deciduous Forest	603.32	19.06
Developed, Open Space	444.53	14.04
Developed, Low Intensity	404.61	12.78
Developed, Medium Intensity	237.88	7.52
Cultivated Crops	199.60	6.31
Pasture/Hay	154.46	4.88
Mixed Forest	133.11	4.21
Developed, High Intensity	71.18	2.25
Shrub/Scrub	40.55	1.28
Evergreen Forest	34.77	1.10
Grassland/Herbaceous	32.92	1.04
Emergent Herbaceous Wetlands	12.12	0.38
Barren Land	2.90	0.09
Open Water	2.70	0.09
Total	3,165.15	100

*Values rounded to the nearest hundredth.

Public and Protected Lands

A total of 57 parcels of public and conservation lands lie within a 0.25-mile buffer of the Project Area. These public and conservation lands include 24 township or county parks, Allaire State Park, New Jersey YMCA's Camp Zehnder, Manasquan and Turkey Swamp Wildlife Management Areas, Charleston Spring Golf Course, several Conservation Focal Areas (CFAs): Millstone and South Branch Raritan Rivers CFA, Piedmont Delaware River CFA, Lower Raritan Watershed CFA, Northern Pinelands Fringe CFA, Greater Barnegat Bay CFA, and 23 conservation or agricultural easements.

Special Landscape or Hazard Areas

A search for known environmental contaminants within ¼-mile of the Project Area was completed using the New Jersey Department of Environmental Protection: NJ-GeoWeb and the U.S. Environmental Protection Agency: MyEnvironment online application. Several environmental hazards, such as underground storage tanks, two superfund sites, active remediation sites, groundwater contamination areas, and underground storage tanks have

been identified within the aforementioned buffer. These should not cause issues but will need to be avoided in design, construction, and access planning. Soil testing should be conducted to avoid construction within an area of contaminated groundwater or other contamination.

Floodplains, Waterbodies and Wetlands

According to FEMA Flood Insurance Rate Map (FIRM), there are 401.9 acres of mapped 100-year floodplain (Zones A and AE) and 35.7 acres of mapped 500-year floodplain (Zone X) within the project boundary. There are 11 mapped floodways (Zone AE) totaling 149.3 acres within the Project Area, which are concentrated along the North Branch Metedeconk River, Manalapan Brook, and an unnamed tributary in the Lower Manasquan River watershed. Most of the 100-year and 500-year floodplains are associated with the North Branch Metedeconk River, Lower Manasquan River, and Rocky Brook watercourses and their respective tributaries.

According to NWI data, 184 wetlands totaling 486.42 acres were identified within the Project Area. Wetlands are classified as Freshwater Emergent, Freshwater Forested/Shrub, Freshwater Pond, Tidal Riverine, and Non-Tidal Riverine wetlands. No NWI-classified Estuarine or Marine wetlands were recorded. It is worth noting that the NWI dataset identified freshwater and non-tidal riverine wetlands within the boundaries of the New Jersey Department of Environmental Protection (NJDEP) Tidelands Claim Line. The tidelands claim line identifies areas that are tidally influenced within the state. Within the Project Area, portions of Manasquan River and Judas Creek are identified as tidally influenced, which is inconsistent with the NWI classification of those systems. Below is a breakdown of NWI wetland types and their respective acreages within the Study Area.

NWI wetland types within Project Area

Wetland Classification		Count	Acres within Project Area
Tidal Wetlands	Tidal Riverine	1	0.44
	Total	***1***	***0.44***
Non-Tidal, Non-Forested Wetlands	Freshwater Emergent Wetland	24	104.14
	Freshwater Pond	18	11.59
	Non-Tidal Riverine	87	13.78
	Total	***129***	***129.51***
Non-Tidal, Forested Wetlands	Freshwater Forested/Shrub Wetland	184	486.42
	Total	***184***	***486.42***

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

The desktop assessment sought to identify federally- and state-listed threatened and endangered species that may occur within the Study Area. The review was conducted utilizing the United States Fish and Wildlife Service (USFWS) maintained Information for Planning and Consultation (IPaC) online tool, NatureServe Explorer Pro online mapping tool, and the List of TE Species of NJ published by the NJDEP.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

This preliminary investigation into cultural resources was limited to a desktop review of publicly available online data. The Study Area included a ¼-mile buffer around the Study Area and included a review of the Archaeological Site Grid, Historic Properties, Historic Property Features, and Historic Districts geospatial datasets maintained by the NJ Historic Preservation Office (HPO). Initial research utilized LUCY, the New Jersey Cultural Resources GIS (NJCRGIS) Online Map Viewer. The four sets of data were also downloaded from the NJ Department of Environmental Protection's (NJDEP) Bureau of GIS to map the resources in relation to the Project.

The results of the review for previously recorded archaeological sites and historic resources within the Project Area and the ¼-mile buffer are summarized below.

Archaeological Sites

According to the Archaeological Site Grid, there is a possibility for 12 archaeological sites located within ¼-mile of the Project Area (3 are NRHP eligible). Eight of these sites may intersect the Project Area (2 NRHP eligible). Specific locational data is confidential; a file request with HPO and a formal cultural resources literature review would be required to acquire precise site locations

Historic Resources

Sixty-nine Historic Properties are within ¼-mile of the Project Area (28 are NRHP eligible and 7 are listed). Five properties intersect the Project. Sixteen Historic Properties are adjacent to the Project (5 NRHP eligible, 1 listed). Most of the individual resources are elements of historic districts in the vicinity.

Sixty-one Historic Property Features are within ¼-mile of the Project Area (31 are NRHP eligible, 5 are listed). Two resources intersect the Project. Ten resources are adjacent to the Project (5 NRHP eligible). Most of the individual resources are elements of historic districts in the vicinity.

Seven Historic Districts are within ¼-mile of the Project Area (6 NRHP eligible, 1 listed). They all intersect the Project Area.

Federal, State, and Local Environmental Permits

Federal Permits

Depending on the outcome of wetland and stream delineations and the final design, Project #72 could require federal permits, authorizations, and consultations prior to construction. These include but are not limited to the US Army Corps of Engineers (USACE) Section 404 permits for dredge and fill activities in wetlands and other waters of the US and USACE Section 10 permits for structure construction along the banks of or within, over, or under navigable waters. In addition, USFWS consultations and authorizations under Section 7 of the ESA could also be required. To be in compliance with these federal permits, consultation and concurrence typically needs to be received from state agencies as well.

For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered terrestrial species and critical habitats are appropriately addressed under Section 7 of the ESA. Early consultation with USFWS will be of paramount importance. Agency feedback, along with information acquired through preliminary field reconnaissance and detailed review of maps and aerial photographs, will be used to identify the scope of any subsequent species or habitat-specific field surveys that may be required. Given the limited seasonal timeframes that exist for many such surveys, early planning is vital. Likewise, construction schedules can be impacted by agency-stipulated seasonal restrictions reflecting nesting, breeding, and other behavioral patterns. In the absence of Project-specific agency consultation and a preliminary field assessment of habitat availability within the Study Area, any species-related impacts on construction schedules cannot be ascertained.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, additional field surveys. Species-specific surveys and construction timeframes may be applicable. Due to Project #72 being within the range of federally-listed species, it is possible that field surveys and potentially other timeframe restrictions may be needed for compliance.

The Federal Aviation Administration (FAA) requires an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) to be completed and with the submission of notice at least 45 days prior to construction for proposed structures entering the airspace based on a variety of factors including height, proximity to airports, location, and frequencies emitted from structures. More specifically, if the structure will exceed 200 feet above ground level, the FAA must be notified prior to construction. The FAA is notified through submittal of the Notice of Proposed Construction or Alteration, FAA Form 7460-1 (FAA, 2019). Early consultation with the FAA regarding the proposed Project tower heights and locations is highly encouraged to ensure the required approvals are met in a timely manner prior to the start of construction.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #72 in Appendix A -Table 10.

State Permits

Potential approvals required for Project development include the 5G3 - Construction Activity Stormwater General Permit; Freshwater Wetlands (FWW) Individual Permit and FWW General Permits; Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits and Permit-by-Rule (PBR) 33; Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit; and the Tidelands License/Grants Approval.

Additionally, Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to New Jersey's state parks, forests, natural areas, and wildlife management areas. A diversion or disposal may be required if the substation is expanded onto Green Acres properties. Components of the Project are within existing maintained ROWs. Any expansion beyond the existing ROW may impact Green Acres areas.

A Cultural and Historic Resource Review from the New Jersey Historic Preservation Office (HPO) will be required for any State or Federal undertakings. Review may be triggered by a variety of NJDEP approvals for water resource impacts.

If any of the local permit issuing municipalities do not possess code enforcement licenses of the appropriate class, a review from the NJ Department of Community Affairs would be required in place of municipal review. A Departmental plan review (typically referred to as a Construction Permit) shall not be required except when the Department acts as the enforcing agency. An Application should be made to the local construction office, not the Department.
New Jersey Department of Transportation (NJDOT) permits and approvals are required for oversize/overweight vehicles, driveway access roads, utility openings, and highway occupancies. Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles. Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Typically, these types of permits will be sought out by the contractor responsible for transporting materials. An Application for Utility Opening (MT17A) will be required for installation of utility infrastructure via highway openings. Project #72 crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required. In addition, it is likely that Highway Occupancy Permit (MT120A) will be required for utility infrastructure occupancies of State-managed roadways. The minimum clearances for overhead power and communication lines must be no less than the standards prescribed by the National Electrical Safety Code (NESC) under N.J. Admin Code 16:25-10.4.

More information regarding the state regulatory review process can be found in the Permit Matrix prepared for Project #72 in Appendix A - Table 10.

Local Permits and Approvals

At the local level, Project #72 crosses nine (9) different Boroughs and Townships in the State of New Jersey. All identified Boroughs and Townships will be the local authority having jurisdiction of Project development in the applicable corporate boundaries. Consultant reviewed each Borough and Township Government Website regarding zoning, land use ordinances, and potential Borough-level permitting for transmission line projects. Common approvals amongst the local jurisdictions include Zoning and/or Conditional Land Use Permits for construction of electric transmission infrastructure across a variety of agricultural, residential, and other zoning districts present in the proposed route. Site Plan Reviews demonstrating compliance with all zoning and land use regulations are required in local jurisdictions. A Construction Permit in accordance with the New Jersey State Uniform Construction Code will also be necessary for each jurisdiction. Prior to construction, Building Permits may also be required in local jurisdictions. Other identified approvals from local jurisdictions include Tree Removal Permits and Street Opening Applications.

Ultimately, consultation with each identified local jurisdiction is recommended to ensure Project designs adhere to local regulations and all permitting requirements are met.

At the County-level, the Project is sited in Monmouth, Ocean, and Mercer Counties. Any proposed developments abutting a County road or County drainage structure will require a County Site Plan Review Approval in addition to all borough and township permitting requirements. Consultant determined that the Project does abut County roadways and/or County drainage systems and therefore, it is likely that Site Plan Reviews from the aforementioned Counties would be required. In addition, right-of-way permitting will be necessary from each County for infrastructure placed in the ROW of County roadways.

Construction activities resulting in one or more acres of earth disturbance require Soil Erosion and Sediment Control (SESC) Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.

More information regarding the local regulatory review process can be found in the Permit Matrix prepared for Project #72 in Appendix A - Table 10.

Infrastructure

The Project crosses numerous major highways, including US Interstate 195, US Highway 9, and numerous state and county roadways.

A review of aerial photography indicates that various types of structures are present within the quarter mile buffer of the centerline.

The Southern Secondary railroad intersects the Centerline running north-south through the eastern area. The N. Jersey Coast Ln (So.) railroad intersects the far eastern side of the Centerline running north-south.

One water well is mapped within the quarter-mile buffer of the Centerline.

No oil/gas wells are located within the quarter-mile buffer of the Centerline.

Two natural gas pipelines titled New Jersey Natural Gas Co. travel through the quarter-mile buffer north-south.

Dozens of transmission lines intersect the quarter-mile buffer.

11 substations are located within the quarter-mile buffer.

Seven airports are mapped within one-mile of the Centerline.

Environmental (Regulatory) Risks

A summary of the environmental risks that may impact the Project are summarized in the table below.

Risk Analysis		
Category	**Items of Note**	**Significant Constraints/Hurdles**
Floodplain	The Project Area has FEMA mapped floodways, 100-year floodplains, and 500-year floodplains.	An NJDEP permit is required for any development within a floodway or 100-year floodplain. A local floodplain development permit may be required within the Borough of Roosevelt.
Water Resources	Potential wetlands and other regulated waters, transition areas, and tidelands are most likely present in the Project Area. Section 10 waters, EPA Priority Wetlands, and Outstanding Natural Resource Waters are present.	Water resources should be avoided to the degree practicable.
Water resources regulations	If jurisdictional wetlands/waterways are present, project infrastructure should be sited to avoid water resources to the degree practicable. There are impaired waters within the Project Area. Section 10 waters, EPA Priority Wetlands, and Outstanding Natural Resource Waters are present.	State and Federal permits will be required for impacts to jurisdictional waters. Additional stormwater BMPs are likely. EPA involvement and review is likely. Additional restrictions are also likely.
Sensitive Biological Resources	Nine species were identified by the IPaC: American chaffseed, northern long-eared bat (NLEB), bog turtle, Piping Plover, Rufa Red Knot, seabeach amaranth, swamp pink, Knieskern's beaked-rush, and monarch butterfly. Likelihood of occurrence within the Project Area are as follows: **High:** NLEB, bog turtle, swamp pink, monarch butterfly, Bald Eagle. **Moderate:** Piping Plover, Rufa Red Knot, seabeach amaranth. **Low:** American chaffseed, Knieskern's beaked-rush.	Tree clearing should be avoided; if necessary, restrict to the northern long-eared bat inactive season (November 1 – March 31), or at a minimum outside of the pup-rearing season (June 1 – July 31). A Phase I bog turtle habitat assessment should be completed; all potentially suitable wetlands should be avoided until it is determined that a Phase II survey should be conducted. Rare plant surveys may be necessary. An Eagle Nest Survey should be performed. If present, all in-use (active) eagle nests require at least a 660' no-construction buffer. Alternate (inactive) nests may also require a buffer.

Archaeological and Historic Resources	There is a potential for eight archaeological sites to intersect the Project Area, of which two are NRHP eligible. Six NRHP eligible or listed historic districts intersect the Project. No historic resources intersect, but there are six NRHP eligible or listed resources adjacent to the Project Area.	Consultation with SHPO will be necessary.
Public Lands	A total of 57 parcels of public and conservation lands are located within a 0.25-mile buffer of the Project Area. These public and conservation lands include 24 township or county parks, Allaire State Park, New Jersey YMCA's Camp Zehnder, Manasquan and Turkey Swamp Wildlife Management Areas, Charleston Spring Golf Course, several Conservation Focal Areas (CFAs), and 23 conservation or agricultural easements	Public lands and conservation areas may have specific permits and/or land use restrictions. Project will need to confirm any restrictions/setbacks during design process to avoid and/or implement controls/setbacks as necessary.
Land Cover	The Project Area is mainly comprised of woody wetlands and deciduous forest.	None identified.
Infrastructure	A rail crossing, several buildings, and multiple transmission lines are within the quarter-mile buffer of the Project Area.	Avoidance or setbacks from structures may be necessary, as well as a possible permit with the railroad.
Soils	Soils are classified as not prime farmland, all areas are prime farmland, farmland of statewide importance, farmland of unique importance, farmland of local importance, and farmland of statewide importance, if drained	None identified.
Environmental Hazards	Several active remediation sites, underground storage tanks, areas of immediate environmental concern, and groundwater contamination areas were found within the quarter-mile buffer of the Project Area.	Avoidance or setbacks from environmental hazards may be necessary.

Transmission Line Risks

Conceptual Design Summary, Potential Transmission Line Component Constraints, and Risks

The transmission elements proposed under Proposal #72 are listed in detail below.

OSW Connection / Landfall Consideration

- All LS Power proposal reviews include consideration for the connection of the Offshore Wind (OSW) to the proposed Lighthouse substation. This small line is approximately 1200FT to 1800FT from the shore to the proposed Lighthouse substation and is indicated as an underground connection using horizontal directional drilling (HDD).
- All connections from the shoreline to offshore facilities including offshore transmission and generation are discussed in the LS Power proposals as Option 2 proposal (Proposal ID 594).
- Should Option 2 not be selected, LS Power would still install the duct banks from Lighthouse to the shore in order to coordinate with any future OSW connections from other entities.

Lighthouse to Crossroads – Underground 500kV Lines

- The Lighthouse to Crossroads 500kV UG lines are proposed to be built within 2 corridors. Both span from the Lighthouse Substation to the Crossroads Substation but take different routes. The northern corridor (Corridor 1) is 11.1 miles (same route as proposed for project #781 – Solution A), and the southern corridor (Corridor 2) is 10.3 miles. The offshore wind facilities will land and connect at the Lighthouse Substation. From there, the 500kV underground lines will traverse approximately West to the proposed Crossroads substation.
- For Corridor 1, the lines will be placed in two separate duct banks in the same corridor. Each duct bank will have 2 lines, for a total of 4 lines. The duct banks will be buried between1.5FT to 3FT to the top of duct bank. The duct banks will use thermally rated concrete, grout and backfill. Corridor 1 will be constructed during Modules 1 & 2 of the project.
- For Corridor 2, the lines will be placed in one duct bank in the corridor. The duct bank will have 2 lines, and will be buried between1.5FT to 3FT to the top of duct bank. The duct bank will use thermally rated concrete, grout and backfill. Corridor 3 will be constructed during Module 3 of the project.
- Cables proposed are listed below and will be pulled and spliced using manholes. The LS Power proposal documentation does not identify exact manhole locations. However, LS Power indicates the manholes shall be placed approximately every 1800FT to 2000FT. This report has assumed 1800FT to be conservative.
- Trenchless (directional bore) construction is planned at all major road crossings.

Lighthouse to Crossroads – UG 500kV Route 1 & 2
Route 1 / Corridor 1 – Constructed during Modules 1 & 2

Length:	11 miles
Circuits:	4
Manholes:	33
Major Crossings:	2

Route 2 / Corridor 2 – Constructed during Module 3

Length:	10.3 miles
Circuits:	2
Manholes:	32
Major Crossings:	5

Line Rating Data (All Underground Routes & Circuits)
UG Conductor: 2500MM XLPE Copper Milliken Shape per Phase
Winter Rating

Normal:	1229 MVA
Emergency:	1757 MVA

Summer Rating

Normal:	1125 MVA
Emergency:	1608 MVA

Lighthouse to Crossroads UG 500kV Line Map

Crossroads to Smithburg 500kV OH Line on Existing ROW

- The existing Smithburg to New Prospect to New Atlantic 230kV steel transmission towers are to be removed. A new line will be built in the existing corridor using single engineered steel poles on drilled concrete piers. The line will be approximately 12 miles of two (2) adjacent 230kV/500kV double circuit transmission lines.

- The new line from Crossroads to Smithburg will essentially be two lines (one line with side by side structures). The two adjacent lines will be constructed as single pole engineered steel davit arm structures on drilled concrete piers, with the outside circuit being a vertical 500kV and the inside circuits being a vertical 230kV. The lines include the existing 230kV Smithburg to New Prospect to Atlantic circuit as well as the new proposed Crossroads to Smithburg 500kV circuit with room for a future 230kV line.
- The new Crossroads to Smithburg line running angle and tangent structures will be single engineered steel poles on drilled concrete piers. The dead end structures will be two-pole engineered steel poles on drilled concrete piers.

500kV Line Design Elements

Conductor:	Three (3) Triangular Bundled 1272 KCMIL ACSS 45/7 MA3 "Bittern" Per Phase
Min/Max Operating Temps:	250°C / 482°F
OPGW:	DNO-10164, 48 Fiber CentraCore CC-40/49/555

230kV Line Design Elements

Conductor:	Single (1) 1590 KCMIL ACSS 45/7 "Lapwing" Per Phase
Min/Max Operating Temps:	100°C / 212°F

The piers will have a 2FT reveal. Hardware used will be high temp EHV corona free hardware for both the 500kV and 230kV conductors.

Crossroads to Gardenview 500kV OH Line on Existing ROW

- The new Crossroads to Gardenview 500kV OH line will be built on the existing Larrabee to Smithburg to East Windsor 230kV transmission corridor between Smithburg and Gardenview substations. The existing Larrabee to Smithburg 230kV transmission towers (both circuits) will be removed along with the existing Smithburg to East Windsor 230kV towers. The Larrabee to Smithburg to East Windsor 230kV circuits will no longer be necessary and will be retired.
- The new Crossroads to Gardenview 500kV OH line will be single pole engineered steel poles on drilled concrete piers. The line will be approximately 21 miles.

500kV Line Design Elements

Conductor:	Three (3) Triangular Bundled 1272 KCMIL ACSS 45/7 MA3 "Bittern" Per Phase
Min/Max Operating Temps:	250°C / 482°F
OPGW:	DNO-10164, 48 Fiber CentraCore CC-40/49/555

Smithburg to Deans 500 kV OH Line on Existing ROW

- The new Smithburg to Deans 500kV OH line will be built as part of the required system upgrades identified by PJM.
- LS Power has provided Proposal #72 as an alternate design to incorporate this work as part of the LS Power Clean Energy Gateway project as opposed to assuming the work will be done by the incumbent transmission operator.
- LS Power did not provide details on the assumptions or design of this line. This report assumes this design and the parameters of this line will follow the Smithburg to Gardenview line as identified above in transmission component #3.
- Using aerial imagery and measuring the route, the Deans to Smithburg OH 500kV line is assumed to be approximately 18 miles long.

- Using aerial imagery to identify crossings, and an assumed alignment, the structure counts in table 2.5 below were assumed as well.

500kV Line Design Elements

Conductor:	Three (3) Triangular Bundled 1272 KCMIL ACSS 45/7 MA3 "Bittern" Per Phase
Min/Max Operating Temps:	250°C / 482°F
OPGW:	DNO-10164, 48 Fiber CentraCore CC-40/49/555

Incumbent Required Changes to Existing Infrastructure

To fully implement the LS Power Clean Energy Gateway project, certain required system upgrades have been identified. Each upgrade must be coordinated with the existing incumbent transmission owner/operator.

a. Larrabee Substation: Will be expanded to receive one new 230 kV circuit from Crossroads Substation. The incumbent TO has already developed a plan for this expansion.
b. Smithburg Substation: Will be expanded to receive one new 500 kV circuit from Crossroads Substation. The incumbent TO has already developed a plan for this expansion.
c. Deans Substation: Will be upgraded to accommodate the increased rating associated with the Smithburg to Deans 500 kV transmission line.
d. East Windsor (Gardenview) – New Freedom 500 kV Interconnection: To connect the existing 500 kV transmission line to Old York Substation.
e. Burlington – Trenton 230 kV Interconnections: To connect the existing 230 kV transmission lines to Old York Substation
f. Gilbert-Springfield 230 kV Transmission Line: Terminal equipment will be upgraded to increase the winter emergency line rating (currently 903 MVA) to match its conductor rating (1,031 MVA)

Potential Transmission Line Component Constraints and Risks

- LS Power has indicated the lines will be designed with XLPE conductor. They also commit to keeping spare conductor maintained within the project area for quick emergency repair.
- For the underground transmission lines, extensive construction in road ROW should be anticipated which would require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.
- Project assumes right-of-way from incumbent transmission owner's line Smithburg to New Prospect to New Atlantic 230kV, indicating that the line will be removed and rebuilt onto a double circuit structure that will also contain the new 500kV Crossroads - Smithburg transmission line.
- Project also assumes right-of-way from incumbent transmission owner's line Larrabee to Smithburg to East Windsor 230kV, indicating that the line will be removed and retired making room for the new 500kV Crossroads - Gardenview transmission line.
- No details provided indicating that the incumbent transmission owner has been consulted about the proposed removal/rebuild/retirement of their lines.

Substation Risks

Conceptual Design Summary, Potential Substation Component Constraints, and Risks

Lighthouse Substation

The Lighthouse substation is a proposed 345kV/500kV substation yard. This substation shall consist of two (2) 345kV indoor gas-insulated-substations. Consisting of one (1) four (4) bay breaker-and-a-third GIS substation terminating eight (8) underground 345kV feeders equipped with 345kV reactors as well as two (2) 345/500kV main power transformers and one (1) three bay breaker-and-a-third GIS substation consisting of seven (7) underground 345kV feeders equipped with 345kV reactors and two (2) 345/500kV main power transformers. The two (2) 345kV GIS substation shall be equipped with bus tie circuit breakers to connect the 345kV substations together.

Included within the Lighthouse substation is an indoor 500kV gas-insulated-substation consisting of five (5) bay of breaker-and-a-third terminating four (4) 345/500kV main power transformers and six (6) 500kV transmission lines equipped with 500kV reactors. Provisions have been included to connect three (3) dynamic var compensation devices. The capabilities of the dynamic car compensation devices are to be determined during the design phase of the project.

Lighthouse substation is proposed to be constructed on Sea Girt Ave, between 1st Ave. and 2nd Ave. The property is to the southwest of Sea Girt Ave adjacent to the National Guard Training Center. The property is already clear of trees and should be suitable for the construction of the substation.

Crossroads Substation

The Crossroads Substation is a proposed 230/500kV substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation consisting of two (2) single circuit breakers each terminating a 500kV transmission line with one (1) 500kV 150MVAR reactor. The two (2) circuit breakers each feed one (1) 230/500kV main power transformers. Also within the Crossroads Substation one (1) 230kV gas-insulated-substation consisting of a two (2) single circuit breakers each terminating a single 230kV transmission line. Each 230kV circuit breaker is connected one (1) 230/500kV main power transformer described above.

Crossroads substation is proposed to be constructed on Lakewood Farmingdale Road between Alexander Ave. and Waverly Pl. on the west side of Lakewood Farmingdale Road. The Crossroads substation will be constructed to the northwest of the existing Larrabee substation. This location is moderately wooded and has existing structures that will need to be cleared for the main substation yard. Reviewing the google earth image of the site, some remedial work may be required to clean up any ground contamination from the current use of the property.

Gardenview Substation

The Gardenview substation is a proposed 500kV switching substation yard. This substation shall consist of one (1) 500kV indoor gas-insulated-substation. Consisting of one (1) three (3) bay breaker-and-a-half GIS substation terminating five (5) 500kV feeders.

Gardenview substation is proposed to be constructed on Windsor Perrineville Road, between Bradford Road and Cedarville Road. The property is to the southwest of the existing East River substation. The property is heavily tree covered and will require clearing prior to construction of the substation. The greatest scheduling consideration for the Gardenview substation will be the outage coordination with the East Windsor substation for interconnection of the Gardenview substation to the East Windsor main power transformers. Constructability of this location may require additional easement considerations with the land owner to the south of the substation as review in google earth appears to show access to the substation may only be possible on a private driveway or through easement with the property owner to the west of the East Windsor substation.

Old York Substation

The Old York substation is a proposed 230/500kV switching substation yard. This substation shall consist of one (1) 500kV gas-insulated-substation, consisting of one (1) two (2) bay breaker-and-a-half GIS substation terminating two (2) 500kV transmission lines, and two (2) 230/500kV main power transformers; one (1) 230kV gas-insulated-substation consisting of a two (2) bay breaker-and-a-third substation terminating two (2) 230/500kV transformers powered from the 500kV portion of the substation and four (4) 230kV transmission lines.

Old York substation is proposed to be constructed on Old York Road between the New Freedom substation and the East Windsor substation along the 500kV transmission line. This location is heavily wooded and will need to be cleared for the main substation yard. The greatest scheduling concern will be coordinating with the owner of the New Freedom-East Windsor 500kV transmission line. The available outage window for a transmission line of this level will be a significant effort to coordinate with the utility.

Upgrades at Larrabee Substation

Two upgrades are being proposed at the existing Larrabee substation. For this project, two (2) 230kV circuit breaker are to be installed to create additional transmission line positions. In reviewing the google earth image sufficient space appears to exist to install these two circuit breakers without expanding the substation fence. One (1) circuit breaker is to be installed on the 230kV buswork on the west side of the substation north of the existing transmission line. This additionally will include two (2) air insulated group operated disconnect switches for circuit breaker isolation, three (3) voltage instrument transformers, one (1) air insulated group operated disconnect switches for transmission line isolation and one (1) 230kV dead-end structure. The second 230kV circuit breaker will be installed on the southern 230kV buswork to the west of the existing transmission line. Included with the second circuit breaker will be two (2) 230kV air insulated group operated disconnect switches for circuit breaker isolation.

The Larrabee substation as viewed in google earth has sufficient space to install the new equipment without requiring additional property. The installation of the circuit breakers will require sections of the 230kV buswork to be taken out of service to allow for the new equipment to be installed. Network stability during these outages will need to be coordinated with the utility that owns the Larrabee substation.

Upgrades at Smithburg Substation

Eight (8) 500kV circuit breakers are to be installed within the existing substation. Reviewing the google earth imagery the Smithburg substation 500kV equipment is outdoor gas-insulated-substation equipment. In order to install the uprated GIS substation equipment new GIS equipment will be ordered. The new equipment will need to be constructed in stages in coordination with the utility that owns the Smithburg substation.

The Smithburg substation as reviewed in google earth has sufficient space to install the new equipment assuming that the new equipment is installed in the region currently being used for the 500kV GIS equipment. Since the Smithburg equipment being replaced is 500kV the utility that owns the substation will have to coordinate the outage sequence to facilitate the stability of the local grid as the equipment is being removed from service and upgraded with the new equipment. Outage considerations for this project may cause significant schedule constraints as this level of equipment is typically a critical part of the bulk electrical grid.

Upgrades at Deans Substation

Upgrades have been proposed at the Deans 500kV switching substation. Four (4) 500kV circuit breakers are to be installed at the existing substation, creating 2 new bays of 500kV equipment. Included with the circuit breakers four (4) group operated disconnect switches, six (6) voltage instrument transformers, and two (2) 500kV dead-end structures.

In review of the google earth imagery it is shown that the existing substation does have enough area within the substation fence to install the new equipment. Consideration must be given to where the existing on-site equipment storage is to be moved prior to expanding the 500kV substation equipment. Of most concern there appears to be an equipment enclosure shown on the google earth image that will be in conflict with the new substation equipment. The purpose of this enclosure needs to be confirmed, and a determination needs to be made on if this can be removed or needs to be relocated. If the existing permanent structures cannot be relocated or removed a custom bus design may be required, however sufficient space does appear to exist within Deans substation to install the new equipment.

Potential Substation Component Constraints and Risks

- For the Lighthouse substation the proposed yard of approximately 13.5 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Old York substation, the proposed substation yard of approximately 4.2 acres as shown in the original proposal documents is adequate, however the size and layout of the GIS buildings may need to change from the proposal to accommodate the project scope.
- For the Crossroads substation, the proposed substation yard of approximately 4.0 acres as shown in the original proposal documents is adequate. The 500kV GIS building should work given that there is only one breaker per circuit.

Construction Schedule

- The conceptual project schedule developed by the onshore consultant indicates that the on-shore aspects of the project will take approximately 88 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Review of the environmental factors indicate that construction of the proposed lines are feasible due to necessary permits and potential access issues. Permitting will likely be a lengthy process, but no major issues are expected in getting permit approvals.

Cost Review

Proposal 781

Proposal Cost Estimates

The total proposal costs for LSPG Proposal 781 are given below.

Category	Proposal 781
	$
Materials and equipment	$774,530,847.84
Construction and commissioning	$691,175,269.49
Engineering and design	$17,202,581.25
Permitting / routing / siting	$9,697,942.35
ROW / land acquisition	$34,147,916.67
Construction management	$39,536,430.15
Overheads and miscellaneous costs	$111,549,293.78
Contingency	$83,892,014.08

Work by others	$10,172,381.63
Total Project	$1,771,904,677.23

Independent Cost Estimates

PJM's consultant assembled independent cost estimates for the proposed facilities using historical data from similar projects, information collected from original equipment vendors and contractors supplying similar services, and other publicly available sources. The accuracy of consultant's estimates is expected to be ±25%. The estimates are in 2022 dollars and includes a 30% contingency.

The Independent estimate for the Proposal 781 is:

Category	Transmission Line Components	Substation Components	Total Components
Materials & Equipment Total	$487,771,266.32	$338,141,990.50	$825,913,256.82
Construction & Commissioning Total	$168,129,040.00	$42,278,783.76	$210,407,823.76
Engineering & Design	$5,250,402.45	$18,085,600.00	$23,336,002.45
Permitting/Routing/Siting	$13,050,000.00	$1,625,000.00	$14,675,000.00
ROW/Land Acquisition	$6,000,000.00	$26,650,000.00	$32,650,000.00
Construction Management	$32,815,015.32	$7,708,800.00	$40,523,815.32
Overheads and Miscellaneous	$5,400,000.00	$10,210,977.56	$15,610,977.56
Contingency	$144,243,990.12	$124,927,845.55	$269,171,835.66
Total Cost	$862,659,714.21	$569,628,997.37	**$1,432,288,711.58**

For comparison, the total proposal cost estimate and independent cost estimate for Proposal 781 are shown below.

Independent Cost Estimate

Projects	Proposal 781
Total Component Cost (Current Year)	**$1,432,288,711.58**

Proposal Cost Estimate

Projects	Proposal 781
Total Component Cost (Current Year)	**$1,771,904,677.23**

Proposal 629

Proposal Cost Estimates

The total proposal costs for LSPG Proposal 629 are given below.

Category	Proposal 629
	$
Materials and equipment	$693,055,920.14
Construction and commissioning	$449,564,511.20
Engineering and design	$14,800,634.30
Permitting / routing / siting	$8,739,517.85
ROW / land acquisition	$32,971,484.85
Construction management	$28,653,382.18
Overheads and miscellaneous costs	$96,097,540.90
Contingency	$66,194,149.57
Work by others	$178,037,210.08
Total Project	**$1,568,114,351.07**

Independent Cost Estimates

PJM's consultant assembled independent cost estimates for the proposed facilities using historical data from similar projects, information collected from original equipment vendors and contractors supplying similar services, and other publicly available sources. The accuracy of consultant's estimates is expected to be ±25%. The estimates are in 2022 dollars and includes a 30% contingency.

The Independent estimate for the Proposal 629 is:

Category	Transmission Line Components	Substation Components	Total Components
Materials & Equipment Total	$395,863,132.32	$350,440,584.39	$746,303,716.71
Construction & Commissioning Total	$159,269,040.00	$33,085,244.22	$192,354,284.22
Engineering & Design	$4,444,257.38	$13,242,416.00	$17,686,673.38
Permitting/Routing/Siting	$6,050,000.00	$1,675,000.00	$7,725,000.00
ROW/Land Acquisition	$6,000,000.00	$27,250,000.00	$33,250,000.00

Construction Management	$27,776,608.62	$7,893,600.00	$35,670,208.62
Overheads and Miscellaneous	$4,400,000.00	$8,133,189.03	$12,533,189.03
Contingency	$144,301,321.70	$123,710,194.62	$268,011,516.32
Total Cost	$748,104,360.01	$565,430,228.26	**$1,313,534,588.27**

For comparison, the total proposal cost estimate and independent cost estimate for Proposal 629 are shown below.

Independent Cost Estimate

Projects	Proposal 629
Total Component Cost (Current Year)	**$1,313,534,588.27**

Proposal Cost Estimate

Projects	Proposal 629
Total Component Cost (Current Year)	**$1,568,114,351.07**

Proposal 72

Proposal Cost Estimates

The total proposal costs for LSPG Proposal 72 are given below.

Category	Proposal 72
	$
Materials and equipment	$710,827,920.14
Construction and commissioning	$521,494,511.20
Engineering and design	$20,560,994.30
Permitting / routing / siting	$16,179,997.85
ROW / land acquisition	$32,971,484.85
Construction management	$30,853,382.18
Overheads and miscellaneous costs	$114,886,651.68
Contingency	$72,589,247.11
Work by others	$75,054,675.19
Total Project	**$1,595,418,864.49**

Independent Cost Estimates

PJM's consultant assembled independent cost estimates for the proposed facilities using historical data from similar projects, information collected from original equipment vendors and contractors supplying similar services, and other publicly available sources. The accuracy of consultant's estimates is expected to be ±25%. The estimates are in 2022 dollars and includes a 30% contingency.

The Independent estimate for the Proposal 72 is:

Category	Transmission Line Components	Substation Components	Total Components
Materials & Equipment Total	$487,771,266.32	$338,141,990.50	$825,913,256.82
Construction & Commissioning Total	$168,129,040.00	$42,278,783.76	$210,407,823.76
Engineering & Design	$5,250,402.45	$18,085,600.00	$23,336,002.45
Permitting/Routing/Siting	$13,050,000.00	$1,625,000.00	$14,675,000.00
ROW/Land Acquisition	$6,000,000.00	$26,650,000.00	$32,650,000.00
Construction Management	$32,815,015.32	$7,708,800.00	$40,523,815.32
Overheads and Miscellaneous	$5,400,000.00	$10,210,977.56	$15,610,977.56
Contingency	$144,243,990.12	$124,927,845.55	$269,171,835.66
Total Cost	$862,659,714.21	$569,628,997.37	**$1,432,288,711.58**

For comparison, the total proposal cost estimate and independent cost estimate for Proposal 72 are shown below.

Independent Cost Estimate

Projects	Proposal 72
Total Component Cost (Current Year)	**$1,432,288,711.58**

Proposal Cost Estimate

Projects	Proposal 72
Total Component Cost (Current Year)	**$1,595,418,864.49**

Rise Light & Power (RILPOW) Proposals

Executive Summary

Rise Light & Power, a wholly-owned subsidiary of LS Power, LS Power Grid Mid-Atlantic, LLC's (LSPG) provided five proposals to allow interconnection of between 1200 MW and 3200 MW of offshore wind into the New Jersey transmission system using the former Werner Power Station as a landing point, collectively the Outerbridge Renewable Connector Project. These five proposals consist of four onshore transmission solutions - Option 1b, and one Option 1a:

- Base Offer 1 - A single 1,200 MW HVDC transmission system connecting Werner to Deans (Option 1b)
- Base Offer 2 - Two 1,200 MW HVDC transmission systems connecting Werner to Deans (Option 1b)
- Additional Offer A - Upgrades to allow up to 400 MW injection into existing Werner substation. (Option 1b)
- Additional Offer B - Upgrades to allow up to 800 MW of injection into existing Werner substation. (Option 1b)
- Additional Offer C – Optional 91MW/364 MWh battery energy storage at the Werner site. (Option 1a)

Table 4. **RILPOW Option 1b Proposals**

Proposal ID(s)	Description(s)	Capability (MW)
582	Outerbridge R.C. Project Base Offer 1 - 1200MW	1200 MW
490	**Outerbridge R.C. Project Base Offer 2 - 2400MW**	**2400 MW**
376	Outerbridge R.C. Project Add'l Offer A – 400 MW	400 MW
171	**Outerbridge R.C. Project Add'l Offer B – 800 MW**	**800 MW**

Due to expected similarities in constructability results between the Base Offer 2 and Base Offer 1 proposals (Proposals 490 and 582), only the maximum injection Base Offer 2 Proposal 490 for 2,400 MW is addressed in this report. Similarly, for the Additional Offer A and Additional Offer B proposals (Proposals 376 and 171), only the maximum Additional Offer Proposal 171 for 800 MW is addressed in this report.

Proposal 490 (Base Offer 2)

Project Overview

Project #490 is located within South Amboy, Sayreville, Old Bridge, Spotswood, Helmetta, South Brunswick, Jamesburg, and Monroe Townships in Middlesex County, New Jersey and includes the construction of two new 275kV switching stations and two converter stations to be built on the former Werner Site. The Outerbridge HVDC converter stations will be connected to two HVDC converter stations at the Inland #1 and Inland #2 substations. The construction of Outerbridge assumes that the existing Werner substation has been reconstructed and the new Werner substation is in a location that will not impede the construction of the new substation components. One consideration for the Outerbridge substation location is any environmental remediation required for the demolition the existing facilities that are located on the proposed property. The project consists of the following components:

- Construction of 2 Outerbridge Onshore 275 kV Collector Stations #1 and #2 - enables three 275 kV OSW cables to each Collector station (6 total), and interconnects to new Werner 230 kV GIS via 275/230 kV xfmr
- Construction of Werner 230 kV GIS substation
- Construction of Outerbridge HVDC Converter Stations #1 and #2

- Construction of two 320 kV HVDC UG Lines #1 and #2
- Construction of Half Acre HVDC Converter Stations #1 and #2
- Construction of Half Acre 500/230 kV Switching Stations
- Interconnection to Half Acre to East Windsor – Deans 500 kV OH Transmission Line

Note that the scope of work for Proposal 582 (Base Offer 1) is similar to Proposal 490 (Base Offer 2), with the following difference:

- Only one Outerbridge Collector Station #1, one Outerbridge HVDC Converter Station, one Half Acre HVDC Converter station, and one 320 kV HVDC UG line.

Constructability Summary

Project 490 is constructible as proposed, with the following key takeaways:

Environmental (Regulatory) Risks:

- Components of this project run through Green Acres-encumbered properties. However, given that the project uses pre-disturbed ROW, the impacts are expected to be minimal, although any expansion required during construction could result in additional impacts and require permitting.

Transmission Line Analysis:

- This project has multiple utility crossing locations, proposing construction of the 15 mile HVDC transmission cable from Werner to Half Acre using Conrail railroad RoW.
- For the underground transmission lines, extensive construction in railroad ROW will require coordination and scheduling with municipal and department of transportation authorities as well as potentially extensive utility avoidance coordination.

Schedule:

- Using the longest component as the critical path, the project is independently estimated to take approximately 67 months.
- The entity's overall construction schedule of 60 months seems adequate.

Cost Review:

- Independent cost estimate: $ 1,703,054,753
- Entity's cost estimate: $1,730,024,293

Proposal 171 (Additional Offer B)

Project Overview

Project #171 is located within South Amboy in Middlesex County, New Jersey and includes the construction of a new collector station on the 26 acre site of the retired Werner Generating Station and JCP&L Werner Substation.

The project consists of the following components:

- Construct an Outerbridge onshore 275kV AIS station located at the Werner site designed to connect two 275kV lines (800 MW) from offshore wind generators, and interconnects to new Werner 230 kV GIS via 275/230 kV xfmr.

Note that the scope of work for Proposal 376 (Additional Offer A) is similar to Proposal 171, with the following difference:

- Permits connection of only one 275 kV line (400 MW) from offshore wind generators.

Constructability Summary

Project 171 is constructible as proposed, with the following key takeaways:

Schedule:

- Using the longest component as the critical path, the project is independently estimated to take approximately 67 months.
- The entity's overall construction schedule of 60 months seems adequate.

Cost Review:

- Independent cost estimate: $ 119,521,921
- Entity's cost estimate: $ 108,664,457

Constructability Review

Proposal 490

Environmental (Regulatory) Analysis

Desktop Review

Project #490 is located within South Amboy, Sayreville, Old Bridge, Spotswood, Helmetta, South Brunswick, Jamesburg, and Monroe Townships in Middlesex County, New Jersey and includes the construction of two new 275kV switching stations and two converter stations to be built on the former Werner Site.

Study Area

The environmental review consisted of mapping and assessing the water/wetlands resources, biological resources, public lands, cultural resources, existing infrastructure, soils and farmland resources within a ¼ mile of the proposed Project centerline (henceforth known as the Study Area).

Land Use

According to the USGS National Land Cover Database (NLCD, 2019), the 1,853.95-acre Study Area is mainly comprised of Developed land types.

Land Cover Type	Area (Acres)	Percent of Total
Developed, Medium Intensity	425.46	22.95
Developed, Low Intensity	421.57	22.74
Developed, Open Space	267.01	14.40
Deciduous Forest	222.81	12.02
Woody Wetlands	190.64	10.28
Developed, High Intensity	146.79	7.92
Open Water	61.23	3.30

Emergent Herbaceous Wetlands	31.85	1.72
Cultivated Crops	25.78	1.39
Grassland/Herbaceous	21.98	1.19
Shrub/Scrub	11.67	0.63
Evergreen Forest	9.32	0.50
Pasture/Hay	6.66	0.36
Mixed Forest	6.51	0.35
Barren Land	4.66	0.25
Total	1,853.95	100

*Values rounded to the nearest hundredth.

Public and Protected Lands

Two conservation focal areas exist within the Study Area and quarter-mile buffer, Lower Raritan Watershed and Millstone and South Branch Raritan Rivers (NJDEP 2017). There are also three easements found inside the Study Area and quarter-mile buffer. Two of these easements are environmental, Julian Capik Nature Preserve and Deep Run Preserve. The other easement is agricultural, Easement #27. Additional 5,345.4 acres of public lands exist within the Study Area and quarter-mile buffer (USGS 2020). These public lands are made up of 29 parks, four sports complexes, one greenway, and two museums (USGS 2020)

Special Landscape or Hazard Areas

A search for known environmental contaminants within ¼-mile of the Project Area was completed using the New Jersey Department of Environmental Protection: NJ-GeoWeb and the U.S. Environmental Protection Agency: MyEnvironment online application. Several environmental hazards, such as underground storage tanks, two superfund sites, active remediation sites, groundwater contamination areas, and underground storage tanks have been identified within the aforementioned buffer. These should not cause issues but will need to be avoided in design, construction, and access planning. Soil testing should be conducted to avoid construction within an area of contaminated groundwater or other contamination.

Floodplains, Waterbodies and Wetlands

According to FEMA Flood Insurance Rate Map (FIRM), there are 292.7 acres of mapped 100-year floodplain (Zones A, AE, AO, and VE) within the Study Area. Zone VE in particular should be noted as it corresponds to areas with storm wave hazards. There are an additional 70.8 acres of mapped 500-year floodplain (Zone X) within the Project. There are 8 mapped floodways (Zone AE) totaling 81.1 acres within the Study Area, which are concentrated along Manalapan Brook, Cranbury Brook, Cedar Brook, South River, Deep Run, and Tennent Brook. Most of the 100-year and 500-year floodplains are associated with the aforementioned watercourses as well as Raritan Bay.

According to NWI data, 162 wetlands totaling 247.09 acres were identified within the Study Area. Wetlands are classified as Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, Freshwater Pond, Lake, Non-Tidal Riverine, Tidal Riverine, Estuarine and Marine Wetland, and Estuarine and Marine Deepwater. Below is a breakdown of NWI wetland types and their respective acreages within the Study Area.

NWI wetland types within Project Area

Wetland Classification		Count	Acres within Study Area
Tidal Wetlands	Estuarine and Marine Deepwater	3	38.94
	Estuarine and Marine Wetland	12	32.59
	Tidal Riverine	3	2.13
	Total	***18***	***73.66***

Non-Tidal, Non-Forested Wetlands	Lake	2	27.08
	Freshwater Emergent	17	23.66
	Freshwater Pond	14	16.07
	Non-Tidal Riverine	50	14.56
	Total	***83***	***81.37***
Non-Tidal, Forested Wetlands	Freshwater Forested/Shrub	61	92.07
	Total	***61***	***92.07***

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

This preliminary investigation into cultural resources was limited to a desktop review of publicly available online data. The Study Area included a ¼-mile buffer around the Study Area and included a review of the Archaeological Site Grid, Historic Properties, Historic Property Features, and Historic Districts geospatial datasets maintained by the NJ Historic Preservation Office (HPO). Initial research utilized LUCY, the New Jersey Cultural Resources GIS (NJCRGIS) Online Map Viewer. The four sets of data were also downloaded from the NJ Department of Environmental Protection's (NJDEP) Bureau of GIS to map the resources in relation to the Project.

The results of the review for previously recorded archaeological sites and historic resources within the Project Area and the ¼-mile buffer are summarized below.

Archaeological Sites

According to the Archaeological Site Grid, there is a possibility of fifteen archaeological sites located within ¼-mile of the Project Area (7 are NRHP eligible). Eleven sites may intersect the Project Area (5 are NRHP eligible). Specific locational data is confidential; a file request with HPO and a formal cultural resources literature review would be required to acquire precise site locations.

Historic Resources

Two-hundred ninety (290) Historic Properties are within ¼-mile of the Project Area (29 are NRHP eligible and 242 are listed). Nearly all the resources in the Study Area are associated with one of seven historic districts (see below). Sixteen properties intersect with the Project Area (1 individually NRHP eligible, 14 in eligible historic districts, 1 in a listed district). Eighty-one properties are adjacent to the Project Area (9 are in NRHP eligible historic districts, 71 are in listed historic districts).

Fifty-four Historic Property Features are within ¼-mile of the Project Area (27 are NRHP eligible and 23 are listed). Nearly all the resources in the Study Area are associated with one of seven historic districts (see below). Twelve properties intersect the Project, all resources in the NRHP eligible Freehold and Jamesburg Agricultural Railroad Historic District. Thirteen properties are adjacent to the Project (11 in NRHP eligible historic districts, 1 in a listed historic district).

Seven Historic Districts are within ¼-mile of the Project Area (5 NRHP eligible, 2 listed). Portions of all the districts intersect with the Project.

Federal, State, and Local Environmental Permits

Federal Permits
Depending on the outcome of wetland and stream delineations and the final design, Project #490 could require federal permits, authorizations, and consultations prior to construction. These include but are not limited to the US Army Corps of Engineers (USACE) Section 404 permits for dredge and fill activities in wetlands and other waters of the US and USACE Section 10 permits for structure construction along the banks of or within, over, or under navigable waters. In addition, USFWS consultations and authorizations under Section 7 of the ESA could also be required. To be in compliance with these federal permits, consultation and concurrence typically needs to be received from state agencies as well.

For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered terrestrial species and critical habitats are appropriately addressed under Section 7 of the ESA. Early consultation with USFWS will be of paramount importance. Agency feedback, along with information acquired through preliminary field reconnaissance and detailed review of maps and aerial photographs, will be used to identify the scope of any subsequent species or habitat-specific field surveys that may be required. Given the limited seasonal timeframes that exist for many such surveys, early planning is vital. Likewise, construction schedules can be impacted by agency-stipulated seasonal restrictions reflecting nesting, breeding, and other behavioral patterns. In the absence of Project-specific agency consultation and a preliminary field assessment of habitat availability within the Study Area, any species-related impacts on construction schedules cannot be ascertained.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, additional field surveys. Species-specific surveys and construction timeframes may be applicable. Due to Project #490 being within the range of federally-listed species, it is possible that field surveys and potentially other timeframe restrictions may be needed for compliance.

The Federal Aviation Administration (FAA) requires an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) to be completed and with the submission of notice at least 45 days prior to construction for proposed structures entering the airspace based on a variety of factors including height, proximity to airports, location, and frequencies emitted from structures. More specifically, if the structure will exceed 200 feet above ground level, the FAA must be notified prior to construction. The FAA is notified through submittal of the Notice of Proposed Construction or Alteration, FAA Form 7460-1 (FAA, 2019). Early consultation with the FAA regarding the proposed Project tower heights and locations is highly encouraged to ensure the required approvals are met in a timely manner prior to the start of construction.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #490 in Appendix A -Table 11.

State Permits
Potential approvals required for Project development include the 5G3 - Construction Activity Stormwater General Permit; Freshwater Wetlands (FWW) Individual Permit and FWW General Permits; Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits and Permit-by-Rule (PBR) 33; Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit; and the Tidelands License/Grants Approval.

Additionally, Green Acres is a NJDEP land acquisition program that supports the addition of land resources and greenways to New Jersey's state parks, forests, natural areas, and wildlife management areas. A diversion or disposal may be required if the substation is expanded onto Green Acres properties. Components of the Project are within existing maintained ROWs. Any expansion beyond the existing ROW may impact Green Acres areas.

A Cultural and Historic Resource Review from the New Jersey Historic Preservation Office (HPO) will be required for any State or Federal undertakings. Review may be triggered by a variety of NJDEP approvals for water resource impacts.

If any of the local permit issuing municipalities do not possess code enforcement licenses of the appropriate class, a review from the NJ Department of Community Affairs would be required in place of municipal review. A Departmental plan review (typically referred to as a Construction Permit) shall not be required except when the Department acts as the enforcing agency. An Application should be made to the local construction office, not the Department.

New Jersey Department of Transportation (NJDOT) permits and approvals are required for oversize/overweight vehicles, driveway access roads, utility openings, and highway occupancies. Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles. Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Typically, these types of permits will be sought out by the contractor responsible for transporting materials. An Application for Utility Opening (MT17A) will be required for installation of utility infrastructure via highway openings. Project #781 crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required. In addition, it is likely that Highway Occupancy Permit (MT120A) will be required for utility infrastructure occupancies of State-managed roadways. The minimum clearances for overhead power and communication lines must be no less than the standards prescribed by the National Electrical Safety Code (NESC) under N.J. Admin Code 16:25-10.4.

More information regarding the State NJDEP regulatory review process can be found in the Permit Matrix prepared for Project #490 in Appendix A - Table 11.

Local Permits and Approvals

At the local level, Project #490 crosses eleven different Boroughs Townships in the State of New Jersey. All identified Boroughs and Townships will be the local authority having jurisdiction of Project development in the applicable corporate boundaries. Westwood reviewed each Borough and Township Government Website regarding zoning, land use ordinances, and potential Borough-level permitting for transmission line projects. Common approvals amongst the local jurisdictions include Zoning and/or Conditional Land Use Permits for construction of electric transmission infrastructure across a variety of agricultural, residential, industrial, and other zoning districts present in the proposed route. Site Plan Reviews demonstrating compliance with all zoning and land use regulations are required in local jurisdictions. A Construction Permit in accordance with the New Jersey State Uniform Construction Code will also be necessary for each jurisdiction. Prior to construction, Building Permits may also be required in local jurisdictions. Other identified approvals from local jurisdictions include Tree Removal Permits and Street Opening Applications. Ultimately, consultation with each identified local jurisdiction is recommended to ensure Project designs adhere to local regulations and all permitting requirements are met.

At the County-level, the Project is sited in Middlesex County. Any proposed developments abutting a County road or County drainage structure will require a County Site Plan Review Approval in addition to all borough and township permitting requirements. Westwood determined that the Project does abut County roadways and/or County drainage systems and therefore, it is likely that any Site Plan Reviews from the County will be required. Right-of-way permitting will be necessary from the County so long as the current Project design plans cross County roadways.

Construction activities resulting in one or more acres of earth disturbance require Soil Erosion and Sediment Control (SESC) Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.

More information regarding the local regulatory review process can be found in the Permit Matrix prepared for Project #490 in Appendix A - Table 11.

Infrastructure

The Project crosses numerous major highways, including US Highway 9, the New Jersey Turnpike, and numerous state and county roadways.

A review of aerial photography indicates that numerous residences, commercial buildings, and other buildings are present in close proximity to the Project Area.

Seven railroads are crossed by the proposed Project or located immediately adjacent to the Project Area.

Five water wells are located in the proposed Project Area. Numerous wellhead protection area for public community and public non-community water supplies are present throughout the Project Area.

No oil or gas wells are mapped in or within the Project Area. Four natural gas pipelines are crossed or located in close proximity to the proposed Project.

Sixteen substations are crossed or located in close proximity to the Project Area. Forty-one existing transmission lines are crossed or run parallel to the proposed Project. Identified transmission lines range from step-up voltages to 69 kV, up to 500 kV.

Nine airports are mapped within five miles of the Project Area. The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.

Environmental (Regulatory) Risks

A summary of the environmental risks that may impact the Project are summarized in the table below.

Risk Analysis		
Category	**Items of Note**	**Significant Constraints/Hurdles**
Floodplain	The Study Area has FEMA mapped floodways, 100-year floodplains, and 500-year floodplains.	An NJDEP permit is required for any development within a floodway or 100-year floodplain.
Water Resources	Potential wetlands and other regulated waters, transition areas, and tidelands are most likely present in the Study Area. Section 10 Navigable Waters and EPA Priority Wetlands present.	None identified.
Water resources regulations	If jurisdictional wetlands/waterways are present, project infrastructure should be sited to avoid water resources to the degree practicable. There are impaired waters within the Study Area.	State and Federal permits will be required for impacts to jurisdictional waters. Additional stormwater BMPs are likely. Section 10 waters and EPA Priority Wetlands are present and will

		likely create additional restrictions and EPA review of the Project.
Biological Resources	**IPaC** Four federally threatened species and one candidate for listing species have the potential to occur within the Study Area and surrounding region. Bald Eagle was also reviewed. Likelihood of occurrences are as follows: **Moderate to High:** swamp pink, monarch butterfly. **Moderate:** NLEB, Bog turtle, Bald Eagle **Low:** Seabeach amaranth	Tree clearing should be avoided; if necessary, restrict to the northern long-eared bat inactive season (November 1 – March 31), or at a minimum outside of the pup-rearing season (June 1 – July 31). Bald Eagle nest surveys are recommended. If present, all in-use (active) eagle nests require at least a 660' no-construction buffer. Alternate (inactive) nests may also require a buffer Rare plant species surveys could be required.
Archaeological and Historic Resources	Eleven archaeological sites may intersect the Project Area (5 are NRHP eligible). Seven NRHP eligible or listed historic districts intersect the Project to varying degrees. Up to 16 historic resources intersect the Project, all of which are either in a historic district or are individually eligible. At least eighty-one properties are adjacent to the Project Area (9 are in NRHP eligible historic districts, 71 are in listed historic districts).	Consultant recommends avoiding impacts to archaeological sites and historic districts.
Public Lands	There are two conservation focal areas within the Study Area and quarter-mile buffer. Two environmental easements also fall within the Study Area and quarter-mile buffer. 5,345.4 acres of additional public lands fall within the Study Area and quarter-mile buffer. These additional public lands are mostly local parks, sport complexes, greenways, and museums.	Public lands and conservation areas may have specific permits and/or land use restrictions. Project will need to confirm any restrictions/setbacks during design process to avoid and/or implement controls/setbacks as necessary.
Land Cover	The Study Area is mainly comprised of developed land types.	None identified.
Zoning and Land Use	The Project Area is located across 11 different Townships and Cities in the State of New Jersey. A variety of local permits may be required including Zoning, Conditional Use, Land Use, Site Plan Reviews, Construction, Tree Removal, and roadway permits. An assortment of permits is administered by the State and Federal Government Agencies, see Appendix A - Table 11 for further information and discussions.	Westwood recommends additional coordination with regulatory agencies and permitting authorities as the plans for this Project develop.
Infrastructure	The proposed Project crosses several major highways, seven railroads, four pipelines,	Avoidance or setbacks from structures may be necessary. Crossing

	numerous substations, and abundant transmission lines.	agreements with other utility operators may be required.
Soils	Soils are classified as not prime farmland, all areas are farmland of statewide importance, farmland of unique importance, all areas are prime farmland, and farmland of statewide importance, if drained.	None identified.
Environmental Hazards	Several active remediation sites, underground storage tanks, areas of immediate environmental concern, and groundwater contamination areas were found within the quarter-mile buffer of the Project Area.	Avoidance or setbacks from environmental hazards may be necessary.

Transmission Line Risks

Conceptual Design Summary, Potential Transmission Line Component Constraints, and Risks

The transmission elements proposed under Proposal #490 are listed in detail below.

OSW Connection / Landfall Consideration

- The Outerbridge RCP plan includes extensive consideration for the connection of the Offshore Wind (OSW) to the proposed Werner substation.
- The existing Werner Power Station is currently being remediated as part of un-related work. The end result of this work is that the site will be classified as a low-occupancy site, making it an ideal location for future submarine cable termination.
- The Outerbridge proposal has planned for significant future OSW interconnection at the Werner site.

Outerbridge to Half Acre 320 kV HVDC Underground Transmission Lines

- Outerbridge has proposed new HVDC lines (320kV) from the rebuilt Werner substation to the new Half Acre Switching Station site.

- The Outerbridge proposal #490 indicates both lines are separate, however it is more accurate to say they are a single line as they are placed in the same duct bank along the same route. They are identified as two separate lines as both lines will have two cables per phase, for a duct bank with a total of 12 cables.

- The line (lines) will primarily follow an existing Conrail (Rail) ROW and be located on the east side of the existing rail line. Any transitions required from one side of the existing rail to the other will avoid any existing infrastructure. The total line length is estimated at 76,000 linear feet, or approximately 14.4 miles. A total of approximately thirty-five (35) main crossings have been planned for, ten (10) being horizontal directional drills (HDD) and twenty-five (25) will be jack and bore. An additional eighteen (18) open trench crossings are also identified along the route.

Outerbridge to Half Acre 320kV HVDC Underground Lines 1 & 2

Length: 14.4 miles
Circuits: 2
Manholes: 44

All Major Crossings: 53 Total

HDD Crossings: 10
Jack & Bore: 25
Open Trench X-ing: 18

Line Rating Data

UG Conductor: 2500MM XLPE Copper Milliken Shape, Two (2) Per Phase
(Two cables per phase per circuit, with two circuits).

Winter Rating
Normal: 1200 MVA
Emergency: 1200 MVA

Summer Rating
Normal: 1200 MVA
Emergency: 1200 MVA

East Windsor-Deans Transmission Line Re-Termination

- The proposed Half Acre Switching Station is located adjacent to the existing Deans to East Windsor 500kV line. The new switching station will be interconnected to this existing 500kV line with two new in-line dead end structures.

- It is assumed that both structures will be self-supported engineered steel poles on drilled concrete piers. The line will dead end into the switch yard and will then exit at the same location back to the line.

Potential Transmission Line Component Constraints and Risks

- There are general concerns with construction projects of this type specifically the outage coordination and difficult permitting process. The majority of the concern with the proposal has to do with the permitting process, multiple utility crossing locations, constructing the 15 mile HVDC transmission cable from Werner to Half Acre using Conrail RoW railroad, and outage coordination.

Substation Risks

Conceptual Design Summary, Potential Substation Component Constraints, and Risks

Outerbridge & Werner Substations

The Outerbridge substation is a proposed redevelopment of the existing Werner substation and adjacent industrial site. Outerbridge substation will consist of two phases of substation equipment. Each phase of the Outerbridge substation is identical in equipment being installed. Outerbridge phase one will consist of a gas-insulated-substation collector station. This equipment will be designed as a simple single bus terminating three (3) offshore underground feeders with 275kV reactors, one (1) harmonic filter, and one (1) termination to one (1) HVDC converter station. Phase two consists of the exact same equipment. The HVDC converters a terminated to underground feeders connecting to Half Acre HVDC station #1 and #2 respectively. The final component of the Outerbridge substation is an air insulated 275kV collector substation consisting of a simple single bus layout terminating two (2) offshore feeder circuits, one (1) 275kV reactor, one (1) harmonic filter, and one 275/230kV main power transformer.

The Outerbridge substation will be a complex scheduling project. The existing site has the existing Werner substation that will be rebuilt under a different constructability estimate, and there are numerous industrial facilities that will have to be addressed during construction. As proposed the Outerbridge substation is being constructed in

phases, two phases consist of duplicate equipment to create the collector substation portions, and a third phase constructs the Outerbridge collector substation. Consideration must be given to the existing Werner substation relocation prior to beginning construction on the Outerbridge substation components. The Outerbridge HVDC converter station #1 can be constructed prior to or during the work on Werner substation. Outerbridge HVDC converter station #2 must wait for the existing Werner substation to be demolished. Outerbridge collector substation can be constructed after the removal of the existing Werner substation as well.

Half Acre HVDC Converter Stations #1 and #2
The new Half Acre HVDC stations #1 and #2 are proposed DC converter station connected to the Outerbridge #1 transmission line. These substations will each consist of a 1200MW capacity converter station connected to the Inland Switching Station 500kV gas-insulated-substation through a main power transformer and underground transmission line.

Reviewing the google earth imagery the proposed sites for the Half Acre HVDC stations are moderately wooded properties that will require clearing prior to construction.

Potential Substation Component Constraints and Risks

- For the proposed greenfield substations, the proposed size of the substation yards seem adequate. The proposed layouts should work as well.

Construction Schedule

- The conceptual project schedule developed by the onshore consultant indicates that the on-shore aspects of the project will take approximately 67 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Review of the environmental factors indicate that construction of the proposed lines are feasible due to necessary permits and potential access issues. Permitting will likely be a lengthy process, but no major issues are expected in getting permit approvals.

Proposal 171

Environmental (Regulatory) Analysis

Desktop Review
Project #171 is located within South Amboy in Middlesex County, New Jersey and includes the construction of a new collector station on the 26 acre site of the retired Werner Generating Station and JCP&L Werner Substation.

Study Area

The environmental review consisted of mapping and assessing the water/wetlands resources, biological resources, public lands, cultural resources, existing infrastructure, soils and farmland resources within a ¼ mile of the proposed Project centerline (henceforth known as the Study Area).

Land Use

According to the USGS National Land Cover Database (NLCD, 2019), the 26.2-acre Study Area is mainly comprised of Developed land types

Land Cover in Project Area

Land Cover Type	Area (Acres)	Percent of Total
Developed, High Intensity	14.91	56.92
Developed, Medium Intensity	7.87	30.04
Developed, Low Space	2.52	9.62
Open Water	0.84	3.21
Emergent Herbaceous Wetlands	0.05	0.2
Developed, Open Space	<0.01	0.01
Total	**26.20**	**100**

*Values rounded to the nearest hundredth.

Public and Protected Lands

One conservation focal area (CFA) exists within the Project Area or quarter-mile buffer, the Lower Raritan Watershed CFA (NJDEP 2017).

Special Landscape or Hazard Areas

A search for known environmental contaminants within ¼-mile of the Project Area was completed using the New Jersey Department of Environmental Protection: NJ-GeoWeb and the U.S. Environmental Protection Agency: MyEnvironment online application. Environmental hazards, such as underground storage tanks, have been identified within the Project Area and buffer. The Werner Generating Station is currently an active site remediation program site. Soil testing should be conducted to avoid construction within an area of contaminated groundwater or other contamination.

Floodplains, Waterbodies and Wetlands

According to FEMA Flood Insurance Rate Map (FIRM), there entire Project Area is mapped in 100-year floodplain (Zone A). Minor portions of the Project Area are anticipated to be flooded when using the Climate Adjusted Flood Elevations for a sea level rise of 5 feet.

According to NWI data, two wetlands totaling 0.91 acres were identified within the Study Area. Wetlands are classified as Riverine and Estuarine and Marine Freshwater Emergent Deepwater. Below is a breakdown of NWI wetland types and their respective acreages within the Study Area.

Wetland Classification		Count	Acres within Study Area
Tidal Wetlands	Estuarine and Marine Deepwater	1	0.35
	Total	***1***	***0.35***
Non-Tidal Wetlands	Riverine	1	0.56
	Total	***1***	***0.56***

Threatened and Endangered (TE) Species and Protected Habitats

Threatened and endangered species and protected habitats can impact permitting, construction schedules, and construction techniques.

Given the results of the desktop review of publicly available data, it is anticipated that the Project is within the range of both federally- and state-listed species, and that coordination with state and federal agencies will be required. Construction restrictions, timeframe, or mitigation may be necessary to comply with avoidance of sensitive species, however, the extent of which cannot be known until after coordination with the NJDEP takes place.

Cultural Resources

This preliminary investigation into cultural resources was limited to a desktop review of publicly available online data. The Study Area included a ¼-mile buffer around the Study Area and included a review of the Archaeological Site Grid, Historic Properties, Historic Property Features, and Historic Districts geospatial datasets maintained by the NJ Historic Preservation Office (HPO). Initial research utilized LUCY, the New Jersey Cultural Resources GIS (NJCRGIS) Online Map Viewer. The four sets of data were also downloaded from the NJ Department of Environmental Protection's (NJDEP) Bureau of GIS to map the resources in relation to the Project.

The results of the review for previously recorded archaeological sites and historic resources within the Project Area and the ¼-mile buffer are summarized below.

Archaeological Sites

According to the Archaeological Site Grid, there is a possibility of 2 archaeological sites located within ¼-mile of the Project Are. Both sites are NRHP eligible and may intersect the Project Area. Specific locational data is confidential; a file request with HPO and a formal cultural resources literature review would be required to acquire precise site locations.

Historic Resources

Nine Historic Properties are within ¼-mile of the Project Area (all are NRHP eligible). Nearly all the resources in the Study Area are associated with one of two historic districts (see below). Two properties intersect the Project, one in the NRHP eligible Camden and Amboy Railroad Main Line Historic District. Four properties are adjacent to the Project, all in NRHP eligible historic districts New York and Long Branch Railroad Historic District.

Five Historic Property Features are within ¼-mile of the Project Area (all are NRHP eligible). One property intersects the Project in the NRHP eligible Camden and Amboy Railroad Main Line Historic District. Four properties are adjacent to the Project, all in NRHP eligible historic districts New York and Long Branch Railroad Historic District.

Two Historic Districts are within ¼-mile of the Project Area (both are NRHP eligible). Portions of one of the districts intersects with the Project and the other is adjacent.

Federal, State, and Local Environmental Permits

Federal Permits

Depending on the outcome of wetland and stream delineations and the final design, Project #171 could require federal permits, authorizations, and consultations prior to construction. These include but are not limited to the US Army Corps of Engineers (USACE) Section 404 permits for dredge and fill activities in wetlands and other waters of the US and USACE Section 10 permits for structure construction along the banks of or within, over, or under navigable waters. In addition, USFWS consultations and authorizations under Section 7 of the ESA could also be required. To be in compliance with these federal permits, consultation and concurrence typically needs to be received from state agencies as well.

For federally funded or permitted projects, consultation with the USFWS is necessary to ensure that impacts to federally-listed threatened or endangered terrestrial species and critical habitats are appropriately addressed under Section 7 of the ESA. Early consultation with USFWS will be of paramount importance. Agency feedback, along with information acquired through preliminary field reconnaissance and detailed review of maps and aerial photographs, will be used to identify the scope of any subsequent species or habitat-specific field surveys that may be required. Given the limited seasonal timeframes that exist for many such surveys, early planning is vital. Likewise, construction schedules can be impacted by agency-stipulated seasonal restrictions reflecting nesting, breeding, and other behavioral patterns. In the absence of Project-specific agency consultation and a preliminary field assessment of habitat availability within the Study Area, any species-related impacts on construction schedules cannot be ascertained.

USFWS authorizations are generally valid for two years. If construction is not completed after two years or new species are added to the list before construction begins, the protected species assessment must be revalidated through renewed consultation and, potentially, additional field surveys. Species-specific surveys and construction timeframes may be applicable. Due to Project #171 being within the range of federally-listed species, it is possible that field surveys and potentially other timeframe restrictions may be needed for compliance.

The Federal Aviation Administration (FAA) requires an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) to be completed and with the submission of notice at least 45 days prior to construction for proposed structures entering the airspace based on a variety of factors including height, proximity to airports, location, and frequencies emitted from structures. More specifically, if the structure will exceed 200 feet above ground level, the FAA must be notified prior to construction. The FAA is notified through submittal of the Notice of Proposed Construction or Alteration, FAA Form 7460-1 (FAA, 2019). Early consultation with the FAA regarding the proposed Project tower heights and locations is highly encouraged to ensure the required approvals are met in a timely manner prior to the start of construction.

More information regarding the Federal regulatory review process can be found in the Permit Matrix prepared for Project #171 in Appendix A -Table 12.

State Permits

Potential approvals required for Project development include the 5G3 - Construction Activity Stormwater General Permit; Freshwater Wetlands (FWW) Individual Permit and FWW General Permits; Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits and Permit-by-Rule (PBR) 33; Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit; and the Tidelands License/Grants Approval.

A Cultural and Historic Resource Review from the New Jersey Historic Preservation Office (HPO) will be required for any State or Federal undertakings. Review may be triggered by a variety of NJDEP approvals for water resource impacts.

More information regarding the state regulatory review process can be found in the Permit Matrix prepared for Project #171 in Appendix A - Table 12.

Local Permits and Approvals

At the local level, Project #171 is located in the City of South Amboy, Middlesex County, New Jersey. The City of South Amboy will be the local authority having jurisdiction of Project development. Westwood reviewed the City Government Website regarding zoning, land use ordinances, and potential Borough-level permitting for substation and transmission line projects. Public utility installations are not listed as a prohibited, conditional, or permitted land

use in the City Development Regulations. Project development may require approval of a Planning/Zoning Board Application in accordance with City Development Regulations. Westwood recommends initiating a pre-application submittal meeting with City Officials to determine the appropriate permitting process for construction of a new transmission line. Other approvals needed from the City include a Zoning Permit, Site Plan Review, and Construction Permit. Other possible permits include a Road Opening / Right-of-Way Excavation Permit.

At the County-level, the Project is sited in Middlesex County. Any proposed developments abutting a County road or County drainage structure will require a County Site Plan Review Approval in addition to all City permitting requirements. Westwood determined that the Project does not abut County roadways and/or County drainage systems and therefore, it is unlikely that any Site Plan Reviews from the County will be required. Right-of-way permitting will not be necessary from the County so long as the current Project design plans avoid County roadways. Construction activities resulting in one or more acres of earth disturbance require Soil Erosion and Sediment Control (SESC) Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.

More information regarding the local regulatory review process can be found in the Permit Matrix prepared for Project #171 in Appendix A - Table 12.

Infrastructure

The Project does not cross any major highways. NJ Highway 35 is located adjacent to the proposed Project Area.

A review of aerial photography indicates that numerous commercial and industrial buildings and structures present in the Project Area.

No railroad crossings are proposed for Project development. Three railroads are located in close proximity to the Project Area.

No water wells or wellhead protection areas are located in the proposed Project Area or quarter-mile buffer.

No oil or gas wells are mapped in or within the Project Area. No natural gas, oil, or CO2 pipelines are crossed or located in close proximity to the proposed Project.

The Werner Generating Station and associated substation is located in the central portion of the Project Area. Eleven existing transmission lines connect to the Werner Substation. Transmission lines range from step-up voltages to 69 kV, up to 230 kV.

Four airports are mapped within five miles of the Project Area. The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.

Environmental (Regulatory) Risks

A summary of the environmental risks that may impact the Project are summarized in the table below.

Risk Analysis		
Category	**Items of Note**	**Significant Constraints/Hurdles**
Floodplain	The entire Project Area is mapped in a 100-year floodplain (Zone A).	An NJDEP permit is required for any development within a floodway or 100-year floodplain.

Water Resources	Potential wetlands and other regulated waters and tidelands are most likely present in the Study Area.	None identified.
Water resources regulations	If jurisdictional wetlands/waterways are present, project infrastructure should be sited to avoid water resources to the degree practicable.	State and Federal permits will be required for impacts to jurisdictional waters. Additional stormwater BMPs are likely.
Biological Resources	**IPaC** One candidate for listing species, monarch butterfly, has the potential to occur within the Project Area and surrounding region. Bald Eagle was also reviewed. Likelihood of occurrences are as follows: **Low:** monarch butterfly, Bald Eagle	Bald Eagle nest surveys are recommended. If present, all in-use (active) eagle nests require at least a 660' no-construction buffer. Alternate (inactive) nests may also require a buffer
Archaeological and Historic Resources	Two archaeological sites may intersect the Project Area (both are NRHP eligible). Nine Historic Properties, five Historic Property Features, and two Historic Districts are within ¼ mi of the Project Area	Westwood recommends avoiding archaeological sites. Consultation with NJ HPO may be necessary once design components are known for determination of potential visual impacts to the Historic Resources.
Public Lands	One conservation focal area is present within the Project Area and quarter-mile buffer	Public lands and conservation areas may have specific permits and/or land use restrictions. Project will need to confirm any restrictions/setbacks during design process to avoid and/or implement controls/setbacks as necessary.
Land Cover	The Study Area is mainly comprised of developed land types.	None identified.
Zoning and Land Use	The Project Area is located in one City in State of New Jersey. A variety of local permits may be required including: Planning/Zoning Board, Zoning, Site Plan Reviews, Construction, and roadway permits. An assortment of permits are administered by the State and Federal Government Agencies, see Appendix A - Table 12 for further information and discussions.	Westwood recommends additional coordination with regulatory agencies and permitting authorities as the plans for this Project develop.
Infrastructure	The proposed Project is located in the Werner Generating Station area. A substation and eleven transmission lines are present in the Project Area.	Avoidance or setbacks from structures may be necessary. Crossing agreements with other utility operators may be required.
Soils	Soils are classified as not prime farmland.	None identified.
Environmental Hazards	An active remediation site and underground storage tanks were found within the Project Area.	Avoidance or setbacks from environmental hazards may be necessary.

Transmission Line Risks

Conceptual Design Summary, Potential Transmission Line Component Constraints, and Risks

- Outerbridge proposal 171 does not contain any transmission line elements to review.

Substation Risks

Conceptual Design Summary, Potential Substation Component Constraints, and Risks

Outerbridge & Werner Substations

The Outerbridge substation is a proposed redevelopment of the existing Werner substation and adjacent industrial site. Outerbridge substation will consist of two phases of substation equipment. Each phase of the Outerbridge substation is identical in equipment being installed. Outerbridge phase one will consist of a gas-insulated-substation collector station. This equipment will be designed as a simple single bus terminating three (3) offshore underground feeders with 275kV reactors, one (1) harmonic filter, and one (1) termination to one (1) HVDC converter station. Phase two consists of the exact same equipment. The HVDC converters a terminated to underground feeders connecting to Half Acre HVDC station #1 and #2 respectively. The final component of the Outerbridge substation is an air insulated 275kV collector substation consisting of a simple single bus layout terminating two (2) offshore feeder circuits, one (1) 275kV reactor, one (1) harmonic filter, and one 275/230kV main power transformer.

Potential Substation Component Constraints and Risks

- The proposed substation yard as shown in the original proposal documents is adequate, however the layout may need to be adjusted in order to fit everything within the property line setbacks. This site will require significant coordination with the existing utility owner of the Werner substation.

  The existing Werner substation is assumed to be rebuilt prior to or during construction of the Outerbridge substation.

Construction Schedule

- The conceptual project schedule developed by the onshore consultant indicates that the on-shore aspects of the project will take approximately 36 months to complete, from Project initiation to energization. It is assumed that the engineering process can continue as siting permit is reviewed. There are four major activities on the critical path: Engineering; Siting and major permit acquisition; long lead equipment procurement; construction and commissioning. Delays in completing any of these activities would jeopardize completing the Project within the estimated schedule.
- Review of the environmental factors indicate that construction of the proposed lines are feasible due to necessary permits and potential access issues. Permitting will likely be a lengthy process, but no major issues are expected in getting permit approvals.

Cost Review

Proposal 490

Proposal Cost Estimates

The total proposal costs for RILPOW Proposal 490 are given below.

Category	Proposal 490
	$
Materials and equipment	$1,235,374,212.00
Construction and commissioning	$212,427,034.00
Engineering and design	$22,250,001.00
Permitting / routing / siting	$350,334.00
ROW / land acquisition	$3,699,999.00
Construction management	$47,698,548.00
Overheads and miscellaneous costs	$29,179,067.00
Contingency	$179,045,098.00
Total Project	**$1,730,024,293.00**

Independent Cost Estimates

PJM's consultant assembled independent cost estimates for the proposed facilities using historical data from similar projects, information collected from original equipment vendors and contractors supplying similar services, and other publicly available sources. The accuracy of consultant's estimates is expected to be ±25%. The estimates are in 2022 dollars and includes a 30% contingency.

The Independent estimate for the RILPOW Proposal 490 is:

Category	Transmission Line Components	Substation Components	Total Components
Materials & Equipment Total	$221,400,000.00	$894,818,872.76	$1,116,218,872.76
Construction & Commissioning Total	$89,180,268.00	$36,823,214.04	$126,003,482.04
Engineering & Design	$2,608,432.32	$17,952,400.00	$20,560,832.32
Permitting/Routing/Siting	$1,050,000.00	$1,850,000.00	$2,900,000.00
ROW/Land Acquisition	$5,150,000.00	$3,290,000.00	$8,440,000.00
Construction Management	$16,337,702.00	$9,609,600.00	$25,947,302.00
Overheads and Miscellaneous	$1,500,000.00	$9,657,782.11	$11,157,782.11

Contingency	$101,167,920.70	$290,658,560.67	$391,826,481.37
Total Cost	$438,394,323.02	$1,264,660,429.58	**$1,703,054,752.59**

For comparison, the total proposal cost estimate and independent cost estimate for Proposal 490 are shown below.

Independent Cost Estimate

Projects	Proposal 490
Total Component Cost (Current Year)	**$1,703,054,752.59**

Proposal Cost Estimate

Projects	Proposal 490
Total Component Cost (Current Year)	**$1,730,024,293.00**

Proposal 171

Proposal Cost Estimates

The total proposal costs for RILPOW Proposal 171 are given below.

Category	Proposal 171
	$
Materials and equipment	$61,046,075.00
Construction and commissioning	$28,527,000.00
Engineering and design	$7,100,000.00
Permitting / routing / siting	$116,667.00
ROW / land acquisition	$0.00
Construction management	$5,000,000.00
Overheads and miscellaneous costs	$1,627,200.00
Contingency	$5,247,515.00
Total Project	**$108,664,457.00**

Independent Cost Estimates

PJM's consultant assembled independent cost estimates for the proposed facilities using historical data from similar projects, information collected from original equipment vendors and contractors supplying similar services, and other

publicly available sources. The accuracy of consultant's estimates is expected to be ±25%. The estimates are in 2022 dollars and includes a 30% contingency.

The Independent estimate for RILPOW Proposal 171 is:

Category	Transmission Line Components	Substation Components	Total Components
Materials & Equipment Total	$0.00	$55,361,657.15	$55,361,657.15
Construction & Commissioning Total	$0.00	$32,598,938.17	$32,598,938.17
Engineering & Design	$0.00	$2,486,400.00	$2,486,400.00
Permitting/Routing/Siting	$0.00	$300,000.00	$300,000.00
ROW/Land Acquisition	$0.00	$0.00	$0.00
Construction Management	$0.00	$1,372,800.00	$1,372,800.00
Overheads and Miscellaneous	$0.00	$3,270,796.47	$3,270,796.47
Contingency	$0.00	$24,131,329.03	$24,131,329.03
Total Cost	$0.00	$119,521,920.82	**$119,521,920.82**

For comparison, the total proposal cost estimate and independent cost estimate for Proposal 171 are shown below.

Independent Cost Estimate

Projects	Proposal 171
Total Component Cost (Current Year)	**$119,521,920.82**

Proposal Cost Estimate

Projects	Proposal 171
Total Component Cost (Current Year)	**$108,664,457.00**

Appendix A – Permit Tables

ACE Proposal 797 Permit Tables

Table 5. **Preliminary Permits, Authorizations, and Clearances**

Permit/Approval	Regulatory Agency	Agency Review Timeframe	Comments
Federal			
Endangered Species Act of 1973 Consultation	USFWS	6-12 months	Required if proposed activities have potential effect on federally listed species.
Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act		2-4 months	Required if activities have the potential to effect migratory birds or protected eagles.
State of New Jersey			
Certificate of Public Convenience and Necessity	New Jersey Board of Public Utilities	12-18 months	
Freshwater Wetlands General/Individual Permit	NJDEP DLRP	12-18 months	May be required if aboveground structures, access roads, or other facilities are proposed in freshwater wetlands or transition areas.
Coastal Wetlands General/Individual Permit	NJDEP DLRP	6-12 months	NJDEP Coastal Wetland Maps will need to be referenced to determine if impacts to regulated coastal wetlands are proposed.
Waterfront Development General/Individual Permit	NJDEP DLRP	3-9 months	
Federal Coastal Zone Consistency Determination	NJDEP DLRP	-	
Flood Hazard Area- General/Individual Permit	NJDEP DLRP	6-12 months	Will need to be determined further along in project development to determine if C1 Waters are proposed to be impacted during construction.
State Species Consultation	NJDEP DLRP	N/A	To be included with the DLRP permits
Air Quality Pre-Construction/General Permit	NJDEP Bureau of Stationary Sources	3-6 months	
Tidelands License	New Jersey Tidelands Council- NJDEP Bureau of Tidelands Management	3-9 months	
NJPDES General Construction Stormwater Permit (5G3)	NJDEP Department of Water Quality Bureau of Stormwater Permitting	To be filed prior to construction	Coordination may be required with the local Soil Conservation District

Permit/Approval	Regulatory Agency	Agency Review Timeframe	Comments
NJPDES Basic Industrial Stormwater Permit (5G2)	NJDEP Department of Water Quality Bureau of Stormwater Permitting	6 Months	
NJPDES Short Term De Minimis GP (B7)	NJDEP Department of Water Quality Bureau of Surface Water and Pretreatment Permitting	3-6 months	Required when discharging water to lower groundwater table during construction activities
Green Acres Division	NJDEP Bureau of Legal Services and Stewardship – Green Acres Program	12-18 months	The entire Project is within existing ROWs. Any expansion required during may encroach on Green Acres property.
Pinelands Commission	New Jersey Pinelands Commission/ DLRP	Prior to application submittal	Activities performed within the Pinelands Reserve are required to follow Pinelands Comprehensive Management Plan guidelines The Pinelands Commission and DLRP recommend consultation and early in the permitting process

JCP&L Proposal 453 Permit Tables

Table 6. **NJDEP Division of Land Resources Protection Special Areas**

Special Area	Presence	Facility Involved	Comment
Atlantic City	No	-	-
Beaches	No	-	-
Canals	No	-	-
Coastal bluffs	Not Likely	-	Based on review of aerial imagery
Coastal high hazard areas	No	-	-
Critical wildlife habitats	Unknown		Until maps are publicly available, sites must be considered on a case-by-case basis by the NJDEP's Division of Fish and Wildlife.
Dredged material management areas	No	-	-
Dry borrow pits	Not Likely	-	Based on review of aerial imagery
Dunes	Not Likely	-	Based on review of aerial imagery
Endangered or threatened wildlife or plant species habitat	Likely	Smithburg-New Prospect Road New Prospect Road-Larrabee Larrabee-Atlantic Atlantic-Oceanview	Natural Heritage Priority Sites: Shark River Station Site JCLP Swamp Natural Heritage Grids: 26 grids crossed by project
Erosion hazard areas	Not Likely	-	Based on review of aerial imagery
Excluded federal lands	No	-	-
Existing lagoon edges	Not Likely	-	Based on review of aerial imagery
Farmland conservation areas	Yes	Larrabee-Atlantic	Tullo Vaccaro Farm
Filled water's edge	Yes	All Facilities	25 areas only Project ROW where historic fill sites overlap wetlands of streams
Finifish migratory pathways	Yes	Smithburg-New Prospect Road New Prospect Road-Larrabee	North Branch Metedeconk River-Alewife
Flood hazard areas	Yes	All Facilities	Floodplain Types: A, AE
Geodetic control reference marks	Yes	New Prospect Road-Larrabee Larrabee-Atlantic	3 Located within Route ROW
Hackensack Meadowlands District	No	-	-

Special Area	Presence	Facility Involved	Comment
Historic and archaeological resources	Yes	Smithburg-New Prospect Road New Prospect Road-Larrabee Larrabee-Atlantic Atlantic-Oceanview	Historic Districts: New Jersey Southern Railroad Historic District Garden State Parkway Historic District Historic Properties: Anthony Ventrua Studio Schneider Building and Collingwood Flea Market Building 154 Squankum Road NJ Central Railroad Bridge Traut House Archaeological Site Grids: Six crossed by Project
Hudson River Waterfront Area	No	-	-
Intermittent stream corridors	Yes	All Facilities	Jumping Brook, Jumping Brook UNTs, Reevy Branch, Shark River, Shark River UNTs, Tree Swamp Brook, Tree Swamp Brook UNTs, Mingamahone Brook, Manasquan River, Manasquan River UNTs, Squankum Brook, Muddy Ford Brook, Muddy Ford Brook UNTs, Woodcock Brook, Tarkiln Brook, Haystack Brook, Dick's brook, North Branch Metedeconk River, North Branch Metedeconk River UNTs, South Creek, Snake Creek
Lands and waters subject to public trust rights	No	-	-
Overwash areas	Not Likely	-	Based on review of aerial imagery
Pinelands National Reserve and Pinelands Protection Area	No	-	-
Public open space	Yes	Smithburg-New Prospect New Prospect Road-Larrabee Larrabee-Atlantic Atlantic-Oceanview	Sunnyfield Park Shark River Park Allaire State Park Bear Swamp Natural Area Municipal Open Spaces (Howell Township) Turkey Swamp Park Turkey Swamp Wildlife Management Area Linear Park Woodland Park Edgewood Park
Riparian zones	Yes	All Facilities	Jumping Brook, Jumping Brook UNTs, Reevy Branch, Shark River, Shark River UNTs, Tree Swamp Brook, Tree Swamp Brook UNTs, Mingamahone Brook, Manasquan River, Manasquan River UNTs, Squankum Brook, Muddy Ford Brook, Muddy Ford Brook UNTs, Woodcock Brook, Tarkiln Brook, Haystack Brook, Dick's brook, North Branch Metedeconk River, North Branch Metedeconk River UNTs, South Creek, Snake Creek
Shellfish habitat	No	-	-

Special Area	Presence	Facility Involved	Comment
Special hazard areas	Yes	All Facilities	Hurricane Evacuation Routes: NJ-18, NJ-66, Garden State Parkway, NJ-33, I-195, US-9, Hazardous Waste Facilities: Monmouth County Reclamation Transfer Station Rosano Howell Land, LLC John Blewett, Inc. Resource Engineering, LLC
Special urban areas	Yes	All Facilities	Lakewood Township Neptune Township
Specimen trees	No	-	-
Submerged vegetation habitat	No	-	-
Wet borrow pits	Not Likely	-	Based on review of aerial imagery
Wetland buffers	Yes	All Facilities	See Wetlands Below
Wetlands	Yes	All Facilities	Types Present: Modified Wetlands Deciduous and Coniferous Wooded Wetlands Mixed Wooded Wetlands Deciduous and Coniferous Scrub/Shrub Wetlands Mixed Scrub/Shrub Wetlands Herbaceous Wetlands
Wild and scenic river corridors	No	-	-

Table 7. **Federally- and State-Listed Threatened and Endangered Species**

Common Name	Species Name	Status
Federal[1]		
Northern Long-Eared Bat	Myotis septentrionalis	Threatened
Bog Turtle	Glyptemys muhlenbergii	Threatened
Monarch Butterfly	Danaus plexippus	Candidate
American Chaffseed	Schwalbea americana	Endangered
Kienskern's Beaked-rush	Rhynchospora knieskernii	Threatened
Swamp Pink	Helonias bullata	Threatened
State-Listed[3]		
Shortnose Sturgeon	Acipenser brevirostrum	Endangered
Atlantic Sturgeon	Acipenser oxyrinchus	Endangered
Grasshopper Sparrow	Ammodramus savannarum	Threatened
Fin Whale	Balaenoptera physalus	Endangered
Upland Sandpiper	Bartramia longicauda	Endangered
Silver-bordered Fritillary	Boloria selene myrina	Threatened
American Bittern	Botaurus lentiginosus	Endangered
Red-shouldered Hawk	Buteo lineatus	Endangered
Red Knot	Calidris canutus	Endangered
Loggerhead Sea Turtle	Caretta	Endangered
Piping Plover	Charadrius melodus	Endangered
Green Sea Turtle	Chelonia mydas	Threatened
Northern Harrier	Circus hudsonius	Endangered
Timber Rattlesnake	Crotalus horridus	Endangered
Leatherback Sea Turtle	Dermochelys coriacea	Endangered
Bobolink	Dolichonyx oryzivorus	Threatened
Horned Lark	Eremophila alpestris	Threatened
North Atlantic Right Whale	Eubalaena glacialis	Endangered
Peregrine Falcon	Falco peregriuns	Endangered
American Kestrel	Falco sparverius	Threatened
Wood Turtle	Glyptemys insculpta	Threatened
Bog Turtle	Glyptemys muhlenbergii	Endangered
Bale Eagle	Haliaeetus leucocephalus	Threatened
Pine Barrens Treefrog	Hyla andersonii	Threatened
Cope's Gray Treefrog	Hyla chrysocelis	Endangered
Golden Winged Warbler	Vermivora chrysoptera	Endangered
Loggerhead Shrike	Lanius ludovicianus	Endangered
Kemp's Ridley Sea Turtle	Lepidochelys kempii	Endangered

Common Name	Species Name	Status
Bobcat	Lynx rufus	Endangered
Humpback Whale	Megaptera novaeangliae	Endangered
Red-headed Woodpecker	Melanerpes erythrocephalus	Threatened
Yellow-crowned Night-Heron	Nycticorax violacea	Threatened
Black-crowned Night-Heron	Nycticorax nycticorax	Threatened
Osprey	Pandion haliaetus	Threatened
Savannah Sparrow	Passerculus sandwichensis	Threatened
Northern Pine Snake	Pituophis melanoleucus	Threatened
Pied-billed Grebe	Podilymbus Podiceps	Endangered
Vesper Sparrow	Pooecetes gramineus	Endangered
Black Skimmer	Rynchops niger	Endangered
Least tern	Sternula antillarum	Endangered
Barred Owl	Strix varia	Threatened
Seabeach Amaranth	Amaranthus pumilus	Endangered
Puttyroot	Aplectrum hyemale	Endangered
Pawpaw	Asimina triloba	Endangered
Saline Orache	Atriplex subspicata	Endangered
Pickering's Reed Grass	Calamagrostis pickeringii	Endangered
Schweinitz's Flatsedge	Cyperus schweinitzii	Endangered
Pine Barrens Boneset	Eupatorium resinosum	Endangered
Swamp Pink	Helonias bullata	Endangered
Seabeach Sandwort	Hochkenya peploides ssp. Robusta	Endangered
Floating Marsh-Pennywort	Hydrocotyle ranunculoides	Endangered
New Jersey Rush	Juncus caesariensis	Endangered
Awn-leaf Mudwort	Limosella australis	Endangered
Hairy Wood-rush	Luzula acuminata var. acuminata	Endangered
Slender Water-milfoil	Myriophyllum tenellum	Endangered
Dwarf Plantian	Plantago pusilla	Endangered
Seabeach Knotweed	Polygonum glaucum	Endangered
Knieskern's Beaksedge	Rhynchospora knieskernii	Endangered
Beaked Cornsalad	Valerianella radiata	Endangered

Notes:

1 Species listed are according to the USFWS Information for Planning and Consultation (IPaC) Online Tool.

2 According to the NatureServe Biodiversity Report.

Table 8. **Preliminary Permits, Authorizations, and Clearances**

Permit/Approval	Regulatory Agency	Agency Review Timeframe	Comments
Federal			
Section 10 Permit Authorization	USACE – New York District/ Philadelphia District	3 months	Required when spanning or impacting a navigable waterway.
Notification of Helicopter construction	Federal Aviation Administration (FAA)	TBD	FAA notification is required if a helicopter is used for construction
Endangered Species Act of 1973 Consultation	USFWS	6-12 months	Required if proposed activities have potential effect on federally listed species.
Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act		2-4 months	Required if activities have the potential to effect migratory birds or protected eagles.
State of New Jersey			
Certificate of Public Convenience and Necessity	New Jersey Board of Public Utilities	12-18 months	
Freshwater Wetlands General/Individual Permit	NJDEP DLRP	12-18 months	The proposing company holds a blanket general permit including FWW GP-1, additional permits may be required if impacts are outside of blanket permit. Additional permits may be required if impacts are outside of the ROW, underground, or include activities not covered under General Permit 1.
Coastal Wetlands General/Individual Permit	NJDEP DLRP	6-12 months	The Project is not located within the CAFRA zone. NJDEP Coastal Wetland Maps will need to be referenced to determine if impacts to regulated coastal wetlands are proposed. The proposing company holds blanket general permit including a CWP, additional permits may be required if impacts are outside of blanket permit.
Federal Coastal Zone Consistency Determination	NJDEP DLRP	-	
Flood Hazard Area- General/Individual Permit	NJDEP DLRP	6-12 months	The proposing company holds a blanket general permit including a flood hazard area individual permit
State Species Consultation	NJDEP DLRP	N/A	To be included with the DLRP permits
Air Quality General Permit	NJDEP Bureau of Stationary Sources	3-6 months	A General Permit may be needed for the use of temporary equipment
NJPDES General Construction Stormwater Permit (5G3)	NJDEP Department of Water Quality Bureau of Stormwater Permitting	To be filed prior to construction	Coordination may be required with the local Soil Conservation District

Permit/Approval	Regulatory Agency	Agency Review Timeframe	Comments
NJPDES Basic Industrial Stormwater Permit (5G2)	NJDEP Department of Water Quality Bureau of Stormwater Permitting	6 Months	
Green Acres Division	NJDEP Bureau of Legal Services and Stewardship – Green Acres Program	12-18 months	File as early as possible proposed projects are within existing ROWs, some impacts may pre-date Green Acres regulations
Roadway permits	New Jersey Department of Transportation Division of Right of Way and Access Management	6 Months	Joint Federal Highway Administration approval for crossing of interstate 95 and 195. Garden State Parkway, US 9, and NJ 18 crossed by project local approvals may also be required. Oversized load permits may be required for substation expansion equipment.
License to Cross	New Jersey Turnpike Authority	TBD	New Jersey Turnpike Authority manages the Garden State Parkway The Turnpike Authority encourages submittal of license to cross as soon as possible
Aviation Review	New Jersey Department of Transportation	TBD	Additional local coordination and approval may be required for helicopter construction
Monmouth and Ocean Counties			
Consultation on NJDEP Permits (air, waste, noise, water)	Monmouth and Ocean County Environmental Health Division	-	
Road Permit (potential, for work on county roads)	Office of Public Works	1-3 months	
Site Plan Application (potential, for work on county roads)	Office of Planning	3-6 months	
Municipal			
Construction Permit	Freehold, Howell, Lakewood, Jackson, Neptune, Colts Neck, Townships and Tinton Falls Borough	-	Substation expansion will require a local site plan and construction approvals. Municipalities with transmission line construction may require approval or notifications.
Floodplain Permit	Freehold, Howell, Lakewood, Jackson, Neptune, Colts Neck, Townships and Tinton Falls Borough	-	

Permit/Approval	Regulatory Agency	Agency Review Timeframe	Comments
Street Opening Permit	Freehold, Howell, Lakewood, Jackson, Neptune, Colts Neck, Townships and Tinton Falls Borough	1-3 Months	Additional local approvals and authorizations could be required for structures and permanent land alterations. Oversized load permits may be required for substation expansion equipment.
Site Plan Approval (Substation expansion and reconfiguration)	Howell Township, Colts Neck Township and Freehold Township	3-9 months	NJ Board of Public Utilities may be able to override local regulatory approvals Additional approvals from local authorities could be required for structures and permanent land alterations
Variance/Rezoning	Howell Township, Colts Neck Township and Freehold Township	3-12 months	Assuming only aboveground structures will be associated with the proposed substation expansion
Zoning Permit	Howell Township, Colts Neck Township and Freehold Township	-	Substation expansions proposed on company owned property
Building Permit	Howell Township, Colts Neck Township and Freehold Township	1-3 months	Additional local approvals could be required for structures and permanent land alterations
Street Opening Permit	Freehold, Howell, Lakewood, Jackson, Neptune, Colts Neck, Townships and Tinton Falls Borough	1-3 months	
Private			
Railroad Permit	Consolidated Rail Corporation (Conrail)	TBD	Permits will be required for new conductor crossings of railroad ROW.

LS Power Proposals 781 Permit Table

Table 9. **Permit Matrix - Monmouth, Middlesex, and Ocean Counties, New Jersey**

Agency	Permit/Approval	Trigger	Potential for Need	Permit Risk	Lead/ Processing Time	Permit Fees	Future Actions/Comments
FEDERAL							
Lead Federal Agency	National Environmental Policy Act (NEPA) Review - Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)	Any Project that has a federal nexus, such as a Project that occurs on federally-managed land, receives federal funding, or requires a federal permit or other federal authorization will require a NEPA review (National Environmental Policy Act of 1969, 42 U.S.C. §4332).	TBD	No Issue	CE - Lead: 2 months EA - Lead: 2 months Processing: 6 to 10 months; EIS - Lead: 3 months Processing: 12 to 20 months	No fees; however, Applicant is typically responsible for cost of preparing the environmental document and supporting studies, as appropriate. (**This note may apply to numerous permits or approvals below**)	NEPA review will be required if the Project will be built on or crosses a federal easement or federally owned or managed lands such as but not limited to: National Forest Service (NFS), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM) and etc., or if the Project relies on a U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) real estate mortgage, a Department of Energy (DOE), or Rural Development (RD) Rural Energy for America Program (REAP) loan guarantee, etc. Consultant recommends further review and determination of NEPA triggers that may be associated with the Project as additional Project details become available.
	Federal Section 106 Review	Any Project requiring a federal permit or other authorization is subject to National Historic Preservation Act of 1966 (as amended) (NHPA) Section 106 Review.	TBD	No Issue	Lead: 1 month; Processing: 4-6 months	None	Determine whether a federal nexus exists for the Project. This nexus would trigger Section 106 compliance under the National Historic Preservation Act (NHPA) and should be completed prior to ground disturbance associated with any project. The federal lead agency would determine scope of work in coordination with the New Jersey Historic Preservation Office and appropriate Tribal Historic Preservation Offices (THPOs).

U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Nationwide Permit (NWP). Authorization for discharge of fill to Waters of the US (WOTUS) under Section 404 of the CWA. Applicable NWPs include: NWP 14 Linear Transportation projects, NWP 18 Minor Discharges, NWP 33 Temporary Construction, Access, and Dewatering, NWP 57 Electric Utility Line and Telecommunications Activities.	Discharge of fill to a jurisdictional waters of the US.	High	Moderate Risk	Lead: 4 weeks; 30 day completeness review, 45 days for notification of permit coverage by USACE	None	Project is located between USACE Philadelphia District & New York District. 100 Penn Square East, Wanamaker Bldg, Philadelphia, PA 19107-3390. 215-656-67818 & ATTN: Regulatory Branch, Room 1937, 26 Federal Plaza, New York, NY 10278-0090. 917-790-8511, respectively. Information to consider: a desktop wetland evaluation can be completed for planning. An on-site wetland delineation within construction footprint is required to obtain NWP coverage for projects that result in discharge to WOTUS greater than 0.1 ac in extent. Delineations must be conducted in conformance with the 1987 USACE Wetlands Delineation Manual and the applicable Regional Supplement. The U.S. Army Corps of Engineers (USACE) generally regulates the discharge of dredged and fill material into waters of the U.S. under Section 404 of the Federal Clean Water Act (CWA) however in the State of New Jersey, Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act. In most cases, the State of New Jersey maintains sole jurisdiction over wetlands, however the USACE still works closely with the NJDEP and maintains joint jurisdiction over navigable waters and other interstate waters.
	Approved Jurisdictional Determination (AJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 4-12 months (dependent on complexity of water resources)	None	An AJD is an official USACE determination that jurisdictional wetlands or WOTUS are either present or absent on the property. AJDs can generally be relied upon for five years and may be appealed through the USACE administrative appeal process.
	Preliminary Jurisdictional Determination (PJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 1 month	None	A PJD is a non-binding written indication from the USACE that waters, including wetlands, may be WOTUS. A permit decision made on the basis of a PJD will often treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. A PJD is advisory in nature and may not be appealed.
	CWA Section 404 Regional General Permit (RGP) or Nationwide Permit (NWP) for authorization of discharge to WOTUS.	Generally speaking, discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.1 acre of WOTUS.	Moderate	Moderate Risk	Lead: 1 month; Processing: 2-4 months	None	Consultant recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. It is also recommended to design the Project in order to take advantage of applicable non-reporting NWPs or RGPs. A Pre-Construction Notification (PCN) is required for the locations, impact thresholds, and activities listed in the particular RGP or NWP. Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act.

	CWA Section 404 Individual or Standard Permit (IP or SP) for authorization of discharge to WOTUS exceeding RGP or NWP limits, resulting in more than minimal adverse effects to WOTUS.	Discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.5 acre of WOTUS.	Low-Moderate	No Issue	Lead: 1 month; Processing: 6-12 + months	Permit issuance fee of $10 for non-commercial Projects and $100 for commercial Projects. Applicant is responsible for studies and mitigation costs if applicable.	Consultant recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. An individual permit will require an alternatives analysis demonstrating that the Project has been designed to avoid and minimize temporary and permanent impacts to WOTUS. Generally speaking, compensatory mitigation will be required for all permanent WOTUS impacts exceeding 1,000 square feet. A 30 day public notice period is required.
	Rivers and Harbors Act Section 10 Crossing Permit	Construction of any structure in, over or under a navigable water (Section 10 Waters) of the U.S.	Low	No Issue	Lead: 1 month; Processing: 4 to 6 months.	Permit issuance fee of $10 for non-commercial projects and $100 for commercial projects. Applicant is responsible for studies and mitigation costs if applicable.	Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for construction of any structure or work in, under or over any navigable water of the US. Requires PCN. Section 10 waters are major water bodies such as the Delaware River. No Section 10 navigable waters were identified within the Project Area; however, Consultant recommends confirming Project design and layout does not cross Section 10 waters.
U.S. Department of the Interior Bureau of Ocean Management (BOEM)	Outer Continental Shelf (OCS) Renewable Energy Lease	Required for "commercial activities" conducted in Federal OCS lands.	Low	No Issue	Lead: 1 month; Processing: 4 to 12 + months	TBD	The Energy Policy Act of 2005 (EPAct) authorized BOEM to issue leases, easements and rights of way to allow for renewable energy development on the Outer Continental Shelf (OCS). EPAct provided a general framework for BOEM to follow when authorizing these renewable energy activities. For example, EPAct requires that BOEM coordinate with relevant Federal agencies and affected state and local governments, obtain fair return for leases and grants issued, and ensure that renewable energy development takes place in a safe and environmentally responsible manner. An OCS Renewable Energy Lease under 30 CFR Ch. V (7–1–14 Edition) is required for any commercial activities conducted in Federal OCS lands. Commercial activities for renewable energy leases and grants is defined as all activities associated with the generation, storage, or transmission of electricity or other energy product from a renewable energy project on the OCS. It is likely that construction of a transmission line for an offshore renewable energy projects in the OCS will trigger the need for an OCS Renewable Energy Lease. Consultant recommends further review of the OCS areas and the proposed offshore renewable energy project to determine the need for an OCS Renewable Energy Lease.

U.S. Fish and Wildlife Service (USFWS)	Section 7 Endangered Species Act (ESA) Consultation	Any project with a federal nexus that may adversely affect a listed threatened, endangered, or candidate species as determined by the lead federal agency.	Initial Consultation Completed	Moderate Risk	Lead: 1 month; Processing: 2 to 6 months	None	The U.S. Fish and Wildlife Service (USFWS) (2022) Information for Planning and Consultation (IPaC) request identified nine federally endangered and threatened species as potentially occurring within the Project Area or surrounding region. These species include the federally endangered American chaffseed (Schwalbea americana), the federally threatened northern long-eared bat (Myotis septentrionalis; NLEB), Piping Plover (Charadrius melodus), Rufa Red Knot (Calidris canutus rufa), bog turtle (Glyptemys muhlenbergii), Knieskern's beaked-rush (Rhynchospora knieskernii), seabeach amaranth (Amaranthus pumilus), and swamp pink (Helonias bullata), and the candidate for listing monarch butterfly (Danaus plexippus). The species identified in the IPaC and their probability of occurrences are described in more detail in the Report prepared for #781. It is recommended that all tree clearing take place during the inactive season (November 1 – March 31), or, at a minimum, outside of the pup-rearing season which occurs from June 1 – July 31. If the Project Area will be requiring wetlands permitting, swamp pink and bog turtle habitat evaluation or surveys may be required. Nesting surveys for bald eagles are recommended. If present, all active eagle nests require at least a 660' construction buffer during the breeding season.
	Section 10a ESA Incidental Take Permit	Potential for "Take" of a federally endangered or threatened species resulting from a project requiring federal funding, permit, or approval.	TBD	No Issue	Lead: 6-8 months; Processing: 12 to 24 months	The cost of a Biological Assessment and Habitat Conservation Plan are borne by the project proponent.	If lead federal agency determines that a project may adversely affect a listed species a Biological Assessment (BA) must be prepared to identify impacts to federally-listed species in the project area are likely to occur. A Habitat Conservation Plan (HCP) must be prepared to identify conservation measures to offset the permitted take of listed species under ESA Section 10. EA, and 30 day public notice required.
Environmental Protection Agency (EPA)	Oil Pollution Act (OPA) Spill Prevention Control and Countermeasure (SPCC) Rule	Onsite above-ground oil storage tanks with an aggregate capacity of 1,320 gallons or underground storage tanks with total capacity over 42,000 gallons in a location where discharge may reach navigable waters or	Low	No Issue	Lead: 3 weeks; Processing: 1 month	None	Assumes the Project will have no oil or petroleum storage that would surpass triggers; if not, reassess whether an SPCC Plan is required. If temporary storage is needed above the threshold, a SPCC Plan still applies.

		adjoining shorelines.					
	Resource Conservation and Recovery Act (RCRA) Notification requirements for regulated waste activity	Generation of not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Assess the potential volume of hazardous waste that will be generated by the Project. Confirm that the Project will not generate not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month to qualify as a Very Small Quantity Generator. In the event that any of these thresholds are exceeded, evaluate record keeping and reporting requirements at 40 CFR part 262.
U.S. Department of Agriculture (USDA)	Form AD-1006, Farmland Conversion Impact Rating for Farmland Conversion under Farmland Protection Policy Act (FPPA)	A project that uses federal financing, loans, or assistance and will convert farmland to nonagricultural use.	TBD	No Issue	Lead: 3 weeks; Processing: 1 month	None	Confirm that the Project does not involve federal funding or assistance and, therefore, does not require Form AD-1006. A discussion with the local Natural Resources Conservation Service (NRCS) may be necessary.
	Form AD-1026, Highly Erodible Land Conservation (HELC)	A project that converts land enrolled in federal farm programs to make production of a commodity crop possible.	TBD	No Issue	Lead: 3 weeks; Processing: 1 to 3 months	None	Confirm that the Project will not convert federal farm program wetlands or highly erodible lands to make production of a commodity crop possible.
	Environmental Assessment (EA) for Class I Action (Form RD1940-21)	Leased lands include property encumbered by federal Farm Service Agency (FSA) or Farmers Home Administration (FmHA) real estate mortgages. Projects that use federal	Low	No Issue	Lead: 1 month; Processing: 2 to 3 months	None	If Project plans call for leasing land, determine whether leased lands for the Project are encumbered by FSA or FmHA federally guaranteed real estate mortgages as soon as possible. Also confirm whether Project will use federal financing, loans, or assistance.

		financing, loans, or assistance.					
	Conservation Reserve Program (CRP) Contract Amendment	Project affects lands enrolled in CRP.	Low	No Issue	Lead: 2 weeks; Processing: 1 to 2 months	Reimbursement of past CRP payments plus interest for impact area.	Obtain confirmation from landowners that affected lands are not enrolled in CRP.
	A loan guarantee from USDA RD Rural Business-Cooperative Service (RBCS)	Application for a RBCS loan guarantee.	Low	No Issue	Lead: 1 month; Processing: 1-2 months	None	Determine whether a federal loan guarantee is sought as soon as possible.
Federal Aviation Administration (FAA)	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 3 to 6 months, possibly longer if there are identified constraints.	None	The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.
	Notice of Actual Construction or Alteration (Form 7460-2)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Should the filing of Form 7460-1 reveal that the proposed Project has potential to impact navigable airspace, Notice of Actual Construction or Alteration will be required prior to initiating construction activities.
STATE							

New Jersey Board of Public Utilities (BPU)	NJ Rev Stat § 40:55D-19 - Appeal	An electric utility may appeal a disapproval from a single municipality in the event of the Project being denied in accordance with local municipal regulations.	TBD	No Issue	Lead: 35 days; Processing: 35 days	TBD	If a public utility, as defined in R.S.48:2-13, or an electric power generator, as defined in section 3 of P.L.1999, c.23 (C.48:3-51), is aggrieved by the action of a municipal agency through said agency's exercise of its powers under this act, with respect to any action in which the public utility or electric power generator has an interest, an appeal to the Board of Public Utilities of the State of New Jersey may be taken within 35 days after such action without appeal to the municipal governing body pursuant to section 8 of this act unless such public utility or electric power generator so chooses. In such case appeal to the Board of Public Utilities may be taken within 35 days after action by the governing body. A hearing on the appeal of a public utility to the Board of Public Utilities shall be had on notice to the agency from which the appeal is taken and to all parties primarily concerned, all of whom shall be afforded an opportunity to be heard. If, after such hearing, the Board of Public Utilities shall find that the present or proposed use by the public utility or electric power generator of the land described in the petition is necessary for the service, convenience or welfare of the public, including, but not limited to, in the case of an electric power generator, a finding by the board that the present or proposed use of the land is necessary to maintain reliable electric or natural gas supply service for the general public and that no alternative site or sites are reasonably available to achieve an equivalent public benefit, the public utility or electric power generator may proceed in accordance with such decision of the Board of Public Utilities, any ordinance or regulation made under the authority of this act notwithstanding. This act or any ordinance or regulation made under authority thereof, shall not apply to a development proposed by a public utility for installation in more than one municipality for the furnishing of service, if upon a petition of the public utility, the Board of Public Utilities shall after hearing, of which any municipalities affected shall have notice, decide the proposed installation of the development in question is reasonably necessary for the service, convenience or welfare of the public.
New Jersey Historic Preservation Office (HPO)	Cultural and Historic Resources Review (Technical Assistance)	Required for State and Federal Undertakings, including a variety of NJDEP Permits listed below.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 30 days	None	Depending on other permit triggers including the Department of Environmental Protections Freshwater Wetlands Permit, CAFRA Permit, and more, a Cultural and Historic Resources Review (Email Submittal Form) may be required as a part of Project development. Any federal undertakings will require a Cultural and Historic Resources review under Section 106.

New Jersey Department of Environmental Protection (NJDEP)	5G3 - Construction Activity Stormwater General Permit	Construction activity disturbing one or more acres of land. Requires development of site specific SWP3 and compliance with all SWP3 conditions.	High	No Issue	Lead: 4 weeks; Processing: Estimated 3-4 weeks	TBD	Permit Number: NJ0088323 (5G3 - Construction Activity Stormwater General Permit) became effective on March 1, 2022 and will expire February 28, 2027. Project development will require NJ0088323 for disturbances greater than one acre. Prepare a Stormwater Pollution Prevention Plan (SWPPP) as part of construction plans; prepare and submit the NJ0088323 application along with a complete Request for Authorization (RFA) and the appropriate fee required under N.J.A.C. 7:14A-3.1(j) shall be submitted via the NJDEP Online Portal. Authorization becomes effective when the Department certifies the RFA. Local conservation district approval of a Soil Erosion and Sediment Control (SESC) Plan may be required prior to RFA certification.
	401 Water Quality Certification	Projects requiring fill in Water of the US require a Water Quality Certification. Typically associated with USACE Permits and State Individual Permits.	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	A 401 Water Quality Certification authorization is required as a part of federal waterway/wetland permitting. Design project to avoid/minimize wetlands to the extent practicable. Align infrastructure to avoid temporary and permanent impacts to wetlands, waterways, and drainages. If the Project design includes impacts to wetlands or waterways, it is recommended to request an early coordination meeting with NJDEP staff to ensure all State permitting requirements are met.
	Freshwater Wetlands (FWW) Individual Permit and FWW General Permits	The maintenance or construction of utility lines within freshwater wetlands, transition areas, and/or State open waters requires a Freshwater Wetlands (FWW) permit or FWW Transition Area waiver. Several FWW General Permits (GP) are available for these types of activities.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	General Permits provide a means to perform a variety of activities within a regulated freshwater wetland, freshwater wetland transition area and/or State open water, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FWW Individual Permit is available. Several noteworthy General Permits applicable to Project development include: underground utility lines (GP2), Non-tributary wetlands (GP6), above ground utility lines (GP 21), redevelopment of previously disturbed areas (GP26), and others. The #781 Project crosses numerous wetlands and watercourses and will likely require FWW General Permits or an Individual Permit. Consultant recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to freshwater wetland impacts.

	Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33	Required for any structure or activity that in any manner changes, expands, or diminishes the course, current or cross-section of any watercourse or flood hazard area.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Placement of utility poles would likely be authorized under Permit-By-Rule 33 which is for the placement of one or more utility poles, provided that the proposed design meets the applicable conditions of the permit. There are also permit-by-rules for open-frame or monopole towers. Road or bridge construction to facilitate access would like be authorized under Regional General Permit 9 if the regulated water has a drainage area less than 50 acres, otherwise an Individual Permit would likely be required. Additionally, if the Project is regulated to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. General Permits provide a means to perform a variety of activities within a regulated flood hazard area and regulated streams/rivers, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FHA Individual Permit is available. Several noteworthy General Permits applicable to Project development include: Habitat Creation/Restoration/Enhancement (GP4), Reconstruct and/or Elevation-Building in Floodway (GP5), Development SFH/Duplex and Driveway (GP6), In-kind replacement of public infrastructure (GP15), and others. The #781 Project crosses numerous special flood hazard areas and will likely require a Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33, or Flood Hazard Area (FHA) Individual Permit. Consultant recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to FHA impacts.

	Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit	Required for waterfront developments and/or coastal zone impacts.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Activities conducted in tidal waters (at or below the mean high water line) that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Waterfront Development Individual Permit. Activities conducted in the CAFRA zone that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a CAFRA Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements will require a Coastal Wetlands Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Coastal Wetlands Individual Permit. Applicable general permits include Landfall of Utilities (GP12), Eroded Shoreline Stabilization (GP17), Mod of Existing Electrical Substations (GP19), Geotechnical Survey Borings (GP23), and more. If the project is regulated pursuant to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. The #781 Project is partially located in the Coastal Area Facilities Review Act (CAFRA) Boundary and will likely require Coastal Permit-by-rule, General Permit-by-certification, General Permit, or Individual Permit. Consultant recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line.
	Tidelands License/Grant	Private use of State tidelands for Utility or Utility related project (Tidelands Act 12:3 (1 to 28) NJSA 13:1B-13.1 to 13.14).	High	Moderate Risk	Lead: 1 month; Processing: 3-12 months	Fair Market Value of Land for Grant, annual license fees depend on total amount of area licensed.	The #781 Project is partially located across seven (7) New Jersey Riparian Tidelands in the Atlantic North Tidelands Region. Of the seven identified tidelands, six are considered "claimed" tidelands. The State of New Jersey claims ownership of these tidelands and holds them in trust for the people of the state. The management of the tidelands is overseen by the Tidelands Resource Council, a twelve member Governor-appointed board of volunteers, along with DEP staff at the Bureau of Tidelands Management. Since tidelands are public lands, a developer must obtain written permission from the State and pay a fee in order to use these lands. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease. Consultant recommends contacting the Bureau of Tidelands Management to determine whether a Tidelands License or a Tidelands Grant would be best suited for the proposed Project.

	Permit-by-rule (PBR) 8	Construction of a utility line attached to a bridge or culvert.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-3 months	TBD	PBR 8 - authorizes construction of a utility line, including cable (electric, television, or fiber optic), telecommunication, wastewater, petroleum, natural gas, or water, attached to a bridge or culvert, provided: No excavation, dredging or filling is undertaken within the water body over which the utility line crosses; The utility line is firmly attached to the existing bridge or culvert structure so that no part of the utility line, its encasement, or any attachment device extends above or below the existing bridge or culvert structure; If the crossing is a bridge, the utility line, its encasement, and all attachment devices must be located entirely above the elevation of the low chord of the superstructure and entirely below the elevation of the bridge surface; If the crossing is a culvert, the utility line, its encasement, and all attachment devices must be located entirely above the overt elevation of the culvert and entirely below the elevation of the top of the culvert; If the utility line is a pipeline that conveys any substance other than potable water, the utility line must be sufficiently encased within ductile iron or concrete to protect the utility line from damage from impact with floating debris during floods; and If there is a predominant direction of flow within the water body, the utility line must be attached to the downstream face of the bridge or culvert; The installation of the utility line has no adverse impacts to special areas as described at N.J.A.C. 7:7-9; and Construction equipment is operated from land, the top of the bridge or culvert, or from barges, and shall under no circumstances be allowed to enter the water body. Please be advised, this PBR only applies to that portion of the utility line that will be constructed across the tidal waterway up to the mean high water line, provided a tidelands instrument has been obtained for the utility line. In addition, this PBR does not relieve the permittee from the obligation of obtaining all necessary approvals from the U.S. Army Corps of Engineers. See N.J.A.C. 7:7-4.8 for complete rule requirements.
	New Jersey Natural Heritage Program) - State T&E Species Consultation	Routinely recommended; natural resources investigations including wildlife will be required for the various coastal, wetlands, and waterway permits.	Routinely recommended	Moderate Risk	Lead: 1 week; Processing: 1-2 weeks	TBD	A Data Request was submitted to the New Jersey Natural Heritage Program for information regarding State-listed threatened and endangered species. No response has been received to date; Consultant will update the Permit Matrix and Project Reports once a response has been received.

	Construction Dewatering Permit	For temporary ground and surface water control (dewatering) diversions in excess of 100,000* gallons of water per day, the project owner must obtain a Dewatering Allocation Permit, or Dewatering Permit-by-Rule or Short Term Permit-by-Rule depending on the duration of the diversion and the method employed.	Low	No Issue	Lead: 1 month; Processing: Estimated 1 month	TBD	Consultant recommends review of the listed permit triggers to determine if a dewatering approval will be necessary, and to determine the appropriate permit selection.
	Air Quality Permit	Permit requirements dependent on construction techniques and equipment used in Project development.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Depending on the construction techniques and equipment used for Project development, a variety of air quality permit thresholds may be met. Consultant recommends reviewing construction techniques and equipment used with the Air Quality permitting thresholds discussed on the NJDEP Air Quality, Energy & Sustainability webpage.
New Jersey Department of Community Affairs	Development Plan Review	Required in the event that the local municipalities where the subcode officials and construction official do not possess code enforcement licenses of the appropriate class.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Should any of the local permit issuing municipalities not possess code enforcement licenses of the appropriate class, a review from the Department of Community Affairs would be required. Class I : A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS construction official or subcode official; Class II: A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS or ICS construction official or subcode official; Class III: A Departmental plan review shall not be required except when the Department acts as the enforcing agency. Application should be made to the local construction office, not the Department. Refer to the local permitting section below for additional information.

New Jersey Pinelands Commission	Application for Development in the Pinelands Area (Certificate of Filing)	Required for developments located in the Pinelands Area.	Low	No Issue	Lead: 1 month; Processing: 30 days	$187.50 per acre of all land in ROW, $250 minimum	Project is located outside of the Pinelands Area; therefore, no Application for Development will be required.
New Jersey Department of Transportation (NJDOT)	Oversize/Overweight Application for Special Hauling Permit	Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles	Moderate	No Issue	Lead: 1 week; Processing: 1 days to 1 week	Dependent on vehicle size and number of trips	Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Consult with the DOT to select the most appropriate permit. Typically, these types of permits will be sought out by the contractor responsible for transporting materials.
	Driveway Access Permit Application	Required for driveway access construction using a State roadway.	Moderate	No Issue	Lead: 1 week; Processing: Estimated 2-4 weeks	TBD	If Project development will require any driveway access using NJDOT roadways, prior permit approval will be required.
	Application for Utility Opening (MT17A)	Required for utility infrastructure openings in NJDOT roadways.	High	Moderate Risk	Lead: 1 week; Processing: 2-4 weeks	TBD, based on square footage of opening; $7815-$1,580	If Project development will require any openings on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required.
	Highway Occupancy Permit (MT120A)	Permit required for construction or alteration of utility facilities.	High	Moderate Risk	Lead: 3 weeks; Processing: Estimated 2-4 weeks	TBD based on construction activities	If Project development will require any occupancies on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT120A will be required.
LOCAL							
Monmouth County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require Monmouth County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Monmouth County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.
	Right-of-Way Permit	Required to open, excavate, burrow under, or in any way impair any portion of the	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$250	Project development crosses a County Roadway and will likely require a County Right-of-Way Permit.

		right-of-way of a County-maintained roadway.					
Freehold Soil Conservation District (FSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from FSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by FSCD.
Sea Girt Borough, Monmouth County, NJ	Zoning Permit	Required for new construction on a property.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Project development will require approval of a Zoning Permit in accordance with Sea Girt Borough Code of Ordinances. Consultant recommends initiating a pre-application submittal meeting with Sea Girt Borough Officials to determine the appropriate permitting process for construction of a new transmission line. Transmission line construction is not explicitly discussed in the Sea Girt Borough Code of Ordinances. It is likely that a Zoning Permit, Site Plan Review, and Building Permit will be required for construction of the proposed Project.
	Site Plan Review	No building permit, zoning permit, or conditional use permit shall be issued for any building or use or enlargement of any building or use, unless a site plan is submitted to the Borough Engineer and approved.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$1,500-$3,000	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning Permit. Site Plan Review Procedures are detailed in § 18-2 of the Sea Girt Borough Code of Ordinances. Submittal materials include compliance with the Zoning Ordinance, design plans, and other materials listed in the General Requirements and Procedures. The Planning Board will review the Application for conformity to the Borough Ordinances and adequacy for providing good site design.
	Building Permit	Construction, erection or alteration of any structure, but only after a	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Prior to issuing a building permit, the Construction Official shall ascertain that all conditions and requirements of the State Uniform Construction Code will be met. Building permits shall expire one year after issuance if substantial construction has not been commenced. The Building Permit submittal should follow

		zoning permit has first been secured from the Zoning Officer.					approval of the Site Plan Review, prior to Zoning Permit submittal.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees with a diameter of six inches or greater.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	None	In accordance with Ordinance No, 18-2018, no removal of trees with a diameter of six inches or greater is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
Manasquan Borough, Monmouth County, NJ	Zoning Permit	Construction, alteration, repair, remodeling or conversion of any building or structure; construction of a new sign and expanding or relocating an existing sign; construction of a new fence or relocating an existing fence; construction of any site improvement either above or below ground.	High	No Issue	Lead: 2-3 weeks; Processing: 10 days	TBD, based on size of project	Application for a Zoning Permit shall be made in writing by the property owner or his authorized agent on a form prepared by the Zoning Officer and shall include the following: A statement of the use or the intended use of the building, structure or land; An elevation drawn to scale of the building or structure to be constructed including the proposed location of signs and their content and manner of construction; A plan to scale showing all proposed or existing buildings, signs, parking areas, setbacks and front, side and rear yard setback distances in exact relation to the street and lot lines; The percentage of existing and proposed lot coverage; The percentage of existing and proposed impervious surfaces; and The location of any wetlands, wetlands transition areas, easements, floodplains or slopes of 10% or greater.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	25% of construction permit $50 minimum fee	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit. Site Plan Review Procedures are detailed in § 35-19 of the Borough Code of Ordinances. The Planning Board will review the Application for conformity to the Borough Ordinances.

	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Prior to issuing a Construction Permit, a Zoning Permit must be approved by Manasquan Borough. Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
Howell Township, Monmouth County, NJ	Conditional Use Permit	Construction of public utility infrastructure in a residential or agricultural rural estate zoning district.	High	Moderate Risk	Lead: 1-2 months; Processing: Estimated 1-2 months	$500	According to the Township's Zoning Map, the Project Area is located across numerous Agricultural Rural Estate and Residential Zoning Districts in the Township. According to Attachment 1 Schedule of Uses, public utilities are considered a conditional use in all agricultural real estate and residential zoning districts. U Consultant recommends initiating a pre-application meeting with Howell Township Officials to ensure all permitting requirements and zoning regulations are met for development of a transmission line.
	Land Use Application	Required for residential or commercial construction.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will likely require approval of a Land Use Application for non-residential construction in Howell Township. Consultant recommends initiating a pre-application submittal meeting with Howell Township Officials to determine if a Conditional Use Permit approval will supersede the need for a Land Use Application approval.
	Site Plan Review	Site plan review and approval in accordance with the terms of the Land Use Ordinance shall be required for all facilities except usual overhead and underground service lines.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.
	Construction Permit	Any building, electrical, plumbing, demolition, or other work requires construction permit approval.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 139-88, no removal of trees is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Consultant recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
Freehold Township, Monmouth County, NJ	Zoning Permit	Required for new construction to demonstrate compliance with the Land Use Ordinance.	High	No Issue	Lead: 2-3 weeks; Processing: 10 days	$50	According to the Township's Zoning Map, the Project Area is located across multiple Zoning Districts in Freehold Township, including single-family, low income, mobile/manufactured housing, and high density residential zoning districts. According to the Land Use Regulations, the definition of essential services includes electrical transmission lines. According to Article XIII, essential services are considered a permitted accessory use in the identified zoning districts. Project development will be allowed via approval of a Zoning Permit.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Soil Removal/Fill Permit	Removing soil or importing fill requires prior permit approval.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	Up to 1,000 cubic yards - $950.00 or More than 1,000 cubic yards – (1) $950.00 plus (2) $1,750.00 per mile of the haul route which is along Township roads for each 25,000 cubic yards or fraction thereof.	Should soil removal or fill be proposed, it is recommended to review Chapter 286 of the Township Code of Ordinances in conjunction with Project design plans to determine the need for a Soil Removal/Fill Permit.

	Application for Permit: Excavating within Township ROW	Required for any excavation activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$143 +$500 bond	Consultant recommends reviewing Project design plans to determine if any ROW excavations will be required for Project development. Apply for permit as needed.
Manalapan Township, Monmouth County, NJ	Zoning Permit	Public utility installations will likely trigger the need for a Zoning Permit approval.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is across a variety of Special Economic and Commercial Zoning Districts in the Highway 33 Corridor Overlay. According to the Land Use Regulations, essential services installations are considered a permitted accessory use in the Special Economic and Commercial Zoning Districts, and are considered a conditional use in the Rural Preservation and various Residential Zoning Districts. Project development will be allowed via approval of a Conditional Use Permit. Project development will likely trigger the need for a Zoning Permit through the Manalapan Township Zoning Officer.
	Construction Permit	No building or structure shall be erected, converted, expanded or altered until a permit has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Land Development Application	Used for site plan review approvals, informal reviews, and other approvals.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Site Plan Review approval will likely be necessary for the Zoning and Construction Permit approval. However, essential services are listed as exempt from the site plan review requirements. Consultation with Township Officials is recommended to confirm the need for a site plan review approval.
Millstone Township, Monmouth County, NJ	Conditional Use Permit	Public utility installations in the Rural Preservation Zoning District and various residential zoning districts.	TBD	Moderate Risk	Lead: 2-3 weeks; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is across the Highway Commercial and Planned Commercial Development Zoning Districts in the Township. According to the Land Use Regulations, Public utility installations are not listed as a conditional or permitted use in the identified Zoning Districts. Consultation with Township Officials is recommended to determine if a Conditional Use Permit would allow for Project development, or if another zoning permit process is necessary.
	Zoning Permit	Required for construction, erection or alteration of any structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will likely trigger the need for a Zoning Permit through the Millstone Township Zoning Officer. Zoning Permits will be issued following approval of the Conditional Use Permit.

	Construction Permit	No building or structure shall be erected, converted, expanded or altered until a permit has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Land Development Application	Used for site plan review approvals, informal reviews, and other approvals.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Site Plan Review approval will likely be necessary for the Conditional Use Permit approval. Consultation with Township Officials is recommended to confirm the need for a site plan review approval.
	Tree Clearing Permit	Removal of trees in excess of 1,000 square feet on any lot.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 11-32, no removal of trees in excess of 1,000 square feet is allowed without approval of a Tree Clearing Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$200	Consultant recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Wall Township, Monmouth County, NJ	Conditional Use Permit	Construction of aboveground essential services and electric utility construction in residential zoning districts.	High	Moderate Risk	Lead: 1-2 months; Processing: Estimated 1-2 months	$300 + escrow fee	According the Section 140-108 of the Code of Ordinances, aboveground essential service facilities require approval of a conditional use permit prior to construction. Attachment 2 – Schedule of Permitted and Conditional Uses for Residential Zone Districts indicates that electric utilities are listed as a conditional use in all residential zoning districts. Electric utilities are listed as a permitted land use in the Office Research and General Industrial Zoning Districts. It is likely that Project development will require approval of a Conditional Use Permit prior to initiating construction activities in Wall Township. Conditional Use Permit Approvals and Standards are discussed in Section 140-141 of the Code of Ordinances. Site Plan Approvals will be required unless otherwise specified. Essential services were listed as an exempt development from site plan approvals; however, confirmation with Township officials is recommended to ensure all permitting requirements are met. Consultant recommends initiating a pre-application meeting with Wall Township Officials to ensure all permitting requirements are met for development of a transmission line.
	Commercial Zoning Permit	Required for non-residential construction.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$40-$350	Project development will likely require approval of a Commercial Zoning Permit for non-residential construction in Wall Township. Consultant recommends initiating a pre-application submittal meeting with Wall Township Officials to determine if a

							Conditional Use Permit approval will supersede the need for a Commercial Zoning Permit.
	Site Plan Review	Essential services are listed as exempt development, no site plan approval will be required prior to issuance of a development permit.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$35/1000sf develop + escrow fees	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.
	Construction Permit	Any minor work, repairs, alterations, new buildings, additions, renovations, and more require prior Construction Permit Approval.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees with a diameter of three inches or greater measured at a point two feet above the ground.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 140-122, no removal of trees with a diameter of three inches or greater is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Consultant recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Middlesex County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Middlesex County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.

	Right-of-Way Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-maintained roadway.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development crosses a County Roadway and will likely require a County Right-of-Way Permit.
Freehold Soil Conservation District (FSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from FSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by FSCD.
Monroe Township, Middlesex County, NJ	Zoning Permit	A Zoning Permit must be obtained prior to the erection, restoration, addition to, or alteration of any structure within the Township of Monroe, prior to the issuance of a building permit.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$100	Project development will require approval of a Zoning Permit in accordance with Monroe Township Code of Ordinances. Consultant recommends initiating a pre-application submittal meeting with Monroe Borough Officials to determine the appropriate permitting process for construction of a new transmission line. Transmission line construction is discussed in Section 108-12.33 of the Code of Ordinances. It is likely that a Zoning Permit, Site Plan Review, and Construction Permit will be required for construction of the proposed Project.
	Land Development Application	Used for site plan review approvals, informal reviews, and other approvals.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Site Plan Review approval will likely be necessary for the Conditional Use Permit approval. Consultation with Township Officials is recommended to confirm the need for a site plan review approval.
	Construction Permit	No building or structure shall be erected, expanded or	High	No Issue	Lead: 2-3 weeks; Processing:	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		structurally altered until a permit therefor has been issued by the Construction Official.			Estimated 2-4 weeks		
	Utility Permit	Required for public utility companies tree pruning for line clearance.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Chapter 96-2C(1-3) of the Municipal Ordinance – Required Permits; Utility operations. The Shade Tree Commission may grant to public utility companies a blanket permit for tree pruning for line clearance and for the installation of the maintenance of subsurface and above ground plant construction if there is interference with or endangerment to street trees. Each public utility company shall exercise reasonable diligence in the maintenance of its plant construction so as to avoid damage to trees under the jurisdiction of the Monroe Township Shade Tree Commission. Tree work in Monroe Township shall be performed to the arboricultural guidelines described in the following publication: the ANSI Z133.2012, Board of Tree Experts Standards, Pruning Trees Near Electric utilities – Shigo© 1990, and all other industry BMP's including BPU vegetation standards.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$100	No removal of trees is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Consultant recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Cranbury Township, Middlesex County, NJ	Zoning Permit	Required prior to the erection, restoration, addition to, or alteration of any structure within the Township.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	According to the Township's Zoning Map, the Project Area is located is across several Industrial, Residential, and Agricultural Preservation Zoning Districts. Township. According to the Land Use Regulations, Public utility and service structures, including utility boxes, are permitted in all zones in accordance with the requirements detailed in Section 150-11 of the Code of Ordinances. It is likely that Project development will require approval of a Zoning Permit.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit. Site Plan Review Procedures are detailed in Article VII of the Township Code of Ordinances. The Planning Board will review the Application for conformity to the Township Ordinances.

	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Road Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$10 single cut; $50 multiple cuts	Consultant recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Plainsboro Township, Middlesex County, NJ	Zoning Compliance Form	May be required as a part of the Construction Permit.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will likely require approval of a Zoning Compliance Form. The Township Code of Ordinances states that general regulations for necessary public utilities and services will be granted upon compliance with the terms of the Ordinance. Section 101-13.6 provides some information regarding conditions of approval.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$400	The proposed Project may require approval of a Site Plan Review prior to submittal of the Zoning Compliance Form, consultation with Township Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	In accordance with Ordinance 16-16, no removal of trees is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Consultant recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.

		Township right-of-way (ROW).					
Ocean County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require Ocean County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Ocean County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.
	Road Opening Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-maintained roadway.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development crosses a County Roadway and may require a County Road Opening Permit should any excavations be proposed. Consultant recommends reviewing Project design plans to determine the need for a County Road Opening Permit Application.
Ocean County Soil Conservation District (OSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval/Certification	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any commercial, industrial, linear projects, land grading or single lots disturbing 5,000 square feet or more and all multi lot subdivisions need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD, based on acres of disturbances	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from OSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by OSCD.

Brick Township, Ocean County, NJ	Conditional Use Permit	Public utility installations in the Rural Residential Zoning District.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is located in the Rural Residential Zoning District. According to the Land Use Regulations, Public utility installations are considered a conditional use in the Rural Residential Zoning District. Project development will likely be allowed via approval of a Conditional Use Permit.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project will require approval of a Site Plan Review prior to submittal of the CUP and Construction Permit. Site Plan Review approval procedures are detailed in § 245-392 of the Township Code of Ordinances. The Planning Board will review the Application for conformity to the Township Ordinances.
	Construction Permit	Required to construct, enlarge, alter or demolish a structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Engineering Permit Application	Required as a part of grading/clearing, excavation, soil removal/fill, tree removal, and other permits.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The Engineering Permit Application is required to certify contractors, engineers/architects, and other workers to determine responsibility for adherence to State and Local codes/regulations.
	Grading/Clearing Permit	Any grading or clearing of trees.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$100 per acre	Should Project development require any grading or clearing of trees, prior permit approval will be necessary. Any areas of disturbance in excess of two acres requires Planning Board approval. All work shall be performed in conformance with all applicable Brick Township Land Use Regulations, Chapters 168 and 383.
	Fill/Soil Removal Permit	Required for addition of fill or any soil removing activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Brick Land Use Ordinance Chapter 383 provides required information for approval of a Fill/Soil Removal Permit. Consultant recommends reviewing Project design plans to determine the need for (and amounts) of any proposed fill or soil removal.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$100	No removal of trees is allowed without approval of a Tree Removal Permit. Consultant recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Excavation Permit	Required for excavations in a Township ROW.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	Should any excavation activities in a Township ROW be necessary for Project development, prior permit approval would be necessary.

LS Power Proposals 629 & 72 Permit Table

Table 10. **Permit Matrix - Monmouth, Ocean, and Mercer Counties, New Jersey**

Agency	Permit/Approval	Trigger	Potential for Need	Permit Risk	Lead/ Processing Time	Permit Fees	Future Actions/Comments
FEDERAL							
Lead Federal Agency	National Environmental Policy Act (NEPA) Review - Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)	Any Project that has a federal nexus, such as a Project that occurs on federally-managed land, receives federal funding, or requires a federal permit or other federal authorization will require a NEPA review (National Environmental Policy Act of 1969, 42 U.S.C. §4332).	TBD	No Issue	CE - Lead: 2 months EA - Lead: 2 months Processing: 6 to 10 months; EIS - Lead: 3 months Processing: 12 to 20 months	No fees; however, Applicant is typically responsible for cost of preparing the environmental document and supporting studies, as appropriate. (**This note may apply to numerous permits or approvals below**)	NEPA review will be required if the Project will be built on or crosses a federal easement or federally owned or managed lands such as but not limited to: National Forest Service (NFS), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM) and etc., or if the Project relies on a U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) real estate mortgage, a Department of Energy (DOE), or Rural Development (RD) Rural Energy for America Program (REAP) loan guarantee, etc. Westwood recommends further review and determination of NEPA triggers that may be associated with the Project as additional Project details become available.
	Federal Section 106 Review	Any Project requiring a federal permit or other authorization is subject to National Historic Preservation Act of 1966 (as amended) (NHPA) Section 106 Review.	TBD	No Issue	Lead: 1 month; Processing: 4-6 months	None	Determine whether a federal nexus exists for the Project. This nexus would trigger Section 106 compliance under the National Historic Preservation Act (NHPA) and should be completed prior to ground disturbance associated with any project. The federal lead agency would determine scope of work in coordination with the New Jersey Historic Preservation Office and appropriate Tribal Historic Preservation Offices (THPOs).

U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Nationwide Permit (NWP). Authorization for discharge of fill to Waters of the US (WOTUS) under Section 404 of the CWA. Applicable NWPs include: NWP 14 Linear Transportation projects, NWP 18 Minor Discharges, NWP 33 Temporary Construction, Access, and Dewatering, NWP 57 Electric Utility Line and Telecommunications Activities.	Discharge of fill to a jurisdictional waters of the US.	High	Moderate Risk	Lead: 4 weeks; 30 day completeness review, 45 days for notification of permit coverage by USACE	None	Project is located between USACE Philadelphia District & New York District.100 Penn Square East, Wanamaker Bldg, Philadelphia, PA 19107-3390. 215-656-6728 & ATTN: Regulatory Branch, Room 1937, 26 Federal Plaza, New York, NY 10278-0090. 917-790-8511, respectively. Information to consider: a desktop wetland evaluation can be completed for planning. An on-site wetland delineation within construction footprint is required to obtain NWP coverage for projects that result in discharge to WOTUS greater than 0.1 ac in extent. Delineations must be conducted in conformance with the 1987 USACE Wetlands Delineation Manual and the applicable Regional Supplement. The U.S. Army Corps of Engineers (USACE) generally regulates the discharge of dredged and fill material into waters of the U.S. under Section 404 of the Federal Clean Water Act (CWA) however in the State of New Jersey, Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act. In most cases, the State of New Jersey maintains sole jurisdiction over wetlands, however the USACE still works closely with the NJDEP and maintains joint jurisdiction over navigable waters and other interstate waters.
	Approved Jurisdictional Determination (AJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 4-12 months (dependent on complexity of water resources)	None	An AJD is an official USACE determination that jurisdictional wetlands or WOTUS are either present or absent on the property. AJDs can generally be relied upon for five years and may be appealed through the USACE administrative appeal process.
	Preliminary Jurisdictional Determination (PJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 1 month	None	A PJD is a non-binding written indication from the USACE that waters, including wetlands, may be WOTUS. A permit decision made on the basis of a PJD will often treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. A PJD is advisory in nature and may not be appealed.
	CWA Section 404 Regional General Permit (RGP) or Nationwide Permit (NWP) for authorization of discharge to WOTUS.	Generally speaking, discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.1 acre of WOTUS.	Moderate	Moderate Risk	Lead: 1 month; Processing: 2-4 months	None	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. It is also recommended to design the Project in order to take advantage of applicable non-reporting NWPs or RGPs. A Pre-Construction Notification (PCN) is required for the locations, impact thresholds, and activities listed in the particular RGP or NWP. Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act.

	CWA Section 404 Individual or Standard Permit (IP or SP) for authorization of discharge to WOTUS exceeding RGP or NWP limits, resulting in more than minimal adverse effects to WOTUS.	Discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.5 acre of WOTUS.	Low-Moderate	No Issue	Lead: 1 month; Processing: 6-12 + months	Permit issuance fee of $10 for non-commercial Projects and $100 for commercial Projects. Applicant is responsible for studies and mitigation costs if applicable.	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. An individual permit will require an alternatives analysis demonstrating that the Project has been designed to avoid and minimize temporary and permanent impacts to WOTUS. Generally speaking, compensatory mitigation will be required for all permanent WOTUS impacts exceeding 1,000 square feet. A 30 day public notice period is required.
	Rivers and Harbors Act Section 10 Crossing Permit	Construction of any structure in, over or under a navigable water (Section 10 Waters) of the U.S.	Moderate	No Issue	Lead: 1 month; Processing: 4 to 6 months.	Permit issuance fee of $10 for non-commercial projects and $100 for commercial projects. Applicant is responsible for studies and mitigation costs if applicable.	Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for construction of any structure or work in, under or over any navigable water of the US. Requires PCN. Section 10 waters are major water bodies such as the Delaware River. No Section 10 navigable waters were identified within the Project Area; however, Westwood recommends confirming Project design and layout does not cross Section 10 waters. The Manasquan River is a navigable waterway located adjacent to the eastern portion of the Project.
U.S. Department of the Interior Bureau of Ocean Management (BOEM)	Outer Continental Shelf (OCS) Renewable Energy Lease	Required for "commercial activities" conducted in Federal OCS lands.	Low	No Issue	Lead: 1 month; Processing: 4 to 12 + months	TBD	The Energy Policy Act of 2005 (EPAct) authorized BOEM to issue leases, easements and rights of way to allow for renewable energy development on the Outer Continental Shelf (OCS). EPAct provided a general framework for BOEM to follow when authorizing these renewable energy activities. For example, EPAct requires that BOEM coordinate with relevant Federal agencies and affected state and local governments, obtain fair return for leases and grants issued, and ensure that renewable energy development takes place in a safe and environmentally responsible manner. An OCS Renewable Energy Lease under 30 CFR Ch. V (7–1–14 Edition) is required for any commercial activities conducted in Federal OCS lands. Commercial activities for renewable energy leases and grants is defined as all activities associated with the generation, storage, or transmission of electricity or other energy product from a renewable energy project on the OCS. It is likely that construction of a transmission line for an offshore renewable energy projects in the OCS will trigger the need for an OCS Renewable Energy Lease. Westwood recommends further review of the OCS areas and the proposed offshore renewable energy project to determine the need for an OCS Renewable Energy Lease.

U.S. Fish and Wildlife Service (USFWS)	Section 7 Endangered Species Act (ESA) Consultation	Any project with a federal nexus that may adversely affect a listed threatened, endangered, or candidate species as determined by the lead federal agency.	Initial Consultation Completed	Moderate Risk	Lead: 1 month; Processing: 2 to 6 months	None	The U.S. Fish and Wildlife Service (USFWS) (2022) Information for Planning and Consultation (IPaC) request identified nine federally endangered and threatened species as potentially occurring within the Project Area or surrounding region. These species include the federally endangered American chaffseed (Schwalbea americana), the federally threatened northern long-eared bat (Myotis septentrionalis; NLEB), Piping Plover (Charadrius melodus), Rufa Red Knot (Calidris canutus rufa), bog turtle (Glyptemys muhlenbergii), Knieskern's beaked-rush (Rhynchospora knieskernii), seabeach amaranth (Amaranthus pumilus), and swamp pink (Helonias bullata), and the candidate for listing monarch butterfly (Danaus plexippus). The species identified in the IPaC and their probability of occurrences are described in more detail in the Report prepared for #629. It is recommended that all tree clearing take place during the inactive season (November 1 – March 31), or, at a minimum, outside of the pup-rearing season which occurs from June 1 – July 31. If the Project Area will be requiring wetlands permitting, swamp pink and bog turtle habitat evaluation or surveys may be required. Nesting surveys for bald eagles are recommended. If present, all active eagle nests require at least a 660' construction buffer during the breeding season.
	Section 10a ESA Incidental Take Permit	Potential for "Take" of a federally endangered or threatened species resulting from a project requiring federal funding, permit, or approval.	TBD	No Issue	Lead: 6-8 months; Processing: 12 to 24 months	The cost of a Biological Assessment and Habitat Conservation Plan are borne by the project proponent.	If lead federal agency determines that a project may adversely affect a listed species a Biological Assessment (BA) must be prepared to identify impacts to federally-listed species in the project area are likely to occur. A Habitat Conservation Plan (HCP) must be prepared to identify conservation measures to offset the permitted take of listed species under ESA Section 10. EA, and 30 day public notice required.
Environmental Protection Agency (EPA)	Oil Pollution Act (OPA) Spill Prevention Control and Countermeasure (SPCC) Rule	Onsite above-ground oil storage tanks with an aggregate capacity of 1,320 gallons or underground storage tanks with total capacity over 42,000 gallons in a location where discharge may	Low	No Issue	Lead: 3 weeks; Processing: 1 month	None	Assumes the Project will have no oil or petroleum storage that would surpass triggers; if not, reassess whether an SPCC Plan is required. If temporary storage is needed above the threshold, a SPCC Plan still applies.

		reach navigable waters or adjoining shorelines.					
	Resource Conservation and Recovery Act (RCRA) Notification requirements for regulated waste activity	Generation of not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Assess the potential volume of hazardous waste that will be generated by the Project. Confirm that the Project will not generate not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month to qualify as a Very Small Quantity Generator. In the event that any of these thresholds are exceeded, evaluate record keeping and reporting requirements at 40 CFR part 262.
U.S. Department of Agriculture (USDA)	Form AD-1006, Farmland Conversion Impact Rating for Farmland Conversion under Farmland Protection Policy Act (FPPA)	A project that uses federal financing, loans, or assistance and will convert farmland to nonagricultural use.	TBD	No Issue	Lead: 3 weeks; Processing: 1 month	None	Confirm that the Project does not involve federal funding or assistance and, therefore, does not require Form AD-1006. A discussion with the local Natural Resources Conservation Service (NRCS) may be necessary.
	Form AD-1026, Highly Erodible Land Conservation (HELC)	A project that converts land enrolled in federal farm programs to make production of a commodity crop possible.	TBD	No Issue	Lead: 3 weeks; Processing: 1 to 3 months	None	Confirm that the Project will not convert federal farm program wetlands or highly erodible lands to make production of a commodity crop possible.
	Environmental Assessment (EA) for Class I Action (Form RD1940-21)	Leased lands include property encumbered by federal Farm Service Agency (FSA) or Farmers Home Administration (FmHA) real	Low	No Issue	Lead: 1 month; Processing: 2 to 3 months	None	If Project plans call for leasing land, determine whether leased lands for the Project are encumbered by FSA or FmHA federally guaranteed real estate mortgages as soon as possible. Also confirm whether Project will use federal financing, loans, or assistance.

		estate mortgages. Projects that use federal financing, loans, or assistance.					
	Conservation Reserve Program (CRP) Contract Amendment	Project affects lands enrolled in CRP.	Low	No Issue	Lead: 2 weeks; Processing: 1 to 2 months	Reimbursement of past CRP payments plus interest for impact area.	Obtain confirmation from landowners that affected lands are not enrolled in CRP.
	A loan guarantee from USDA RD Rural Business-Cooperative Service (RBCS)	Application for a RBCS loan guarantee.	Low	No Issue	Lead: 1 month; Processing: 1-2 months	None	Determine whether a federal loan guarantee is sought as soon as possible.
Federal Aviation Administration (FAA)	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 3 to 6 months, possibly longer if there are identified constraints.	None	The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.
	Notice of Actual Construction or Alteration (Form 7460-2)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Should the filing of Form 7460-1 reveal that the proposed Project has potential to impact navigable airspace, Notice of Actual Construction or Alteration will be required prior to initiating construction activities.
STATE							

New Jersey Board of Public Utilities (BPU)	NJ Rev Stat § 40:55D-19 - Appeal	An electric utility may appeal a disapproval from a single municipality in the event of the Project being denied in accordance with local municipal regulations.	TBD	No Issue	Lead: 35 days; Processing: 35 days	TBD	If a public utility, as defined in R.S.48:2-13, or an electric power generator, as defined in section 3 of P.L.1999, c.23 (C.48:3-51), is aggrieved by the action of a municipal agency through said agency's exercise of its powers under this act, with respect to any action in which the public utility or electric power generator has an interest, an appeal to the Board of Public Utilities of the State of New Jersey may be taken within 35 days after such action without appeal to the municipal governing body pursuant to section 8 of this act unless such public utility or electric power generator so chooses. In such case appeal to the Board of Public Utilities may be taken within 35 days after action by the governing body. A hearing on the appeal of a public utility to the Board of Public Utilities shall be had on notice to the agency from which the appeal is taken and to all parties primarily concerned, all of whom shall be afforded an opportunity to be heard. If, after such hearing, the Board of Public Utilities shall find that the present or proposed use by the public utility or electric power generator of the land described in the petition is necessary for the service, convenience or welfare of the public, including, but not limited to, in the case of an electric power generator, a finding by the board that the present or proposed use of the land is necessary to maintain reliable electric or natural gas supply service for the general public and that no alternative site or sites are reasonably available to achieve an equivalent public benefit, the public utility or electric power generator may proceed in accordance with such decision of the Board of Public Utilities, any ordinance or regulation made under the authority of this act notwithstanding. This act or any ordinance or regulation made under authority thereof, shall not apply to a development proposed by a public utility for installation in more than one municipality for the furnishing of service, if upon a petition of the public utility, the Board of Public Utilities shall after hearing, of which any municipalities affected shall have notice, decide the proposed installation of the development in question is reasonably necessary for the service, convenience or welfare of the public.
New Jersey Historic Preservation Office (HPO)	Cultural and Historic Resources Review (Technical Assistance)	Required for State and Federal Undertakings, including a variety of NJDEP Permits listed below.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 30 days	None	Depending on other permit triggers including the Department of Environmental Protections Freshwater Wetlands Permit, CAFRA Permit, and more, a Cultural and Historic Resources Review (Email Submittal Form) may be required as a part of Project development. Any federal undertakings will require a Cultural and Historic Resources review under Section 106.

New Jersey Department of Environmental Protection (NJDEP)	5G3 - Construction Activity Stormwater General Permit	Construction activity disturbing one or more acres of land. Requires development of site specific SWP3 and compliance with all SWP3 conditions.	High	No Issue	Lead: 4 weeks; Processing: Estimated 3-4 weeks	TBD	Permit Number: NJ0088323 (5G3 - Construction Activity Stormwater General Permit) became effective on March 1, 2022 and will expire February 28, 2027. Project development will require NJ0088323 for disturbances greater than one acre. Prepare a Stormwater Pollution Prevention Plan (SWPPP) as part of construction plans; prepare and submit the NJ0088323 application along with a complete Request for Authorization (RFA) and the appropriate fee required under N.J.A.C. 7:14A-3.1(j) shall be submitted via the NJDEP Online Portal. Authorization becomes effective when the Department certifies the RFA. Local conservation district approval of a Soil Erosion and Sediment Control (SESC) Plan may be required prior to RFA certification.
	401 Water Quality Certification	Projects requiring fill in Water of the US require a Water Quality Certification. Typically associated with USACE Permits and State Individual Permits.	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	A 401 Water Quality Certification authorization is required as a part of federal waterway/wetland permitting. Design project to avoid/minimize wetlands to the extent practicable. Align infrastructure to avoid temporary and permanent impacts to wetlands, waterways, and drainages. If the Project design includes impacts to wetlands or waterways, it is recommended to request an early coordination meeting with NJDEP staff to ensure all State permitting requirements are met.
	Freshwater Wetlands (FWW) Individual Permit and FWW General Permits	The maintenance or construction of utility lines within freshwater wetlands, transition areas, and/or State open waters requires a Freshwater Wetlands (FWW) permit or FWW Transition Area waiver. Several FWW General Permits (GP) are available for these types of activities.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	General Permits provide a means to perform a variety of activities within a regulated freshwater wetland, freshwater wetland transition area and/or State open water, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FWW Individual Permit is available. Several noteworthy General Permits applicable to Project development include: underground utility lines (GP2), Non-tributary wetlands (GP6), above ground utility lines (GP 21), redevelopment of previously disturbed areas (GP26), and others. The #629 Project crosses numerous wetlands and watercourses and will likely require FWW General Permits or an Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to freshwater wetland impacts.

	Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33	Required for any structure or activity that in any manner changes, expands, or diminishes the course, current or cross-section of any watercourse or flood hazard area.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Placement of utility poles would likely be authorized under Permit-By-Rule 33 which is for the placement of one or more utility poles, provided that the proposed design meets the applicable conditions of the permit. There are also permit-by-rules for open-frame or monopole towers. Road or bridge construction to facilitate access would like be authorized under Regional General Permit 9 if the regulated water has a drainage area less than 50 acres, otherwise an Individual Permit would likely be required. Additionally, if the Project is regulated to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. General Permits provide a means to perform a variety of activities within a regulated flood hazard area and regulated streams/rivers, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FHA Individual Permit is available. Several noteworthy General Permits applicable to Project development include: Habitat Creation/Restoration/Enhancement (GP4), Reconstruct and/or Elevation-Building in Floodway (GP5), Development SFH/Duplex and Driveway (GP6), In-kind replacement of public infrastructure (GP15), and others. The #629 Project crosses numerous special flood hazard areas and will likely require a Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33, or Flood Hazard Area (FHA) Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to FHA impacts.

	Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit	Required for waterfront developments and/or coastal zone impacts.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Activities conducted in tidal waters (at or below the mean high water line) that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Waterfront Development Individual Permit. Activities conducted in the CAFRA zone that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a CAFRA Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements will require a Coastal Wetlands Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Coastal Wetlands Individual Permit. Applicable general permits include Landfall of Utilities (GP12), Eroded Shoreline Stabilization (GP17), Mod of Existing Electrical Substations (GP19), Geotechnical Survey Borings (GP23), and more. If the project is regulated pursuant to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. The #629 Project is partially located in the Coastal Area Facilities Review Act (CAFRA) Boundary and will likely require Coastal Permit-by-rule, General Permit-by-certification, General Permit, or Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line.
	Tidelands License/Grant	Private use of State tidelands for Utility or Utility related project (Tidelands Act 12:3 (1 to 28) NJSA 13:1B-13.1 to 13.14).	High	Moderate Risk	Lead: 1 month; Processing: 2-3 years	Fair Market Value of Land for Grant, annual license fees depend on total amount of area licensed.	The #629 Project is partially located across seven (7) New Jersey Riparian Tidelands in the Atlantic North Tidelands Region. Of the seven identified tidelands, six are considered "claimed" tidelands. The State of New Jersey claims ownership of these tidelands and holds them in trust for the people of the state. The management of the tidelands is overseen by the Tidelands Resource Council, a twelve member Governor-appointed board of volunteers, along with DEP staff at the Bureau of Tidelands Management. Since tidelands are public lands, a developer must obtain written permission from the State and pay a fee in order to use these lands. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease. Westwood recommends contacting the Bureau of Tidelands Management to determine whether a Tidelands License or a Tidelands Grant would be best suited for the proposed Project.

	Permit-by-rule (PBR) 8	Construction of a utility line attached to a bridge or culvert.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-3 months	TBD	PBR 8 - authorizes construction of a utility line, including cable (electric, television, or fiber optic), telecommunication, wastewater, petroleum, natural gas, or water, attached to a bridge or culvert, provided: No excavation, dredging or filling is undertaken within the water body over which the utility line crosses; The utility line is firmly attached to the existing bridge or culvert structure so that no part of the utility line, its encasement, or any attachment device extends above or below the existing bridge or culvert structure; If the crossing is a bridge, the utility line, its encasement, and all attachment devices must be located entirely above the elevation of the low chord of the superstructure and entirely below the elevation of the bridge surface; If the crossing is a culvert, the utility line, its encasement, and all attachment devices must be located entirely above the overt elevation of the culvert and entirely below the elevation of the top of the culvert; If the utility line is a pipeline that conveys any substance other than potable water, the utility line must be sufficiently encased within ductile iron or concrete to protect the utility line from damage from impact with floating debris during floods; and If there is a predominant direction of flow within the water body, the utility line must be attached to the downstream face of the bridge or culvert; The installation of the utility line has no adverse impacts to special areas as described at N.J.A.C. 7:7-9; and Construction equipment is operated from land, the top of the bridge or culvert, or from barges, and shall under no circumstances be allowed to enter the water body. Please be advised, this PBR only applies to that portion of the utility line that will be constructed across the tidal waterway up to the mean high water line, provided a tidelands instrument has been obtained for the utility line. In addition, this PBR does not relieve the permittee from the obligation of obtaining all necessary approvals from the U.S. Army Corps of Engineers. See N.J.A.C. 7:7-4.8 for complete rule requirements.
	New Jersey Natural Heritage Program) - State T&E Species Consultation	Routinely recommended; natural resources investigations including wildlife will be required for the various coastal, wetlands, and waterway permits.	Routinely recommended	Moderate Risk	Lead: 1 week; Processing: 1-2 weeks	TBD	A Data Request was submitted to the New Jersey Natural Heritage Program for information regarding State-listed threatened and endangered species. No response has been received to date; Westwood will update the Permit Matrix and Project Reports once a response has been received.

	Construction Dewatering Permit	For temporary ground and surface water control (dewatering) diversions in excess of 100,000* gallons of water per day, the project owner must obtain a Dewatering Allocation Permit, or Dewatering Permit-by-Rule or Short Term Permit-by-Rule depending on the duration of the diversion and the method employed.	Low	No Issue	Lead: 1 month; Processing: Estimated 1 month	TBD	Westwood recommends review of the listed permit triggers to determine if a dewatering approval will be necessary, and to determine the appropriate permit selection.
	Air Quality Permit	Permit requirements dependent on construction techniques and equipment used in Project development.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Depending on the construction techniques and equipment used for Project development, a variety of air quality permit thresholds may be met. Westwood recommends reviewing construction techniques and equipment used with the Air Quality permitting thresholds discussed on the NJDEP Air Quality, Energy & Sustainability webpage.
New Jersey Department of Community Affairs	Development Plan Review	Required in the event that the local municipalities where the subcode officials and construction official do not possess code enforcement licenses of the appropriate class.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Should any of the local permit issuing municipalities not possess code enforcement licenses of the appropriate class, a review from the Department of Community Affairs would be required. Class I : A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS construction official or subcode official; Class II: A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS or ICS construction official or subcode official; Class III: A Departmental plan review shall not be required except when the Department acts as the enforcing agency. Application should be made to the local construction office, not the Department. Refer to the local permitting section below for additional information.

New Jersey Pinelands Commission	Application for Development in the Pinelands Area (Certificate of Filing)	Required for developments located in the Pinelands Area.	Low	No Issue	Lead: 1 month; Processing: 30 days	$187.50 per acre of all land in ROW, $250 minimum	Project is located outside of the Pinelands Area; therefore, no Application for Development will be required.
New Jersey Department of Transportation (NJDOT)	Oversize/Overweight Application for Special Hauling Permit	Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles	Moderate	No Issue	Lead: 1 week; Processing: 1 days to 1 week	Dependent on vehicle size and number of trips	Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Consult with the DOT to select the most appropriate permit. Typically, these types of permits will be sought out by the contractor responsible for transporting materials.
	Driveway Access Permit Application	Required for driveway access construction using a State roadway.	Moderate	No Issue	Lead: 1 week; Processing: Estimated 2-4 weeks	TBD	If Project development will require any driveway access using NJDOT roadways, prior permit approval will be required.
	Application for Utility Opening (MT17A)	Required for utility infrastructure openings in NJDOT roadways.	High	Moderate Risk	Lead: 1 week; Processing: 2-4 weeks	TBD, based on square footage of opening; $725-$1,580	If Project development will require any openings on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required.
	Highway Occupancy Permit (MT120A)	Permit required for construction or alteration of utility facilities.	High	Moderate Risk	Lead: 3 weeks; Processing: Estimated 2-4 weeks	TBD based on construction activities	If Project development will require any occupancies on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT120A will be required.
LOCAL							
Monmouth County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require Monmouth County approval in addition to	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Monmouth County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.

		local municipal approvals.					
	Right-of-Way Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-maintained roadway.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$250	Project development crosses a County Roadway and will likely require a County Right-of-Way Permit.
Freehold County Soil Conservation District (FSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from FSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by FSCD.
Sea Girt Borough, Monmouth County, NJ	Zoning Permit	Required for new construction on a property.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Project development will require approval of a Zoning Permit in accordance with Sea Girt Borough Code of Ordinances. Westwood recommends initiating a pre-application submittal meeting with Sea Girt Borough Officials to determine the appropriate permitting process for construction of a new transmission line. Transmission line construction is not explicitly discussed in the Sea Girt Borough Code of Ordinances. It is likely that a Zoning Permit, Site Plan Review, and Building Permit will be required for construction of the proposed Project.
	Site Plan Review	No building permit, zoning permit, or conditional use permit shall be issued for any building or use	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$1,500-$3,000	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning Permit. Site Plan Review Procedures are detailed in § 18-2 of the Sea Girt Borough Code of Ordinances. Submittal materials include compliance with the Zoning Ordinance, design plans, and other materials listed in the General Requirements and Procedures. The Planning Board will review the Application for

		or enlargement of any building or use, unless a site plan is submitted to the Borough Engineer and approved.					conformity to the Borough Ordinances and adequacy for providing good site design.
	Building Permit	Construction, erection or alteration of any structure, but only after a zoning permit has first been secured from the Zoning Officer.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Prior to issuing a building permit, the Construction Official shall ascertain that all conditions and requirements of the State Uniform Construction Code will be met. Building permits shall expire one year after issuance if substantial construction has not been commenced. The Building Permit submittal should follow approval of the Site Plan Review, prior to Zoning Permit submittal.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees with a diameter of six inches or greater.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	None	In accordance with Ordinance No, 18-2018, no removal of trees with a diameter of six inches or greater is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
Manasquan Borough, Monmouth County, NJ	Zoning Permit	Construction, alteration, repair, remodeling or conversion of any building or structure; construction of a new sign and expanding or relocating an existing sign; construction of a new fence or	High	No Issue	Lead: 2-3 weeks; Processing: 10 days	TBD, based on size of project	Application for a Zoning Permit shall be made in writing by the property owner or his authorized agent on a form prepared by the Zoning Officer and shall include the following: A statement of the use or the intended use of the building, structure or land; An elevation drawn to scale of the building or structure to be constructed including the proposed location of signs and their content and manner of construction; A plan to scale showing all proposed or existing buildings, signs, parking areas, setbacks and front, side and rear yard setback distances in exact relation to the street and lot lines; The percentage of existing and proposed lot coverage; The percentage of existing and proposed impervious surfaces; and The location of any wetlands, wetlands transition areas, easements, floodplains or slopes of 10% or greater.

		relocating an existing fence; construction of any site improvement either above or below ground.					
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	25% of construction permit $50 minimum fee	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit. Site Plan Review Procedures are detailed in § 35-19 of the Borough Code of Ordinances. The Planning Board will review the Application for conformity to the Borough Ordinances.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Prior to issuing a Construction Permit, a Zoning Permit must be approved by Manasquan Borough. Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
Roosevelt Borough Township, Monmouth County, NJ	Zoning Permit	Required for new construction of a principal or accessory structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$25-$50	Project development will likely trigger the need for a Zoning Permit through the Roosevelt Borough Zoning Officer. Westwood recommends initiating a pre-application submittal meeting with Roosevelt Borough Officials to determine the appropriate permitting process for construction of a new transmission line.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit. Site Plan Review Procedures are detailed in § 6.110 of the Borough Code of Ordinances. The Zoning Officer and Planning Board will review the Application for conformity to the Borough Ordinances.
	Construction Permit	No building or structure shall be erected, converted, expanded or altered until a permit has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code. A developer may file an application for development with the Planning Board for action under any of its powers without prior application to the Zoning Enforcement Officer.

	Floodplain Development Permit	Required for construction activities conducted in a special flood hazard area.	Low	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Proposed Project line is located outside of any special flood hazard areas. The Project buffer area includes some areas of Zone A, characterized by a 1.0% annual chance of flooding. Should any construction activities impact a floodplain, prior permit approval would be necessary.
	Tree Removal Permit	Removal of trees with a diameter of six inches or greater.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$10	In accordance with Ordinance No, 20-08, no removal of trees with a diameter of six inches or greater is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
Wall Township, Monmouth County, NJ	Conditional Use Permit	Construction of aboveground essential services and electric utility construction in residential zoning districts.	High	Moderate Risk	Lead: 1-2 months; Processing: Estimated 1-2 months	$300 + escrow fee	According the Section 140-108 of the Code of Ordinances, aboveground essential service facilities require approval of a conditional use permit prior to construction. Attachment 2 – Schedule of Permitted and Conditional Uses for Residential Zone Districts indicates that electric utilities are listed as a conditional use in all residential zoning districts. Electric utilities are listed as a permitted land use in the Office Research and General Industrial Zoning Districts. It is likely that Project development will require approval of a Conditional Use Permit prior to initiating construction activities in Wall Township. Conditional Use Permit Approvals and Standards are discussed in Section 140-141 of the Code of Ordinances. Site Plan Approvals will be required unless otherwise specified. Essential services were listed as an exempt development from site plan approvals; however, confirmation with Township officials is recommended to ensure all permitting requirements are met. Westwood recommends initiating a pre-application meeting with Wall Township Officials to ensure all permitting requirements are met for development of a transmission line.
	Commercial Zoning Permit	Required for non-residential construction.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$40-$350	Project development will likely require approval of a Commercial Zoning Permit for non-residential construction in Wall Township. Westwood recommends initiating a pre-application submittal meeting with Wall Township Officials to determine if a Conditional Use Permit approval will supersede the need for a Commercial Zoning Permit.
	Site Plan Review	Essential services are listed as exempt development, no site plan approval will be required prior to issuance of a development permit.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$35/1000sf develop + escrow fees	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.

	Construction Permit	Any minor work, repairs, alterations, new buildings, additions, renovations, and more require prior Construction Permit Approval.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees with a diameter of three inches or greater measured at a point two feet above the ground.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 140-122, no removal of trees with a diameter of three inches or greater is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Howell Township, Monmouth County, NJ	Conditional Use Permit	Construction of public utility infrastructure in a residential zoning district.	High	Moderate Risk	Lead: 1-2 months; Processing: Estimated 1-2 months	$500	According to the Township's Zoning Map, the Project Area is located across numerous Agricultural Rural Estate, Residential, Special Economic Development, and Highway Development Zoning Districts in the Township. According to Attachment 1 Schedule of Uses, public utilities are considered a conditional use in all residential zoning districts. Utilities are considered a permitted use in the Special Economic Development Zoning District. Public utilities and utilities are not listed as a permitted or conditional use in the Highway Development Zoning District; therefore, utilities would be considered a prohibited use. Westwood recommends initiating a pre-application meeting with Howell Township Officials to ensure all permitting requirements and zoning regulations are met for development of a transmission line.
	Land Use Application	Required for residential or commercial construction.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will likely require approval of a Land Use Application for non-residential construction in Howell Township. Westwood recommends initiating a pre-application submittal meeting with Howell Township Officials to determine if a Conditional Use Permit approval will supersede the need for a Land Use Application approval.
	Site Plan Review	Site plan review and approval in accordance with the terms of the Land	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.

		Use Ordinance shall be required for all facilities except usual overhead and underground service lines.					
	Construction Permit	Any building, electrical, plumbing, demolition, or other work requires construction permit approval.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 139-88, no removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
Freehold Township, Monmouth County, NJ	Zoning Permit	Required for new construction to demonstrate compliance with the Land Use Ordinance.	High	No Issue	Lead: 2-3 weeks; Processing: 10 days	$50	According to the Township's Zoning Map, the Project Area is located Rural Environmental (R-E) Zoning District in Freehold Township. According to the Land Use Regulations, the definition of essential services includes electrical transmission lines. According to Article XIII, essential services are considered a permitted accessory use in the Rural Environmental Zoning District. Project development will be allowed via approval of a Zoning Permit.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		issued by the Construction Official.					
	Soil Removal/Fill Permit	Removing soil or importing fill requires prior permit approval.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	Up to 1,000 cubic yards - $950.00 or More than 1,000 cubic yards – (1) $950.00 plus (2) $1,750.00 per mile of the haul route which is along Township roads for each 25,000 cubic yards or fraction thereof.	Should soil removal or fill be proposed, it is recommended to review Chapter 286 of the Township Code of Ordinances in conjunction with Project design plans to determine the need for a Soil Removal/Fill Permit.
	Application for Permit: Excavating within Township ROW	Required for any excavation activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$143 +$500 bond	Westwood recommends reviewing Project design plans to determine if any ROW excavations will be required for Project development. Apply for permit as needed.
Millstone Township, Monmouth County, NJ	Conditional Use Permit	Public utility installations in the Rural Preservation Zoning District and various residential zoning districts.	High	Moderate Risk	Lead: 2-3 weeks; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is across numerous Rural Preservation (RU-P) and various Residential Zoning Districts in the Township. According to the Land Use Regulations, Public utility installations are considered a conditional use in the Rural Preservation and various Residential Zoning Districts. Project development will be allowed via approval of a Conditional Use Permit.
	Zoning Permit	Required for construction, erection or alteration of any structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will likely trigger the need for a Zoning Permit through the Millstone Township Zoning Officer. Zoning Permits will be issued following approval of the Conditional Use Permit.
	Construction Permit	No building or structure shall be erected, converted, expanded or altered until a permit has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

	Land Development Application	Used for site plan review approvals, informal reviews, and other approvals.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Site Plan Review approval will likely be necessary for the Conditional Use Permit approval. Consultation with Township Officials is recommended to confirm the need for a site plan review approval.
	Tree Clearing Permit	Removal of trees in excess of 1,000 square feet on any lot.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$150	In accordance with Section 11-32, no removal of trees in excess of 1,000 square feet is allowed without approval of a Tree Clearing Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$200	Westwood recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Ocean County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require Ocean County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Ocean County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.
	Road Opening Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-maintained roadway.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development crosses a County Roadway and may require a County Road Opening Permit should any excavations be proposed. Westwood recommends reviewing Project design plans to determine the need for a County Road Opening Permit Application.

Ocean County Soil Conservation District (OSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval/Certification	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any commercial, industrial, linear projects, land grading or single lots disturbing 5,000 square feet or more and all multi lot subdivisions need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD, based on acres of disturbances	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from OSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by OSCD.
Jackson Township, Ocean County, NJ	Conditional Use Permit	Public utility installations in Residential Zoning Districts.	High	Moderate Risk	Lead: 2-3 weeks; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is across numerous Residential Zoning Districts and the Recreation and Open Space Zoning District. According to the Land Use Regulations, Public utility installations are considered a conditional use in the residential zoning districts and not explicitly mentioned in the Recreation and Open Space zoning district. Project development will likely be allowed via approval of a Conditional Use Permit; however, Westwood recommends consultation with City officials to ensure the appropriate permitting process for construction of a transmission line. It is likely that a Conditional Use Permit will supersede the need for a Jackson Township Zoning Permit.
	Construction Permit	Required to construct, enlarge, alter or demolish a structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$200	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	In accordance with Section Chapter 405, no removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.

	Road Opening Permit	Required for road opening construction activities.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	Should any road opening construction activities be necessary for Project development, prior permit approval would be necessary.
Mercer County, NJ	Site Plan Review/ Land Development Application	Any site plans that abut a County road or County drainage structure will require County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project crosses County roadways and likely County drainages, a Site Plan Review from Mercer County will likely be required for Project development. The Site Plans must be designed in conformance with the County Land Development Standards.
	Permit for Road Work	Required to open, close, open or any other County road right-of-way work.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development crosses a County Roadway and will likely require a Permit for Road Work. Westwood recommends reviewing Project design plans to determine the need for a County Permit for Road Work.
Mercer County Soil Conservation District (MSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from MSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by MSCD.
East Windsor Township, Mercer County, NJ	Conditional Use Permit	Public utility installations in the Rural Agriculture Zoning District.	High	Moderate Risk	Lead: 2-3 weeks; Processing: Estimated 1-2 months	TBD	According to the Township's Zoning Map, the Project Area is located is across numerous Rural Preservation (RU-P) and various Residential Zoning Districts in the Township. According to the Land Use Regulations, Public utility installations are considered a conditional use in the Rural Preservation and various Residential Zoning Districts. Project development will be allowed via approval of a Conditional Use Permit.

	Construction Permit	Required to construct, enlarge, alter or demolish a structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	In accordance with Section 12A-4, no removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.

Rise Light & Power Proposal 490 Permit Table

Table 11. **Permit Matrix - Middlesex County, New Jersey**

Agency	Permit/Approval	Trigger	Potential for Need	Permit Risk	Lead/ Processing Time	Permit Fees	Future Actions/Comments
FEDERAL							
Lead Federal Agency	National Environmental Policy Act (NEPA) Review - Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)	Any Project that has a federal nexus, such as a Project that occurs on federally-managed land, receives federal funding, or requires a federal permit or other federal authorization will require a NEPA review (National Environmental Policy Act of 1969, 42 U.S.C. §4332).	TBD	Moderate Risk	CE - Lead: 2 months EA - Lead: 2 months Processing: 6 to 10 months; EIS - Lead: 3 months Processing: 12 to 20 months	No fees; however, Applicant is typically responsible for cost of preparing the environmental document and supporting studies, as appropriate. (**This note may apply to numerous permits or approvals below**)	NEPA review will be required if the Project will be built on or crosses a federal easement or federally owned or managed lands such as but not limited to: National Forest Service (NFS), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM) and etc., or if the Project relies on a U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) real estate mortgage, a Department of Energy (DOE), or Rural Development (RD) Rural Energy for America Program (REAP) loan guarantee, etc. Westwood recommends further review and determination of NEPA triggers that may be associated with the Project as additional Project details become available.
	Federal Section 106 Review	Any Project requiring a federal permit or other authorization is subject to National Historic Preservation Act of 1966 (as amended) (NHPA) Section 106 Review.	TBD	Moderate Risk	Lead: 1 month; Processing: 4-6 months	None	Determine whether a federal nexus exists for the Project. This nexus would trigger Section 106 compliance under the National Historic Preservation Act (NHPA) and should be completed prior to ground disturbance associated with any project. The federal lead agency would determine scope of work in coordination with the New Jersey Historic Preservation Office and appropriate Tribal Historic Preservation Offices (THPOs).

U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Nationwide Permit (NWP). Authorization for discharge of fill to Waters of the US (WOTUS) under Section 404 of the CWA. Applicable NWPs include: NWP 14 Linear Transportation projects, NWP 18 Minor Discharges, NWP 33 Temporary Construction, Access, and Dewatering, NWP 57 Electric Utility Line and Telecommunications Activities.	Discharge of fill to a jurisdictional waters of the US.	High	Moderate Risk	Lead: 4 weeks; 30 day completeness review, 45 days for notification of permit coverage by USACE	None	Project is located in New York District Regulatory Branch, Room 1937, 26 Federal Plaza, New York, NY 10278-0090. 917-790-8511. Information to consider: a desktop wetland evaluation can be completed for planning. An on-site wetland delineation within construction footprint is required to obtain NWP coverage for projects that result in discharge to WOTUS greater than 0.1 ac in extent. Delineations must be conducted in conformance with the 1987 USACE Wetlands Delineation Manual and the applicable Regional Supplement. The U.S. Army Corps of Engineers (USACE) generally regulates the discharge of dredged and fill material into waters of the U.S. under Section 404 of the Federal Clean Water Act (CWA) however in the State of New Jersey, Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act. In most cases, the State of New Jersey maintains sole jurisdiction over wetlands, however the USACE still works closely with the NJDEP and maintains joint jurisdiction over navigable waters and other interstate waters.
	Approved Jurisdictional Determination (AJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 4-12 months (dependent on complexity of water resources)	None	An AJD is an official USACE determination that jurisdictional wetlands or WOTUS are either present or absent on the property. AJDs can generally be relied upon for five years and may be appealed through the USACE administrative appeal process.
	Preliminary Jurisdictional Determination (PJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 1 month	None	A PJD is a non-binding written indication from the USACE that waters, including wetlands, may be WOTUS. A permit decision made on the basis of a PJD will often treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. A PJD is advisory in nature and may not be appealed.
	CWA Section 404 Regional General Permit (RGP) or Nationwide Permit (NWP) for authorization of discharge to WOTUS.	Generally speaking, discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.1 acre of WOTUS.	Moderate	Moderate Risk	Lead: 1 month; Processing: 2-4 months	None	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. It is also recommended to design the Project in order to take advantage of applicable non-reporting NWPs or RGPs. A Pre-Construction Notification (PCN) is required for the locations, impact thresholds, and activities listed in the particular RGP or NWP. Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act.

	CWA Section 404 Individual or Standard Permit (IP or SP) for authorization of discharge to WOTUS exceeding RGP or NWP limits, resulting in more than minimal adverse effects to WOTUS.	Discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.5 acre of WOTUS.	Low-Moderate	No Issue	Lead: 1 month; Processing: 6-12 + months	Permit issuance fee of $10 for non-commercial Projects and $100 for commercial Projects. Applicant is responsible for studies and mitigation costs if applicable.	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. An individual permit will require an alternatives analysis demonstrating that the Project has been designed to avoid and minimize temporary and permanent impacts to WOTUS. Generally speaking, compensatory mitigation will be required for all permanent WOTUS impacts exceeding 1,000 square feet. A 30 day public notice period is required.
	Rivers and Harbors Act Section 10 Crossing Permit	Construction of any structure in, over or under a navigable water (Section 10 Waters) of the U.S.	High	Moderate Risk	Lead: 1 month; Processing: 4 to 6 months.	Permit issuance fee of $10 for non-commercial projects and $100 for commercial projects. Applicant is responsible for studies and mitigation costs if applicable.	Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for construction of any structure or work in, under or over any navigable water of the US. Requires PCN. Section 10 waters are major water bodies such as the Delaware River. The proposed Project is located in the Raritan River. Construction impacts in, over, or under the Raritan River will require approval of a Rivers and Harbors Act Section 10 Crossing Permit.
U.S. Department of the Interior Bureau of Ocean Management (BOEM)	Outer Continental Shelf (OCS) Renewable Energy Lease	Required for "commercial activities" conducted in Federal OCS lands.	Low	No Issue	Lead: 1 month; Processing: 4 to 12 + months	TBD	The Energy Policy Act of 2005 (EPAct) authorized BOEM to issue leases, easements and rights of way to allow for renewable energy development on the Outer Continental Shelf (OCS). EPAct provided a general framework for BOEM to follow when authorizing these renewable energy activities. For example, EPAct requires that BOEM coordinate with relevant Federal agencies and affected state and local governments, obtain fair return for leases and grants issued, and ensure that renewable energy development takes place in a safe and environmentally responsible manner. An OCS Renewable Energy Lease under 30 CFR Ch. V (7–1–14 Edition) is required for any commercial activities conducted in Federal OCS lands. Commercial activities for renewable energy leases and grants is defined as all activities associated with the generation, storage, or transmission of electricity or other energy product from a renewable energy project on the OCS. It is likely that construction of a transmission line for an offshore renewable energy projects in the OCS will trigger the need for an OCS Renewable Energy Lease. Westwood recommends further review of the OCS areas and the proposed offshore renewable energy project to determine the need for an OCS Renewable Energy Lease.

U.S. Fish and Wildlife Service (USFWS)	Section 7 Endangered Species Act (ESA) Consultation	Any project with a federal nexus that may adversely affect a listed threatened, endangered, or candidate species as determined by the lead federal agency.	Initial Consultation Completed	Moderate Risk	Lead: 1 month; Processing: 2 to 6 months	None	Westwood conducted an Information for Planning and Consultation (IPaC) coordination with the U.S. Fish and Wildlife Service (USFWS 2022a). The results of this effort identified five species including the federally threatened northern long-eared bat (Myotis septentrionalis; NLEB), bog turtle (Glyptemys muhlenbergii), seabeach amaranth (Amaranthus pumilus), swamp pink (Helonias bullata), and candidate for listing species monarch butterfly (Danaus plexippus) as potentially occurring within the Project Area and surrounding region (Appendix B). Please note that candidate species are not afforded statutory protections under the ESA. The species identified in the IPaC and their probability of occurrences are described in more detail in the Report prepared for #490. It is recommended that all tree clearing take place during the inactive season (November 1 – March 31), or, at a minimum, outside of the pup-rearing season which occurs from June 1 – July 31. If the Project Area will be requiring wetlands permitting, swamp pink habitat evaluation or surveys may be required. Nesting surveys for bald eagles are recommended. If present, all active eagle nests require at least a 660' construction buffer during the breeding season.
	Section 10a ESA Incidental Take Permit	Potential for "Take" of a federally endangered or threatened species resulting from a project requiring federal funding, permit, or approval.	TBD	No Issue	Lead: 6-8 months; Processing: 12 to 24 months	The cost of a Biological Assessment and Habitat Conservation Plan are borne by the project proponent.	If lead federal agency determines that a project may adversely affect a listed species a Biological Assessment (BA) must be prepared to identify impacts to federally-listed species in the project area are likely to occur. A Habitat Conservation Plan (HCP) must be prepared to identify conservation measures to offset the permitted take of listed species under ESA Section 10. EA, and 30 day public notice required.
Environmental Protection Agency (EPA)	Oil Pollution Act (OPA) Spill Prevention Control and Countermeasure (SPCC) Rule	Onsite above-ground oil storage tanks with an aggregate capacity of 1,320 gallons or underground storage tanks with total capacity over 42,000 gallons in a location where discharge may reach navigable waters or adjoining shorelines.	Low	No Issue	Lead: 3 weeks; Processing: 1 month	None	Assumes the Project will have no oil or petroleum storage that would surpass triggers; if not, reassess whether an SPCC Plan is required. If temporary storage is needed above the threshold, a SPCC Plan still applies.

	Resource Conservation and Recovery Act (RCRA) Notification requirements for regulated waste activity	Generation of not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Assess the potential volume of hazardous waste that will be generated by the Project. Confirm that the Project will not generate not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month to qualify as a Very Small Quantity Generator. In the event that any of these thresholds are exceeded, evaluate record keeping and reporting requirements at 40 CFR part 262.
U.S. Department of Agriculture (USDA)	Form AD-1006, Farmland Conversion Impact Rating for Farmland Conversion under Farmland Protection Policy Act (FPPA)	A project that uses federal financing, loans, or assistance and will convert farmland to nonagricultural use.	TBD	No Issue	Lead: 3 weeks; Processing: 1 month	None	Confirm that the Project does not involve federal funding or assistance and, therefore, does not require Form AD-1006. A discussion with the local Natural Resources Conservation Service (NRCS) may be necessary.
	Form AD-1026, Highly Erodible Land Conservation (HELC)	A project that converts land enrolled in federal farm programs to make production of a commodity crop possible.	TBD	No Issue	Lead: 3 weeks; Processing: 1 to 3 months	None	Confirm that the Project will not convert federal farm program wetlands or highly erodible lands to make production of a commodity crop possible.
	Environmental Assessment (EA) for Class I Action (Form RD1940-21)	Leased lands include property encumbered by federal Farm Service Agency (FSA) or Farmers Home Administration (FmHA) real estate mortgages. Projects that use federal financing, loans, or assistance.	Low	No Issue	Lead: 1 month; Processing: 2 to 3 months	None	If Project plans call for leasing land, determine whether leased lands for the Project are encumbered by FSA or FmHA federally guaranteed real estate mortgages as soon as possible. Also confirm whether Project will use federal financing, loans, or assistance.
	Conservation Reserve Program (CRP) Contract Amendment	Project affects lands enrolled in CRP.	Low	No Issue	Lead: 2 weeks; Processing: 1 to 2 months	Reimbursement of past CRP payments plus	Obtain confirmation from landowners that affected lands are not enrolled in CRP.

						interest for impact area.	
	A loan guarantee from USDA RD Rural Business-Cooperative Service (RBCS)	Application for a RBCS loan guarantee.	Low	No Issue	Lead: 1 month; Processing: 1-2 months	None	Determine whether a federal loan guarantee is sought as soon as possible.
Federal Aviation Administration (FAA)	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 3 to 6 months, possibly longer if there are identified constraints.	None	The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.
	Notice of Actual Construction or Alteration (Form 7460-2)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Should the filing of Form 7460-1 reveal that the proposed Project has potential to impact navigable airspace, Notice of Actual Construction or Alteration will be required prior to initiating construction activities.
STATE							
New Jersey Board of Public Utilities (BPU)	NJ Rev Stat § 40:55D-19 - Appeal	An electric utility may appeal a disapproval from a single municipality in the event of the Project being denied in accordance with local municipal regulations.	TBD	No Issue	Lead: 35 days; Processing: 35 days	TBD	If a public utility, as defined in R.S.48:2-13, or an electric power generator, as defined in section 3 of P.L.1999, c.23 (C.48:3-51), is aggrieved by the action of a municipal agency through said agency's exercise of its powers under this act, with respect to any action in which the public utility or electric power generator has an interest, an appeal to the Board of Public Utilities of the State of New Jersey may be taken within 35 days after such action without appeal to the municipal governing body pursuant to section 8 of this act unless such public utility or electric power generator so chooses. In such case appeal to the Board of Public Utilities may be taken within 35 days after action by the governing body. A hearing on the appeal of a public utility to the Board of Public Utilities shall be had on notice to the agency from which the appeal is taken and to all parties primarily concerned, all of whom shall be afforded an opportunity to be heard. If, after such hearing, the Board of Public Utilities shall find that the present or proposed use by the public utility or electric power generator of the land described in the petition is necessary for the service, convenience or welfare of the public, including, but not limited to, in the case of an electric power generator, a finding by the board that the present or proposed use of the land is necessary to maintain reliable electric or natural gas supply service for the general public and that no alternative site or sites are reasonably available to achieve an equivalent public benefit, the public utility or electric power generator may proceed in accordance with such decision of the Board of Public Utilities, any ordinance or regulation made under the authority of this act notwithstanding. This act or any ordinance or regulation made under authority thereof, shall not

							apply to a development proposed by a public utility for installation in more than one municipality for the furnishing of service, if upon a petition of the public utility, the Board of Public Utilities shall after hearing, of which any municipalities affected shall have notice, decide the proposed installation of the development in question is reasonably necessary for the service, convenience or welfare of the public.
New Jersey Historic Preservation Office (HPO)	Cultural and Historic Resources Review (Technical Assistance)	Required for State and Federal Undertakings, including a variety of NJDEP Permits listed below.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 30 days	None	Depending on other permit triggers including the Department of Environmental Protections Freshwater Wetlands Permit, CAFRA Permit, and more, a Cultural and Historic Resources Review (Email Submittal Form) may be required as a part of Project development. Any federal undertakings will require a Cultural and Historic Resources review under Section 106.
New Jersey Department of Environmental Protection (NJDEP)	5G3 - Construction Activity Stormwater General Permit	Construction activity disturbing one or more acres of land. Requires development of site specific SWP3 and compliance with all SWP3 conditions.	High	Moderate Risk	Lead: 4 weeks; Processing: Estimated 3-4 weeks	TBD	Permit Number: NJ0088323 (5G3 - Construction Activity Stormwater General Permit) became effective on March 1, 2022 and will expire February 28, 2027. Project development will require NJ0088323 for disturbances greater than one acre. Prepare a Stormwater Pollution Prevention Plan (SWPPP) as part of construction plans; prepare and submit the NJ0088323 application along with a complete Request for Authorization (RFA) and the appropriate fee required under N.J.A.C. 7:14A-3.1(j) shall be submitted via the NJDEP Online Portal. Authorization becomes effective when the Department certifies the RFA. Local conservation district approval of a Soil Erosion and Sediment Control (SESC) Plan may be required prior to RFA certification.
	401 Water Quality Certification	Projects requiring fill in Water of the US require a Water Quality Certification. Typically associated with USACE Permits and State Individual Permits.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	A 401 Water Quality Certification authorization is required as a part of federal waterway/wetland permitting. Design project to avoid/minimize wetlands to the extent practicable. Align infrastructure to avoid temporary and permanent impacts to wetlands, waterways, and drainages. If the Project design includes impacts to wetlands or waterways, it is recommended to request an early coordination meeting with NJDEP staff to ensure all State permitting requirements are met. A Section 10 Crossing Permit will require approval of a Section 401 Water Quality Certification.

	Freshwater Wetlands (FWW) Individual Permit and FWW General Permits	The maintenance or construction of utility lines within freshwater wetlands, transition areas, and/or State open waters requires a Freshwater Wetlands (FWW) permit or FWW Transition Area waiver. Several FWW General Permits (GP) are available for these types of activities.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	General Permits provide a means to perform a variety of activities within a regulated freshwater wetland, freshwater wetland transition area and/or State open water, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FWW Individual Permit is available. Several noteworthy General Permits applicable to Project development include: underground utility lines (GP2), Non-tributary wetlands (GP6), above ground utility lines (GP 21), redevelopment of previously disturbed areas (GP26), and others. The #490 Project crosses numerous wetlands and watercourses and will likely require FWW General Permits or an Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to freshwater wetland impacts.
	Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33	Required for any structure or activity that in any manner changes, expands, or diminishes the course, current or cross-section of any watercourse or flood hazard area.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Placement of utility poles would likely be authorized under Permit-By-Rule 33 which is for the placement of one or more utility poles, provided that the proposed design meets the applicable conditions of the permit. There are also permit-by-rules for open-frame or monopole towers. Road or bridge construction to facilitate access would like be authorized under Regional General Permit 9 if the regulated water has a drainage area less than 50 acres, otherwise an Individual Permit would likely be required. Additionally, if the Project is regulated to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. General Permits provide a means to perform a variety of activities within a regulated flood hazard area and regulated streams/rivers, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FHA Individual Permit is available. Several noteworthy General Permits applicable to Project development include: Habitat Creation/Restoration/Enhancement (GP4), Reconstruct and/or Elevation-Building in Floodway (GP5), Development SFH/Duplex and Driveway (GP6), In-kind replacement of public infrastructure (GP15), and others. The #490 Project crosses numerous special flood hazard areas and will likely require a Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33, or Flood Hazard Area (FHA) Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper

							permitting process is selected for construction of a transmission line with respect to FHA impacts.
	Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit	Required for waterfront developments and/or coastal zone impacts.	Low	No Issue	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Activities conducted in tidal waters (at or below the mean high water line) that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Waterfront Development Individual Permit. Activities conducted in the CAFRA zone that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a CAFRA Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements will require a Coastal Wetlands Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Coastal Wetlands Individual Permit. Applicable general permits include Landfall of Utilities (GP12), Eroded Shoreline Stabilization (GP17), Mod of Existing Electrical Substations (GP19), Geotechnical Survey Borings (GP23), and more. If the project is regulated pursuant to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. The #490 Project is located outside of the Coastal Area Facilities Review Act (CAFRA) Boundary and is unlikely to require Coastal Permit-by-rule, General Permit-by-certification, General Permit, or Individual Permit.

	Tidelands License/Grant	Private use of State tidelands for Utility or Utility related project (Tidelands Act 12:3 (1 to 28) NJSA 13:1B-13.1 to 13.14).	High	Moderate Risk	Lead: 1 month; Processing: 3-12 months	Fair Market Value of Land for Grant, annual license fees depend on total amount of area licensed.	The #490 Project is partially located across twelve (12) New Jersey Riparian Tidelands in the Raritan-Hudson Region. Of the twelve identified tidelands, eight are considered "claimed" tidelands. The State of New Jersey claims ownership of these tidelands and holds them in trust for the people of the state. The management of the tidelands is overseen by the Tidelands Resource Council, a twelve member Governor-appointed board of volunteers, along with DEP staff at the Bureau of Tidelands Management. Since tidelands are public lands, a developer must obtain written permission from the State and pay a fee in order to use these lands. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease. Westwood recommends contacting the Bureau of Tidelands Management to determine whether a Tidelands License or a Tidelands Grant would be best suited for the proposed Project.
	Permit-by-rule (PBR) 8	Construction of a utility line attached to a bridge or culvert.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-3 months	TBD	PBR 8 - authorizes construction of a utility line, including cable (electric, television, or fiber optic), telecommunication, wastewater, petroleum, natural gas, or water, attached to a bridge or culvert, provided: No excavation, dredging or filling is undertaken within the water body over which the utility line crosses; The utility line is firmly attached to the existing bridge or culvert structure so that no part of the utility line, its encasement, or any attachment device extends above or below the existing bridge or culvert structure; If the crossing is a bridge, the utility line, its encasement, and all attachment devices must be located entirely above the elevation of the low chord of the superstructure and entirely below the elevation of the bridge surface; If the crossing is a culvert, the utility line, its encasement, and all attachment devices must be located entirely above the overt elevation of the culvert and entirely below the elevation of the top of the culvert; If the utility line is a pipeline that conveys any substance other than potable water, the utility line must be sufficiently encased within ductile iron or concrete to protect the utility line from damage from impact with floating debris during floods; and If there is a predominant direction of flow within the water body, the utility line must be attached to the downstream face of the bridge or culvert; The installation of the utility line has no adverse impacts to special areas as described at N.J.A.C. 7:7-9; and Construction equipment is operated from land, the top of the bridge or culvert, or from barges, and shall under no circumstances be allowed to enter the water body. Please be advised, this PBR only applies to that portion of the utility line that will be constructed across the tidal waterway up to the mean high water line, provided a tidelands instrument has been obtained for the utility line. In addition, this PBR does not relieve the permittee from the obligation of obtaining all necessary approvals from the U.S. Army Corps of Engineers. See N.J.A.C. 7:7-4.8 for complete rule requirements.
	New Jersey Natural Heritage Program) - State T&E Species Consultation	Routinely recommended; natural resources investigations including wildlife will be required for the various coastal, wetlands, and	Routinely recommended	Moderate Risk	Lead: 1 week; Processing: 1-2 weeks	TBD	A Data Request was submitted to the New Jersey Natural Heritage Program for information regarding State-listed threatened and endangered species. No response has been received to date; Westwood will update the Permit Matrix and Project Reports once a response has been received.

		waterway permits.					
	Construction Dewatering Permit	For temporary ground and surface water control (dewatering) diversions in excess of 100,000* gallons of water per day, the project owner must obtain a Dewatering Allocation Permit, or Dewatering Permit-by-Rule or Short Term Permit-by-Rule depending on the duration of the diversion and the method employed.	Low	No Issue	Lead: 1 month; Processing: Estimated 1 month	TBD	Westwood recommends review of the listed permit triggers to determine if a dewatering approval will be necessary, and to determine the appropriate permit selection.
	Air Quality Permit	Permit requirements dependent on construction techniques and equipment used in Project development.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Depending on the construction techniques and equipment used for Project development, a variety of air quality permit thresholds may be met. Westwood recommends reviewing construction techniques and equipment used with the Air Quality permitting thresholds discussed on the NJDEP Air Quality, Energy & Sustainability webpage.
New Jersey Department of Community Affairs	Development Plan Review	Required in the event that the local municipalities where the subcode officials and construction official do not possess code enforcement licenses of the appropriate class.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Should any of the local permit issuing municipalities not possess code enforcement licenses of the appropriate class, a review from the Department of Community Affairs would be required. Class I : A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS construction official or subcode official; Class II: A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS or ICS construction official or subcode official; Class III: A Departmental plan review shall not be required except when the Department acts as the enforcing agency. Application should be made to the local construction office, not the Department. Refer to the local permitting section below for additional information.

New Jersey Pinelands Commission	Application for Development in the Pinelands Area (Certificate of Filing)	Required for developments located in the Pinelands Area.	Low	No Issue	Lead: 1 month; Processing: 30 days	$187.50 per acre of all land in ROW, $250 minimum	Project is located outside of the Pinelands Area; therefore, no Application for Development will be required.
New Jersey Department of Transportation (NJDOT)	Oversize/Overweight Application for Special Hauling Permit	Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles	Moderate	No Issue	Lead: 1 week; Processing: 1 days to 1 week	Dependent on vehicle size and number of trips	Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Consult with the DOT to select the most appropriate permit. Typically, these types of permits will be sought out by the contractor responsible for transporting materials.
	Driveway Access Permit Application	Required for driveway access construction using a State roadway.	Moderate	No Issue	Lead: 1 week; Processing: Estimated 2-4 weeks	TBD	If Project development will require any driveway access using NJDOT roadways, prior permit approval will be required.
	Application for Utility Opening (MT17A)	Required for utility infrastructure openings in NJDOT roadways.	High	Moderate Risk	Lead: 1 week; Processing: 2-4 weeks	TBD, based on square footage of opening; $4905-$1,580	If Project development will require any openings on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT17A will be required.
	Highway Occupancy Permit (MT120A)	Permit required for construction or alteration of utility facilities.	High	Moderate Risk	Lead: 3 weeks; Processing: Estimated 2-4 weeks	TBD based on construction activities	If Project development will require any occupancies on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project crosses numerous New Jersey Highways, US Highways, and a US Interstate; therefore, it is likely that approval of MT120A will be required.
LOCAL							
Middlesex County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require County approval in addition to local municipal approvals.	High	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	The Project is located across several County roadways, triggering the need for a Site Plan Review. Any impacts or crossings of County roadways will trigger the need for a County Site Plan Review.

	Right-of-Way Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-maintained roadway.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Right-of-Way Permit will be required to impact any portion of a County ROW. Project development will likely trigger the need for a Right-of-Way Permit from the County.
Freehold Soil Conservation District (FSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from FSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by FSCD.
Helmetta Borough, Middlesex County, NJ	Planning Board Application	Public utility installations in a main road right-of-way may require a Planning Board Application.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development may require approval of a Planning Board Application in accordance with Borough Land Development Regulations. Westwood recommends initiating a pre-application submittal meeting with Borough Officials to determine the appropriate permitting process for construction of a new transmission line.
	Zoning Permit Application	Requires to ensure construction abides by the Borough Zoning Ordinance.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will require approval of a Zoning Permit in accordance with the Borough Land Development Regulations. Westwood recommends initiating a pre-application submittal meeting with Borough Officials to determine the appropriate permitting process for construction of a new transmission line.
	Construction Permit	Required to construct, enlarge, alter or demolish a structure.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Borough right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
Jamesburg Borough, Middlesex County, NJ	Land Use Board Application.	Public utility installations in a main road right-of-way may require a Planning Board Application.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development may require approval of a Land Use Board Application in accordance with Borough Land Use Regulations. Westwood recommends initiating a pre-application submittal meeting with Borough Officials to determine the appropriate permitting process for construction of a new transmission line. Public utility installations are generally listed as a use requiring conditional use permit (Land Use Board) approval in the Borough Land Use Regulations.
	Zoning Permit Application	Zoning Permit must be obtained prior to the erection, restoration, addition to, or alteration of any structure within the Borough jurisdiction.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will require approval of a Zoning Permit in accordance with the Borough Land Use Regulations. Westwood recommends initiating a pre-application submittal meeting with Borough Officials to determine the appropriate permitting process for construction of a new transmission line.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Borough right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
Sayreville Borough, Middlesex County, NJ	Zoning Permit	Requires to ensure construction abides by the Borough Zoning Ordinance.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	According to the Land Development Regulations, public utility lines for the transportation, distribution and/or control of water, electricity, gas, oil, steam and telegraph and telephone communications, and their supporting members, other than buildings and structures, including pipes, shall not be required to be located on a lot, nor shall this chapter be interpreted to prohibit the use of a

							property in any zone for the above uses. It is likely that Project development will require approval of a Zoning Permit.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Borough right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
Sportswood Borough, Middlesex County, NJ	Conditional Use Permit	Public utility installations may require approval of a Conditional Use Permit.	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development will likely require approval of a Conditional Use Permit. The Borough Code of Ordinances does not list transmission or utility infrastructure as a permitted use, with the exception of the light industrial zoning district which lists public utility installations as a conditional use. Westwood recommends initiating a pre-application submittal meeting with Borough Officials to determine the appropriate permitting process for construction of a new transmission line.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Borough Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		issued by the Construction Official.					
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Borough right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
City of South Amboy, Middlesex County, NJ	Planning/Zoning Board Application.	Public utility installations may require a Planning/Zoning Board Application.	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development may require approval of a Planning/Zoning Board Application in accordance with City Development Regulations. Westwood recommends initiating a pre-application submittal meeting with City Officials to determine the appropriate permitting process for construction of a new transmission line. Public utility installations are not generally listed as a prohibited, conditional, or permitted land use in the City Development Regulations.
	Zoning Permit Application	Zoning Permit must be obtained prior to the erection, restoration, addition to, or alteration of any structure within the City jurisdiction.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will require approval of a Zoning Permit in accordance with the City Development Regulations. Westwood recommends initiating a pre-application submittal meeting with City Officials to determine the appropriate permitting process for construction of a new transmission line.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with City Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a City right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
East Brunswick Township, Middlesex County, NJ	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the other construction approvals, consultation with Township Officials is recommended.
	Impervious Surface Zoning Permit	Required for creation of greater than 50 sw. ft. of impervious surface.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$50	Should Project development create impervious surface in excess of 50 square feet, prior permit approval would be necessary.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$25 per tree	In accordance with Town Code Section 192-38I, no removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Road Opening / Right-of-Way Permit	Required for any street opening or excavation construction activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for a Right-of-Way and/or Road Opening Permit as needed.

Monroe Township, Middlesex County, NJ	Zoning Permit	A Zoning Permit must be obtained prior to the erection, restoration, addition to, or alteration of any structure within the Township of Monroe, prior to the issuance of a building permit.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$100	Project development will require approval of a Zoning Permit in accordance with Monroe Township Code of Ordinances. Westwood recommends initiating a pre-application submittal meeting with Monroe Borough Officials to determine the appropriate permitting process for construction of a new transmission line. Transmission line construction is discussed in Section 108-12.33 of the Code of Ordinances. It is likely that a Zoning Permit, Site Plan Review, and Construction Permit will be required for construction of the proposed Project.
	Land Development Application	Used for site plan review approvals, informal reviews, and other approvals.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Site Plan Review approval will likely be necessary for the Conditional Use Permit approval. Consultation with Township Officials is recommended to confirm the need for a site plan review approval.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Utility Permit	Required for public utility companies tree pruning for line clearance.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Chapter 96-2C(1-3) of the Municipal Ordinance – Required Permits; Utility operations. The Shade Tree Commission may grant to public utility companies a blanket permit for tree pruning for line clearance and for the installation of the maintenance of subsurface and above ground plant construction if there is interference with or endangerment to street trees. Each public utility company shall exercise reasonable diligence in the maintenance of its plant construction so as to avoid damage to trees under the jurisdiction of the Monroe Township Shade Tree Commission. Tree work in Monroe Township shall be performed to the arboricultural guidelines described in the following publication: the ANSI Z133.2012, Board of Tree Experts Standards, Pruning Trees Near Electric utilities – Shigo© 1990, and all other industry BMP's including BPU vegetation standards.
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	$100	No removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.

	Street Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Cranbury Township, Middlesex County, NJ	Zoning Permit	Required prior to the erection, restoration, addition to, or alteration of any structure within the Township.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	According to the Township's Zoning Map, the Project Area is located is across several Industrial, Residential, and Agricultural Preservation Zoning Districts. Township. According to the Land Use Regulations, Public utility and service structures, including utility boxes, are permitted in all zones in accordance with the requirements detailed in Section 150-11 of the Code of Ordinances. It is likely that Project development will require approval of a Zoning Permit.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project will require approval of a Site Plan Review prior to submittal of the Zoning and Construction Permit. Site Plan Review Procedures are detailed in Article VII of the Township Code of Ordinances. The Planning Board will review the Application for conformity to the Township Ordinances.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the Construction Official.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD, based on size of project	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.
	Road Opening Application	Required for any street opening construction activities.	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$10 single cut; $50 multiple cuts	Westwood recommends reviewing Project design plans to determine if any street openings will be required for Project development. Apply for permit as needed.
Old Bridge Township, Middlesex County, NJ	Zoning Permit Application / Conditional Use Permit	Required prior to the erection, restoration, addition to, or alteration of any structure within the Township.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD, based on size of project	According to the Township's Zoning Map, the Project Area is located is across the Residential and Special Development Zoning Districts. According to the Land Development Regulations, electric utilities require approval of a Conditional Use Permit in a majority of Township Zoning Districts. It is likely that Project development will require approval of a Conditional Use Permit / Zoning Permit prior to construction.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	$400	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		altered until a permit therefor has been issued by the Construction Official.					
	Tree Removal Permit	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	No removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.
	Land Disturbance Permit	Any disturbances exceeding more than 5,000 square feet of clearing, tree removal, or grading.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	Any land disturbances for clearing, tree removal, or grading activities will require prior Land Disturbance Permit approval. Westwood recommends reviewing Project design plans to determine the need and extent of proposed construction activities.
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
South Brunswick Township, Middlesex County, NJ	Zoning Permit Application / Conditional Use Permit	Public utility installations may require a Conditional Use Permit	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development may require approval of a Conditional Use Permit in accordance with Township Land Use Regulations. Westwood recommends initiating a pre-application submittal meeting with Township Officials to determine the appropriate permitting process for construction of a new transmission line. In any zoning district, the Township may permit, as a conditional use, the development of a public utility provided that the requirements listed in Section 62-2151 are met.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with Township Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a permit therefor has been issued by the	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		Construction Official.					
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a Township right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.
	Tree Removal Application	Removal of trees for residential or commercial activities requires prior permit approval.	TBD	No Issue	Lead: 1-2 weeks; Processing: Estimated 2-4 weeks	TBD	No removal of trees is allowed without approval of a Tree Removal Permit. Westwood recommends reviewing Project design plans to determine the need for tree removal in the Project Area.

Rise Light & Power Proposal 171 Permit Table

Table 12. **Permit Matrix - Middlesex County, New Jersey**

Agency	Permit/Approval	Trigger	Potential for Need	Permit Risk	Lead/ Processing Time	Permit Fees	Future Actions/Comments
FEDERAL							
Lead Federal Agency	National Environmental Policy Act (NEPA) Review - Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)	Any Project that has a federal nexus, such as a Project that occurs on federally-managed land, receives federal funding, or requires a federal permit or other federal authorization will require a NEPA review (National Environmental Policy Act of 1969, 42 U.S.C. §4332).	TBD	No Issue	CE - Lead: 2 months EA - Lead: 2 months Processing: 6 to 10 months; EIS - Lead: 3 months Processing: 12 to 20 months	No fees; however, Applicant is typically responsible for cost of preparing the environmental document and supporting studies, as appropriate. (**This note may apply to numerous permits or approvals below**)	NEPA review will be required if the Project will be built on or crosses a federal easement or federally owned or managed lands such as but not limited to: National Forest Service (NFS), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Bureau of Land Management (BLM) and etc., or if the Project relies on a U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) real estate mortgage, a Department of Energy (DOE), or Rural Development (RD) Rural Energy for America Program (REAP) loan guarantee, etc. Westwood recommends further review and determination of NEPA triggers that may be associated with the Project as additional Project details become available.
	Federal Section 106 Review	Any Project requiring a federal permit or other authorization is subject to National Historic Preservation Act of 1966 (as amended) (NHPA) Section 106 Review.	TBD	No Issue	Lead: 1 month; Processing: 4-6 months	None	Determine whether a federal nexus exists for the Project. This nexus would trigger Section 106 compliance under the National Historic Preservation Act (NHPA) and should be completed prior to ground disturbance associated with any project. The federal lead agency would determine scope of work in coordination with the New Jersey Historic Preservation Office and appropriate Tribal Historic Preservation Offices (THPOs).

U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Nationwide Permit (NWP). Authorization for discharge of fill to Waters of the US (WOTUS) under Section 404 of the CWA. Applicable NWPs include: NWP 14 Linear Transportation projects, NWP 18 Minor Discharges, NWP 33 Temporary Construction, Access, and Dewatering, NWP 57 Electric Utility Line and Telecommunications Activities.	Discharge of fill to a jurisdictional waters of the US.	Moderate	Moderate Risk	Lead: 4 weeks; 30 day completeness review, 45 days for notification of permit coverage by USACE	None	Project is located in New York District Regulatory Branch, Room 1937, 26 Federal Plaza, New York, NY 10278-0090. 917-790-8511. Information to consider: a desktop wetland evaluation can be completed for planning. An on-site wetland delineation within construction footprint is required to obtain NWP coverage for projects that result in discharge to WOTUS greater than 0.1 ac in extent. Delineations must be conducted in conformance with the 1987 USACE Wetlands Delineation Manual and the applicable Regional Supplement. The U.S. Army Corps of Engineers (USACE) generally regulates the discharge of dredged and fill material into waters of the U.S. under Section 404 of the Federal Clean Water Act (CWA) however in the State of New Jersey, Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act. In most cases, the State of New Jersey maintains sole jurisdiction over wetlands, however the USACE still works closely with the NJDEP and maintains joint jurisdiction over navigable waters and other interstate waters.
	Approved Jurisdictional Determination (AJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 4-12 months (dependent on complexity of water resources)	None	An AJD is an official USACE determination that jurisdictional wetlands or WOTUS are either present or absent on the property. AJDs can generally be relied upon for five years and may be appealed through the USACE administrative appeal process.
	Preliminary Jurisdictional Determination (PJD)	This is the at Applicants request; it is not required by the USACE.	TBD on project to project basis	No Issue	Lead: 2 weeks; Processing: 1 month	None	A PJD is a non-binding written indication from the USACE that waters, including wetlands, may be WOTUS. A permit decision made on the basis of a PJD will often treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. A PJD is advisory in nature and may not be appealed.
	CWA Section 404 Regional General Permit (RGP) or Nationwide Permit (NWP) for authorization of discharge to WOTUS.	Generally speaking, discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.1 acre of WOTUS.	Low-Moderate	Moderate Risk	Lead: 1 month; Processing: 2-4 months	None	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. It is also recommended to design the Project in order to take advantage of applicable non-reporting NWPs or RGPs. A Pre-Construction Notification (PCN) is required for the locations, impact thresholds, and activities listed in the particular RGP or NWP. Section 404 Jurisdiction has been assumed by the State and is enforced through the Freshwater Wetlands Protection Act.

	CWA Section 404 Individual or Standard Permit (IP or SP) for authorization of discharge to WOTUS exceeding RGP or NWP limits, resulting in more than minimal adverse effects to WOTUS.	Discharge or fill placed in a jurisdictional WOTUS resulting in loss of more than 0.5 acre of WOTUS.	Low	No Issue	Lead: 1 month; Processing: 6-12 + months	Permit issuance fee of $10 for non-commercial Projects and $100 for commercial Projects. Applicant is responsible for studies and mitigation costs if applicable.	Westwood recommends designing the Project to avoid/minimize impacts to wetland and water resources to the greatest extent practicable. An individual permit will require an alternatives analysis demonstrating that the Project has been designed to avoid and minimize temporary and permanent impacts to WOTUS. Generally speaking, compensatory mitigation will be required for all permanent WOTUS impacts exceeding 1,000 square feet. A 30 day public notice period is required.
	Rivers and Harbors Act Section 10 Crossing Permit	Construction of any structure in, over or under a navigable water (Section 10 Waters) of the U.S.	Low	No Issue	Lead: 1 month; Processing: 4 to 6 months.	Permit issuance fee of $10 for non-commercial projects and $100 for commercial projects. Applicant is responsible for studies and mitigation costs if applicable.	Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for construction of any structure or work in, under or over any navigable water of the US. Requires PCN. Section 10 waters are major water bodies such as the Delaware River. The proposed Project is located near the Raritan River. Construction impacts in, over, or under the Raritan River will require approval of a Rivers and Harbors Act Section 10 Crossing Permit.
U.S. Department of the Interior Bureau of Ocean Management (BOEM)	Outer Continental Shelf (OCS) Renewable Energy Lease	Required for "commercial activities" conducted in Federal OCS lands.	Low	No Issue	Lead: 1 month; Processing: 4 to 12 + months	TBD	The Energy Policy Act of 2005 (EPAct) authorized BOEM to issue leases, easements and rights of way to allow for renewable energy development on the Outer Continental Shelf (OCS). EPAct provided a general framework for BOEM to follow when authorizing these renewable energy activities. For example, EPAct requires that BOEM coordinate with relevant Federal agencies and affected state and local governments, obtain fair return for leases and grants issued, and ensure that renewable energy development takes place in a safe and environmentally responsible manner. An OCS Renewable Energy Lease under 30 CFR Ch. V (7–1–14 Edition) is required for any commercial activities conducted in Federal OCS lands. Commercial activities for renewable energy leases and grants is defined as all activities associated with the generation, storage, or transmission of electricity or other energy product from a renewable energy project on the OCS. It is likely that construction of a transmission line for an offshore renewable energy projects in the OCS will trigger the need for an OCS Renewable Energy Lease. Westwood recommends further review of the OCS areas and the proposed offshore renewable energy project to determine the need for an OCS Renewable Energy Lease.
U.S. Fish and Wildlife Service (USFWS)	Section 7 Endangered Species Act (ESA) Consultation	Any project with a federal nexus that may adversely affect a listed threatened, endangered, or	Initial Consultation Completed	Moderate Risk	Lead: 1 month; Processing: 2 to 6 months	None	Westwood conducted an Information for Planning and Consultation (IPaC) coordination with the U.S. Fish and Wildlife Service. The results of this effort identified one candidate for listing species, the monarch butterfly (Danaus plexippus), as potentially occurring within the Project Area and surrounding region (Appendix E). Please note that candidate species are not afforded statutory protections under the ESA. The species identified in the IPaC and their probability of occurrences are described in more detail in the Report prepared for #171.

		candidate species as determined by the lead federal agency.					
	Section 10a ESA Incidental Take Permit	Potential for "Take" of a federally endangered or threatened species resulting from a project requiring federal funding, permit, or approval.	TBD	No Issue	Lead: 6-8 months; Processing: 12 to 24 months	The cost of a Biological Assessment and Habitat Conservation Plan are borne by the project proponent.	If lead federal agency determines that a project may adversely affect a listed species a Biological Assessment (BA) must be prepared to identify impacts to federally-listed species in the project area are likely to occur. A Habitat Conservation Plan (HCP) must be prepared to identify conservation measures to offset the permitted take of listed species under ESA Section 10. EA, and 30 day public notice required.
Environmental Protection Agency (EPA)	Oil Pollution Act (OPA) Spill Prevention Control and Countermeasure (SPCC) Rule	Onsite above-ground oil storage tanks with an aggregate capacity of 1,320 gallons or underground storage tanks with total capacity over 42,000 gallons in a location where discharge may reach navigable waters or adjoining shorelines.	Low	No Issue	Lead: 3 weeks; Processing: 1 month	None	Assumes the Project will have no oil or petroleum storage that would surpass triggers; if not, reassess whether an SPCC Plan is required. If temporary storage is needed above the threshold, a SPCC Plan still applies.
	Resource Conservation and Recovery Act (RCRA) Notification requirements for regulated waste activity	Generation of not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Assess the potential volume of hazardous waste that will be generated by the Project. Confirm that the Project will not generate not more than 100 kg (220 lbs.) of hazardous waste and less than 1 kg (2.2 lb.) of acute hazardous waste, and no more than 100 kg of acute spill residue or soil per month to qualify as a Very Small Quantity Generator. In the event that any of these thresholds are exceeded, evaluate record keeping and reporting requirements at 40 CFR part 262.

U.S. Department of Agriculture (USDA)	Form AD-1006, Farmland Conversion Impact Rating for Farmland Conversion under Farmland Protection Policy Act (FPPA)	A project that uses federal financing, loans, or assistance and will convert farmland to nonagricultural use.	TBD	No Issue	Lead: 3 weeks; Processing: 1 month	None	Confirm that the Project does not involve federal funding or assistance and, therefore, does not require Form AD-1006. A discussion with the local Natural Resources Conservation Service (NRCS) may be necessary.
	Form AD-1026, Highly Erodible Land Conservation (HELC)	A project that converts land enrolled in federal farm programs to make production of a commodity crop possible.	TBD	No Issue	Lead: 3 weeks; Processing: 1 to 3 months	None	Confirm that the Project will not convert federal farm program wetlands or highly erodible lands to make production of a commodity crop possible.
	Environmental Assessment (EA) for Class I Action (Form RD1940-21)	Leased lands include property encumbered by federal Farm Service Agency (FSA) or Farmers Home Administration (FmHA) real estate mortgages. Projects that use federal financing, loans, or assistance.	Low	No Issue	Lead: 1 month; Processing: 2 to 3 months	None	If Project plans call for leasing land, determine whether leased lands for the Project are encumbered by FSA or FmHA federally guaranteed real estate mortgages as soon as possible. Also confirm whether Project will use federal financing, loans, or assistance.
	Conservation Reserve Program (CRP) Contract Amendment	Project affects lands enrolled in CRP.	Low	No Issue	Lead: 2 weeks; Processing: 1 to 2 months	Reimbursement of past CRP payments plus interest for impact area.	Obtain confirmation from landowners that affected lands are not enrolled in CRP.
	A loan guarantee from USDA RD Rural Business-Cooperative Service (RBCS)	Application for a RBCS loan guarantee.	Low	No Issue	Lead: 1 month; Processing: 1-2 months	None	Determine whether a federal loan guarantee is sought as soon as possible.
Federal Aviation Administration (FAA)	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 3 to 6 months, possibly longer if there are identified constraints.	None	The proposed Project is unlikely to trigger Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) through the Federal Aviation Administration (FAA) for construction of any structure exceeding 200 feet in height.

	Notice of Actual Construction or Alteration (Form 7460-2)	Needed for construction of any structure exceeding 200 feet in height.	Low	No Issue	Lead: 1 week; Processing: 1 week	None	Should the filing of Form 7460-1 reveal that the proposed Project has potential to impact navigable airspace, Notice of Actual Construction or Alteration will be required prior to initiating construction activities.
STATE							
New Jersey Board of Public Utilities (BPU)	NJ Rev Stat § 40:55D-19 - Appeal	An electric utility may appeal a disapproval from a single municipality in the event of the Project being denied in accordance with local municipal regulations.	TBD	No Issue	Lead: 35 days; Processing: 35 days	TBD	If a public utility, as defined in R.S.48:2-13, or an electric power generator, as defined in section 3 of P.L.1999, c.23 (C.48:3-51), is aggrieved by the action of a municipal agency through said agency's exercise of its powers under this act, with respect to any action in which the public utility or electric power generator has an interest, an appeal to the Board of Public Utilities of the State of New Jersey may be taken within 35 days after such action without appeal to the municipal governing body pursuant to section 8 of this act unless such public utility or electric power generator so chooses. In such case appeal to the Board of Public Utilities may be taken within 35 days after action by the governing body. A hearing on the appeal of a public utility to the Board of Public Utilities shall be had on notice to the agency from which the appeal is taken and to all parties primarily concerned, all of whom shall be afforded an opportunity to be heard. If, after such hearing, the Board of Public Utilities shall find that the present or proposed use by the public utility or electric power generator of the land described in the petition is necessary for the service, convenience or welfare of the public, including, but not limited to, in the case of an electric power generator, a finding by the board that the present or proposed use of the land is necessary to maintain reliable electric or natural gas supply service for the general public and that no alternative site or sites are reasonably available to achieve an equivalent public benefit, the public utility or electric power generator may proceed in accordance with such decision of the Board of Public Utilities, any ordinance or regulation made under the authority of this act notwithstanding. This act or any ordinance or regulation made under authority thereof, shall not apply to a development proposed by a public utility for installation in more than one municipality for the furnishing of service, if upon a petition of the public utility, the Board of Public Utilities shall after hearing, of which any municipalities affected shall have notice, decide the proposed installation of the development in question is reasonably necessary for the service, convenience or welfare of the public.
New Jersey Historic Preservation Office (HPO)	Cultural and Historic Resources Review (Technical Assistance)	Required for State and Federal Undertakings, including a variety of NJDEP Permits listed below.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 30 days	None	Depending on other permit triggers including the Department of Environmental Protections Freshwater Wetlands Permit, CAFRA Permit, and more, a Cultural and Historic Resources Review (Email Submittal Form) may be required as a part of Project development. Any federal undertakings will require a Cultural and Historic Resources review under Section 106.

New Jersey Department of Environmental Protection (NJDEP)	5G3 - Construction Activity Stormwater General Permit	Construction activity disturbing one or more acres of land. Requires development of site specific SWP3 and compliance with all SWP3 conditions.	High	No Issue	Lead: 4 weeks; Processing: Estimated 3-4 weeks	TBD	Permit Number: NJ0088323 (5G3 - Construction Activity Stormwater General Permit) became effective on March 1, 2022 and will expire February 28, 2027. Project development will require NJ0088323 for disturbances greater than one acre. Prepare a Stormwater Pollution Prevention Plan (SWPPP) as part of construction plans; prepare and submit the NJ0088323 application along with a complete Request for Authorization (RFA) and the appropriate fee required under N.J.A.C. 7:14A-3.1(j) shall be submitted via the NJDEP Online Portal. Authorization becomes effective when the Department certifies the RFA. Local conservation district approval of a Soil Erosion and Sediment Control (SESC) Plan may be required prior to RFA certification.
	401 Water Quality Certification	Projects requiring fill in Water of the US require a Water Quality Certification. Typically associated with USACE Permits and State Individual Permits.	Low	No Issue	Lead: 1 month; Processing: Estimated 1-6 months	TBD	A 401 Water Quality Certification authorization is required as a part of federal waterway/wetland permitting. Design project to avoid/minimize wetlands to the extent practicable. Align infrastructure to avoid temporary and permanent impacts to wetlands, waterways, and drainages. If the Project design includes impacts to wetlands or waterways, it is recommended to request an early coordination meeting with NJDEP staff to ensure all State permitting requirements are met. A Section 10 Crossing Permit will require approval of a Section 401 Water Quality Certification.
	Freshwater Wetlands (FWW) Individual Permit and FWW General Permits	The maintenance or construction of utility lines within freshwater wetlands, transition areas, and/or State open waters requires a Freshwater Wetlands (FWW) permit or FWW Transition Area waiver. Several FWW General Permits (GP) are available for these types of activities.	Low	No Issue	Lead: 1 month; Processing: Estimated 1-6 months	TBD	General Permits provide a means to perform a variety of activities within a regulated freshwater wetland, freshwater wetland transition area and/or State open water, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FWW Individual Permit is available. Several noteworthy General Permits applicable to Project development include: underground utility lines (GP2), Non-tributary wetlands (GP6), above ground utility lines (GP 21), redevelopment of previously disturbed areas (GP26), and others. The #171 Project contains minor amount of wetlands. Any impacts will likely require FWW General Permits or an Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line or substation with respect to freshwater wetland impacts.

	Flood Hazard Area (FHA) Individual Permit and Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33	Required for any structure or activity that in any manner changes, expands, or diminishes the course, current or cross-section of any watercourse or flood hazard area.	High	Moderate Risk	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Placement of utility poles would likely be authorized under Permit-By-Rule 33 which is for the placement of one or more utility poles, provided that the proposed design meets the applicable conditions of the permit. There are also permit-by-rules for open-frame or monopole towers. Road or bridge construction to facilitate access would like be authorized under Regional General Permit 9 if the regulated water has a drainage area less than 50 acres, otherwise an Individual Permit would likely be required. Additionally, if the Project is regulated to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. General Permits provide a means to perform a variety of activities within a regulated flood hazard area and regulated streams/rivers, provided that the various conditions are met for the type of general permit requested. There are requirements, conditions and restrictions that apply to all general permits which must be considered prior to applying for a permit. If the proposed activity does not meet the applicable requirements, conditions, and/or restrictions, a FHA Individual Permit is available. Several noteworthy General Permits applicable to Project development include: Habitat Creation/Restoration/Enhancement (GP4), Reconstruct and/or Elevation-Building in Floodway (GP5), Development SFH/Duplex and Driveway (GP6), In-kind replacement of public infrastructure (GP15), and others. The #171 Project crosses numerous special flood hazard areas and will likely require a Streams/Rivers & Flood Hazard General Permits; Permit-by-Rule (PBR) 33, or Flood Hazard Area (FHA) Individual Permit. Westwood recommends initiating consultation with the NJDEP to ensure the proper permitting process is selected for construction of a transmission line with respect to FHA impacts.
	Coastal Permitting General Permits, Waterfront Development (WFD) Individual Permit and Coastal Zone Management Federal Consistency, CAFRA Individual Permit, Coastal Wetlands Individual Permit	Required for waterfront developments and/or coastal zone impacts.	Low	No Issue	Lead: 1 month; Processing: Estimated 1-6 months	TBD	Activities conducted in tidal waters (at or below the mean high water line) that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Waterfront Development Individual Permit. Activities conducted in the CAFRA zone that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a CAFRA Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements of will require a Coastal Wetlands Individual Permit. Activities conducted within wetlands subject to the Wetlands Act of 1970 that do not meet the requirements of a Permit-by-rule, General Permit-by-certification, or General Permit will require a Coastal Wetlands Individual Permit. Applicable general permits include Landfall of Utilities (GP12), Eroded Shoreline Stabilization (GP17), Mod of Existing Electrical Substations (GP19), Geotechnical Survey Borings (GP23), and more. If the project is regulated pursuant to the Coastal Zone Management Rules at N.J.A.C. 7:7, then no separate Flood Hazard approval is required. In these instances, the applicant need only submit a report and plans demonstrating compliance with the Flood Hazard Area Control Act Rules as part of the coastal permit application. The #171 Project is located outside of the Coastal Area Facilities Review Act (CAFRA) Boundary and is unlikely to require Coastal Permit-by-rule, General Permit-by-certification, General Permit, or Individual Permit.

	Tidelands License/Grant	Private use of State tidelands for Utility or Utility related project (Tidelands Act 12:3 (1 to 28) NJSA 13:1B-13.1 to 13.14).	High	Moderate Risk	Lead: 1 month; Processing: 3-12 months	Fair Market Value of Land for Grant, annual license fees depend on total amount of area licensed.	The #171 Project is located in one New Jersey Riparian Tidelands in the Raritan-Hudson Region. The Tideland is considered "claimed" tideland. The State of New Jersey claims ownership of these tidelands and holds them in trust for the people of the state. The management of the tidelands is overseen by the Tidelands Resource Council, a twelve member Governor-appointed board of volunteers, along with DEP staff at the Bureau of Tidelands Management. Since tidelands are public lands, a developer must obtain written permission from the State and pay a fee in order to use these lands. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease. Westwood recommends contacting the Bureau of Tidelands Management to determine whether a Tidelands License or a Tidelands Grant would be best suited for the proposed Project.
	Permit-by-rule (PBR) 8	Construction of a utility line attached to a bridge or culvert.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-3 months	TBD	PBR 8 - authorizes construction of a utility line, including cable (electric, television, or fiber optic), telecommunication, wastewater, petroleum, natural gas, or water, attached to a bridge or culvert, provided: No excavation, dredging or filling is undertaken within the water body over which the utility line crosses; The utility line is firmly attached to the existing bridge or culvert structure so that no part of the utility line, its encasement, or any attachment device extends above or below the existing bridge or culvert structure; If the crossing is a bridge, the utility line, its encasement, and all attachment devices must be located entirely above the elevation of the low chord of the superstructure and entirely below the elevation of the bridge surface; If the crossing is a culvert, the utility line, its encasement, and all attachment devices must be located entirely above the overt elevation of the culvert and entirely below the elevation of the top of the culvert; If the utility line is a pipeline that conveys any substance other than potable water, the utility line must be sufficiently encased within ductile iron or concrete to protect the utility line from damage from impact with floating debris during floods; and If there is a predominant direction of flow within the water body, the utility line must be attached to the downstream face of the bridge or culvert; The installation of the utility line has no adverse impacts to special areas as described at N.J.A.C. 7:7-9; and Construction equipment is operated from land, the top of the bridge or culvert, or from barges, and shall under no circumstances be allowed to enter the water body. Please be advised, this PBR only applies to that portion of the utility line that will be constructed across the tidal waterway up to the mean high water line, provided a tidelands instrument has been obtained for the utility line. In addition, this PBR does not relieve the permittee from the obligation of obtaining all necessary approvals from the U.S. Army Corps of Engineers. See N.J.A.C. 7:7-4.8 for complete rule requirements.
	New Jersey Natural Heritage Program) - State T&E Species Consultation	Routinely recommended; natural resources investigations including wildlife will be required for the various coastal, wetlands, and waterway permits.	Routinely recommended	Moderate Risk	Lead: 1 week; Processing: 1-2 weeks	TBD	A Data Request was submitted to the New Jersey Natural Heritage Program for information regarding State-listed threatened and endangered species. No response has been received to date; Westwood will update the Permit Matrix and Project Reports once a response has been received.

	Construction Dewatering Permit	For temporary ground and surface water control (dewatering) diversions in excess of 100,000* gallons of water per day, the project owner must obtain a Dewatering Allocation Permit, or Dewatering Permit-by-Rule or Short Term Permit-by-Rule depending on the duration of the diversion and the method employed.	Low	No Issue	Lead: 1 month; Processing: Estimated 1 month	TBD	Westwood recommends review of the listed permit triggers to determine if a dewatering approval will be necessary, and to determine the appropriate permit selection.
	Air Quality Permit	Permit requirements dependent on construction techniques and equipment used in Project development.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Depending on the construction techniques and equipment used for Project development, a variety of air quality permit thresholds may be met. Westwood recommends reviewing construction techniques and equipment used with the Air Quality permitting thresholds discussed on the NJDEP Air Quality, Energy & Sustainability webpage.
New Jersey Department of Community Affairs	Development Plan Review	Required in the event that the local municipalities where the subcode officials and construction official do not possess code enforcement licenses of the appropriate class.	TBD	No Issue	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Should any of the local permit issuing municipalities not possess code enforcement licenses of the appropriate class, a review from the Department of Community Affairs would be required. Class I : A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS construction official or subcode official; Class II: A Departmental plan review and release is required prior to the issuance of a construction permit unless the construction official and each appropriate subcode official in the municipal enforcing agency is certified as a HHS or ICS construction official or subcode official; Class III: A Departmental plan review shall not be required except when the Department acts as the enforcing agency. Application should be made to the local construction office, not the Department. Refer to the local permitting section below for additional information.
New Jersey Pinelands Commission	Application for Development in the Pinelands Area (Certificate of Filing)	Required for developments located in the Pinelands Area.	Low	No Issue	Lead: 1 month; Processing: 30 days	$187.50 per acre of all land in ROW, $250 minimum	Project is located outside of the Pinelands Area; therefore, no Application for Development will be required.

New Jersey Department of Transportation (NJDOT)	Oversize/Overweight Application for Special Hauling Permit	Permit required for vehicles exceeding the weights adopted in N.J.A.C. 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles	Moderate	No Issue	Lead: 1 week; Processing: 1 days to 1 week	Dependent on vehicle size and number of trips	Determine if construction of the Project will require travel on state roads with oversize/overweight vehicles. If so, determine the length, weight, and number of trips necessary to complete the Project. Consult with the DOT to select the most appropriate permit. Typically, these types of permits will be sought out by the contractor responsible for transporting materials.
	Driveway Access Permit Application	Required for driveway access construction using a State roadway.	Moderate	No Issue	Lead: 1 week; Processing: Estimated 2-4 weeks	TBD	If Project development will require any driveway access using NJDOT roadways, prior permit approval will be required.
	Application for Utility Opening (MT17A)	Required for utility infrastructure openings in NJDOT roadways.	Low	No Issue	Lead: 1 week; Processing: 2-4 weeks	TBD, based on square footage of opening; $1715-$1,580	If Project development will require any openings on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project is located outside of any major highways; therefore, it is unlikely that approval of MT17A will be required.
	Highway Occupancy Permit (MT120A)	Permit required for construction or alteration of utility facilities.	Low	No Issue	Lead: 3 weeks; Processing: Estimated 2-4 weeks	TBD based on construction activities	If Project development will require any occupancies on NJDOT roadways for installation of utility infrastructure, prior permit approval will be required. The Project is located outside of any major highways; therefore, it is unlikely that approval of MT120A will be required.
LOCAL							
Middlesex County, NJ	Site Plan Review	Any site plans that abut a County road or County drainage structure will require County approval in addition to local municipal approvals.	Low	No Issue	Lead: 2-3 weeks; Processing: 30 days	TBD	Any impacts or crossings of County roadways will trigger the need for a County Site Plan Review. The Project is sited outside of any County roadways or drainages; however, Westwood recommends confirming that Project development will not trigger the need for a Middlesex County Site Plan Review.
	Right-of-Way Permit	Required to open, excavate, burrow under, or in any way impair any portion of the right-of-way of a County-	Low	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	A Right-of-Way Permit will be required to impact any portion of a County ROW. Project development will likely trigger the need for a Right-of-Way Permit from the County,

		maintained roadway.					
Freehold Soil Conservation District (FSCD)	Soil Erosion and Sediment Control (SESC) Plan Approval	Construction activities resulting in one or more acres of earth disturbance require SESC Plan Approval from the local soil conservation district. Any land disturbances of 5,000 square feet or more need to apply for certification.	High	No Issue	Lead: 1 month; Processing: 30 days	TBD	Permittees are required to submit their applications and payment electronically online utilizing the NJDEP's Stormwater Construction Activity E-Permitting System, or via paper application to the NJDEP's Bureau of Permits Management. Soil Erosion and Sediment Control Plan applications must still be submitted to the local district offices for certification. However, for those projects requiring a NJPDES Stormwater Construction Activity permit, the district shall issue a SCD Certification Code to the permittee verifying that the 251 Plan has been approved. This code is necessary to complete either the online E-Permitting or paper RFA process. Project development may require SESC Plan Approval from FSCD prior to receiving NJDEP Approval for 5G3 - Construction Activity Stormwater General Permit. Submit a SESC Plan following the Standards for Soil Erosion and Sediment Control in New Jersey document (Appendix A2). Note that a 48 hour advance notice of soil disturbance is required by FSCD.
City of South Amboy, Middlesex County, NJ	Planning/Zoning Board Application.	Public utility installations may require a Planning/Zoning Board Application.	TBD	Moderate Risk	Lead: 1 month; Processing: Estimated 1-2 months	TBD	Project development may require approval of a Planning/Zoning Board Application in accordance with City Development Regulations. Westwood recommends initiating a pre-application submittal meeting with City Officials to determine the appropriate permitting process for construction of a new transmission line. Public utility installations are not listed as a prohibited, conditional, or permitted land use in the City Development Regulations.
	Zoning Permit Application	Zoning Permit must be obtained prior to the erection, restoration, addition to, or alteration of any structure within the City jurisdiction.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Project development will require approval of a Zoning Permit in accordance with the City Development Regulations. Westwood recommends initiating a pre-application submittal meeting with City Officials to determine the appropriate permitting process for construction of a new transmission line.
	Site Plan Review	Required for issuance of zoning and construction permits.	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	The proposed Project may require approval of a Site Plan Review prior to submittal of the Conditional Use Permit, consultation with City Officials is recommended.
	Construction Permit	No building or structure shall be erected, expanded or structurally altered until a	High	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Applications for a Construction Permit shall be made in accordance with the requirements of the New Jersey State Uniform Construction Code.

		permit therefor has been issued by the Construction Official.					
	Road Opening / Right-of-Way Excavation Permit	Required for any street opening or excavation construction activities in a City right-of-way (ROW).	TBD	No Issue	Lead: 2-3 weeks; Processing: Estimated 2-4 weeks	TBD	Westwood recommends reviewing Project design plans to determine if any street openings or ROW excavations will be required for Project development. Apply for permit as needed.

Appendix B – Option 1b Constructability Matrices

PJM Constructability Risk Assessment Approach

- PJM conducted its constructability evaluation of the project data submitted by proposers, and engaged expert consultants to evaluate the constructability and permitting risks of the projects.
- PJM held discussions with the NJ BPU, and the NJ Department of Environmental Protection (NJDEP), who also reviewed these projects, and our findings are consistent with that of the NJDEP regarding permitting in New Jersey.
- The constructability risk assessment is not intended as a pass/fail test, but rather as qualitative information on potential risks for NJ BPU to take into consideration in its independent evaluation. All proposals were found to be constructible as a result of PJM's constructability review and remained under consideration.
- PJM's constructability risk assessment scale is provided as follows:
    - A Low (Green) risk assessment is an indication that there are relatively minor potential risks to cost and schedule of the project identified by the constructability evaluation.
    - Medium (Yellow) and Medium-High (Orange) risk assessments are indications that there are moderate to significant potential risks identified in the evaluation, which if encountered would introduce significant delays or cost increases for the project. Neither of these are indications that a project is not viable as proposed, but a relative assessment of potential risks to a project that should be considered for a project if not properly mitigated.
    - A High (Red) risk assessment represents a severe potential risk identified by the evaluation, and is reserved for projects that may threaten the feasibility of the project as proposed, if left unmitigated.

For the constructability risk assessment matrices that follow, please also note the following about PJM's conservative approach:

- PJM's assessments are based on the routing/siting of the project and the potential issues that the entities may encounter in constructing the project.
- In some cases, the findings may be appropriately mitigated, either by an entity's experience and planning, or by an entity's use of existing 'pre-disturbed' ROW. However, there is still a possibility of encountering issues during construction, especially if expansion beyond the existing ROW is required, and the fact that protected resources may have moved in since the initial disturbance of the ROW, potentially resulting in additional permitting. This is a key point stressed by the NJDEP during our discussions, and factors into PJM's conservative stance in identifying potential risks.
- An entity's experience and their mitigation plans for the potential constructability risks, however, were part of the information requested as part of the NJ OSW SAA proposal window, and are important factors in the NJ BPU's evaluation and decision process.

Option 1b Proposals - Overview

Proposing Entity	Proposals	Description of Project	Injections (MW)	Landing Pt	Cost
ACE_Exelon	797 (transition vault, cables to Cardiff) 734 (add New Freedom, reduce Deans inject) 127 (add NF, eliminate Smithburg inject) 929 (add Orchard, eliminate Smithburg inject)	(797) New transition vault connecting 275 kV offshore cables and onshore 275 kV cables, new 275 kV UG transmission line to new 275-230 kV substation near Cardiff to accommodate the injection of 1200 MW at Cardiff. Various upgrades to existing facilities to accommodate additional 490 or 1148 MW at NF or 1148MW at Orchard. Major construction includes a second Cardiff-Orchard 230, rebuild Cardiff-New freedom 230 and expansion of Cardiff substation (230)	1200 at Cardiff, 490 -1148 at New Freedom and 1148 Orchard	Great Egg Harbor, near Cardiff, ~8 miles from Cardiff	$758 (734) $200M (127) $775M (929) $233M (797 ACE)
JCPL	453 (1b partial only)	Various upgrade to existing facilities and some new line construction to support injections at a future substation adjacent to Larrabee and injections at existing Smithburg and Atlantic substations. Major upgrades include expansion of Smithburg (500kV) and new UG circuits to Larrabee converter station (converter station is not included in JCPL proposal)	Smith 1342, Larrabee 1200, Atlantic 1200, Smith	*assumes 1b soln near Sea Girt	$660M
LSP Central Transmission (1b only) Clean Energy Gateway	781, 294	Construction of new POI onshore substation Lighthouse to receive AC cables from OSW platforms. Three additional substations, Crossroads(230/500kV), Gateway (500kV), Wells Landing (230/500kV) to interconnect to Larrabee 230 Station, Deans E. Windsor 500, Hunters Glen -Trenton 230 and Devils Brook Trenton 230. Reactive compensation is provided between Lighthouse and Gateway switching station. Includes OH/UG options. Alternatives support 4200MW or 6000 MW of injection	Alternate POI Lighthouse sub near Sea Girt	Sea Girt National Guard Training Ctr (Larrabee)	$1,7B (781 Soln A) $1.6 B (294)
LSP Central Transmission (1b only) Clean Energy Gateway	629, 72, 627	Construction of new POI onshore substation Lighthouse to receive AC cables from OSW platforms. Three new substations, Crossroads, (500kV), Garden View (500) and Old York (500/230) to interconnect to Larrabee 230, Smithburg 500, E Windsor 230, Deans 500, New Freedom-E Windsor (500), Williams-Mansfield 230 and Burlington-Crosswicks 230. Includes OH/UG construction options. Alternatives support 4200or 6000 MW of injection.	Alternate POI Lighthouse sub near Sea Girt	Sea Girt National Guard Training Ctr (Larrabee)	$1.6 B (629) $1.8B (72) $1.4B (627)
Rise Light & Power Outerbridge Renewable Connector	582(Base Offer 1-1200MW) 490 (Base Offer 2-2400MW) 376 (Addl Offer A 400MW) 171 (Addl Offer B 800MW)	One or two 1200 MW HVDC lines from Werner to Half-Acre sub (near Monroe to tap into the Deans-E Windsor line and shore station, option to inject up to 400 or 800 MW direct at Werner from 275kV AC wind generators	Deans 1200+ 1200 (via Deans East Windsor 500kV), 800 at Werner =3200MWs	Werner Site Raritan Bay, South Amboy, industrial waterfront landing point	$1B (582) $1B (490) $68M (376) $109M (171)

Option 1b Proposals - Environmental Risk Assessment

Proposal ID	Proposing Entity	Project Title	Permitting/Routing/Siting	ROW/Land Acquisition	Notes
797	ACE	ACE 05	Medium-High	Low	Green Acres impact, Pinelands permit required
453	JCPL	JCPL Option 1b	Medium	Low	Green Acres impact
781, 294	LSPG	Clean Energy Gateway - Solution A	Medium	Low	Green Acres impact
629, 627	LSPG	Clean Energy Gateway - Solution B	Medium	Medium	Green Acres impact, New line assumes use of incumbent line ROW
72	LSPG	Clean Energy Gateway - Solution B-Alt	Medium	Medium	Green Acres impact, New line assumes use of incumbent line ROW
171, 376	RILPOW	Additional Offer B - 800MW Proposal	Low	Low	
490, 582	RILPOW	Base Offer 2 - 2400MW Proposal	Medium	Medium	Green Acres impact, Railroad ROW required

Option 1b Proposals – Engineering & Construction Risk Assessment

Proposal ID	Proposing Entity	Project Title	Engineering	Construction	Materials & Equipment	Notes
797	ACE	ACE 05	Low	Low	Low	
453	JCPL	JCPL Option 1b	Low	Low	Low	
781, 294	LSPG	Clean Energy Gateway - Solution A	Low	Low	Low	
629, 627	LSPG	Clean Energy Gateway - Solution B	Low	Medium	Low	Crossroads-Smithburg DCT OH line construction requires removal & rebuild of incumbent line. Crossroads-Gardenview OH line requires removal & retirement of incumbent line.
72	LSPG	Clean Energy Gateway - Solution B-Alt	Low	Medium	Low	Crossroads-Smithburg DCT OH line construction requires removal & rebuild of incumbent line. Crossroads-Gardenview OH line requires removal & retirement of incumbent line.
171, 376	RILPOW	Additional Offer B - 800MW Proposal	Low	Low	Low	
490, 582	RILPOW	Base Offer 2 - 2400MW Proposal	Low	Medium	Low	Construction in RR ROW & utility crossings

Document Revision History

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