VIRGIN ISLANDS WATER AND POWER AUTHORITY
COASTAL CONSISTENCY DETERMINATION REQUEST
FEEDER 8B UNDERGROUND ELECTRICAL PROJECT
ST. CROIX, U.S. VIRGIN ISLANDS

INTRODUCTION

The Virgin Islands Water and Power Authority (VIWAPA) has been working to relocate transmission and distribution underground throughout the islands so that power can be restored quickly after the occurrence of major storm events. Underground transmission lines provide improved protection from storm damage, reliability and reduce outage frequency caused by overhead obstructions and faults.

VIWAPA is proposing to install underground ducts with manholes, pad-mounted transformers, and other underground devices to replace existing overhead distribution lines in the town of Christiansted. This will provide underground power infrastructure to businesses, schools, government offices, churches and downtown Christiansted residents. VIWAPA has been working at relocating transmission so that this critical service can be restored immediately after the occurrence of major storm events. Underground lines also ensure that critical facilities can continue to provide essential services.

Duct banks will be installed for Feeder 1A along Fred Thomas Drive, Church Street, and section of Torve Gade. Duct banks will be installed for Feeder 2A along Hospital Street, Little Hospital Street, Dronninigens Tvaer Gade, Fiskergade (Fisher St.), along with pad-mounted transformers, pad-mounted switchgear, electrical manholes, pedestal-mounted meters, and communications handholes.

The duct banks will branch off under side roads to provide access to business and facilities along the route. The project will serve business, churches, schools, government offices and individual homeowners.

Trench routes will be returned to pre-construction standards, and a full lane width asphalt road restoration will be performed by DPW shortly after the electrical construction project is completed, in accordance with a joint utility effort that was initiated in 2022.

Feeder 1A is anticipated to take 9-12 months to complete and Feeder 2A is anticipated to take 10 to 13 months to complete. However, the current supply chain challenges may slow installation due to backlogs in the availability of equipment. Most of the work will be completed during the day, but paving may be done at night to avoid peak traffic during paving. The Civil work, which will have the most impact on the community, is expected to take approximately 9 months to complete. The civil work consists of saw cutting of the road, excavation of the trenches, installation of conduits and a concrete envelope within the trench, backfill of the trench, and pathing of the roadway, installation of manholes and handhole, as well as forming and pouring concrete pads for electrical equipment.

In order to minimize disruption of activities in downtown traffic control will be a key element.

VIWAPA will also ensure that staging areas are defined and that the job sites are kept neat and the roadway clean. The successful bidder will be required to prepare and submit a staging plan for this project, for review and approval by VIWAPA, and the Underground Electrical Project Management

Team. Furthermore, VIWAPA and the Project Management Team will perform periodic inspections of staging areas, and material laydown areas.

PROJECT LOCATION

The Feeder 1A underground project covers from the eastern end of Fred Thomas to Lagoon St. The project extends from Latitude 17.746609° and Longitude -64.701281° to Latitude 17.742169°and Longitude -64.706817°. Feeder 2A underground project spans from the intersection of Hospital Street and Port St. to the intersection of Fisher and Prince Street. The project extends from Latitude 17.744127° and Longitude -64.696747° to Latitude 17.742179°and Longitude -64.703869°.

Figure 1. Location of the proposed Feeder 1A Underground Electrical project in Christiansted, St. Croix, U.S. Virgin Islands.

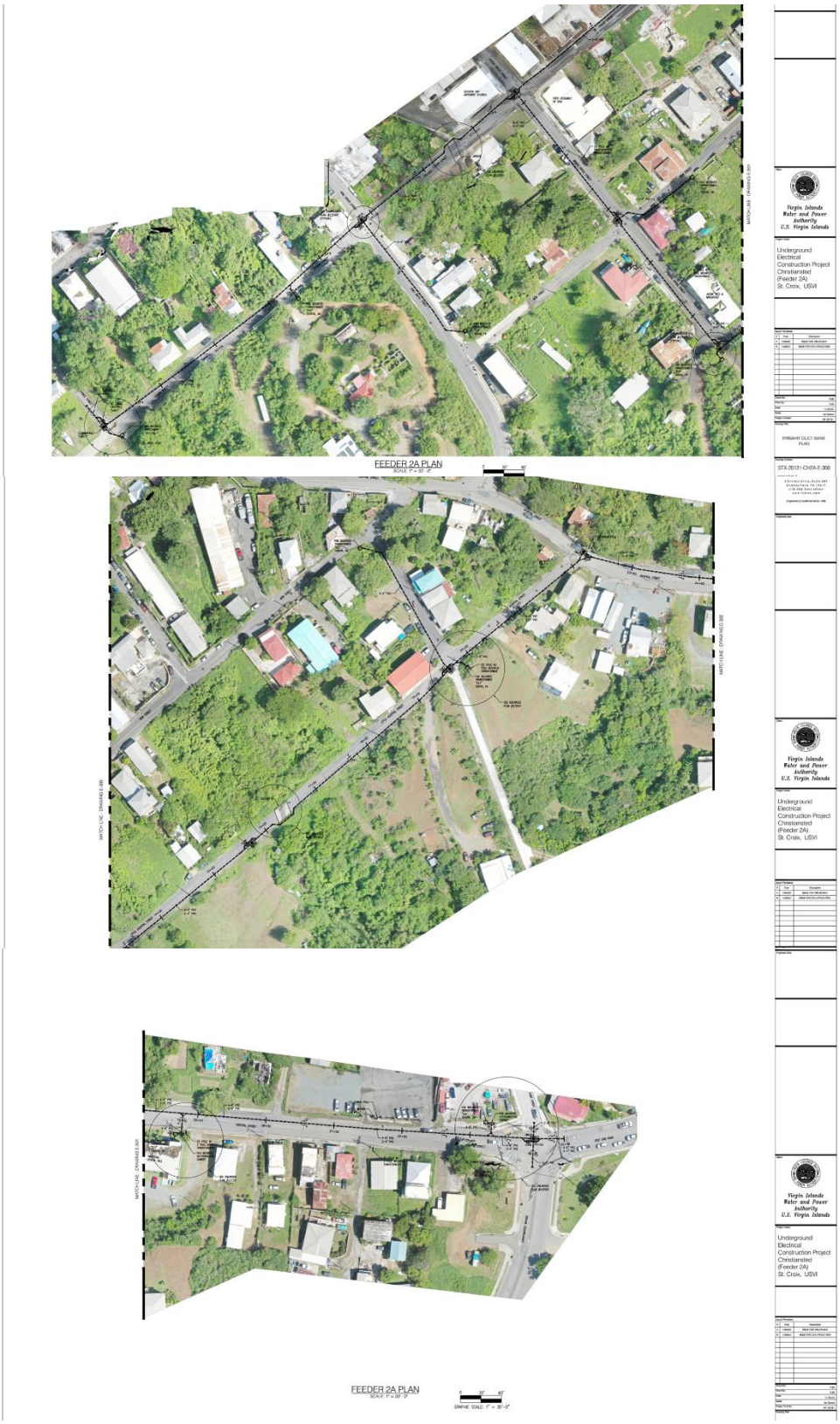

Figure 2. Location of the proposed Feeder 2A Underground Electrical project in Christiansted, St. Croix, U.S. Virgin Islands.

Note: Both Feeder 1A and 2A are not within the Coastal Zone Management (CZM) first tier jurisdiction.

Figure 3. The relationship between the proposed Feeders 1A and 2A Underground Electrical project and CZM first tier jurisdiction. The first-tier areas are shown in color in the upper map and is outlined in red on the lower.

PROJECT DESCRIPTION

VIWAPA proposes the installation of a main underground primary distribution line (Feeders 1A and 2A) with manholes, pad-mount transformers, pad mounted primary switchgear, pad mounted primary sectionalizing cabinets, and other underground devices to replace the existing overhead distribution lines in downtown Frederiksted.

Existing Electrical and communication manholes of Feeder 1A will begin at the eastern terminus of Fred Thomas Drive will extend to the intersect of Prince St. The duct banks will provide service to the Christiansted National Historic Site, Company House Hotel, office buildings, private residents, Bethel A.M.E., St. Mary's School, St. Mary's and VITEMA. Feeder 2A will begin at the interception of Port St. and Hospital Street and end at the Intersection of Fisher Street and Torve Gade. The duct banks will

provide service to businesses, residents, the Seven Day Adventist Church, Aveme Bed & Breakfast, the American Legion Hall, Artisan Craft Distillery, and Women's Coalition of St. Croix.

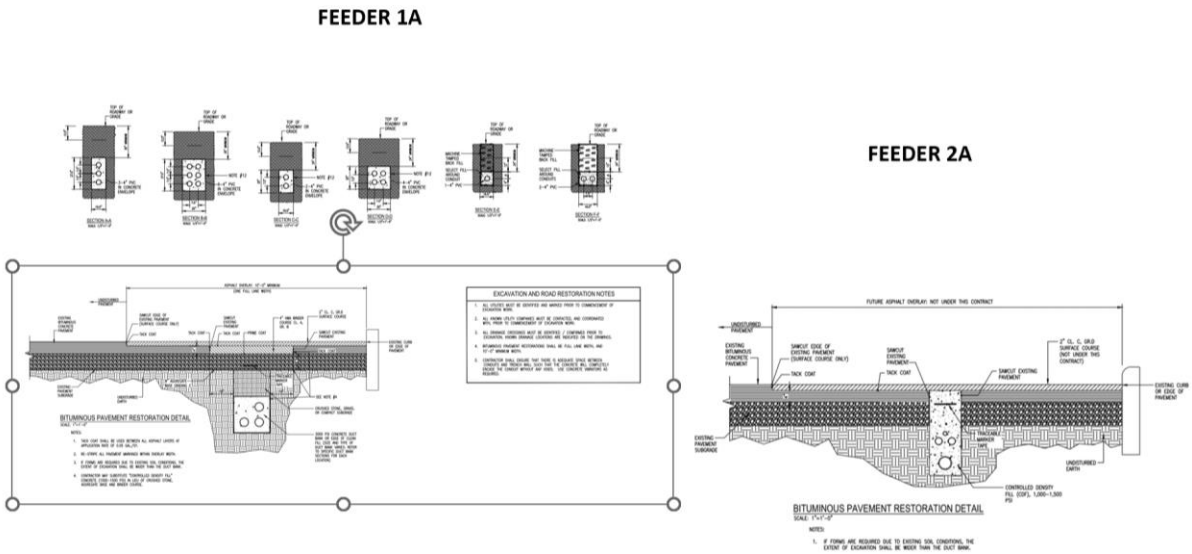

Figure 4. The duct banks that will be installed along the proposed downtown Feeders 1A and 2A Underground Electrical project route.

ENVIRONMENTAL IMPACTS

Climate/Weather

Once complete, the buried Feeders 1A and 2A lines will not be affected by climate or weather. During construction, rainfall will affect trenching and line burial activities. Sedimentation and erosion controls will be implemented to ensure rainfall will not affect the nearby drainageway during installation. The contractor will obtain coverage under the Construction General Permit (CGP) for stormwater prior to the start of construction.

Landform Geology, Soils and Historic Land Use

The electrical utility lines are being buried under existing roadways within the town of Christiansted. The electrical ducts will be buried to a depth of approximately 3ft. Minor earthwork will occur, within developed properties, to provide service to existing meters and pedestals and to place pad mounted transformers and Sectionalizing Cabinets.

Christiansted town has a variety of soil types through the proposed route. The highest elevations are found at the southern extent of the project, Little Hospital Street reaches 100ft and the most northeastern part of 1A are less than 10ft by the Christiansted National Historic Site. The elevations vary with the highest elevations to the south and the lowest to the north.

Figure 5. Elevations found along the Feeders 1A and 2A Underground Project Routes.

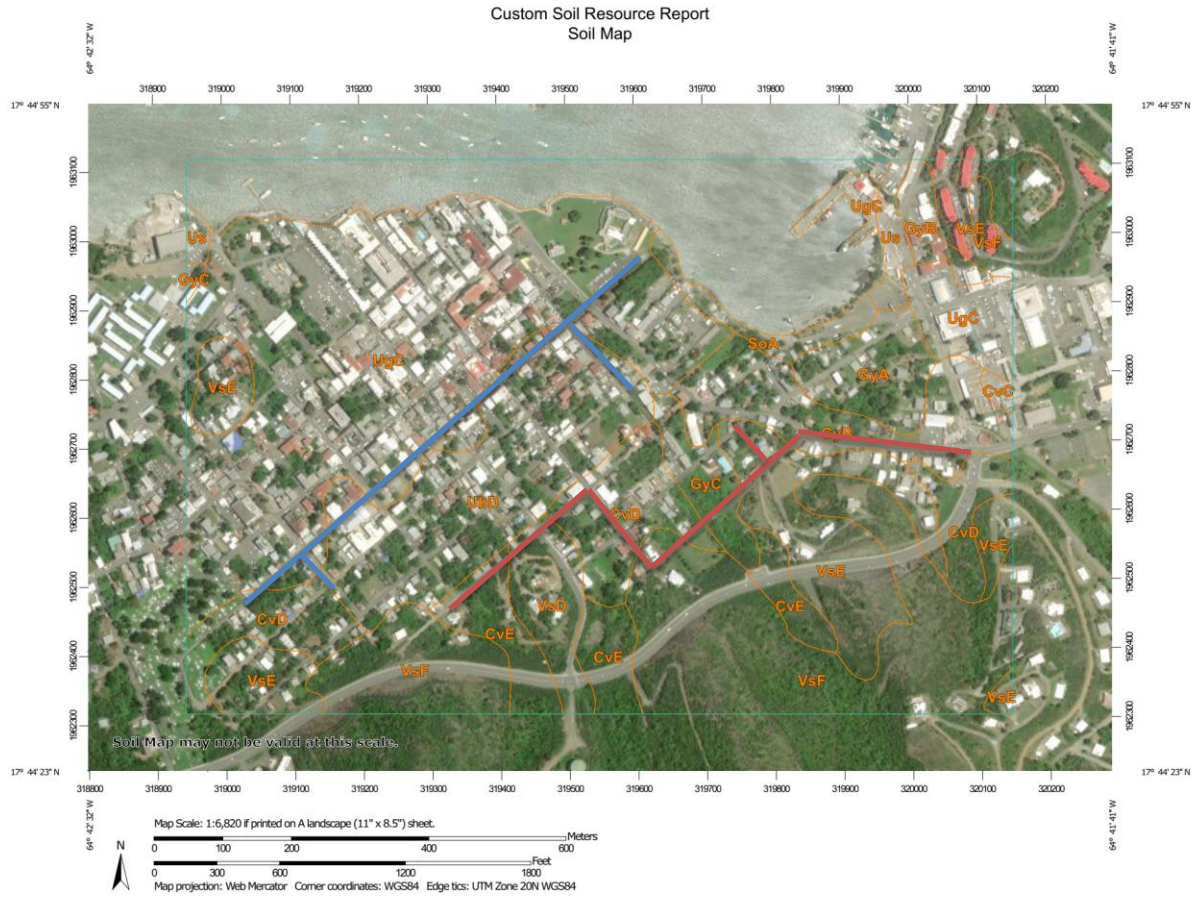

Figure 6. The composition of soils within the eastern end of the proposed Feeder 1A and Feeder 2A Underground Electrical project.

The project crosses through 9 different soil types of various slopes. Feeder 1A goes through three soil types, Cramer-Victory complex, 2 to 12 percent slopes, very stony (CvD), Urban land (UbD), and Urban land-Glynn complex, 0 to 12 percent slopes (UgC). Feeder 2A goes through seven soil types, Cramer-Victory complex, 2 to 12 percent slopes, very stony (CvD), Cramer-Victory complex, 20 to 40 percent slopes, very stony (CvE), Glynn gravelly loam, 2 to 5 percent slopes (GyB), Glynn gravelly loam, 5 to 12 percent slopes (GyC), Victory-Southgate complex, 12 to 20 percent slopes, very stony and Victory-Southgate complex, 40 to 70 percent slopes, very stony. Cramer-Victory complex, 12 to 20 percent slopes, very stony is found on mountain slopes and unweathered bedrock is usually found at 32 to 60 inches so there is a possibility of rock being encountered during excavation. Glynn gravelly loam, 5 to 12 percent slopes, is found on terraces and alluvial fans, and remains a gravelly clayey loam to more than 60 inches. Urban land is variable having been reworked by man. Urban land-Glynn complex, 0 to 12 percent slopes is a mixture of Urban land and Glynn soils and does not have restrictive layers in the upper 60 inches. Victory-Southgate complex is found on hillslopes bedrock can be found from as shallow as 17 inches to over 60 inches so bedrock may be encountered during excavation.

Drainage, Flooding and Erosion Control

Strictly enforced measures to control sedimentation and erosion will be implemented during all phases of the proposed project to ensure that rainfall will not affect the nearby drainageways and water course during installation. In addition, no materials will be stockpiled overnight. The project will apply for coverage under the General Construction Permit for stormwater due to its length.

Drainage Patterns

The proposed project will have no impact on existing drainage patterns once complete since the electrical utility lines will be installed within existing paved roadway. Pad mounted transformers and Sectionalizing Cabinets are not being placed within drainage ways.

Coastal Floodplain

Most of both routes are in FEMA Flood Zone X where hundred-year coastal flooding is not expected. Only the eastern end of Feeder 1A is within FEMA Flood Zones VE 15 and 16, where coastal flooding with velocity (wave action) is expected to elevations 15ft and 16ft, and flood zones AE 13, 14 and 15, where hundred-year coastal flooding is expected to 13ft, 14ft and 15ft. The very eastern end of Feeder 2A is within FEMA Flood Zone AE where hundred-year coastal flooding is expected by elevations have not been calculated. This will not affect the underground system except for during construction. When inclement weather approaches the job site will be secured to minimize impact.

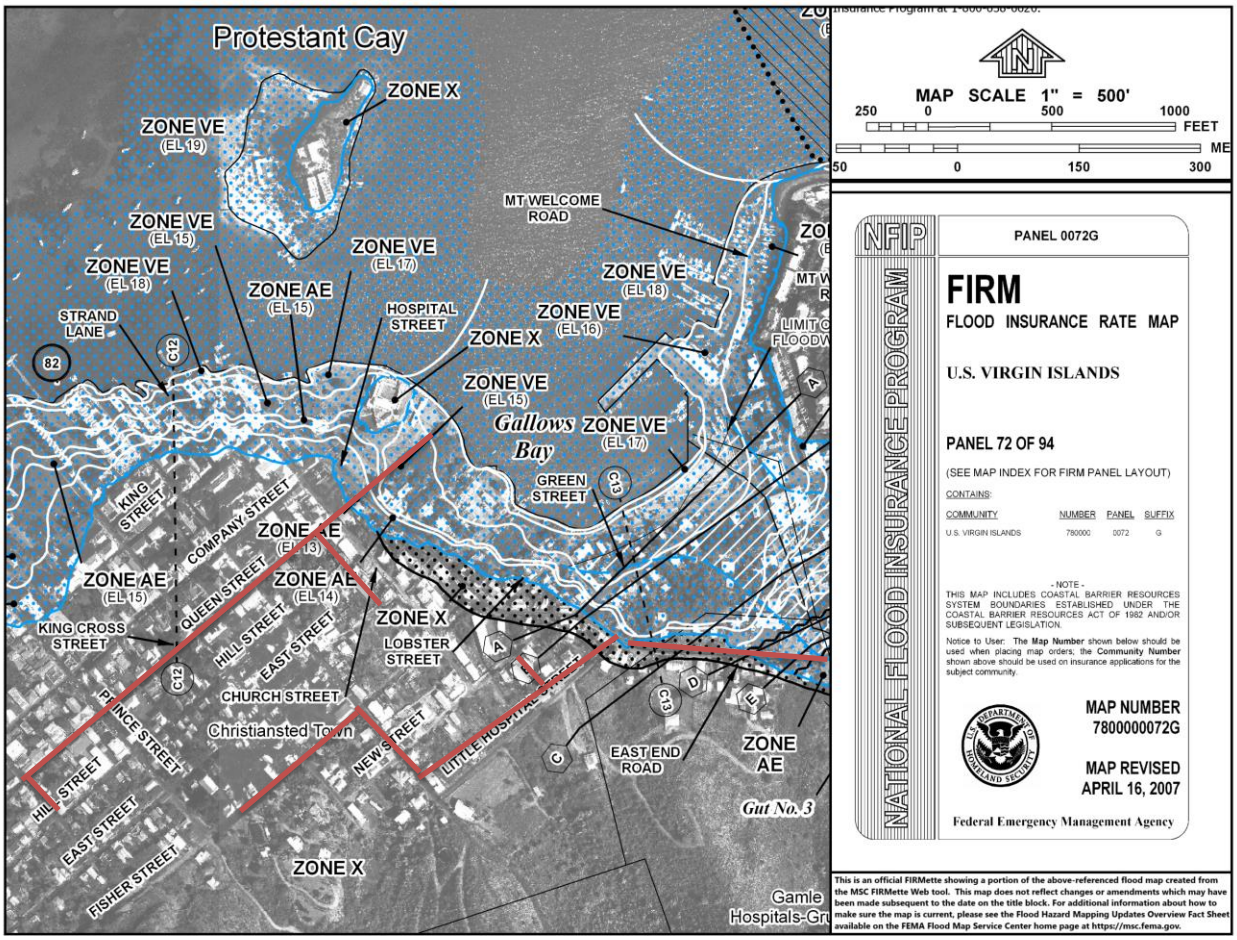

Figure 8. FEMA FIRM 71 of 94. The proposed project route is shown in red.

The buried conduits should not be affected by these flood zones since they will be placed in the existing roadways or will be put on existing drainage crossing structures. There are a number of bridge/culvert crossings that will be encountered during the installation of the new underground duct bank system along Feeder 1A and Feeder 2A. Each and every crossing location has been field surveyed by the Engineering Firm of Record, and a specific Enlarged Plan (1/4" = 1'-0") will be developed for each crossing. This will ensure that storm drainage systems are not negatively affected by the installation of the new duct bank system and will mitigate change orders typically associated with exposed conduit support structures on bridges and culverts, deviations in duct bank paths, and additional duct bank reinforcing.

During construction no soil may be stockpiled overnight.

Fresh Water Resources

The proposed project will have no impact on freshwater resources, as it involves the burial of electrical lines in previously disturbed areas. No freshwater ponds or streams occur within the proposed project footprint and groundwater resources within the area are deeper than 80 inches; meaning below the depth of the proposed project.

Oceanography

The project location is inland and will not be affected by sea storm events. The project will implement strict stormwater control measures during construction and will apply for coverage under the General Stormwater Permit for construction and the required monitoring of the controls and therefore should not create sediment laden runoff which could affect water quality.

Marine Resources

The property is located entirely inland and will have no direct impact on the marine environment.

Terrestrial Resources

The proposed project will occur within the town of Christiansted. No natural terrestrial resources or any native flora or fauna will be significantly affected during the installation of the buried conduits in the roadways or the impact of support structures along the rights-of-way.

Relocating electrical lines underground will alleviate the need to trim large trees away from suspended overhead lines and will prevent future damage to large trees during storm events.

Wetlands

The project will have no impact on wetlands, as there are no wetlands in, or adjacent to, the proposed project routes, the proposed project route is in an existing paved roadway. The ground-mounted equipment will be placed in areas which have already been altered from their natural state.

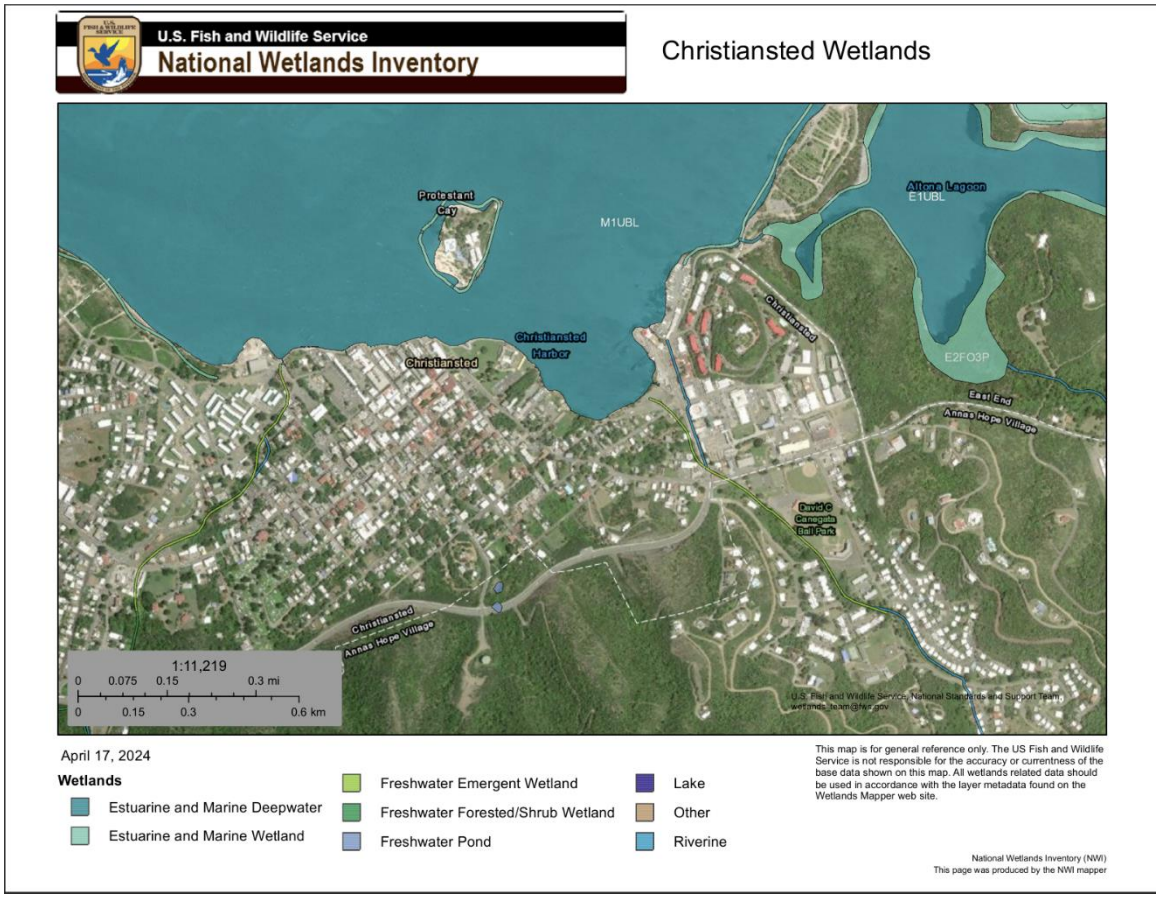

Figure 13. The relationship between the proposed Feeder 1A and 2A Underground Electrical project and wetlands.

Rare and Endangered Species

No endangered or threatened species or endangered species habitat exist within the proposed project route; therefore, no federal, or local, endangered, or threatened, species will be impacted. According to the U.S. Fish and Wildlife Service (USFWS) Information, Planning and Conservation System (iPaC) project tool “There are no listed species or critical habitats expected to occur at this location”. No endangered species, critical habitat or migratory birds are expected to occur in the proposed project area.

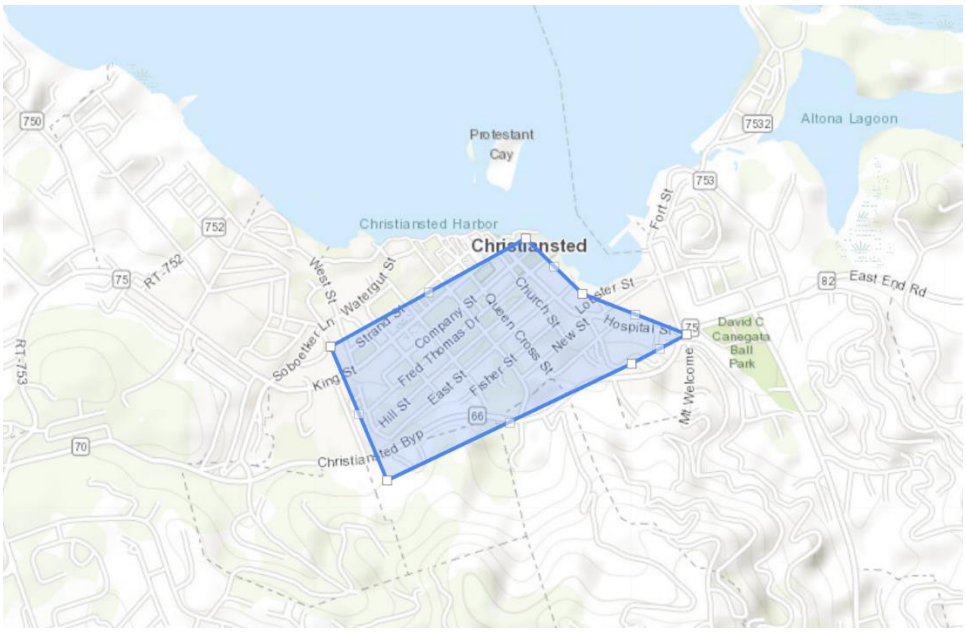

Figure 14. FWS iPaC location map.

There is an endangered ground lizard, *Ameiva polops*, on the island of St. Croix, but this lizard is only found on Protestant Cay and Ruth Cay. There are also three endangered plant species on St. Croix – i.e., *Agave eggersiana*, *Buxus vahlii* and *Catesbaea melanocarpa. Agave eggersiana, and Catesbaea melanocarpa* primarily occur in dry, exposed areas and are not known to occur within the town of Christiansted.

Despite not being known to occur in these areas these species were looked for during the terrestrial studies of the route. Neither the endangered ground lizard nor any of the endangered plant species are found within the proposed project footprint.

Air Quality

All of St. Croix is designated Class II by the Environmental Protection Agency, in compliance with National Ambient Air Quality Standards. In Class II air quality regions, the following air pollutants are regulated: open burning, visible air contaminants, particulate matter emissions, volatile petroleum products, sulfur compounds, and internal combustion engine exhaust (Virgin Islands Code Rules and Regulations). Trenchers will be used during project construction and will create combustion engine exhaust during use. Upon the completion, air quality will return to pre-construction conditions.

IMPACT ON MAN'S ENVIRONMENT

Land and Water Use Plans

The burial of electrical lines is in accordance with the laws and regulations of the U.S. Virgin Islands.

Visual Impacts

The relocation of the overhead electrical lines underground will be a visual improvement of St. Croix's landscape by not only placing the unsightly lines underground but by also not requiring the cutting of

tree limbs to protect the lines. Trees will no longer have to be pruned into unnatural shapes to protect the lines.

Social Impacts and Economic Impacts

Providing more reliable and resilient power to critical infrastructure on St. Croix will benefit both residents and businesses on the island. Being able to maintain, or quickly restore, power to churches, schools and businesses.

Historical and Archaeological Resources

The proposed project involves the installation of underground electrical utility lines in existing roadways, which are found on lands that have been extensively altered by cutting or filling. An archeological Scope of Work (ASoW) will be developed with the USVI State Historic Preservation Office (SHPO) to monitor for historic resources along the highway.

Waste Disposal and Accidental Spills

Equipment will be kept in good operational condition during the proposed project work and will not be fueled on site. Any excess excavated material and debris will be collected, taken off-site and properly disposed of.

If any hazardous materials are encountered or created, they will be taken back to the yard with the proper paperwork. No hazardous materials will be stored overnight.

COASTAL CONSISTENCY

The proposed Feeder 1A and Feeder 2A Underground Electrical projects in downtown Christiansted have a negligible potential of impacting environmental resources, or ambient water quality during construction. A General Stormwater Permit for construction will be obtained by the installation contractor(s) and sedimentation and erosion control measures will be implemented during construction to ensure that no environmental impacts occur. The proposed project will occur only within previously altered areas and archeological monitoring will be conducted to minimize impact on historical or cultural resources. Project activities stop if historic remains or resources are encountered, and SHPO will be contacted to determine the best course of action.

The Coastal Zone Management Act of 1972 requires that federal actions, within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water), or natural resource of the coastal zone be consistent with the enforceable policies of a state's federally approved coastal management program. The Feeder 1A and 2A Underground Electrical Project, as proposed, will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the U.S. Virgin Islands' CZM Program. This federal consistency determination demonstrates the Feeder 1A and 2A Underground Electrical project's compliance with the U.S. Virgin Islands' CZM Program.

The following policies are set forth in the U.S. Virgin Islands Code Title 12, Conservation Chapter 21, Virgin Islands Coastal Zone Management [V.I. Code tit. 12, § 903(b)]. The proposed Feeder 1A and 2A Underground Electrical project meets each of the basic goals of the USVI for its coastal zone. Additional details are as follows:

USVI Code Title Twelve Conservation, Chapter 21 § 903 (b)
(1) Protect, maintain, preserve and, where feasible, enhance and restore, the overall quality of the environment in the coastal zone, the natural and man-made resources therein, and the scenic and historic resources of the coastal zone for the benefit of residents of and visitors of the United States Virgin Islands.

- The proposed Underground Electrical project is designed to be within existing roadways and previously disturbed areas. The project will not impact any natural resources and will improve the visual landscape along Feeder 1A and Feeder 2A by removing overhead electrical lines and poles.

(2) Promote economic development and growth in the coastal zone and consider the need for development of greater than territorial concern by managing: (1) the impacts of human activity and (2) the use and development of renewable and nonrenewable resources so as to maintain and enhance the long-term productivity of the coastal environment.

- This proposed project promotes the economic development and growth in the coastal zone by providing more reliable, resilient electrical transmission to critical island infrastructure. The improved resilience of electrical power on the island of St. Croix is beneficial for routine service provision and in the event of future catastrophic weather events.

(3) Assure priority for coastal-dependent development over other development in the coastal zone by reserving areas suitable for commercial uses including hotels and related facilities, industrial uses including port and marine facilities, and recreation uses.

- The proposed project involves the burial of electrical utility lines outside the coastal area and is therefore consistent with this policy.

(4) Assure the orderly, balanced utilization and conservation of the resources of the coastal zone, taking into account the social and economic needs of the residents of the United States Virgin Islands.

- The burial of the electrical lines will only occur in areas that have been previously altered and will improve the electrical power resilience both for routine service provision and in the event of future catastrophic weather events. The proposed project will also service critical island infrastructure and, therefore, will meet and protect the economic and social needs of residents of the island of St. Croix.

5) Preserve, protect and maintain the trust lands and other submerged and filled lands of the United States Virgin Islands so as to promote the general welfare of the people of the United States Virgin Islands.

- The proposed project will not impact trust lands or other submerged or filled lands of the U.S. Virgin Islands.

(6) Preserve what has been a tradition and protect what has become a right of the public by

insuring that the public, individually and collectively, has and shall continue to have the right to use and enjoy the shorelines and to maximize public access to and along the shoreline consistent with constitutionally protected rights of private property owners.

- The proposed project will in no way affect public access to, or use of, the shoreline. The project is located well inland.

(7) Promote and provide affordable and diverse public recreational opportunities in the coastal zone for all residents of the United States Virgin Islands through acquisition, development and restoration of areas consistent with sound resource conservation principles.

- The proposed project will not affect public recreational opportunities in the coastal zone.

(8) Conserve ecologically significant resource areas for their contribution to marine productivity and value as wildlife habitats, and preserve the function and integrity of reefs, marine meadows, salt ponds, mangroves and other significant natural areas.

- The proposed project is designed so that it impacts only previously disturbed areas. The project will have no impact on natural resources and will utilize best management practices (BMPs) to minimize areas of disturbance, thereby protecting adjacent habitats.

(9) Maintain or increase coastal water quality through control of erosion, sedimentation, runoff, siltation, and sewage discharge.

- The proposed project will have no long-term change on sedimentation or erosion and will not result in the creation of wastewater. The project will implement sedimentation and erosion control BMPs to prevent loss of sediment from the project site.
- The proposed Feeder 1A and Feeder 2A Underground Electrical project, as designed, will maintain coastal water quality through control of erosion, sedimentation, runoff, and siltation and therefore is consistent with the policy set forth in the USVI Code Title 12, Conservation Chapter 21, Virgin Islands Coastal Zone Management [V.I. Code tit. 12, § 903 (b)].
- The proposed Feeder 1A and Feeder 2A Underground Electrical project, as designed, protects, maintains, preserves, and enhances the overall quality of the environment in the coastal zone, the natural and man-made resources therein, and the scenic and historic resources of the coastal zone for the benefit of residents of and visitors of the USVI. It is therefore consistent with the policy V.I. Code tit. 12, § 903 (b).