

COASTAL ZONE CONSISTENCY DETERMINATION
United States National Park Service
Virgin Islands National Park
Virgin Islands Coral Reef National Monument

Replace Reverse Osmosis Plant at Trunk Bay
Virgin Islands National Park
St. John, US Virgin Islands

In accordance with Sections 307 and 309 of the Federal Coastal Zone Management Act of 1972 and the Virgin Islands Coastal Zone Management Act of 1978, the NPS has determined that the replacement of the Reverse Osmosis (RO) Plant at Trunk Bay on St. John, Virgin Islands National Park is consistent to the maximum extent practicable with the enforceable policies of U.S. Virgin Islands federally approved Coastal Management Program.

Description of the Proposed Project

The park is proposing to replace the Reverse Osmosis (RO) plant at the Trunk Bay Beach and Recreation area. The RO plant and the Trunk Bay Recreation area sustained substantial damage in the fall of 2017 from Hurricanes Irma and Maria. The facilities at Trunk Bay are located on federal property within Virgin Islands National Park. The location of the site is shown in Attachment B, Figure 1. Prior to the hurricanes, Trunk Bay provided numerous visitor services, and was a destination for large numbers of visitors including tourists from the island's hotels, cruise ship passengers and local island residents. Trunk Bay was the only St. John beach that charged an entrance fee. Prior to the 2017 hurricanes, concession facilities at Trunk Bay included a snack bar/grill, gift shop, snorkel gear rentals, beach chair rentals, showers, restrooms, and lifeguards. Also available were picnic tables, barbecue grills, and two covered pavilions.

The domestic water system for the Trunk Bay Beach and Recreation area has consisted of using well water treated using the existing RO system. Because of the damage caused by the 2017 hurricanes, the existing RO system has not been operating as expected. This project will replace the existing RO plant, with the projected goal to provide safe drinking and domestic water to visitors at Trunk Bay Beach and Recreation area. The exterior components of the RO Plant (water storage tanks, well head, pressure tank and piping) that were damaged by the storms will be replaced. Increase in efficiencies will also be obtained by using state-of-the-art systems and will be considered in the design.

To provide better resiliency, the water treatment (RO) plant will be rebuilt in a different location at Trunk Bay (Attachment B, Figure 1). The existing RO plant facility is located within a flood zone as identified in the current FEMA flood map. The location of the new proposed RO plant facility is outside of the flood zone, and the floor elevation of the facility will be set at a minimum of two feet higher than the flood elevation of the area (11 – 12 feet above mean sea level (MSL)). The new location next to the existing parking area outside of the floodplain will avoid damage to the facility or its components. The raised structure will place the water treatment equipment above the floodplain and provide a storage space. All components will also be raised above the floodplain levels or securely anchored to the ground, so they pose no hazard to flora and fauna in the area.

Significant prehistoric sites are present on almost every beach and in every bay within the Virgin Islands National Park. Trunk Bay has an archeological zone that is protected, in which items from the Taino people have been found. The area where the existing RO plant facility is located is within this archeological zone and contains subsurface prehistoric archeological remains. The location for the new RO facility, to the north of the parking area is outside of the archeologically sensitive area (see Design Drawings, Sheet C06).

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The existing RO facilities will be removed as completely as reasonably possible. Some fencing would need to be cut at ground level and capped, concrete pads and the wells should be left intact to reduce impacts to subsurface remains. However, various waterlines would need to be rerouted within this area to the new location which may require ground disturbing work. Archeological surveys are required within the area where the existing RO plant would be demolished and where waterlines may be rerouted.

Heavy equipment used to demolish the plant will be operated in a manner that will not disturb the soils in the area as reasonably as possible. This work would require archeological monitoring to ensure there is are no adverse effects to known cultural resources.

The proposed new RO plant at Trunk Bay will obtain water from the existing groundwater well at the site. Similar to the existing plant, the new plant will use the reverse osmosis system to remove salt, hardness and organics from a ground water feed that has a water quality that may range from brackish to seawater. The primary goal is to meet all applicable drinking water standards and provide safe drinking and domestic water to visitors at Trunk Bay Beach and Recreation area.

The proposed project will also include the replacement of the existing below-surface potable water plumbing and piping connecting to the new RO plant facility. The plumbing supports the water system for all the public facilities and concessions operation at Trunk Bay. Because of the presence of historic archaeological remains in areas of Trunk Bay, special construction details using shallow trenching, will be developed to minimize impact to sensitive areas. These areas will be protected during construction activities. Appropriate measures will be taken to reduce the impact in these areas and where invasive, ground disturbing work is unavoidable cultural monitoring and potential restoration would occur to preserve the integrity of the sites and restore the site post-construction.

While some of the water lines for the plumbing will be excavated and replaced in the same locations, there will be some excavations in new areas as well. NPS is in the process of beginning Section 106 consultation with the US Virgin Islands State Historic Preservation Office (VISHPO) for this project. It is anticipated that the Section 106 compliance pathway will require a Memorandum of Agreement (MOA) with the VISHPO for the archeological excavation required for the water lines.

The new RO building will be a one-story building that is approximately 62.75 feet long by 15.50 feet wide and 10 feet high, with approximately 900 square feet (sq). Exterior doors and frames will be stainless steel to resist weather and corrosion. Exterior louvers used in the emergency generator room will be acoustical and stormproof, rolling door accessing the emergency generator room will have insulated slats, these options are included to minimize noise generated by both, emergency generators and RO equipment. The foundation will consist of a concrete floor slab. Access for maintenance to the cisterns will be through floor installed access doors where dirt and water are prevented from falling into work area (see Design Drawings, Sheet A02).

A hip reinforced concrete roof (slopes downward on all sides to the walls) will cover the entire building to avoid any damage from storms and inclement weather, safeguarding electrical and RO equipment. To replicate existing roofs in the area, the concrete roof will be made to resemble a metal roof. Exterior walls will be 6 inch poured-in-place reinforced concrete, with 6 inch concrete masonry unit (CMU) interior walls. Some portions of the exterior walls will be covered in natural stone veneer (Island Stone Veneer) to blend in with other site structures. Other exterior walls will be exposed concrete with raw wood form liner. The interior masonry walls will be painted with epoxy paint, and chemical resistant non-slip epoxy paint will be used on the concrete floors. The rest of the exterior walls will be exposed concrete.

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The new water storage tank will be a partially below grade cast-in-place concrete structure. The storage tank will have three compartments with one to store raw water received from the well and the other two to store finished water produced from the RO system. Each tank will be approximately 15 feet long by 12 feet wide and 10 feet deep. The compartments will be separated by an interior wall. Each basin will have an access door in the top slab with wall mounted FRP ladders.

The proposed new RO plant will be located north of the existing parking area and the existing sidewalk (see Design Drawings, Sheet C07). During construction, the park will remain open to visitors. Based on the proposed location, it is anticipated that no major impact will occur to the existing operations at the park, other than that the contractor will use some area at the existing parking for laydown, stockpile, office trailer and material storage. Contractor staging will be at the existing parking area near the northeast corner directly adjacent to the project. Access to the construction and staging area will be controlled, and visitors will be kept out of the area.

The majority of the utilities will be installed by open cut trenching methods. When installing and/or replacing utilities, some of the existing roadways within the parking area may be affected. Utility corridors will be placed in areas to minimize impacts as much as possible, but some sections may require partial disturbance of the existing asphalt pavement. Pavement restoration would be performed after installation of utilities is complete. In general, the utility systems will be constructed while the park is in operations. The existing water distribution systems will continue in operation until the majority of the construction is completed, just pending final connections to existing park areas.

In any areas where ground disturbance is anticipated due to construction activities (such as trench and cut for installation of pipe, clearing for placement of water treatment buildings, etc.), surveys and monitoring of archeological, rare or threatened and endangered species (plants and animals) must be performed to ensure minimal disruption to the sites.

Construction around the new water treatment building and storage tank area may result in some impact to existing vegetation, including bushes and native trees. Vegetative restoration would include two new trees planted for each one impacted by construction.

The contractor will develop a storm water pollution prevention plan (SWPPP) that will include an erosion control plan and a stormwater management plan in compliance with local regulations. The plan will include all stormwater management facilities and best management practices (BMP's) to be used during construction in coordination with the erosion and sediment control plan, and the final stormwater management plan. The plan shall include but is not limited to BMP's for erosion control (e.g., dust control, rip rap, etc.), runoff control (e.g., check dams, temporary diversion dikes, etc.), sediment control (e.g., sediment trips, sediment basins, silt fencing, etc.). Erosion and sedimentation controls and stormwater management facilities will be constructed, installed, stabilized, and functional before general site disturbance occurs. For stormwater management, the new treatment building, water tank, and access areas will be designed to direct runoff to sheet flow across vegetation. The new utility trenches will be restored to a stable surface cover which does not increase runoff. These stormwater best management practices will be in accordance with current USVI-DPNR standards.

Relevant Enforceable Policies

In accordance with the Coastal Zone Management Act of 1972 (16 United States Code [U.S.C.] §1456(c) this document provides the Government of the Virgin Islands of the United States (GVI), Department of Planning and Natural Resource (DPNR) and Coastal Zone Management Division (CZM) with the National Park Service (NPS) Consistency Determination under Coastal Zone Management Act section 307(c) (1) and 15

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Code of Federal Regulations (CFR) Part 930, Section b, subpart C for proposed actions to occur on NPS federally-owned land.

NPS has reviewed the VI Code, Title 12 Conservation, Chapter 21, Virgin Islands Coastal Zone Management (VICZM) Section § 903 (b) Findings and Goals. In addition, NPS has read and reviewed VI Code, Title 12 Conservation, Chapter 21, VICZM Section § 906 (a) 1-10, (b) 1-10, (c) 1-7 Specific Policies Applicable and found that the federal agency actions conform with and are not in conflict with any of the applicable policies in Section 906. The following analysis is for those policies within the Virgin Islands Code Title Twelve Conservation Chapter 21 Section § 903 (b) that are relevant to the NPS's proposed action:

- a) **Goal: 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.”*

Comment: The proposed project will maintain, preserve and restore the function of the facilities that provide needed public services, a man-made resource, and serve to enhance the overall quality of the environment in that area of the coastal zone. The man-made resource will benefit the residents of the U.S. Virgin Islands and the visiting public, by providing safe drinking and domestic water at Trunk Bay Beach and Recreation area, a location primarily for public use and enjoyment of recreational opportunities in normally heavily visited areas of St. John, United States Virgin Islands. The project will restore the reverse osmosis (RO) water treatment plant to its previous level of function for water use and sanitation and thus preserve the overall quality of the environment. To provide better overall resiliency and preserve resources, the plant will be rebuilt in a different location at Trunk Bay. The existing RO plant facility is located within a flood zone as identified in the current FEMA flood map. The location of the new proposed RO plant facility is outside of the flood zone, and the floor elevation of the facility will be set at a minimum of two feet higher than the flood elevation of the area.

The existing RO plant facility is also located within a protected archeological zone which contains subsurface prehistoric archeological remains of the Taino people. The existing RO facilities will be removed as completely as reasonably possible while reducing impacts to the subsurface remains by leaving some subsurface structures in place and requiring archeological monitoring during any heavy equipment use for demolition. Any ground disturbing work will require a prior archeological survey of the area. The location for the new RO facility, to the north of the existing parking area is outside of the archeologically sensitive area.

In addition, any vegetation, including bushes and native trees, impacted by construction around the new water treatment building and storage tank area will be replanted. Best management practices as outlined in a storm water pollution prevention plan (SWPPP) with an approved erosion and sediment control plan and stormwater management plan will be followed. All of these actions will serve to protect and preserve the overall quality of the environment and the resources of the coastal zone for the residents and visitors of the U.S. Virgin Islands.

- b) **Goal: 903(b)(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.”*

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Comment: The proposed project will replace the existing water treatment (RO) plant, with the projected goal to provide safe drinking and domestic water to visitors at Trunk Bay Beach and Recreation area and improve the resiliency of the water treatment facilities. Because of the damage caused by the 2017 hurricanes, the existing RO system has not been operating as expected. Trunk Bay is a location primarily for public use and enjoyment of recreational opportunities in normally heavily visited areas within the coastal zone of St. John, United States Virgin Islands. The replacement and improvements proposed in this project will allow the resumption of the important services that the reverse osmosis plant provides for the showers, restrooms, and concession facilities in this recreational area so that Trunk Bay can continue to be a popular destination for visitors who contribute to the local economy of St. John.

During the project work, care will be taken to prevent damage to natural surroundings, and any vegetation, including bushes and native trees, impacted by construction around the new water treatment building will be replanted. During demolition of the existing RO plant, great care will be taken to avoid impacts to prehistoric remains at the site. Best management practices will be followed as outlined in a storm water pollution prevention plan (SWPPP) with an approved erosion and sediment control plan and stormwater management plan. Erosion and sedimentation controls and stormwater management facilities will be constructed, installed, stabilized, and functional before general site disturbance occurs. All these efforts will protect park resources, promote economic development and maintain and enhance the long-term productivity of the coastal zone.

- c) **Goal: 903(b)(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”.*

Comment: The proposed project involves the replacement of the existing RO plant at Trunk Bay Beach and Recreation area within Virgin Islands National Park. The existing and proposed RO plant sites are located on federal land owned by the NPS, in an area already used for recreation by large numbers of island visitors and residents. The project sites are not located in any areas reserved for coastal development suitable for commercial uses. As such, the project will not impact coastal development potential on the island. Therefore, this goal is not applicable to this project.

- d) **Goal: 903(b)(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.”*

Comment: The island of St. John was severely impacted by the 2017 hurricanes, and communities have been slowly recovering. The proposed project will replace and improve the resiliency of the Trunk Bay RO plant that provides important services for visitors. The restoration of the full function of this facility will provide safe treated drinking water as well as water for showers and restrooms for a renewal of visitor use and enjoyment of recreational opportunities in a formally heavily visited area of St. John, United States Virgin Islands. The replacement of the RO facility will utilize as well as conserve resources of the coastal zone and improve and enhance the social needs of visitors and the residents of the United States Virgin Islands.

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- e) **Goal: 903(b)(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.”*

Comment: The proposed project does not involve any work in submerged or filled lands and will not impact trust lands or other submerged and filled lands. All construction activities will utilize best management practices to minimize disturbance and prevent erosion. The contractor will develop a stormwater pollution prevention plan (SWPPP) to include an erosion and sediment control plan and a final stormwater management plan to protect the coastal waters. The replacement of the RO plant proposed in this project will restore safe drinking water and the services that the restrooms and showers provide for the Trunk Bay Beach and Recreational area along with the visitors who contribute to the local economy of St. John. Therefore the project does promote the general welfare of the people of U.S. Virgin Islands.

- f) **Goal: 903(b)(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 shorelines consistent with constitutionally-protected rights of private property owners.”*

Comment: The replacement of the RO plant at Trunk Bay Beach and Recreation area will have no effect on public access to and along the shorelines. Private property owners will not be affected by the proposed project as the RO plant is on property federally owned by the NPS and within Virgin Islands National Park. The existing RO plant is not located immediately along the shoreline, but is within an area of Trunk Bay that is usually not accessed by the public, so there should be no effect to public access while the plant is demolished. The proposed RO plant location is immediately north of the existing parking lot at Trunk Bay. Although the public will not be allowed in the areas where work is being performed, this will be a localized area, and the remaining areas of Trunk Bay will remain open during project work. The contractor will use some area at the existing parking for laydown, stockpile, office trailer and material storage. Some partial disturbance of the existing asphalt pavement may be required in the roadways within the parking area for installation of utility systems, but impacts will be minimized as much as possible. The pavement will be restored after installation of utilities is complete. And following the project work’s completion, all Trunk Bay areas will be fully accessible to visitors. Therefore, the project will preserve and maintain the public’s right to use and enjoy the shorelines and will not prevent public access to and along the shorelines.

- g) **Goal: 903(b)(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.”*

Comment: The proposed project will improve and enhance visitor enjoyment of recreational opportunities at Trunk Bay Beach and Recreation area by restoring safe drinking water and the function of showers and restrooms to meet the needs of park visitors. There is an additional project that will repair in-kind the men’s and women’s restrooms and shower, along with other Trunk Bay facilities such as the pavilions and beach access ramps and staircases. With the replacement of the RO plant and the repair of the other facilities, the Trunk Bay Beach and Recreation area will be able to provide visitor services closer to the level that was available prior to the 2017 hurricanes. Although Trunk Bay is the only St. John beach to charge an entrance fee, there is no additional cost to visitors for the use of the restrooms or showers. The replacement and relocation of the RO plant is also consistent with sound resource conservation principles. The existing RO plant facility is located

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within a flood zone as identified in the current FEMA flood map. The location of the new proposed RO plant facility is outside of the flood zone, and the floor elevation of the facility will be set at a minimum of two feet higher than the flood elevation of the area. The existing RO plant facility is also located within an archeological zone which contains subsurface prehistoric archeological remains. The proposed new site is located outside of this sensitive archeological zone. The existing RO facility would be removed as completely as reasonably possible and great care will be taken to minimize subsurface disturbance to preserve the archeological remains. The relocation and replacement of the existing RO plant facility will help to protect the sensitive archeological resources, and is consistent with sound resource conservation principles.

- h) **Goal: 903(b)(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.”*

Comment: The replacement of the water treatment (RO) plant at Trunk Bay will not impact any ecologically significant resource areas or affect any significant natural areas. The project actions will not affect marine productivity, wildlife habitats or the function and integrity of reefs, marine meadows, salt ponds, or mangrove areas. The new RO plant will be constructed on developed properties within landscaped grounds which have been manipulated in the past and are not fully natural. All proposed project activities will utilize best management practices to minimize disturbance and prevent erosion and water and sediment runoff. Construction around the new water treatment building and storage tank area may result in some impact to existing vegetation, including bushes and native trees. Vegetative restoration would include two new trees planted for each one impacted by construction.

The existing RO plant facility is located within an archeological zone that contains subsurface prehistoric archeological remains. The existing RO facilities would be removed as completely as reasonably possible, while keeping ground disturbance to a minimum to reduce impacts to subsurface remains. Any heavy equipment used to demolish the plant will be operated in a manner that will minimize disturbance to the soils to the extent possible. Some ground disturbing work may be required to reroute water lines within the area to the new plant location. Archeological surveys will be conducted within the area where the existing RO plant would be demolished and where waterlines may be rerouted, and archeological monitoring may be required while the work is ongoing to ensure there are no adverse effects to known cultural resources.

- i) **Goal: 903(b)(9)** - *“Maintain or increase coastal water quality through control of erosion, sedimentation, runoff, siltation and sewage discharge.”*

Comment: Coastal water quality will be maintained during and after the replacement of the RO plant. A storm water pollution prevention plan (SWPPP) will be developed that will include an erosion and sediment control plan and a stormwater management plan. The contractor will submit the plan for approval showing all stormwater management facilities and best management practices (BMP's) to be used during construction in coordination with the erosion and sediment control plan, and the final stormwater management plan. The plan shall include but is not limited to BMP's as required by EPA for erosion control (e.g., dust control, rip rap, etc.), runoff control (e.g., Check dams, temporary diversion dikes, etc.), sediment control (e.g., sediment trips, sediment basins, silt fencing, etc.). Erosion and sedimentation controls and stormwater management facilities will be constructed,

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installed, stabilized, and functional before general site disturbance occurs. These steps will prevent any negative impacts to coastal water quality during and after the replacement of the reverse osmosis (RO) plant.

- j) **Goal: 903(b)(10)** – *“Consolidate the existing regulatory controls applicable to uses of land and water in the coastal zone into a single unified process consistent with the provisions of this chapter, and coordinate therewith the various regulatory requirements of the United States Government.”*

Comment: The proposed project to replace the RO plant at Trunk Bay Beach and Recreation area within Virgin Islands National Park will not change any existing regulatory controls or requirements. Therefore, this goal is not applicable to this project.

- k) **Goal: 903(b)(11)** – *“Promote public participation in decisions affecting coastal planning conservation and development.”*

Comment: This project involves the replacement of the RO plant at Trunk Bay Beach and Recreation area within the Virgin Islands National Park. Part of the project work will be conducted within an archeological zone where subsurface prehistoric archeological remains are located. As part of the project process, NPS will undergo the process of Section 106 consultation with the US Virgin Islands State Historic Preservation Office (VISHPO). For this project, the Section 106 compliance pathway will require a Memorandum of Agreement (MOA) with the VISHPO for the archeological excavation required for the water lines. The Section 106 consultation will require public involvement. NPS will engage the public during the Section 106 process. In addition, the Trunk Bay Beach and Recreation area is very popular with tourists and receives large numbers of visitors. The RO plant project will therefore be visible to many visitors and have positive effects on their enjoyment of the area. The project will likely generate much interest in the visiting public and residents. NPS will consult with DPNR regarding the potential need to publish a public notice about the RO plant project, or other means of informing the public about the project.

Sabrina Diaz, Deputy Superintendent

Nigel A. Fields, Superintendent

January 28th, 2021
Date