Flores-Jatib, Christian - RD, San Juan, PR

From: Morales, Clery - RD, San Juan, PR
Sent: Friday, February 02, 2018 9:00 AM
To: Flores-Jatib, Christian - RD, San Juan, PR
Subject: FW: LRA Section & Consultation
Attachments: Fish & Wildlife LRA Section 7 Consultation Original.pdf

Another one

Clery Morales / State Engineer / SEC
Rural Development
U.S. Department of Agriculture
654 Muñoz Rivera Ave., Suite 601 Hato Rey, PR 00918
Phone: 787.766.5095 X 5671 | Fax 787.281.4993
www.rurdev.usda.gov

"Committed to the future of rural communities"
"Estamos dedicados al futuro de las comunidades rurales"

From: Morales, Clery - RD, San Juan, PR
Sent: Thursday, July 20, 2017 10:10 AM
To: 'edwin_muniz@fws.gov' <edwin_muniz@fws.gov>
Cc: Rodriguez, Nereida - San Juan, PR <Nereida.Rodriguez@pr.usda.gov>
Subject: LRA Section & Consultation

Dear Mr. Muñiz.
Please find enclosed a soft copy of the USDA/RD Section 7 consultation for the proposed projects of improvements to the existing Drinking Water and Sewer Systems in the former base Roosevelt Roads in Ceiba.

If you need additional information please contact me at phones below.

The original document is in the regular mail addressed to your Agency.

Saludos

CLERY

Clery Morales / State Engineer / SEC
Rural Development
U.S. Department of Agriculture
654 Muñoz Rivera Ave., Suite 601 Hato Rey, PR 00918
Phone: 787.766.5095 X 5671 | Fax 787.281.4993
www.rurdev.usda.gov

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USDA
United States Department of Agriculture

Rural Development

Community Programs
State Office

654 Muñoz Rivera Ave.
San Juan, PR 00918
PO Box 366106
San Juan, PR 00936-6106
Phone: 787.766.5095
Fax 787.766.5844

July 20, 2017

Mr. Edwin Muñiz, Esq.
Field Supervisor
U.S. Fish and Wildlife Service
Caribbean Ecological Services Field Office
PO Box 491
Boquerón, Puerto Rico 00622

Via Regular Mail and email (edwin_muniz@fws.gov)

Re: Informal Section 7 Consultation for Wastewater Infrastructure Improvements at Roosevelt Roads, Ceiba, Puerto Rico

Dear Mr. Muñiz:

The Local Redevelopment Authority (LRA) for Roosevelt Roads, proposes the improvements to some components of the existing wastewater infrastructure at the former Naval Station Roosevelt Roads. The improvements are needed in order to provide better economic development opportunities as part of the premises' redevelopment. The proposed project will be funded thru a USDA Rural Development Loan/Grant Program and an informal consultation to FWS is required.

The proposed improvements will include:

- The replacement of the former Forrestal WWTP with a package plant allowing for modular construction and increasing treatment as volume increases. The first stage of this project will consist of a tertiary treatment capability of .25 Million of Gallon per Day (MGD) with the ability to upgrade to .5 MGD in the future. The new facility will use the existing ocean outfall and would need a new NPDES permit for this action.

- Replacement or rehabilitation of some portions of the main gravity sewer lines and rehabilitation of supporting systems such as lift stations and force lines.

Enclosed is a project summary and description document.

The former Naval Station Roosevelt Roads provides habitat for several federally listed species, that include: Yellow shouldered blackbird (*Agelaius xanthomus*); Virgin Island boa (*Epicrates monensis grantii*); Puerto Rico boa (*Epicrates inornatus*); Hawksbill sea turtle (*Eretmochelys inbricata*); Antillean manatee (*Trichechus manatus manatus*); and Cóbana negra[1] (*Stahlia monosperma*).

The project will impact currently developed areas, roads, buildings and right of ways. The majority of the work will be carried out either on existing facilities or in the case of water mains, along existing roads. Impacts to listed species or their habitat is considered minimal. In addition, the contractor will have qualified personnel to assist with any wildlife related matters and will follow the FWS recommendations and conservation measures.

Given the site and the scope of the project, we believe that the proposed activities are not likely to adversely affect endangered species within or adjacent to project areas. It is our understanding that based on the project scope a Formal Section 7 Consultation will not be required.

Should you have any questions or require further information please do not hesitate to contact Eng. Clery Morales at (787) 766-567; via e-mail at clery.morales@pr.usda.gov or the undersigned at (787) 766-5158 via email at nereida.rodriguez@pr.usda.gov

Cordially,

Nereida Rodriguez
CP Director

Enclosure

[1] The listed plant cóbana negra could be found along the margins of wetlands, salt flats, or coastal areas.

Summary for:

Wastewater Infrastructure Improvements (Phase I) at Roosevelt Roads Re-development
Ceiba-Naguabo, Puerto Rico

August 10, 2016

COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF
ECONOMIC DEVELOPMENT
& COMMERCE
PRPC

ROOSEVELT
ROADS

LOCAL REDEVELOPMENT AUTHORITY FOR ROOSEVELT ROADS
Fomento Industrial Building
#355 Roosevelt Ave. Suite 106
Hato Rey, PR 00918
T (787) 274-6088
www.rooseveltorads.pr.gov

Prepared by:

INTEGRA
architects & engineers

Integra Design Group, Architects & Engineers, PSC
 # 576 Arterial B Avenue, Suite 102
San Juan, PR 00918

Contact: Carlos I. Báez, MSCE, PE
Principal in Charge I Lead Engineer
T. 787-767-2111 F. 787-758-7757
cbaez@integrapr.com
http://integrapr.com/

1) EXECUTIVE SUMMARY & INTRODUCTION

The "Local Redevelopment Authority for Roosevelt Roads" (LRA), proposes major wastewater infrastructure improvements for the initial re-development at a group of land parcels conforming the former "Naval Station Roosevelt Roads". This group of parcels is located on the Machos, Guayacán, Quebrada Seca and Daguao Wards, in the municipalities of Ceiba and Naguabo, PR. After the United States Navy ceased military operations in Roosevelt Roads in 2004, the Government of Puerto Rico created the "Local Redevelopment Authority – Roosevelt Roads" (LRA) as the government agency authorized to promote the re-development at the former base.

The re-development of the former "Naval Station Roosevelt Roads" (NSRR or Roosevelt Roads) in Ceiba and Naguabo, requires the planning for a proper infrastructure support. Because of its age and prior uses, the existing facilities at former NSRR won't –at mid and long term- optimally satisfy the predicted demands as defined by a Reuse Plan prepared by the LRA.

The 2014 Development Zones Master Plan was prepared by the LRA and the 2014 "Plan Especial y Reglamento para el Redesarrollo de los Terrenos y Facilidades de la Antigua Base Naval de Roosevelt Roads, (ROTFU)" was prepared by the PR Planning Board as Reuse Plans to supplement and redirect the focus of the development to better leverage site opportunities, current market potentials and strategic economic development opportunities in order to temperate new economic and social conditions. After full build-up (in about 25 years), it is expected to create 21,000 jobs and bring $280 million from the construction and $600 million from the operation during the first 20-25 years. It will then support a mixed development of residential units, hotel rooms, combined lodging, retail, office and light industrial space.

Based on current redevelopment conditions, the LRA has the intention to provide initial infrastructure improvements (Phase I) for a portion of the re-development zones as established in the 2014 Development Zones Master Plan. The developing zones are the following: A1, A2, A3, A4, B1, B2, B3, B4, C1, C2, D1. While some portions of the proposed infrastructure improvements will provide the capacity for servicing the 25 years (years 2016 to 2041) re-development period, other components such as the water treatment plant will have a limited capacity until the year 2028.

In addition to serving those zones, the proposed infrastructure improvements will provide the capacity for servicing other future interconnected re-development zones, in the 25 years (years 2016 to 2041) development period.

The infrastructure improvements must be developed during the first 5 years (years 2016 to 2021) of the re-development in order to be effective and in operation for the current and initial clients.

2) EXISTING FACILITIES

a) History

President Franklin Roosevelt ordered the construction of the facility in 1940. It was completed in 1943 and Roosevelt Roads was commissioned as a U.S. Naval Operations Base. Some portions of the wastewater sewer system, including a sewage pumping station within the industrial area located at the East portion near "Puerca" Bay were constructed between 1942 and 1943.[1]

The general development of the wastewater collection, conveyance and treatment systems at NSRR were apparently influenced by the local topography and vegetation cover, as well as the surrounding land usage. The several distinct ridge lines crossing the NSRR have resulted in separate sewer sheds to collect and convey wastewaters to one of three wastewater treatment facilities.

1. "Building the Navy's Bases in World War II" History of the Bureau of Yards and Docks and the Civil Engineering Corps 1940-1946 Volume II.

i) Wastewater Collection Systems

The wastewater collection system at Roosevelt Roads was developed in multiple stages accordingly to the naval station population growth. It is composed of a series of gravity lines, lift stations and force lines. About 90% of the occupied and developed portions of the Base are serviced by means of the wastewater collection system. The three are independent sewer sheds with the exception of one planned intershed transfer of wastewater. The three sewer sheds are known as the Bundy, Capehart and Forrestal systems. The three WWTP's provide a total combined capacity of approximately 3.26 million gallons per day (MGD)

2. "Wastewater Utility Master Plan", Naval Station Roosevelt Roads, February 1999, Gannet Fleming Inc., for the Atlantic Division Naval Facilities Engineering Command

ii) Wastewater Treatment Plants and Treatment

There are three wastewater treatment plants (WWTP's) inside the base. As stated above, the collection system is divided in three separate systems that discharge into their respective WWTP which provide tertiary treatment and discharge into ocean outfalls. The three WWTP's (Bundy, Capehart and Forrestal) provide a total combined capacity of approximately 3.26 million gallons per day (MGD).

iii) System Administration and Operation

The US Navy owned the collection and treatment system facilities but the operation of all the systems was performed by a private sub-contractor.

Currently the collection and treatment system facilities are owned by the LRA. The operation and maintenance of the collection systems is performed by LRA personnel. The treatment systems are currently not in operation. The sewer service is billed to some of the current tenants, depending on use of the facilities and on various fee agreements.

b) Condition of Existing Facilities

i) Wastewater Collection System

The collection system is composed of approximately 32.5 miles (52.3 kilometers) of gravity pipes and 906 manholes.
Gravity lines Pipes range in various sizes up to 24 inches in diameter. The composition of gravity lines piping *materials is distributed approximately of 45% PVC, 1% asbestos, 1% concrete and a remaining of unknown* materials. The collection system piping services virtually all the developed areas inside the Base except Punta Puerca, Punta Medio Mundo and Cabras Island areas. These three areas are served by septic tanks.

The existing pipelines network is mainly located along the existing road corridors. The conditions of the existing piping's cannot be easily addressed, although based on collected data, major repairs and improvements were performed by the U.S. Navy under projects "P-495 Upgrade to Sanitary Collections Systems" and "Repairs to Wastewater Collection Systems", both in 1993.

From the assessed analysis the main findings were:

- Most of the gravity sewer lines are non-compliant with PRASA regulations regarding minimum slopes and maximum distance between manholes.
- Existing manholes do not comply with safety regulations regarding location and cover protection.
- Most of the sewer lines were replaced with PVC pipes during the 1993 system upgrade.

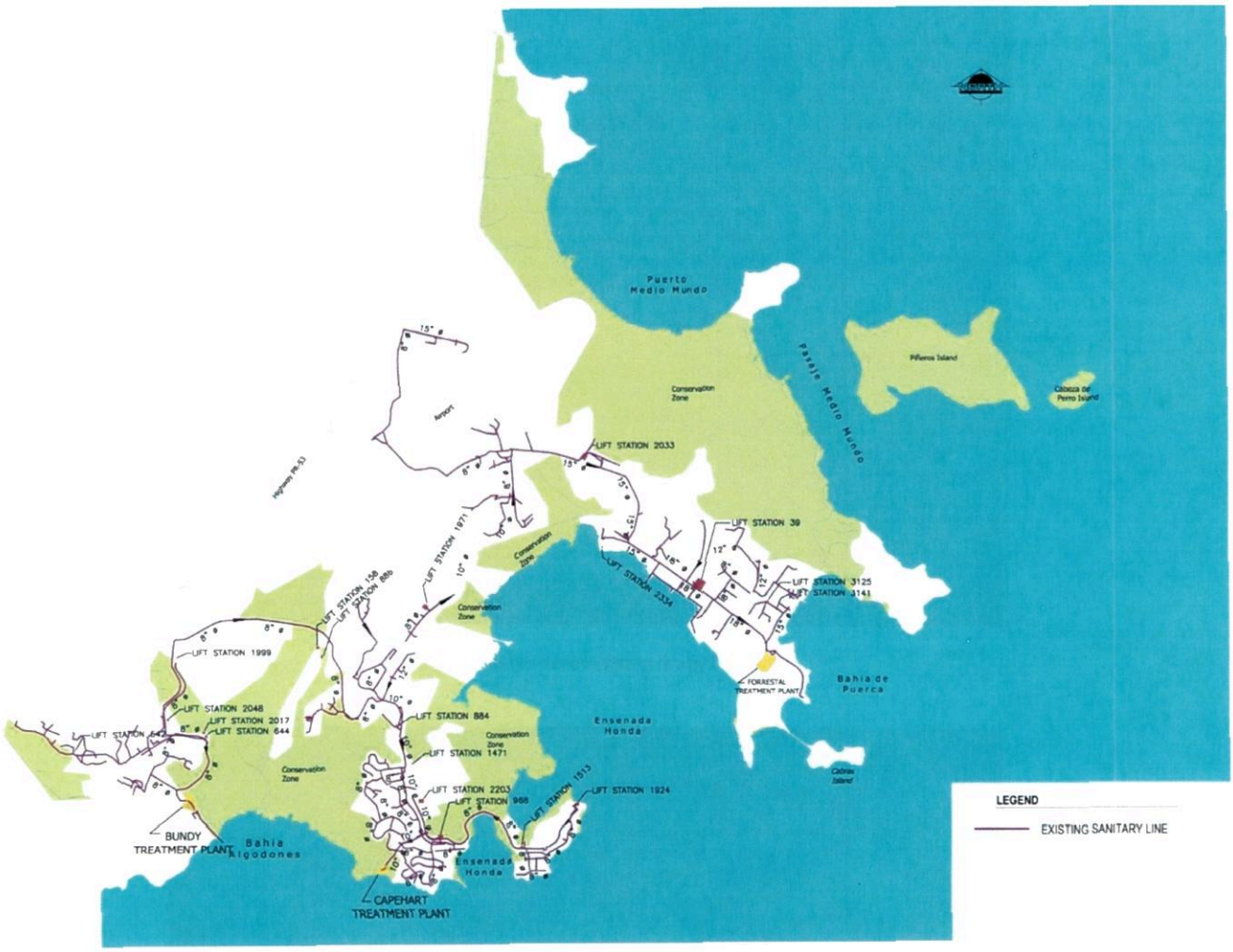

Figure 1 Existing Sanitary Sewer Systems and WWTP's

Figure 2 Typical gravity sewer system manholes

Figure 3 Typical gravity sewer system manhole

i) Lift Stations and Force Lines

There are 28 pump stations and 6 grinder stations that discharge through a network of approximately 9.5 miles (15.3 kilometers) of force lines. Currently all the lift stations are kept out of operation.

Force lines pipes range in various sizes up to 10 inches in diameter. The composition of force lines piping materials is distributed approximately of 81% PVC, 7% Ductile Iron and a remaining of unknown materials. A vast majority of the force lines are located along the existing road corridors. The conditions of the existing piping's cannot be easily addressed, although based on collected data, major repairs and improvements were performed by the U.S. Navy under project "P-495 Upgrade to Sanitary Collections Systems" in 1993.

The lift stations distribute the discharges into three different wastewater treatment plants (WWTP's) depending on their location: Bundy WWTP, Capehart WWTP, and Forrestal WWTP.

For this project, Forrestal WWTP will be used. The Forrestal sanitary shed includes 6 sanitary sub-basins with approximately 68,000 linear feet of gravity sewers and 13 lift stations that convey into the Forrestal WWTP.

For the project area, there are three main lift stations that will be used:

- Lift Station 39
- Lift Station 1971
- Lift Station 2382

The service areas for the three lift stations are shown on the next figure.

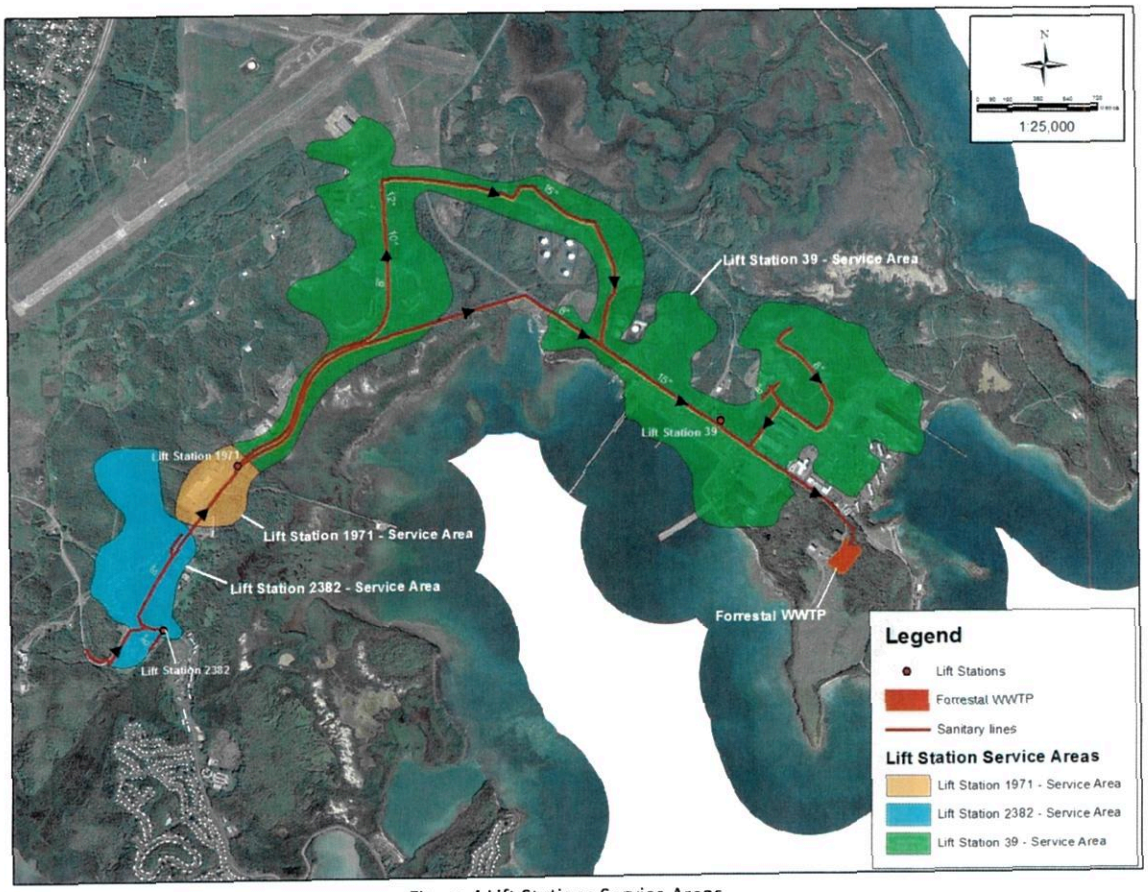

Figure 4 Lift Stations Service Areas

Lift station 39

This lift station built in the year 1944, is a major facility located on Forrestal Drive, north of the pier facilities. This lift station receives wastewater from several areas on the west, north and east of the Base. It uses two 1,500 gpm pumps, on which a single pump can handle up to 2.16 MGD. This lift station discharges into an 18" pipe that flows by gravity into the Forrestal WWTP headwork.

The lift station has been vandalized and is not operating. It is still receiving sewage inflows from the current tenants within its service area. The inflows are stored in the wet pit, which is drained once a week or as needed. *The sewage is transported and disposed in the Fajardo Regional WWTP.*

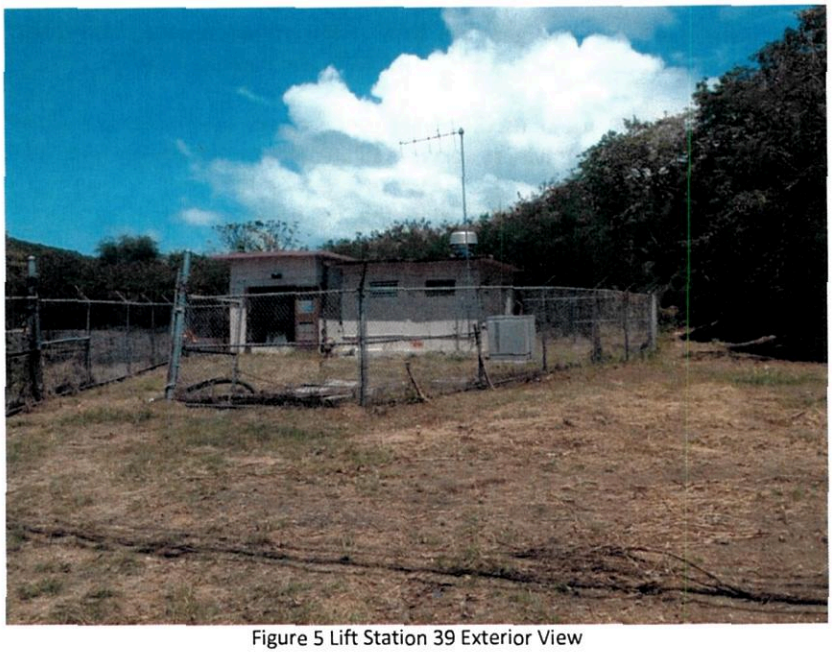

Figure 5 Lift Station 39 Exterior View

Figure 6 Lift Station 39 Interior View

Lift station 1971

This lift station built in the year 1979, is located on Langley Drive, adjacent to a former fast food commercial building. It has two 50-hp pumps. This lift station receives wastewater from the adjacent commercial areas (former Navy Exchange) on Langley Drive. It discharges by means of a 6" force line into a gravity sewer northeast of the lift station, also on Langley Drive.

The lift station has not been maintained and is not operating. Because there are no current tenants in the service area, no inflows are being received at the lift station.

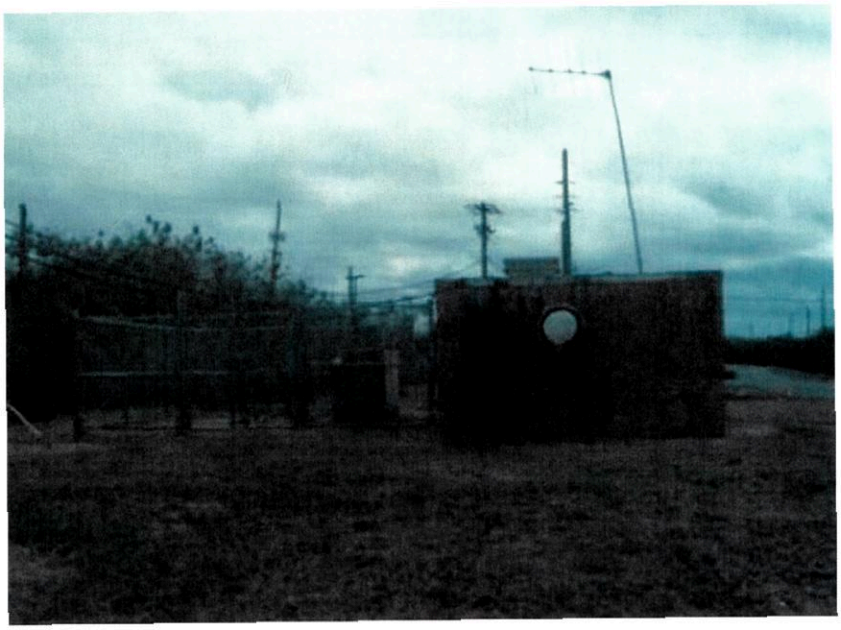

Figure 7 Lift Station 1971 Exterior View

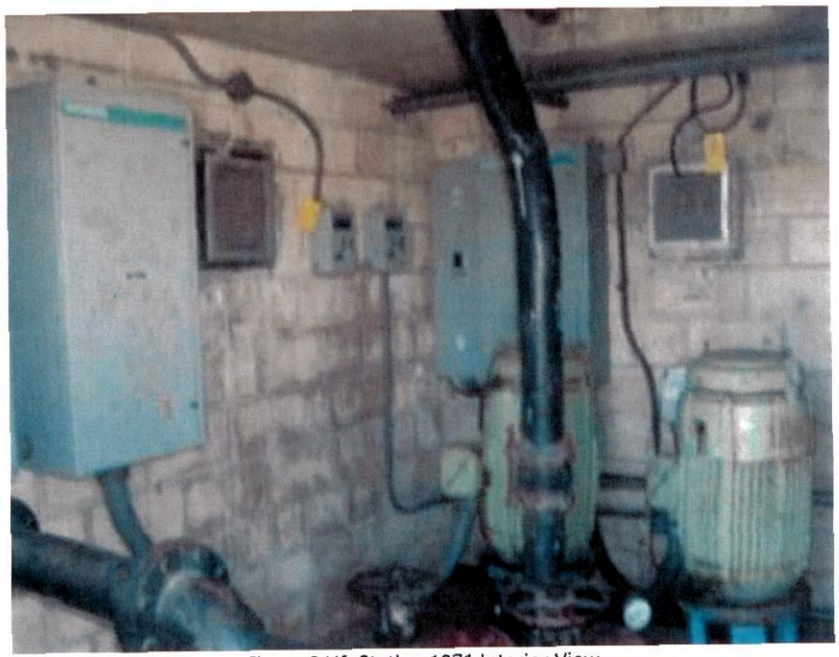

Figure 8 Lift Station 1971 Interior View

Lift station 2382 (formerly 1916)
This lift station formerly known as 1995, is located on F.D.R. Drive, across the former elementary school, now converted into the "Centro de Oportunidades Educativas d Ceiba (CROEC)". It has two 20-hp pumps. This lift station receives wastewater from the former residential and operational facilities on North Delicias area.
It discharges by means of a 8" forceline into Lift Station 88 adjacent to the Water Treatment on Langley Drive.

The lift station has not been maintained and is not operating.

Figure 9 Lift Station 2382 Exterior View

Figure 10 Lift Station 2382 Interior View

From the assessed analysis of those three lift stations, the main findings were:

- Leaking, broken or missing pumps
- Vandalized electrical and control equipment
- Electrical panels with interior debris and corrosion
- Telemetry and alarm systems out of service
- Outdated automatic control systems
- Emergency Generators without battery systems
- Dry pit sump pump systems missing
- Vault doors corroded and non-working
- Buffer zone non compliance
- No trolley hoists for pumps servicing or removal
- Broken perimeter fence
- Defective site electrical connection
- Defective wet pits protective coatings
- Defective Architectural finishes
- Missing or defective safety equipment

In general, the three lift stations will need major rehabilitation and upgrades. Some of the lift stations ceased operation after the base closure in the year 2004 and others, were operating in a limited mode until the year 2011.

ii) Forrestal Wastewater Treatment Plant

Forrestal WWTP is the largest of the three existing wastewater treatment facilities. It was constructed in the early 1970's and is located east of the Base, to the southeast of the Forrestal sector, and north of the Base Landfill. Forrestal provides wastewater treatment by means of clarification, biological treatment in trickling filters, nutrients removal, and disinfection after which the wastewater is discharged to the Ensenada Honda Bay. The plant was updated from secondary to a tertiary treatment process in 1996 and has a design capacity of 0.97 MGD. Currently the WWTP is kept out of operation.
There is also a sludge treatment system composed of anaerobic digesters and five drying beds.

From the assessed analysis the main findings were:

- WWTP is in general poor condition, major repairs are needed
- Grit chambers out of service
- Trickling Filter mechanical systems
- Level sensors missing
- Sludge valve motors broken
- Sludge removal system broken
- Structural cracks on concrete tanks
- Vandalized electrical systems and control panels
- New EPA (NPDES) and PR Environmental Quality Board Permits are needed for operation

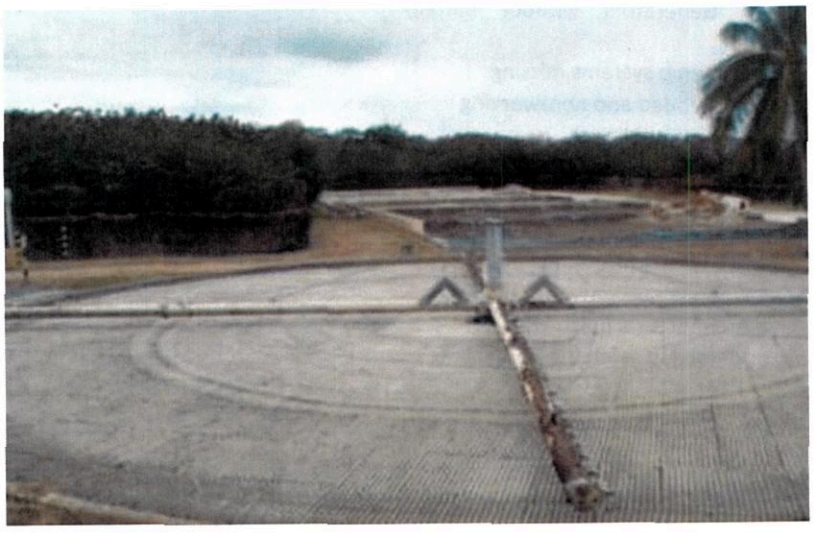

Figure 11 Trickling Filter at Forrestal WWTP

Figure 12 Primary Clarifier at Forrestal WWTP

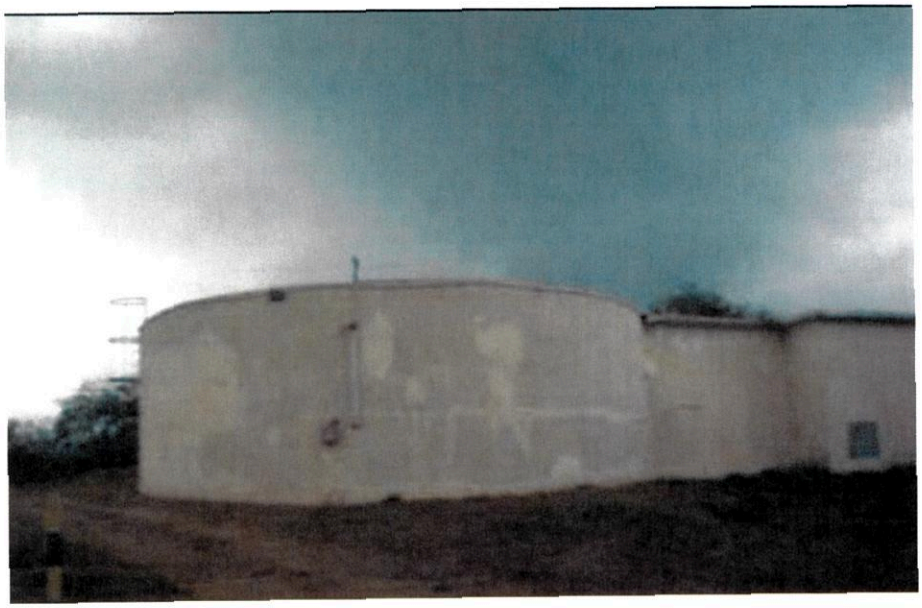

Figure 13 Anaerobic Digester at Forrestal WWTP

3) PROPOSED PROJECT

i) General Description

The project proposes the substitution of the existing Forrestal WWTP conventional treatment system with a new modular package treatment system.
In addition it involves the replacement or rehabilitation of some portions of the main gravity sewer lines and rehabilitation of Lift Stations 39, 1971, and 2382. A new force line is proposed from Lift Station 2382 up to the existing gravity sewer on the marina/waterfront area.

The proposed improvements will be located on the existing road corridors and right of ways. Some road corridors can be located adjacent to natural zones such as heavily vegetated areas and wetlands, thus construction activities shall be performed with restrictions in order to prevent, the intrusion of heavy equipment and personnel into those sensitive areas. In addition effective erosion control measures are needed to prevent sedimentation and contamination. No temporary or permanent effect on sensitive vegetation areas is expected due to the proposed improvements.

Based on current redevelopment conditions, the LRA has the intention to provide initial infrastructure improvements (Phase I) for a portion of the re-development zones. The Phase I developing zones are the following: A1, A2, A3, A4, B1, B2, B3, B4, C1, C2, D1.

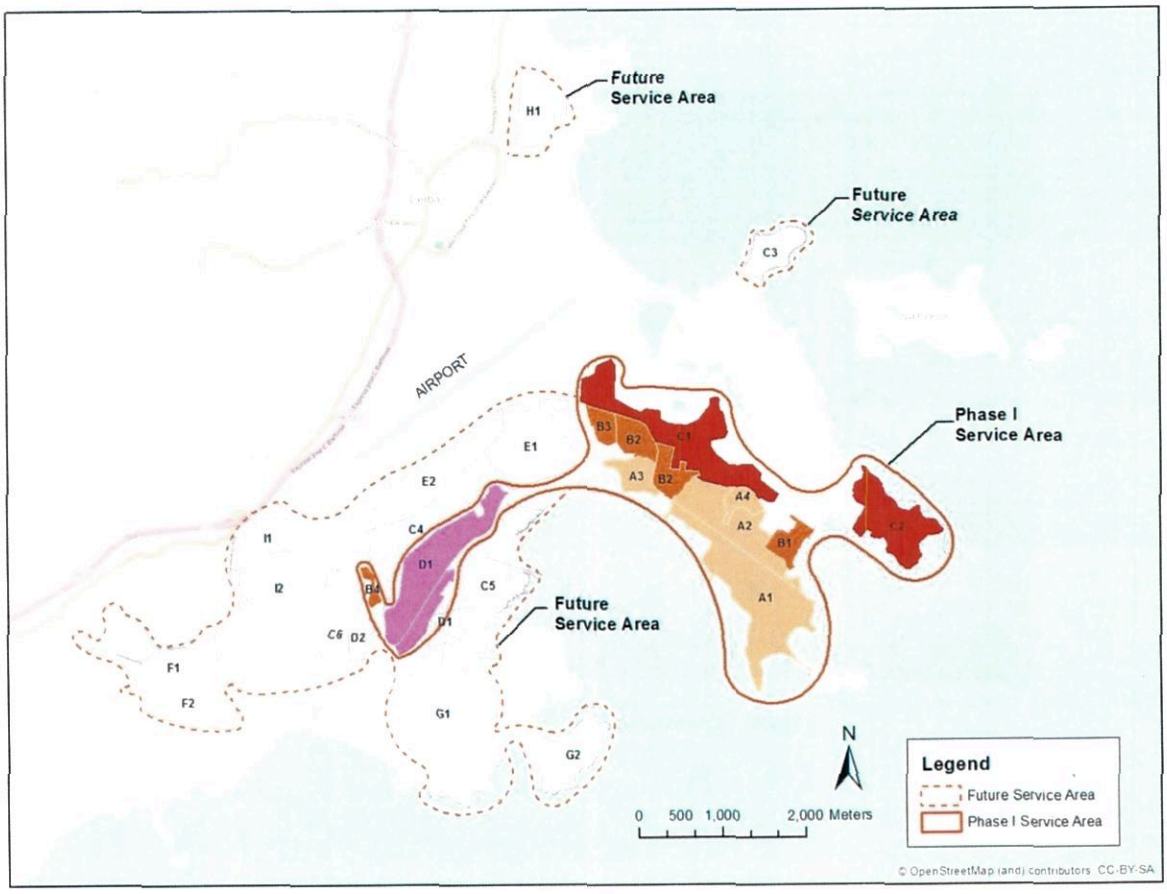

Figure 14 Project Service Areas

A description of the improvements is presented here:

ii) Forrestal WWTP Substitution

This alternative proposes the construction of a new WWTP in the current location of the Forrestal WWTP. The project will eliminate and replace the existing treatment plant. The proposed treatment system will be a compact conventional process package potable treatment plant. This type of modular, system, is a complete and autonomous wastewater treatment plant with a short delivery time and very simple works on site allow to bring quickly wastewater treatment. It can also be expanded according to demands increments.

This system will be installed in two stages. The first stage will provide a treatment capacity of 0.25 MGD during year 2018 and a second stage will provide additional 0.25 MGD for a total of 0.50 MGD on year 2020.

The proposed project shall consider the following elements:

First Stage:
The first stage consist of the construction of a WWTP with a capacity of 0.25 MGD. This plant will consist of the following treatment units:

- Screens
- Grinders (2)
- Grit Chamber
- Headwork Lift Station
- Parshall Flume
- Equalization Tank
- Sequencing Batch Reactor (SBR)
- Chlorine Contact Chambers
- Hydro-pneumatic Tank
- Anaerobic Digesters
- Sludge Drying Beds

Influent wastewater will first pass through preliminary treatment that will remove large-size particles and inorganic material. Since for this first phase it is proposed to construct an SBR, which operate in batches, the preliminary treatment effluent will be pumped to an equalization tank that will serve as storage during SBR's Reaction, Sedimentation and Discharge stages. After the secondary treatment, the stream will be conveyed by a gravity pipe system to a new Chlorine Contact Chamber to inactivate pathogen microorganisms. Once the treatment process is completed, it is discharged to a pond or tank. The final effluent will be irrigated by the use of a pumping system composed of two pumps and a hydro-pneumatic tank to be reused in future phases.

The generated sludge in the biological treatment and preliminary treatment will be conveyed through a force line to an anaerobic digester and then it will be dewatered in the existing sludge drying beds, these beds will be rehabilitated.

Second Stage:
The second phase will be the expansion of the first phase that will have a capacity of 0.50 MGD. This plant will consist of the following treatment units:

- Screens
- Grinders (2)
- Grit Chamber
- Headwork Lift Station
- Parshall Flume

- Equalization Tank
- Activated Sludge Biological Reactor
- Secondary Clarifier
- Chlorine Contact Chamber
- Hydro-pneumatic Tank
- Anaerobic Digesters
- Sludge Drying Beds

In this phase the SBR constructed in the first phase will be converted into an Activated Sludge Biological Reactor. To complement the conversion a secondary clarifier will be constructed. The treatment capacity will be increased from 0.25 MGD to 0.50MGD, the SBR will be designed considering that it will be converted to the treatment unit mentioned before.

Electrical Power and Control

1. Substation replacement
2. New emergency generator
3. New control room instrumentation and control equipment

Miscellaneous

1. New laboratory equipment
2. Site improvements
3. Control building architectural improvements
4. Commissioning

iii) Gravity Sewer System Improvements

The existing gravity sewer system is composed of multiple pipelines of different materials and diameters with different lifespans. Most of the existing pipelines are PVC pipes that were installed in the 1990's, according to various construction drawings and reports provided by the US Navy. Those PVC pipe portions shall be in good condition, as PVC pipe can have a longevity in excess of 100 years. Only portions, not identified as PVC pipes will be replaced. The assessment of the pipe segments that need replacement is based on the following:

a) Assessment included in report *"Wastewater Utility Master Plan", Naval Station Roosevelt Roads, for the Atlantic Division Naval Facilities Engineering Command,* prepared by Gannet Fleming on February 1999
b) Assessment included in *"Roosevelt Roads Infrastructure Master Plan"*, prepared for the Local Redevelopment Authority for Roosevelt Roads, by Integra Design Group on June 2012
c) Assessment included in report "Naval Station Roosevelt Roads Forrestal Wastewater System Assessment Report" prepared for the Local Redevelopment Authority for Roosevelt Roads, by Environmental Resources Management (ERM) on May 2011
d) Plans: *"General Development Map, Sanitary Sewerage System"* prepared by the Atlantic Division Naval Facilities Engineering Command
e) Plans: *"Upgrade Sanitary Collection and Treatment Systems"* prepared for the Atlantic Division Naval Facilities Engineering Command, by R. Kenneth Weeks Engineers on January 1993
f) Interviews with LRA utilities management personnel

It should be noticed that additional field studies must be performed during the planning phases in order to confirm the location, materials and condition on the pipe segments to be repaired or replaced.

Also, from preliminary analyses, it is estimated that the current system will be able to provide the capacity for the future development with only minor upgrades or improvements.

The improvements contemplated on this phase will include the following:

1. Replacement of 8" Ø lines, with new 8" Ø PVC lines on Langley Drive from the intersection of South Princeton Road up to the intersection with F.D.R. Drive. The approximate total length of pipe line is of 1,239 meters.
2. Installation of a new 8" Ø PVC line on F.D.R. Drive from the CROEC School in direction to the Lift Station 2382. The approximate total length of pipe line is of 158 meters.
3. Installation of a new 10" Ø PVC line on F.D.R. Drive from the CROEC School up to Lift Station 2382. The approximate total length of pipe line is of 49 meters.
4. Replacement of 15" Ø lines, with new 15" Ø PVC lines on Langley Drive near the former Fire Station. The approximate total length of pipe line is of 269 meters.
5. Replacement of 18" Ø lines, with new 18" Ø PVC line on Forrestal Drive from Lift Station 39 up to the connection point on Forrestal WWTP. The approximate total length of pipe line is of 358 meters.
6. All the existing secondary or service branches that serve the existing or proposed facilities shall remain connected to the sewer mains.

iv) Lift Stations 39, 1971 and 2382 improvements

The upgrade and rehabilitation project will retrofit the existing pumping system units, improve several components and install new control units to have a fully automatically and efficient operation while complying with current federal and state regulatory limits. In addition, its capacity will be expanded as needed, to handle additional inflows.

The proposed project shall consider improvements to the following elements:

1. New Process Control Instrumentation & Automation – The lift stations shall be provided with a SCADA (supervisory control and data acquisition) system, which is central control system operating with coded signals over communication channels so as to provide control of remote equipment.
2. Dry and wet pits improvements – Structural repairs, new coating and control valves. Wet well expansion as needed.
3. Pumping System – Every pump system will be replaced according to wastewater flows and to provide high efficiency electric motors.
4. Control and emergency generator buildings architectural repairs- Replacement of doors, windows, stairs, hatches, painting and roofing waterproofing.
5. Electrical improvements- Repair of electrical distribution system, electrical site connection and new emergency generator. Replacement of interior and exterior lighting fixtures.
6. Site improvements - new exterior fencing, and hardscape.
7. Commissioning and Start Up- Commissioning and startup of all new mechanical and controls equipment.

The location of the existing Forrestal WWTP, lift stations and sewer systems with proposed new or replacement segments are shown on **Error! Reference source not found.** and on Appendix I.

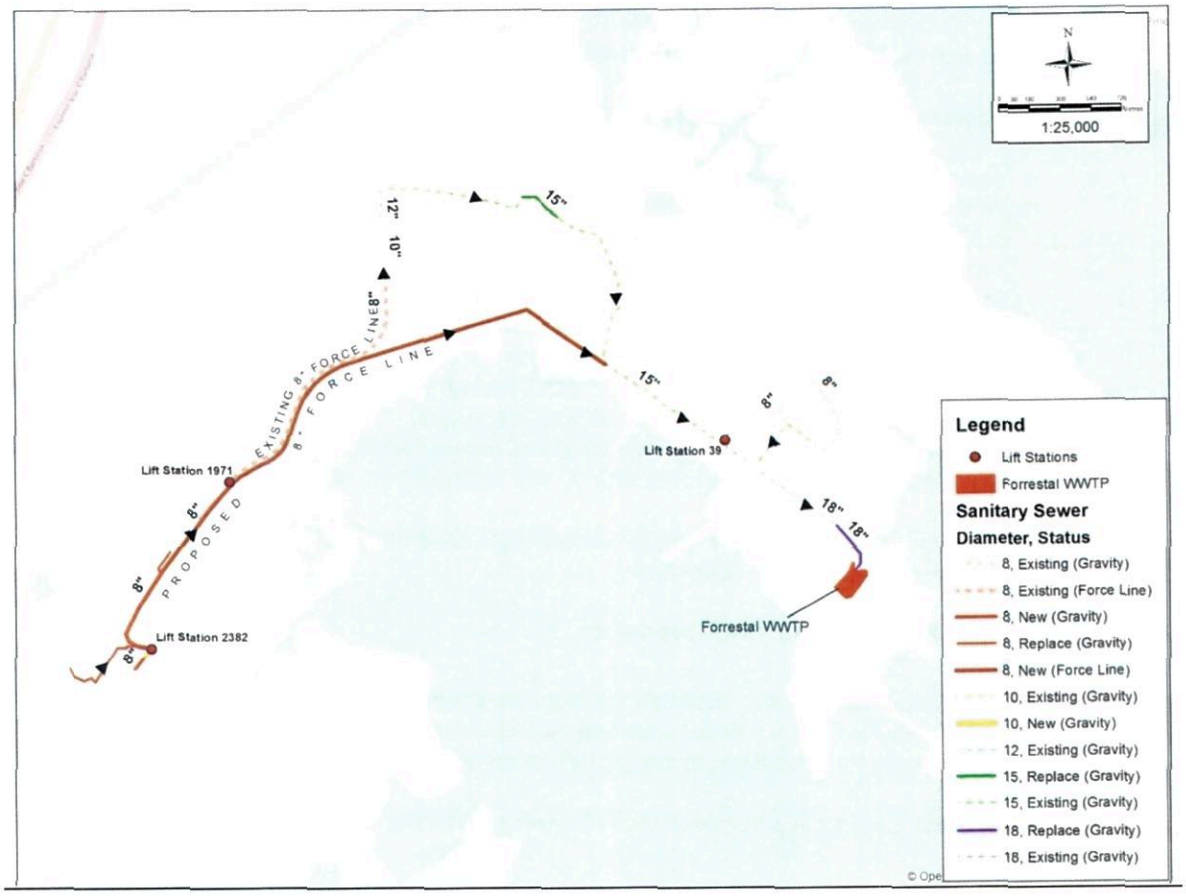

Figure 15 Existing and Proposed Wastewater System Improvements

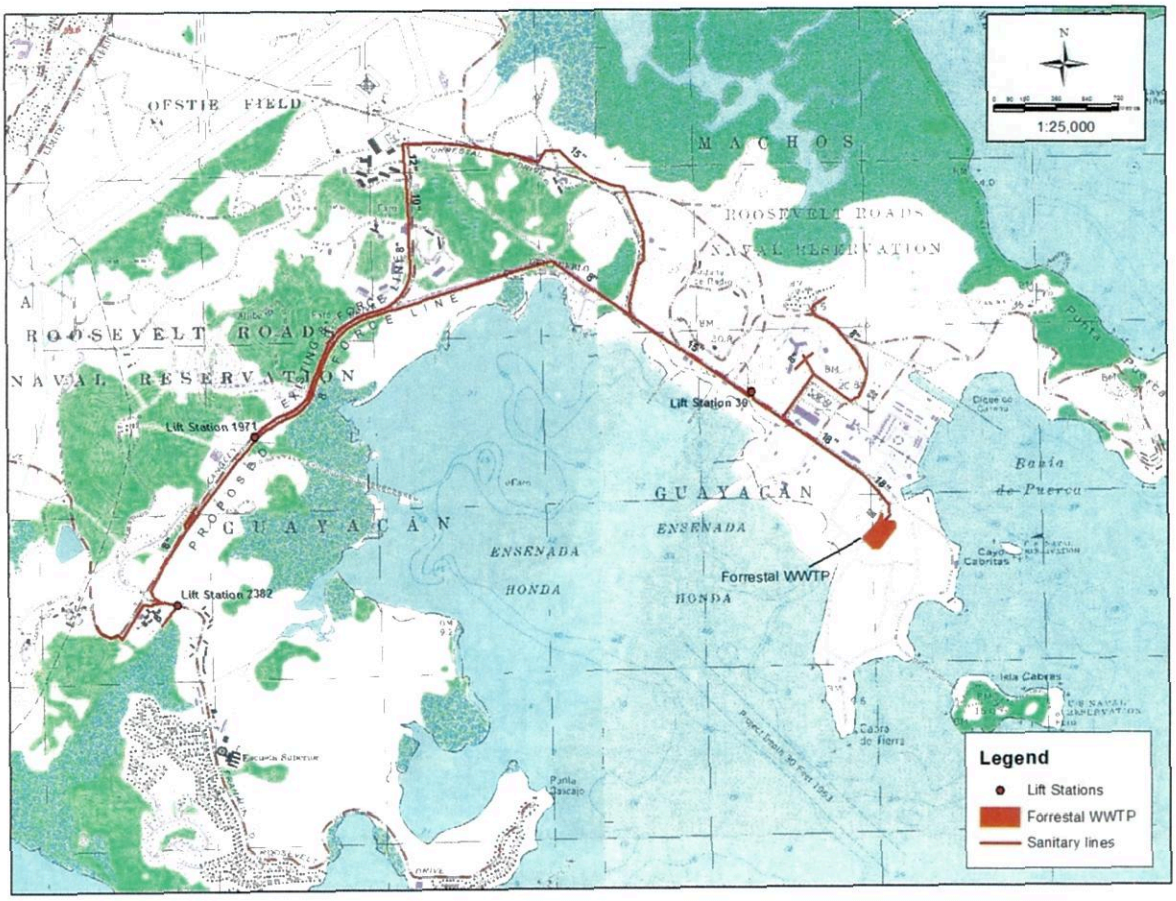

Figure 16 Topographic Map

Figure 17 Aerial Photo

3) WILDLIFE IMPACTS

Wildlife at NSRR comprises multiple native reptile, amphibian, and avian species as well as a host of introduced mammal species. Approximately six species of snakes are known to occur at NSRR. Known snake species include the Puerto Rican boa (Epicrates inornatus), Virgin Island tree boa (Epicrates monesis granti), Puerto Rican racer (Alsophis portoricensis), Puerto Rican garden snake (Arrhyton exiguum), Virgin Island blindsnake (Typhlops richardi), and Puerto Rican wetland blindsnake (Typhlops rostellatus) (U.S. Navy 1998). A large mongoose population has reduced the reptile population.

Multiple terrestrial and seabird species use the beach strand, grassland, upland forest, and mangrove forest habitats at the station. Numerous species of frogs and toads occur, including the coqui, a small tree frog. The mammal population is predominantly made up of introduced species that include mongoose, dogs, cats, Norway and grey-bellied rats, and mice (U.S. Navy 2004).

Threatened and endangered species are typically found primarily in less disturbed and more unique communities. Federally listed and Commonwealth-listed plant and animal species found at NAPR are includes one Mammal specie (west Indian Manatee), 6 Reptiles species (Pr Boa, Turtles, etc.), and 10 Bird species (Yellow-shouldered blackbird, etc.).
Threatened and endangered species location areas and conservation measures are defined in the report "Parcel Map for the Disposal of Naval Activity Puerto Rico" (U.S. Navy 2005). The conservation measures require the

consultation with the U.S. Fish and Wildlife Service regarding all development plans on the identified areas. Also it requires that some development, construction and maintenance activities be restricted on a seasonal basis and to maintain a buffer distance from sensitive areas. For developments near sea turtle nesting beach areas, it requires to implement precautionary measures before, during, and after development activities. For Yellow-shouldered blackbird nesting areas, visual inspections must be performed in order to identify any nesting on buildings, structures and trees.

The proposed improvements will be located on the existing road corridors and right of ways. Some road corridors can be located adjacent to natural zones were endangered species can be found, such as the Yellow-shouldered Blackbird nesting areas, thus construction activities shall be performed with restrictions in order to prevent, the intrusion of heavy equipment and personnel into those sensitive areas. In addition effective erosion control measures are needed to prevent sedimentation and contamination adjacent to turtle nesting areas.

Minor temporary disruption can be caused on existing structures (buildings) where the Yellow shouldered- blackbird can be encountered, for that reason, qualified personnel shall be present at all times during construction activities to identify and prevent any adverse effect on that specie. No permanent effect on threatened or endangered wildlife is expected due to the proposed improvements.

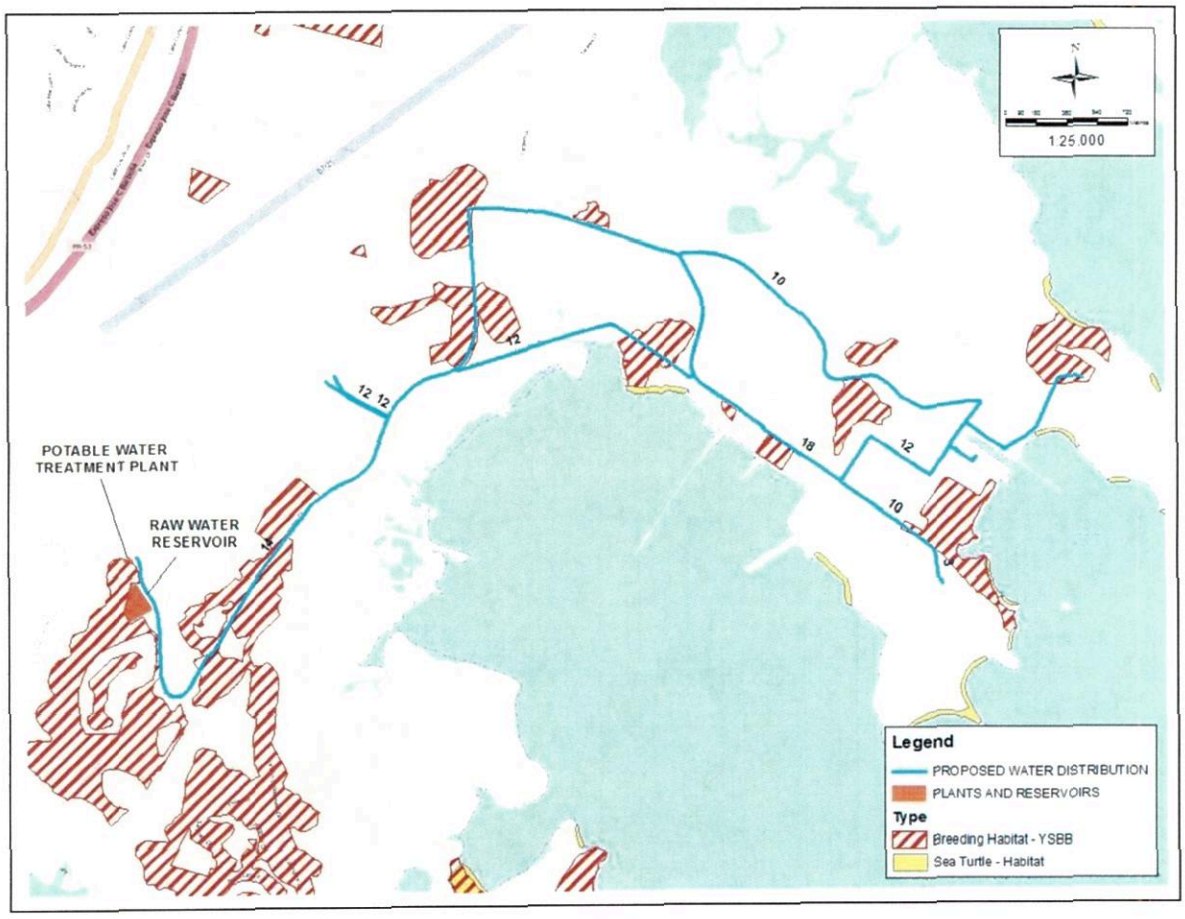

Figure 18 Threatened Wildlife Habitat Locations