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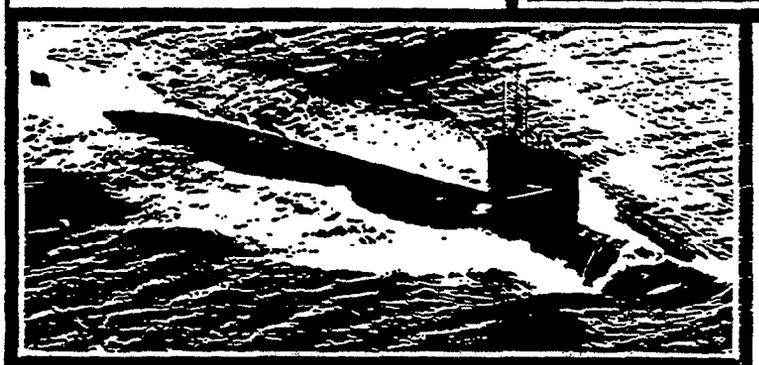
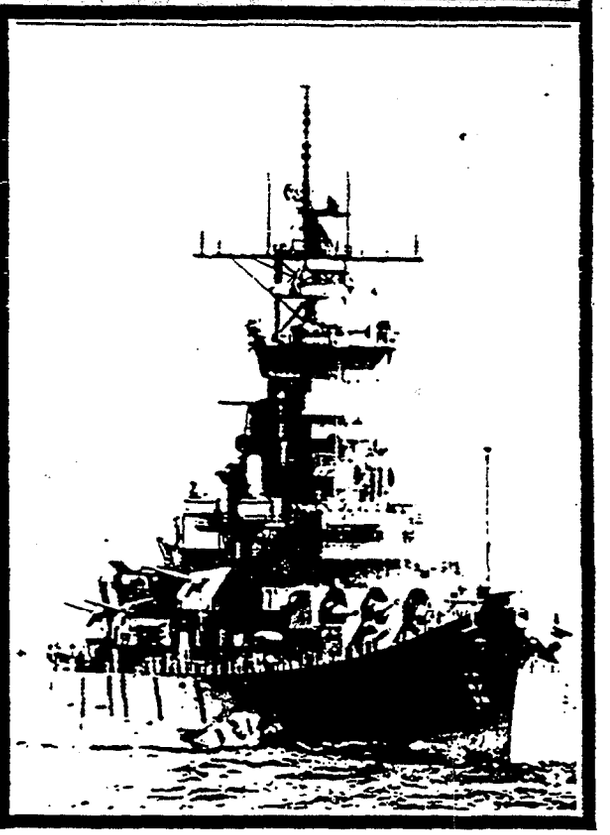
U.S. Naval Station

Roosevelt Roads, Puerto Rico





Master Plan

Executive Summary

This iteration of the Master Plan for the Naval Station Roosevelt Roads (NSRR) is to update some of the analysis and recommendations of the Master Plan approved by CNO in May 1987. The typical Master Planning process requires evaluating all the facilities at the NSRR and developing facility requirements for all functions and activities. This Master Plan, however is "abbreviated" and is a supplement to the '87 Plan, in that it is an assessment that reflects the highly dynamic facilities development program of the NSRR in both the short and long term.

Incorporated into the Plan are the impacts of expanding the Atlantic Fleet Weapons Training Facility's (AFWTF) capabilities and the concurrent impact of the various aircraft and ships utilizing the enhanced training environment provided. The hosting by the NAVSTA of these many training evolutions creates a unique set of developmental conditions because the facilities loading (including utilities) is cyclical.

The Master Plan should insure logical and efficient use of facilities and real estate and guide the activity

through growth and change. To a great extent the former is addressed in the '87 Master Plan. The proposed dynamic facility development is reflective of the current growth and change and is the basis for the update presented in this iteration of the Master Plan. The Plan, except for a few selected projects, only addresses the main Naval Station and the dynamic portions of the planning process. For the static background data, refer to the 1987 Plan.

Some of the issues, concerns and new missions that have precipitated this plan include:

- Development of the Hurricane Hugo MCON including the Community Center Complex.
- Additional maritime vessels and aircraft support related to the Counter Narcotics (CN) program.
- Addition of the MK-50 Torpedo into the AFWTF training capability.
- Changes to the Planned Land Use maps.
- National Wetlands Inventory issued by the U.S. Fish and Wildlife Service.
- Recent reclassification of the primary runway as DOD aircraft exclusive use.

Plan Objectives

The primary goal of the Master Plan is to improve the operational efficiency of the Naval Station and enhance the overall health, safety and recreation for both permanent party as well as transients. The following goals have been identified to achieve this end:

- Insure logical and efficient use of facilities and real estate.
- Provide a Planned Land Use map and in addition provide more than the typical conceptual land use by designating specific sites for future growth.
- Recognize the unique constraints at the Station and provide guidelines to work within them.

Recommendations

The plan provides the following recommendations:

- Construct additional ship and aircraft fuel storage.
- Utilize the recommendations for specific siting of hypothetical facility development.
- Construct a torpedo maintenance shop to support the new MK 50 torpedo.
- Provide an overall Community Center development plan as guidance for future growth of community facilities.

I. Introduction

A. Objective

The objective of this Master Plan is to provide the Commanding Officer and staff of the Naval Station Roosevelt Roads, Puerto Rico as the host Command with broad professional guidance in the use of existing physical resources and in the development of new facilities to meet known and projected mission requirements through FY-95 for the main station only. The Plan provides a blueprint for orderly development while simultaneously obtaining the highest and best use of land areas and creating a pleasant working and living environment consistent with recognizable and necessary constraints. The Master Plan is the narrative and graphic vehicle which presents the dynamic planning process. As such, the Plan must remain flexible and responsive to mission and task changes.

The Master Plan for the U.S. Naval Station Roosevelt Roads will continue to be updated in the future on a periodic basis to insure that it retains its validity as a sound, dependable planning document.

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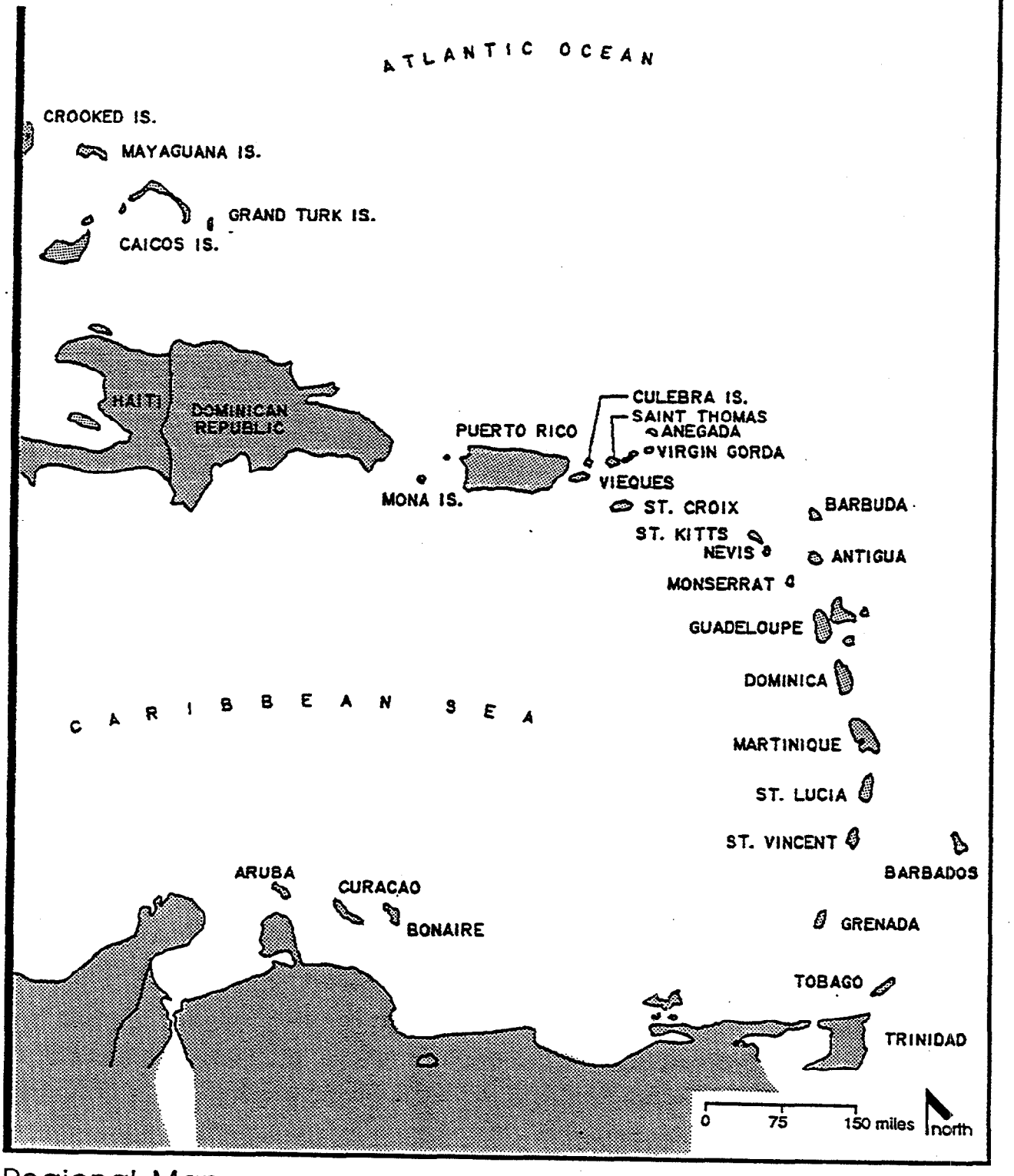

Regional Map

figure I-1

B. Activity Description

1. Regional Community

Lying between the Atlantic Ocean and the Caribbean Sea, Puerto Rico is the easternmost island in the Greater Antilles chain. The island is approximately 110 miles long by 35 miles wide. Immediately to the west of Puerto Rico is the Island of Hispanola, which is shared by the Dominican Republic (eastern half) and the Republic of Haiti on the western end. To the east of Puerto Rico are the U.S. Virgin Islands of St. Thomas, St. Croix and St. John.

The Naval Station Roosevelt Roads is located on the eastern coast of Puerto Rico and in the local municipalities of Ceiba and Naguabo. The nearest major town is Fajardo, which is approximately eight miles north of the Station. Immediately to the west of the Naval Station and adjacent to its western boundary is the town of Ceiba, which was founded in 1888.

2. Mission

The mission of the Naval Station Roosevelt Roads is to maintain and operate facilities and provide services and material to support operations of aviation activities and units of the operating forces of the Navy and other activities and units, as designated by the Chief of Naval Operations.

3. Command Relationships

The Chain of Command for NAVSTA Roosevelt Roads is shown in Figure I-3. The Commander, Fleet Air Caribbean is the area coordinator.

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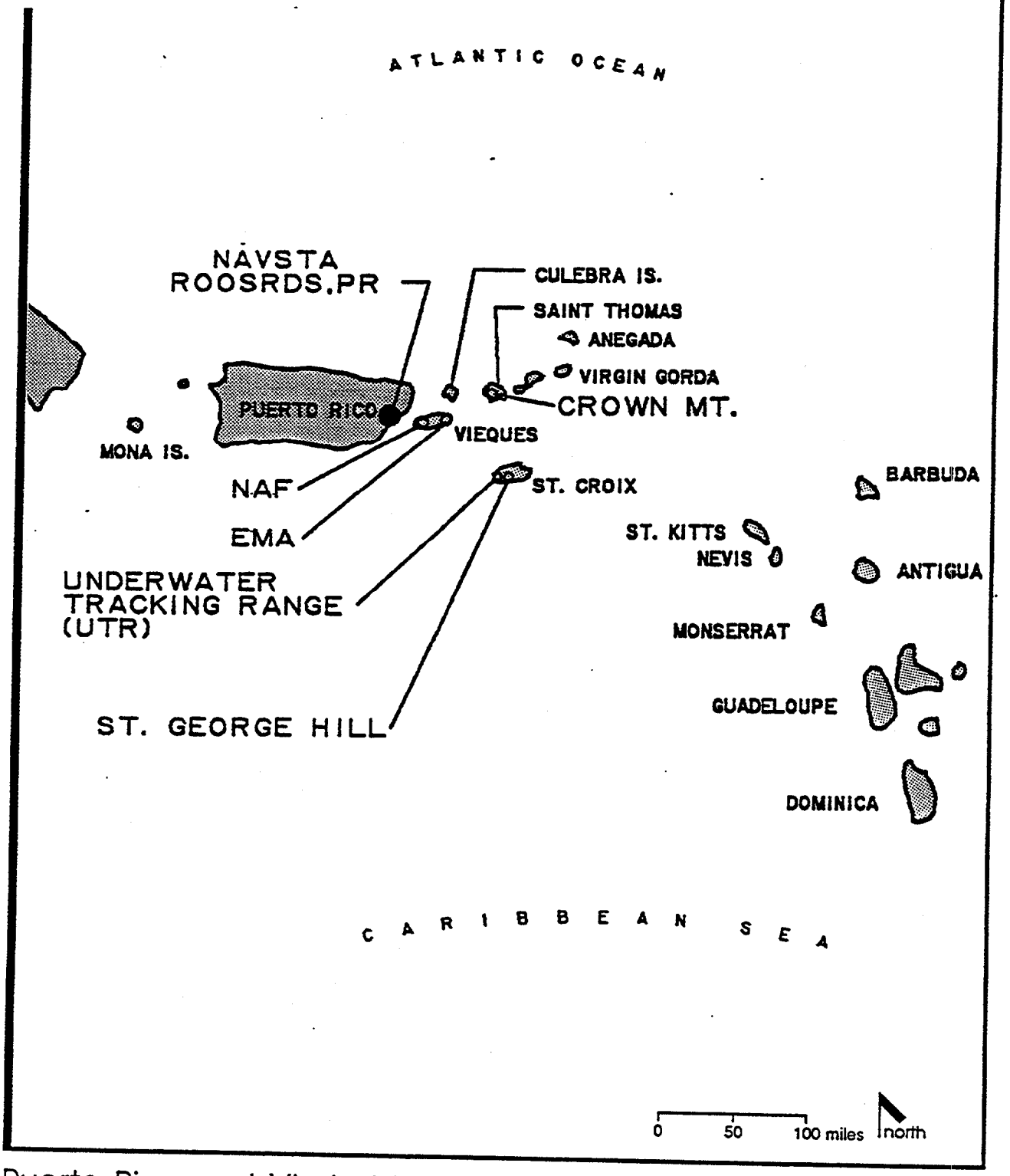
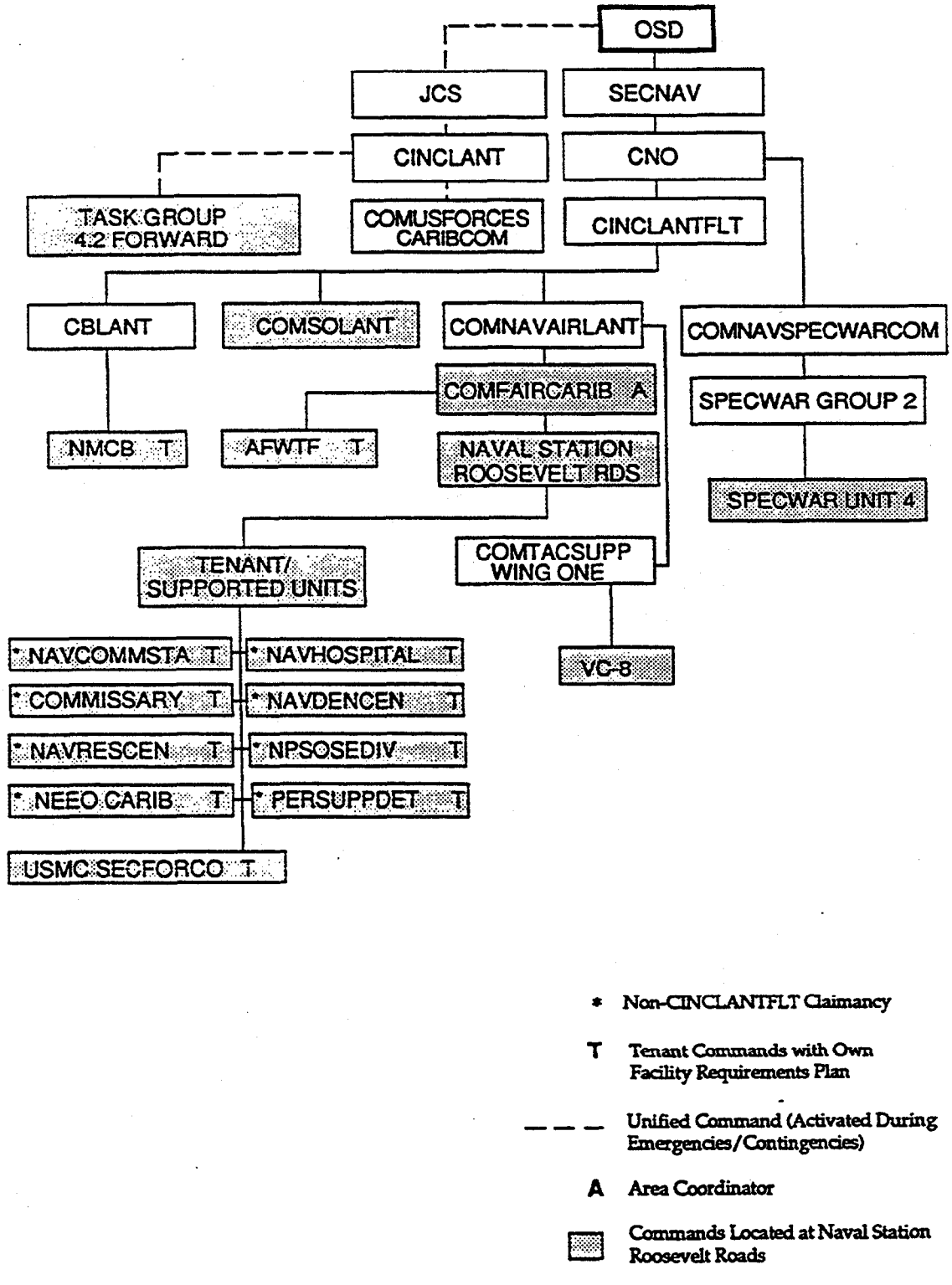


Puerto Rico and Virgin Islands

figure I-2



Command Relationships

Figure I-3

II. Planning Parameters

A preliminary step in the formulation of any Master Plan is the establishment of the parameters within which the Plan must be developed. This section discusses those parameters which impact upon facility planning throughout the Naval Station Roosevelt Roads. These parameters should be evaluated early in the planning process to ensure late siting and/or design changes do not delay projects.

A. Airfield Safety

The primary development constraints imposed by airfield criteria are various horizontal separation distances between aircraft operating areas and facilities and structures. Additionally, it includes the vertical clearances between minimum arrival/takeoff glideslopes, other imaginary surfaces and obstructions on the ground (buildings, communication towers, terrain features, etc.)

All facility development at Naval Station, Roosevelt Roads has closely conformed to the current airfield safety criteria. The few exceptions to criteria have been sited at locations where they can optimally support operational requirements and have been granted a waivered status. All man-made

obstructions are lighted and/or marked in accordance with current FAA criteria.

A 17 acre parcel of non-Navy land is within the Runway 7 clear zone, located just west of where Runway 7 terminates. The MCON project P-999 for the acquisition of this land is currently unprogrammed. Obtaining this land is necessary to eliminate development potential that may hinder flight operations.

Developable land around the airfield is at a premium, and space not committed must be properly screened to insure facilities sited there are functionally necessary and meet all airfield safety criteria.

B. Air Installation Compatible Use Zones (AICUZ)

Air Installation Compatible Use Zones (AICUZ) identifies areas of high noise as well as zones of varying accident probability to define acceptable and compatible land uses as they relate to airfield operations. The levels of visiting Navy and Marine Air squadrons (utilizing the AFWTF ranges) and the Air Force Detachments aircraft are expected to be constant for the next several years. Though the Accidental Potential Zones (APZ) aren't expected to change, a draft noise study assessing the potential impact of additional CN-related flight operations is currently underway. The draft indicates potential revisions to the Noise Zones on the station, where areas will have their development potential modified as the result of being within the AICUZ footprint. In the past, the impact of AICUZ on off-station development has been minimal, but the revised flight operations may result in a modification of the planned development in the civilian community to insure compatibility. Prudent monitoring of future off station development plans and maintaining a continuing dialog with the local municipality governments should minimize or eliminate any future conflicts.

C. Explosives Safety

Ordnance is handled and stored at Naval Station, Roosevelt Roads and in extensive long-term storage facilities located in the magazine complex (Naval Ammunition Facility) at the western end of Vieques. Ordnance issued by the NAVSTA Weapons Department is primarily expended by units utilizing the various AFWTF ranges and targets. The Explosives Safety Quantity Distance (ESQD) arcs originating on the Station are totally within the activity's boundaries (See Figure III-2).

A ruling that directly affects the station, the classification of MAC flights, has recently been re-evaluated by the Department of Defense Explosives Safety

Board (DDESB). This change will treat MAC flights the same as military flights. Facilities / sites emenating explosive arcs will have to maintain the Public Traffic Route (PTR) distance from the airfield instead of maintaining the Inhabited Building (IB) distance. The removal of this constraint will allow siting of future key air operations facilities that generate explosive arcs, like the Ordnance Handling Pad.

The siting of future magazines will require the utmost in foresight because the existing two magazine areas of the NAVSTA have limited growth potential.

D. Electromagnetic Radiation / Interference (EMR/EMI)

The two effects in the electronic environment which most effect Station development are: (1) electronic radar equipment that emit hazardous radiation within specified zones which could affect ordnance, fuel and/or personnel (EMR) and (2) electronic receiving equipment whose performance can be interfered with by external electronic signals/sources (EMI).

The planning constraints presented by EMR can better be defined by Hazard of Electromagnetic Radiation to 1) Ordnance (HERO), 2) Fuels (HERF) and 3) Personnel (HERP). Currently the HERO susceptible ordnance and sources of electronic emissions are coordinated to allow safe training exercises and any changes in their relationship shall be closely monitored. Any new facility that is an EMR emitter shall be studied for affects to HERO, HERF and HERP.

There are no electromagnetic interference generators which negatively affect the electronic receiving environment at NAVSTA Roosevelt Roads. However, the Atlantic Fleet Weapons Training Facility receiver site on Crown Mt., St. Thomas is threatened with unacceptable levels of EMI from neighboring civilian development. This level of interference combined with the lack of land for future growth on the existing parcel has prompted the land acquisition project P-494.

E. Encroachment

Individual squatters have erected makeshift homes and structures along the remote and previously unguarded boundaries of both the NAF on West Vieques and the maneuver/range area on East Vieques. At the Naval Station many squatter homes have been constructed on Demajagua Bay at the northern end of the activity (See Figure III-2). Outside Station boundaries, the

protection normally provided by zoning ordinances to prevent incompatible development does not exist. Should high noise zones (See AICUZ Section) become densely populated, protests of the time and frequency of air operations may be encountered from the civilian community.

F. Topography

The topography at Roosevelt Roads is a primary determinant relative to land-use planning. Utilization of a large portion of the Station's real estate is precluded by the excessive costs associated with hillside development (See Figure III-3). The hills near the airfield provide acoustic shadows, but also hinder airfield operations by violating the Airfield Safety criteria imaginary surfaces.

G. Ecology

1. Vegetation

a. Wetlands

Wetlands along the shoreline and stream courses of the Station (excluding reefs, seagrass beds, and open-water marine environments) comprise approximately 45% of the Station. Approximately 60% of total wetlands occurring on the Station consists of mangrove swamps (Comprehensive Natural Resources Management Plan; 1989). Most wetlands on the Station occur along more-prominent drainage courses and in areas of low elevation and relief. The climate, geography and topography of the region provides a high diversity of wetland ecosystems. Wetland areas of the Station range from open-water marine to subtropical dry/moist forests. Wetlands mapped since the last master plan under the National Wetlands Inventory are protected under Section 404 of the Clean Water Act (See figure II-1). No development may occur in these areas without permit from the Army Corps of Engineers.

2. Wildlife/Endangered Species

Numerous detailed reports have been completed describing the various mammal, bird and reptile species in and around Roosevelt Roads which are on the rare and endangered species list. The known habitats of endangered wildlife species are shown in the previous Master Plan.

The Station has become a virtual sanctuary for these animals because of the tight control exercised on hunting and fishing. Specifically some of the land area (mangroves) and waters in and around the station are critical habitat for several endangered species; the Yellow Shouldered Black Bird, Brown Pelican and West Indian Manatee. Development

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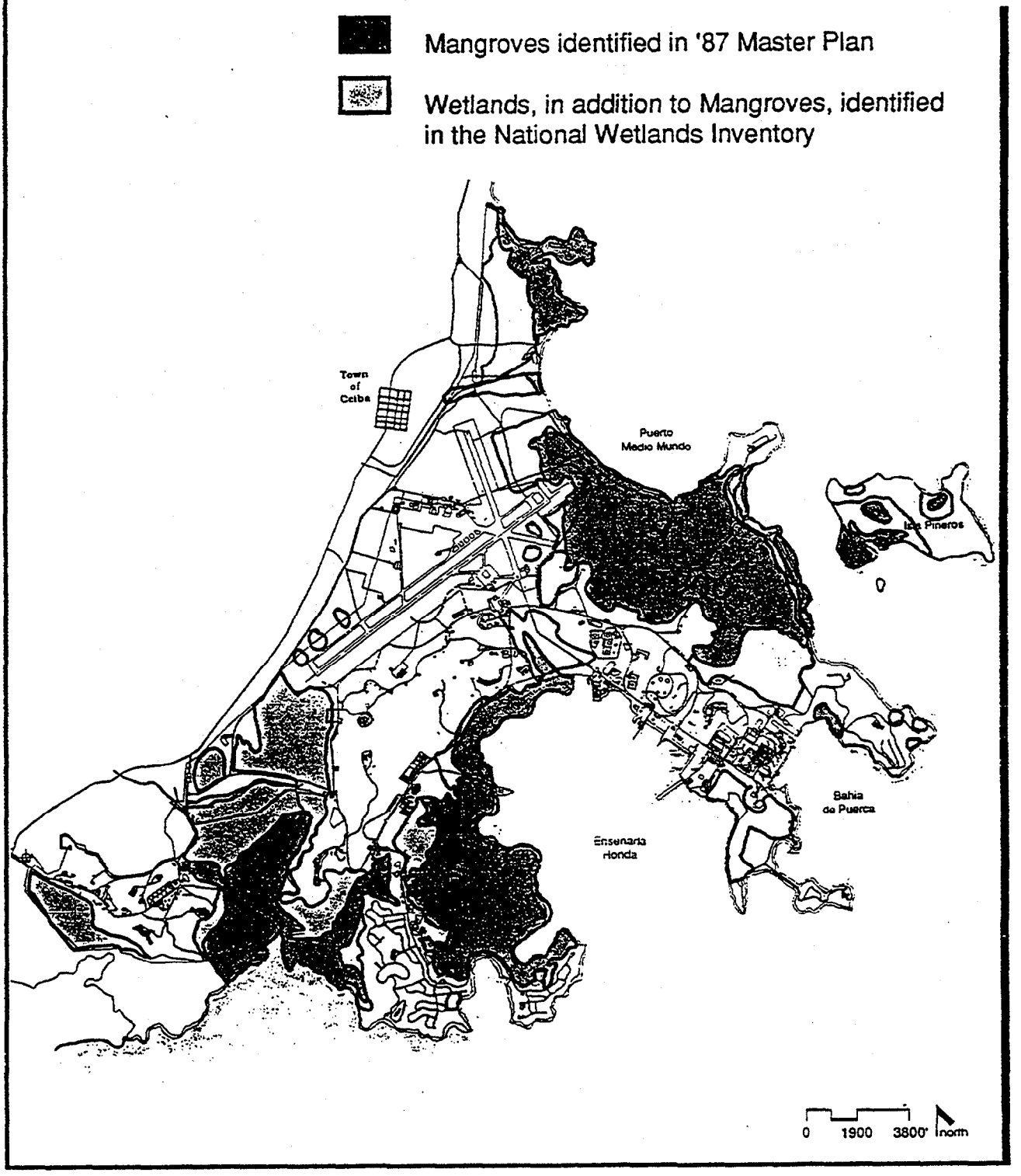


National Wetlands Inventory

figure II-1

near the mangroves should incorporate good planning practices.

As part of all project reviews, the indigenous wildlife and plants are analyzed to ascertain the effect of a proposed action on them directly, or on their supporting environment. The planning for facility projects, i.e., housing, community center, etc., must be very cautious in selecting potential sites based on the effect of the development on the environment (See figure III-3).

H. Historical/Cultural Resources

All discoveries thus far of historical or archaeological properties have been located on the western end of Ensenada Honda. A cultural resource reconnaissance survey should be conducted for all projects which are planned in designated areas of cultural resource potential. However, in some cases a survey may not be required, such as when severe disturbances related to previous construction has been documented.

It is recommended that areas with a high probability of development which have been identified as having archaeological potential be surveyed well in advance of actual construction. An early survey of these areas would allow maximum flexibility in avoiding any identified archaeological resources. In addition, surveying large areas at one time will result in cost savings to the Navy.

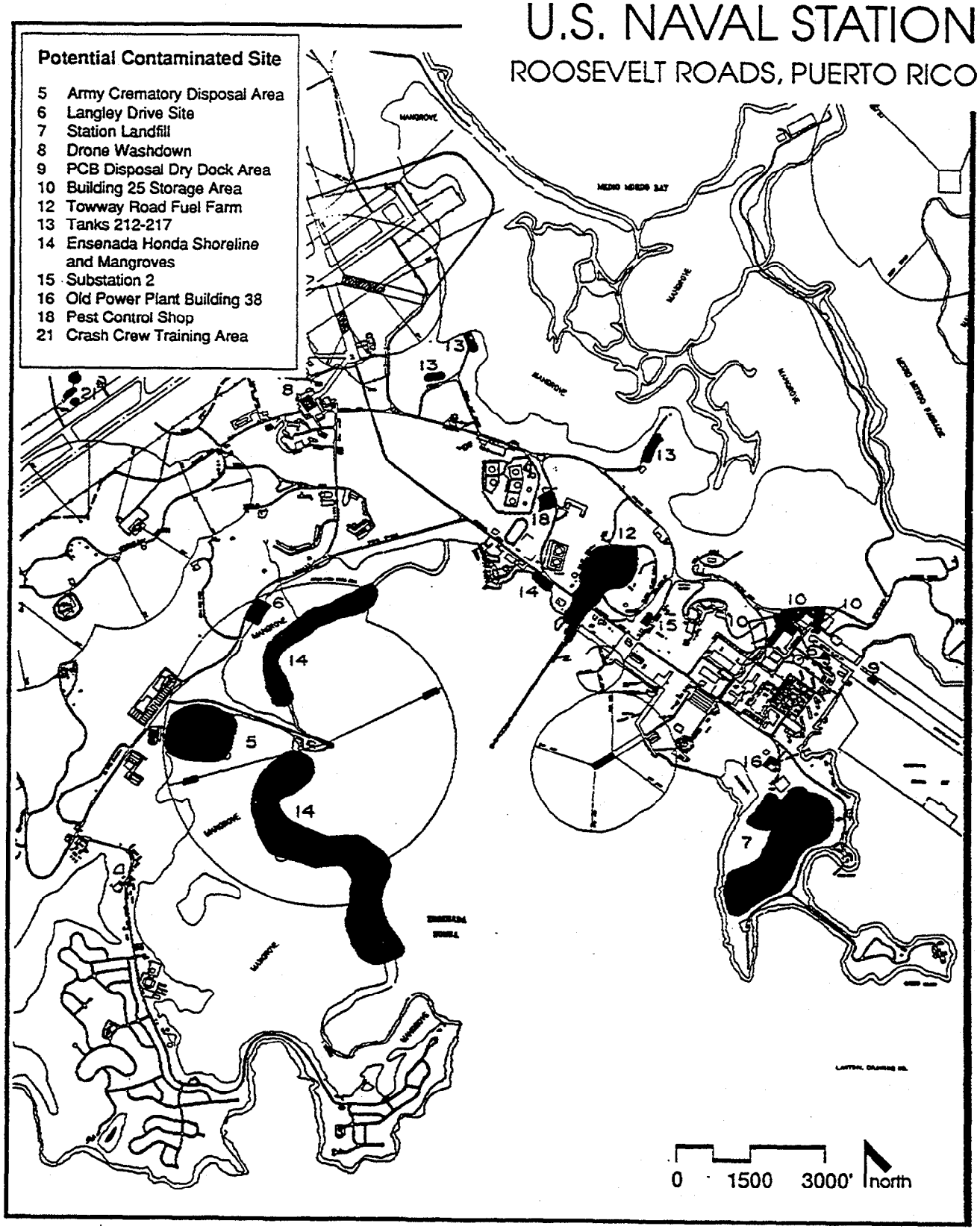
I. Hazardous Wastes

1. Sites

Another siting constraint is land posing a potential threat to human health or to the environment due to contamination from past hazardous waste operations. Approximately thirteen such sites exist at the Station with varying degrees of contamination. Development of "previously disturbed" sites may eliminate constraints previously mentioned, but they may contain hazardous waste. Sites that have the potential for Hazardous Waste contamination are shown in Figure II-2.

2. Management

OPNAVINST 5090.1A of 2 Oct 90 requires that all transformers containing 500 parts per million (ppm) or more of polychlorinated biphenyls (PCB'S) and PCB large capacitors be eliminated by Oct 1998 and transformers containing between 50 ppm and 499 ppm PCBs be eliminated by Oct 2003. PCB contamination needs to be identified and a plan developed for their removal.



Potential Hazardous Waste Sites

figure II-2

This instruction also mandates recycling of scrap metal, aluminum cans, high grade office paper and cardboard for all activities. The activity must develop a recycling program which incorporates at least these four items. Also, new federal regulations expected in early 1991 will set stringent landfill standards. The policy is for Navy activities to close Navy operated landfills wherever possible and utilize off-base disposal facilities.

This instruction futher requires activities to have Underground Storage Tank (UST) management plans. Specific items which need to be addressed include UST's which need to be closed/ removed and active UST's which need to equipped with leak detection systems, cathodic protection and overfill prevention devices.

OPNAVINST 5090.1A of 2 Oct 90 offers direction in managemnet of hazardous waste, harzdous waste sites and recycling programs. Ultimately the most effective and cost efficient mode of implementing this new guidance may be a consolidation study/plan of these issues for the Naval Station Roosevelt Roads.

J. Floodplain

In accordance with the Army Corps of Engineers and Federal Emergency Management Agency guidlines, the areas on Station most susceptible to flooding are shown on graphic III-3. The level established for the 100-Yr (Standard Project) flood is at elevation 15.0 (4.6M) above mean sea level. The Intermediate Standard 50-Yr Flood level has been set at 9.5 (2.9M) above mean sea level.

The Land Management Plan of May '87 emphasized the Station's intent to demolish the California crossing over the Rio Dagauo, a source of flooding in the golf course area after heavy rains. The demolition of the crossing will allow the Rio Dagauo and Quebrada Seca to flow unobstructed.

K. Climatology and Seismology

Weather at the Naval Station is characterized by persistent East-Northeast tradewinds and what seems like daily rain showers. The typical warm, humid days are broken only by the destructive hurricanes that may hit the island between mid June to early October. New facilities are designed to withstand 138 MPH winds, but the vulnerability of

the Navy's Facility assests (many 30+ years old) was exposed in the aftermath of Hurricane HUGO of September '89. As these old assets are slowly replaced with better designed facilities and lessons learned from Hurricane HUGO are implemented, the Station will be better prepared for future hurricanes.

The Island of Puerto Rico is located within a seismically active zone. The large number of earthquakes in the Puerto Rico Trench, the Anegada Trough and the Mona Passage clearly indicates that Puerto Rico is bounded by unstable tectonic areas. Three destructive earthquakes have occurred on the Island within the last 120 years. The Activity is in Seismic Zone 3 for the design of facilities and structures.

L. Utilities

1. Electrical Distribution

Electricity at 38 KV is purchased from Puerto Rico Electric Power Authority (PREPA) at two service points, the Bundy gate and airfield. Service at the Bundy gate is provided by two radial circuits from PREPA with a total capacity of 52MW. Airfield service is provided by one circuit with a capacity of 21 MW. See figure II-3.

The 38 KV circuits have approximately 56,760 circuit feet and serve four 38 KV to 4.16 KV substations and five 38 KV to 13.2 KV substations. The 38 KV to 4.16K substations transformer capacity is 10.5 MVA. The 38 KV to 13.2 KV substations transformer capacity is 19.5 MVA. Transformer capacity for shore power for ships is 7 MVA. General 38 KV distribution transformer capacity is 2.75 MVA.

The 13.2 KV substations serve 10 distribution feeders with approximately 133,600 circuit feet, which cover the station except for Capehart Housing and Bundy area. The 13.2 KV system feeds a total of 26 MVA of transformer capacity. All loads on the distribution circuits can be fed from more than one substation. All 13.2 KV feeders are radial.

The 4.16 KV substations serve 8 distribution feeders with approximately 67,600 circuit feet, which serve the Bundy area and Capehart Housing. The 4.16 KV systems feed a total of 13.7 MVA of transformer capacity. All loads on the distribution circuits can be fed from more than one substation. All 4.16 KV feeders are radial.

Planning objectives for system improvement and expansion are: (1) switching stations at the points of service to enable

the station to disconnect incoming service; (2) replacement of Capehart Housing substation transformers with larger transformers so that one substation can supply the entire load when one transformer fails.

System capacity is adequate for all planned projects.

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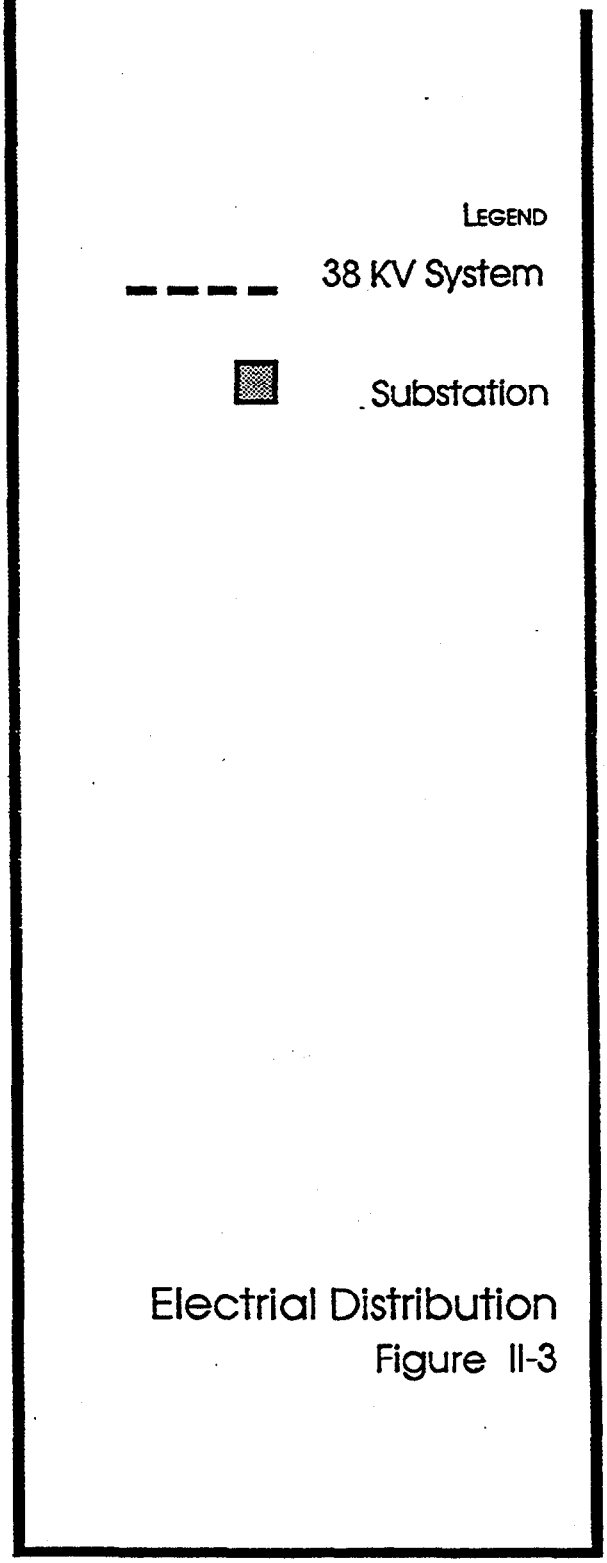
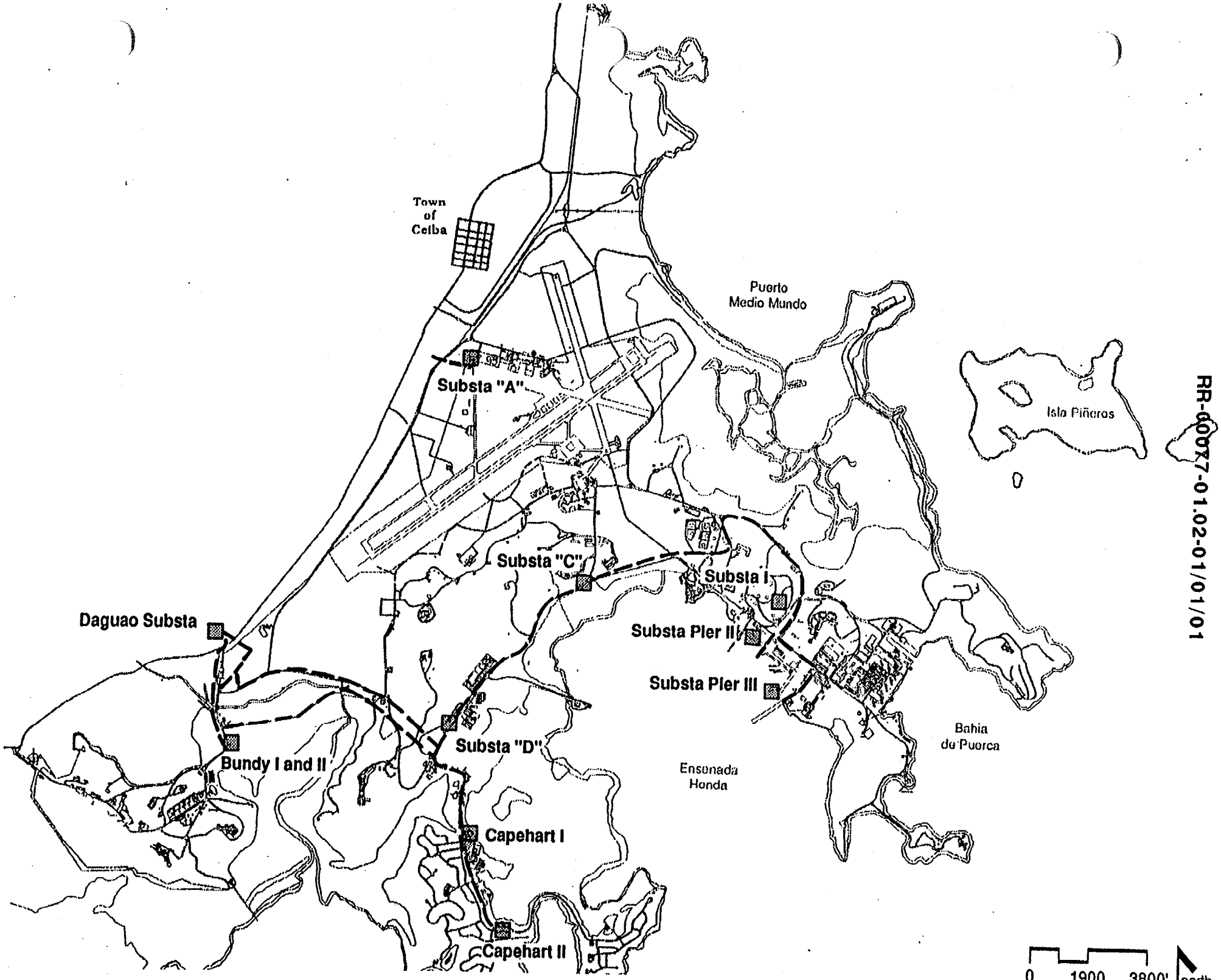


Electrial Distribution
Figure II-3



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2. Potable Water Supply and Distribution

Water supply is from the Rio Blanco and the discharge of a hydroelectric plant located in Naguabo. The hydroelectric plant takes water from the Cubuy, Sabana, Mucaros, Hicaco, and Prieto reserviors located in the rainforest. The raw water flows by gravity approximately 12 miles through a 27-inch reinforced concrete pipe to a 45 million gallon reservoir on the station. See figure II-4.

The area around the Rio Blanco has experienced growth that has affected the water main. Structures have been constructed on the easement and unauthorized supply lines have been installed. Houses have been built on the hillsides upstream of the Rio Blanco intake that may be a potential source of contamination to the water supply.

The treatment plant is located adjacent to the 45 million gallon reservior. The design capacity of the plant is 4.5 MGD.

The treatment plant production rate currently averages 30% of its design capacity. The treated water is pumped into the system by a combination of the three pumps located at the plant.

The water distribution system has approximately 68.4 miles of PVC and cast iron pipe with main lines ranging from 6 to 18 inches. Five potable water storage tanks can hold 2.63 million gallons of water and two fire protection tanks can hold 520,000 gallons of water for fire fighting. Three booster pumping stations, four pressure reducing valves, and one check valve, control flow and pressure conditions throughout the system.

The five potable water storage tanks are:

Facility	Location	Gallons	Type
Tank 535	Bundy	700,000	Below Grade
Tank 86	TACAN	1,500,000	At Grade
Tank 96	Waterfront	400,000	At Grade
Tank 421	Puerca Point	10,000	Below Grade
Tank 298	North Delicias	20,000	Below Grade

The tanks located in Bundy Area, TACAN Area, and the Waterfront Area provide the system pressure.

The two fire protection tanks are:

Facility	Location	Gallons	Type
Tank 459	Airfield	400,000	At Grade
Tank 771	South Delicias	120,000	Below Grade

Each tank supplies an isolated fire protection system.

The booster pumps are in the following locations:

Bundy
Hospital
North Delicias

The water distribution system at the Naval Station is being upgraded under contract N62470-90-B-0207. The upgrades will include a booster pump station for Puerca Point and North Delicias. The upgrades will not include the Airfield or Capehart Housing. A recent LANTNAVFACENGCOM Water System Analysis (Sept 90) recommends an electronic sonic water leak detection survey be conducted in the Airfield and Capehart Housing areas to assess the condition of pipes and the necessity for replacement.

System capacity is adequate for all planned projects.

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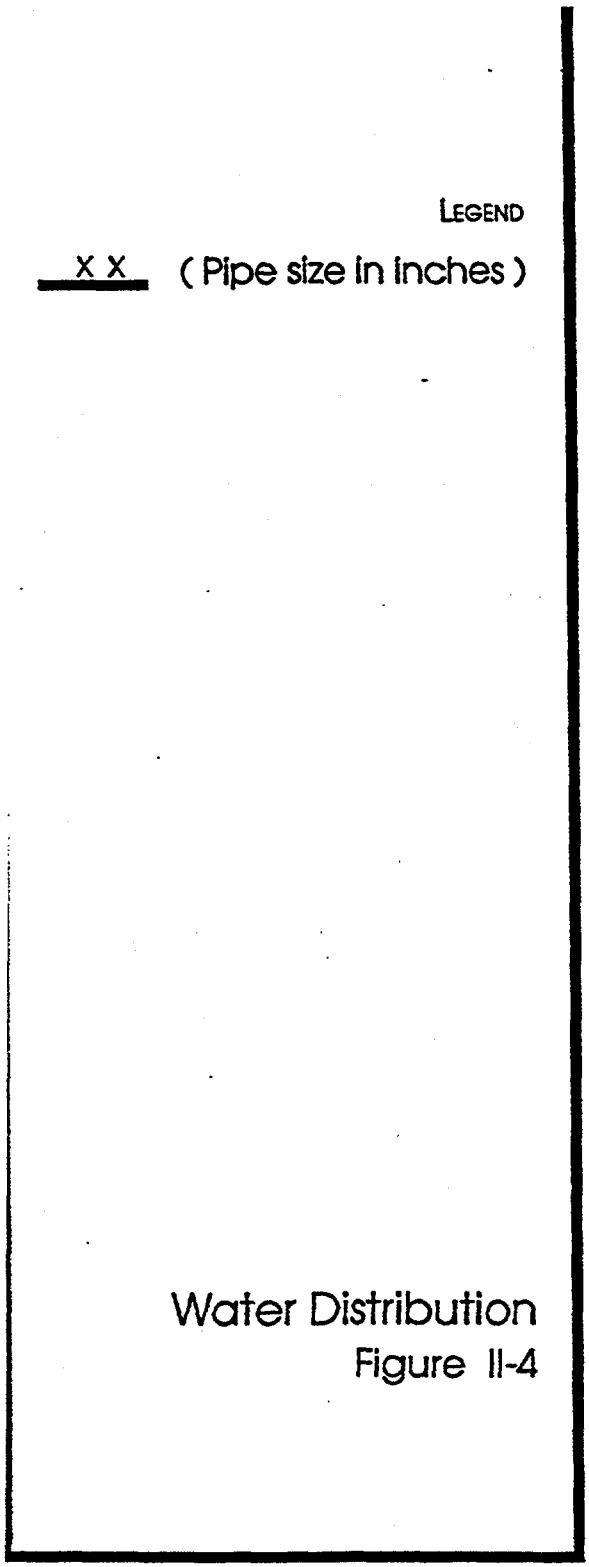
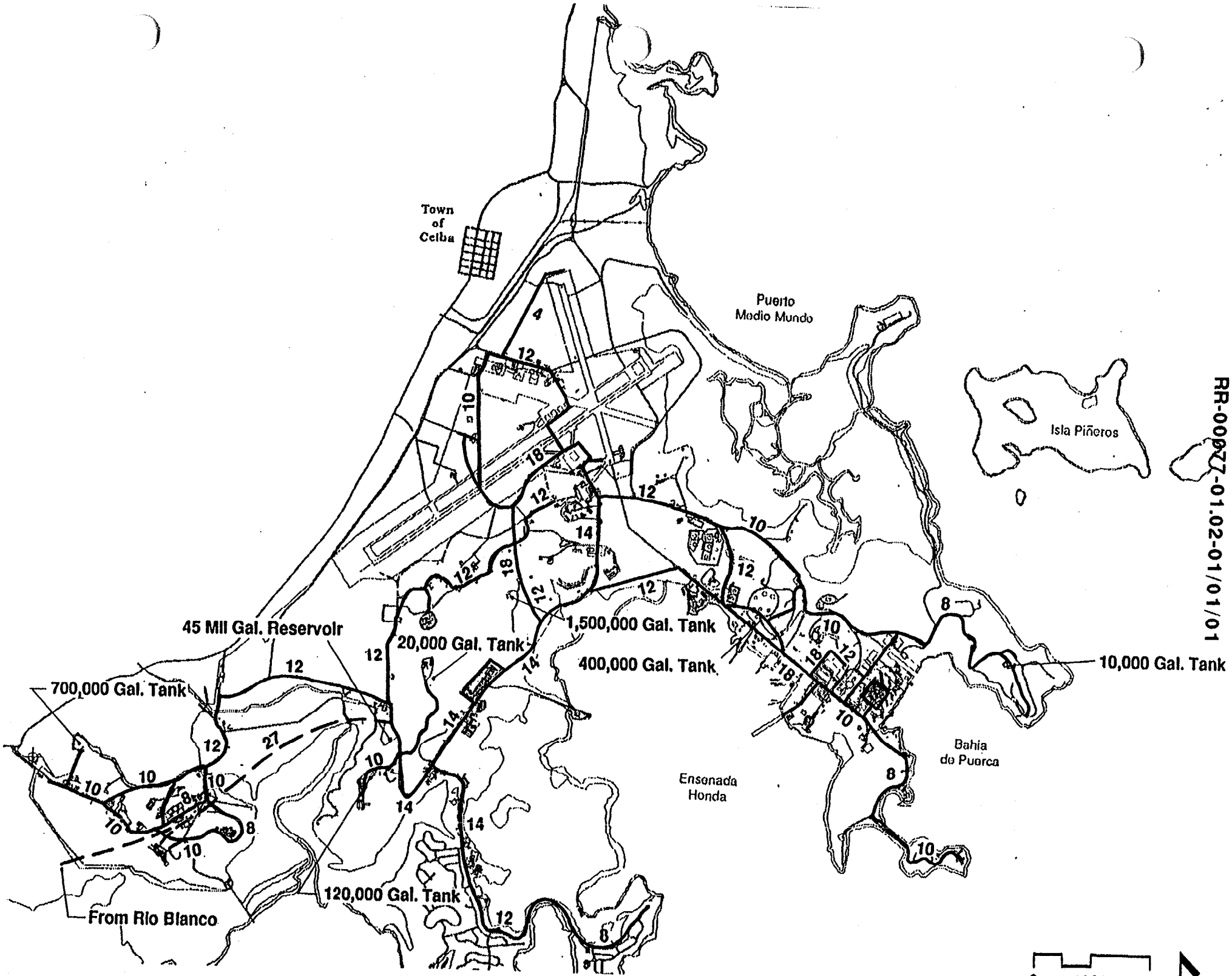


Water Distribution
Figure II-4



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3. Sanitary Sewer System

The Station has three separate sewage collection and treatment systems. The systems are in the Bundy, Capehart and Waterfront (Forrestal Plant) areas. See figure II-5.

Capehart sewage treatment plant is an extended aeration plant that has a capacity of 0.460 MGD. The plant is divided into two sides which can operate independently. One side has a capacity of 0.300 MGD and the other of 0.160 MGD. The plant is presently operating above its design capacity. The Capehart collection system consists of 63,200 feet of 6-inch to 12-inch gravity mains and 8,400 feet of 4-inch to 6-inch force mains.

Bundy treatment plant is a conventional trickling filter plant with primary and secondary clarification and anaerobic sludge digestion. The Bundy plant loading is estimated to be operating at between 8-33% of its rated capacity of .655 MGD. The installed flow meter at the Bundy plant is not accurate at such low flow rates. Bundy plant processes have not effectively treated sewage due to insufficient loading. The Bundy collection system consists of 29,600 feet of 6-inch to 24-inch gravity mains and 3,000 feet of 4-inch to 8-inch force mains.

The Forrestal area plant is a conventional trickling filter plant with primary and secondary clarification and anaerobic sludge digestion. The Forrestal plant loading is 42% of its rated capacity of 0.937 MGD. All shipboard sewage is pumped to the Forrestal plant for treatment. The collection system consists of 62,800 feet of 6-inch to 18-inch gravity mains and 4,000 feet of 4-inch to 6-inch force mains.

All three plants are currently in violation of the Puerto Rico Environmental Quality Board's (EQB) Water Quality Standards Regulation (WQSR) and their Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) permit. All three treatment plants will be upgraded by MCON Project P-495 (FY-92). Treatment will be improved as required to meet all the NPDES and WQSR permit requirements. Excess loads, approximately 0.125 MGD, will be diverted from Capehart Housing to Bundy treatment plant by P-495. The diversion of sewage to Bundy will improve the treatment process in that plant.

The capacity of the existing collection system to accomodate planned projects can't be stated based on unkown inflow and infiltratiom. An inflow and infiltration study of the gravity mains is

required for the entire Station. Adequate sizing of pump stations, gravity mains, force mains, and treatment facilities will be based upon the information obtained from the recommended study. Inflow and infiltration problems not corrected will result in possible continued effluent violations of the 85% removal of Biochemical Oxygen Demand (BOD) requirement of the NPDES permit.

M. Summary

The natural environment, safety criteria and political considerations have been and will continue to be major factors for governing proposed development. All proposed projects must be sensitive to the critical issues discussed in this section. Should a highly desirable site be constrained in some manner, mitigative measures to clear it should be pursued before abandoning it. Reviewing the constraints of a site should be incorporated in the planning and decision making methodology.

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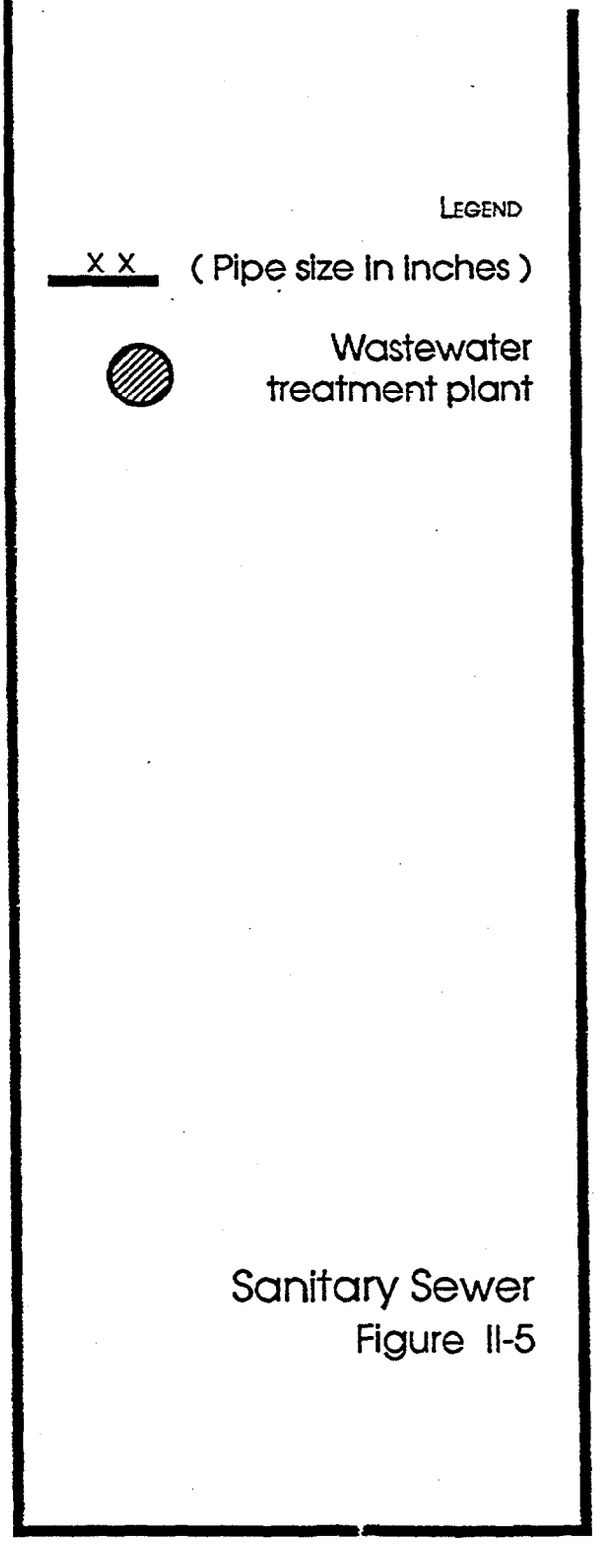
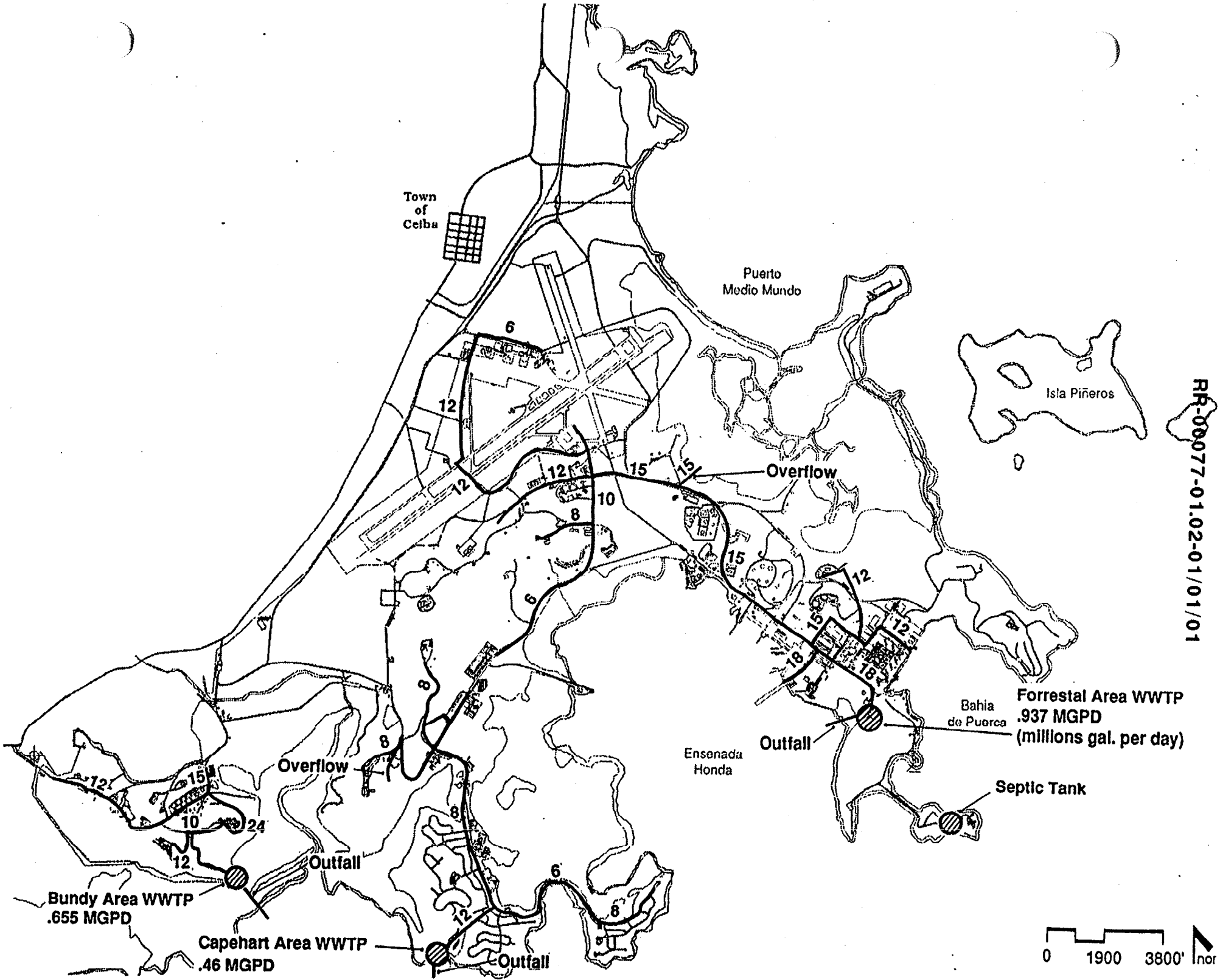


Sanitary Sewer
Figure II-5



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III. Planned Land Use

ANALYSIS AND
RECOMMENDATIONS

A. Planned Land Use

The review of existing land use patterns and functional relationships indicates that the land use projections established in the early 1970's have been basically adhered to and Station development has progressed within those general parameters. As noted in previous Master Plans, land use patterns at Roosevelt Roads are in part a function of topography, history, natural environment and cultural/archaeological potential.

At the Main Station the majority of the land is allocated for the following specific uses and their associated safety criteria or environmental restrictions, as appropriate: Air and ship operations and supporting maintenance facilities, ordnance storage, bachelor and married housing and personnel support. Large areas that contain sensitive stands of mangroves which are the habitat of some endangered species, such as the Yellow-shouldered Blackbird, are also a major land use category. Without knowledge of the numerous constraints imposed by safety and environmental/cultural criteria, in addition to physiographic features, an initial analysis would indicate that land is available for extensive expansion

in all parts of the Station. When the net effect of all siting constraints is combined with utility availability and travel time between existing functional areas, the specific sites and general open spaces available for additional development are significantly reduced to those within or adjacent to the currently developed areas.

The critical planned land use goal is to insure that areas which have been reserved to satisfy restrictive safety and environmental criteria are developed in strict accordance with those guidelines. To encroach on these areas for development through the use of waivers or exemption should be considered only when operational needs significantly outweigh the retention of these areas in an inviolate condition. Unless adequately justified, the use of any criteria-constrained lands could seriously jeopardize the Navy's position in advising the Commonwealth on compatible civilian land use development in the vicinity of the Complex's many sites.

The '86 Planned Land Use map is provided as a bench mark to view changes in current land use philosophy. Projected mission requirements have shaped the new Planned Land Use map.

Areas that are potential expansion sites have been categorized with the specific land use they will ultimately support. Some salient land use points:

- A significant change has been the designation of more land as wetlands, amounting to approximately 45% of the Station's land. (Results of National Wetlands Inventory 10/85 from U.S.F.W.S.)
- The land use patterns projected for the Bundy area will remain the same. Station administration functions should eventually move to the water front areaand the Chapel will move to the Community Center Complex on Langley Drive.
- The land just to the south of the Hangar 200 will be redesignated for operations.
- North Delicias hill and the land surrounding it be changed to operations. The remainder of the same ridge, northeast of North Delicias becomes operations.
- Cabras Island be used for operations vice troop/family housing.
- The Community Center Complex on langley drive will be expanded to include the Commissary replacement at the old quarry site. This will permit renovation of the existing Exchange warehouse into retail space while allowing the Post Office, Library and Credit Union to utilize store front opportuni ties in the existing Commissary and use the balance of the building for Exchange warehouse.

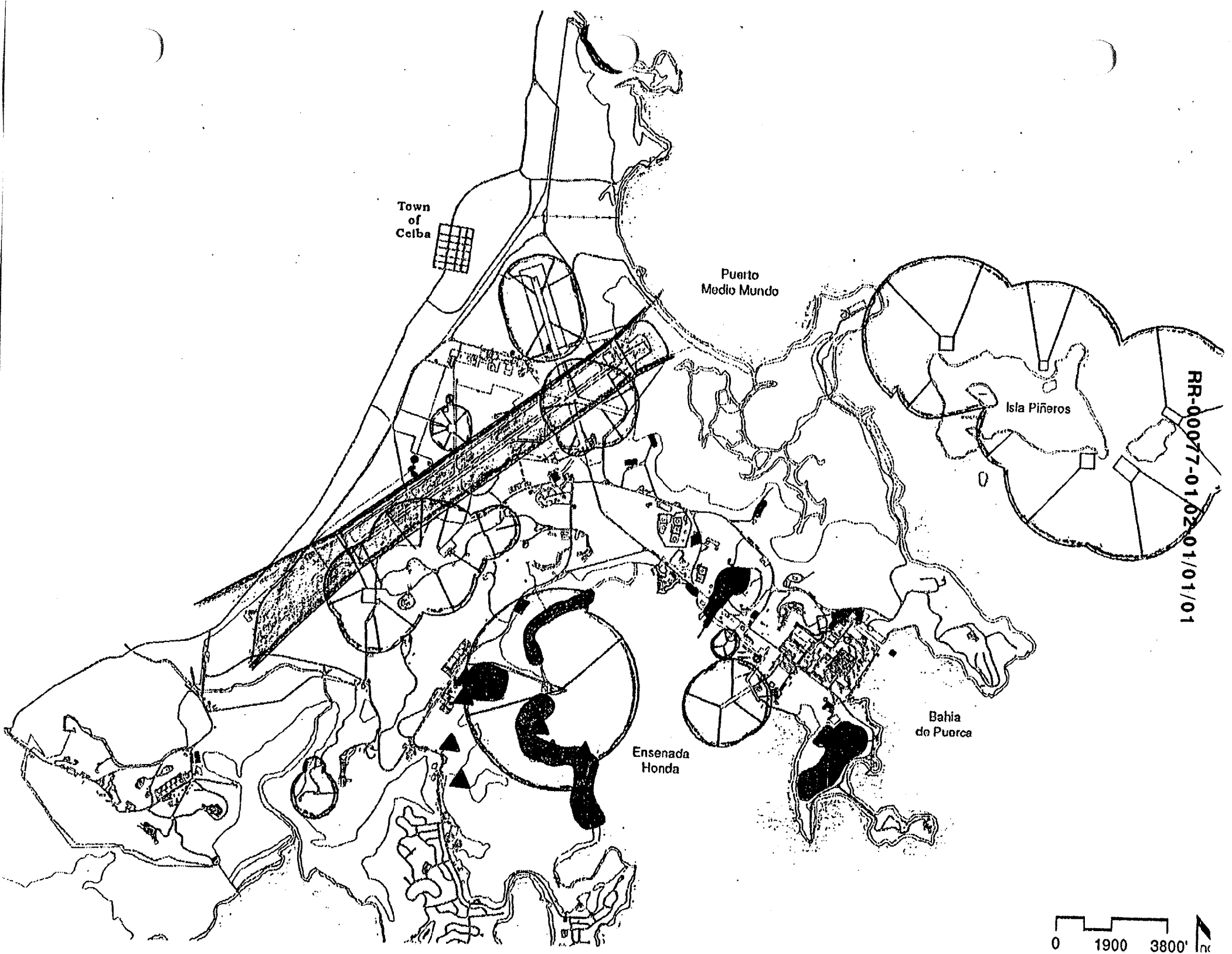
U.S NAVAL STATION
ROOSEVELT ROADS, PUERTO RICO

1986 Land Use
Figure III-1

RR-[illegible]77-01.02-01/01/01

U.S NAVAL STATION
ROOSEVELT ROADS, PUERTO RICO

Man Made Constraints
Figure III-2



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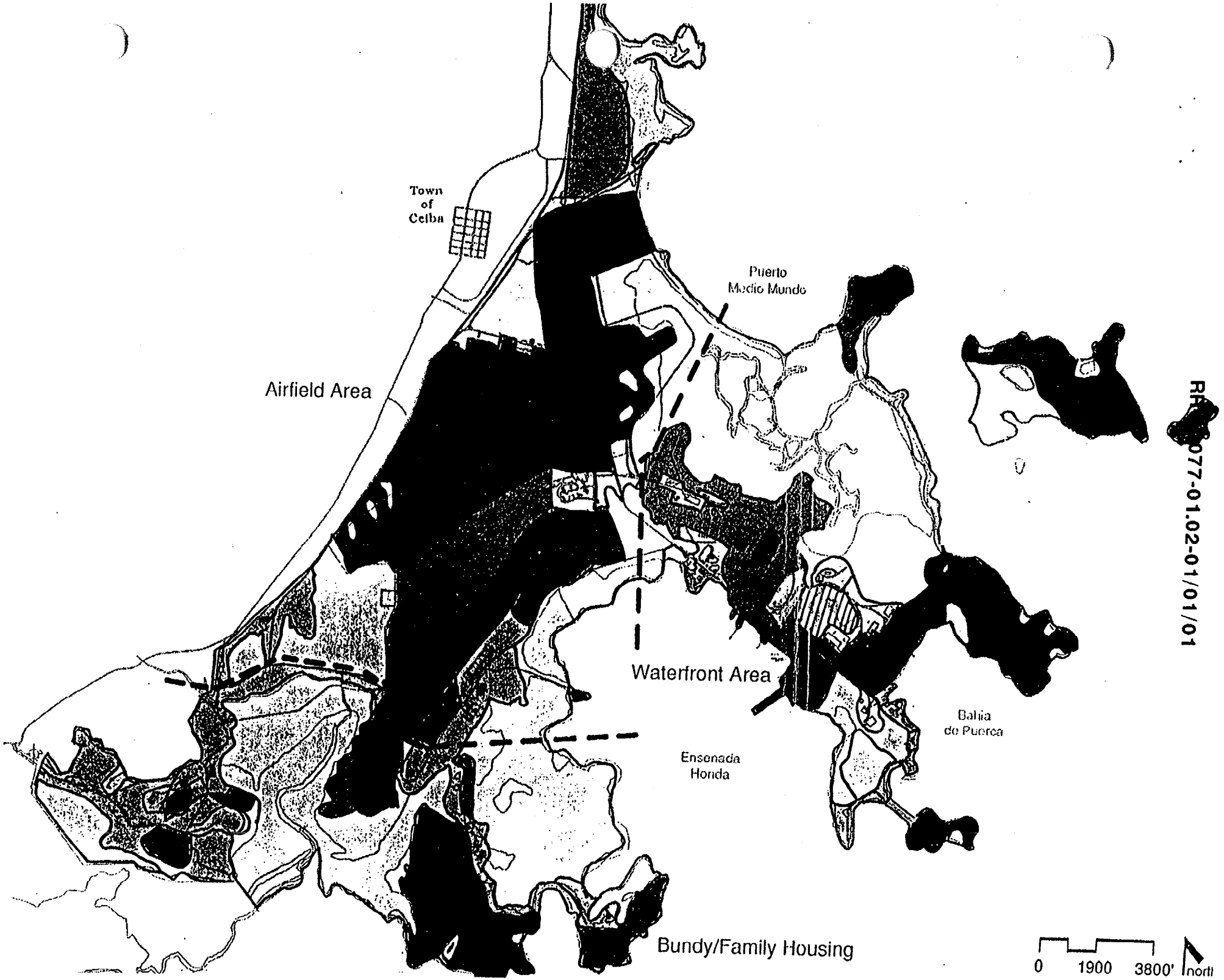
U.S NAVAL STATION
ROOSEVELT ROADS, PUERTO RICO

Planned Land Use
Figure III-4



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V. Environmental Considerations

A. Master Plan Implementation

1. General

The evolution of this Master Plan required the consideration of many variables to develop a land use plan and associated proposals and recommendations. One of the fundamental concepts upon which the Plan is based is recognition and minimization of potential adverse effects on the environment. Unfortunately, it is impossible to develop a plan of this magnitude without some impact on the environment. The purpose of this section is to identify and assess these potential effects. No attempt will be made to provide a detailed assessment for each specific facility proposal. These assessments can be best made as each project is entered into the MILCON Program and is accompanied by project specific environmental documentation. This section focuses upon the impact of major planning and land use proposals and identifies those environmental contstraints that must be considered during detailed facility design and siting.

2. Plan Description

The purpose of the Master Plan is to identify specific facilities required through FY-95 and beyond and to recommend a long-range development scheme for the Roosevelt Roads Complex. Major proposals include:

a. Replace facilities demolished by Hurricane HUGO with emphasis on developing the Community Center Complex.

b. Construct facilities to meet long standing deficiencies (Child Dev. Ctr., Upgrade Three STP's, etc...)

c. New facilities (Airfield and Ship Fuel Storage) to accommodate fleet training exercises and new missions assigned to the Naval Station.

Of the various proposals in the Plan, there are specific MILCON Projects, which by the nature of their scope and site, may require longer lead times for EA/EIS preparation. Projects in the category are: P-112, 491 and 494 . Refer to the comprehensive project list in Section IV for project titles and descriptions.

3. Operational Requirements

a. Present Operations

The diversity of operations conducted at Roosevelt Roads requires the provision of: airfield facilities, with the inherent noise and accident potential zones; port facilities for the movement of personnel and material; handling and storage of ordnance and large land and water areas for the launch and recovery of target drones and operational maneuvering and range areas for air, surface and subsurface fleet components. Other requirements include personnel support facilities for single and married military personnel (i.e., medical, recreational, BEQ, BOQ and family housing).

b. Projected Operational Changes

The major projected operational changes which will have an effect on all facilities at Roosevelt Roads are:

- Potential for increased usage of the Atlantic Fleet Weapons Training Facility target ranges by full aircraft carrier wings and other DOD air components.
- Increase in airfield and communications operations related to new Counter-Narcotics (CN) missions.

B. Probable Impact of the Master Plan upon the Environment

The majority of the recommendations in this Master Plan will have a minimal long-term, negative impact on the environment, except as noted. A prime, beneficial effect will be the increased potential for employment and provision of services and goods as projected increases in operational and support requirements materialize.

1. Social

Roosevelt Roads is a fairly self-contained installation and additional personnel will have minimal, direct impact on the surrounding community.

2. Economic

Undoubtedly, an increase in projected mission and support at Roosevelt Roads and the various construction projects for new and replacement facilities will result in a major increase in goods and services necessary for adequate support. This results in an economic boost in both the primary and secondary sectors providing all types of increased support.

3. Utilities

The major demand for utilities will be placed on electrical service. As both the Complex and the east coast of Puerto Rico expand, they will compete for available power and this could pose a potential conflict unless the Commonwealth adequately expands the capability to satisfy total requirements. Roosevelt Roads provides its own water and sewage treatment. The Station receives water from the Rio Blanco, so the Navy is dependent upon the health of the river and the transporting water line.

4. Water Pollution

A general increase in fleet support at the Naval Station will cause a proportional increase in the sewage generated. Upgrading the three sewage treatment plants, will ensure adequate treatment capacity is available, reducing the potential for pollution of nearby waters by accidental spills of untreated effluent. To preclude the possibility of water pollution from tank farm fuel spills, earth berms or containment ditches have been constructed at all existing storage facilities. The proposed DFSC Ship Fuel Storage facility will similarly have containment berms constructed and a spill monitoring instrumentation included as part of the project scope.

5. Solid Wastes

The existing landfill has reached its capacity to accept additional refuse and other potential on-station sites have been evaluated either as having a limited potential capacity or as being unsatisfactory from an environmental standpoint. The increase in fleet support, as anticipated in this Plan, will place an additional burden on the landfill, accelerating the need to find an alternative site or some other acceptable disposal mode (which is currently under study). The use of dredged material to cover over and "mound-up" on the landfill and create a "landhill" is another possibility.

6. Transportation

The interaction between the Complex's transportation requirements and the Commonwealth's systems will remain relatively unchanged. The Port of San Juan will continue as the primary entry point for a majority of the products entering or leaving this island. The portions of Puerto Rico Route 3 (PR3), which are still 2-laned (south of Fajardo), will greatly improve the Roosevelt Roads/San Juan traffic flow when widened. The Puerto Rico Highway Safety Authority (PRHA) has requested an easement for PR3 through a narrow strip of Navy land along Boxer Drive west of the airfield. When granted, a minor rerouting of Boxer Drive will ensue, and except for during construction, will not have an impact on station transportation requirements. The anticipated increase in operations on the Station will not have any noticeable effect on existing off-base transportation facilities.

A positive impact on resource utilization will occur as functions at Roosevelt Roads become more centralized. The use of fossil fuels, primarily for automotive uses, should be reduced.

7. Noise

The increased use of the Complex by Carrier Air Wings and CN missions will undoubtedly increase the noise levels for short periods of time in the general region. However, use of the south side of Runway 07/25 for transient aircraft will move most of the aircraft-generated ground noise further away from the civilian community. This should have a positive impact on the Navy/civilian community relationship.

8. Health and Safety

The primary impact of certain Master Plan recommendations is the improvement of the safety environment within the Station boundaries. This has been effected by placing ordnance handling in isolated areas away from population concentrations and by restricting certain types of development within areas of high aircraft noise or accident potential. Furthermore, the continued centralization of various functions will reduce the total annual road miles driven, thereby reducing the potential for vehicle accidents. The provision of a new Haz/Flam facility (P-304) in the Plan should create a safer environment with respect to safety hazards.

9. Air Quality

There are no specific recommendations in the Master Plan which will have a detrimental impact on air quality in the general vicinity of Roosevelt Roads or any of the noncontiguous sites. Increases in fleet operations (air and sea), equipment with internal combustion engines, steady quarry operations, and greater use of the AFWTF Ranges will, however, undoubtedly add additional particulate matter into the atmosphere. An almost constant easterly breeze, however, quickly dissipates these added emissions thereby keeping the air quality at its currently acceptable level.

10. Local Housing

As previously noted in the Plan, Roosevelt Roads is able to accommodate a majority of the military population authorized housing with quarters on-station. The transient and rotational loading likewise, should have no impact on off-station family housing. There are occasions when transient personnel must utilize off-base quarters due to non-availability on-station. The relatively few stateside-hire-personnel and the civilian work force, which is expected to remain relatively stable, also will have a negligible impact on off-station housing. These people reside in the large area between the Station and San Juan and their impact is not felt in any one specific community.

11. Local Schools

The Antilles Consolidated School System operates a full K-12 curriculum on the Naval Station and has three school facilities for elementary, middle and high school classes. All eligible students living both on and off-station are enrolled in the Antilles School System and there is no impact on local school resources.

12. Aesthetic Impact

The relative isolation of the facilities located on the Station in relation to the off-station community does not result in any aesthetic/design conflicts. Internally, the separation of various functional areas allows them to harmoniously inter-relate without any aesthetic conflicts. The basic design material, reinforced concrete, allows for great design flexibility while maintaining an overall homogeneity. Recommendations for defining various aesthetic goals for the Station (i.e., architectural style, exterior color schemes, landscaping, signage, etc.) have been included in an abbreviated Base Exterior Architectural Plan, in the previous Master Plan.

13. Wildlife and Vegetation

The wildlife and vegetative populations located at the various complex sites (Naval Station, Vieques, Pineros, etc.) have flourished under the Navy's stewardship. Financial pressures to develop prime real estate do not exist within the Complex's holdings. The result has been a very sensitive evaluation of land uses and construction projects in relation to potential effects on the environment. Within the Roosevelt Roads Complex there are habitats for fauna which once flourished island wide, but are now found in very small areas. The species involved are in the following table.

ENDANGERED SPECIES

Yellow Shouldered Blackbird (F)
Piping Plover (F)
Snowy Plover (F)
Least Term (P)
Brown Pelican (F, P)
American Peregrine Falcon (F, P)
West Indian Manatee (F, P)
Sloan's Skink (F, R)
Puerto Rican Boa (P, F)
Green Sea Turtle (F, P)
Hawksbill (Sea Turtle) (P, F)
Leatherback (Sea Turtle) (P, F)
Loggerhead (Sea Turtle) (F, P)
Land Crabs (Status Unknown)

P Endangered in Puerto Rico
F Federally Classified Endangered Species
R Rare

Similarly, the vegetated areas adjacent to the water have not been destroyed or exploited as they have been in the civilian sector. The environmental impact statement completed for the Navy's operations on Vieques has shown conclusively that fish, birds and land fauna are more plentiful on Navy-owned land.

By removing the hunting, trapping and fishing pressures in these areas, the Navy has, in effect, created a "quasi-game preserve".

The Master Plan has made no recommendations having a significant and long-term negative impact on flora or fauna within the Navy-owned lands. The wetlands, which provide homes to the majority of the wildlife listed above, would require costly construction methods if they were to be used for future development due to the minimal bearing capacity of the subsoil. This factor, coupled with the mangrove's critical habitat status, has resulted in no recommendations which would alter their current status. As is required for all proposed projects, detailed environmental assessments are made a part of each proposed project to identify any potential negative impact.

C. Adverse Environmental Impacts

The relocations, construction projects, demolitions and other proposals in the Master Plan will definitely alter the wildlife and vegetative balances that now exist, primarily in the areas that are not heavily developed. The paving of large areas for aircraft operations will have a definite effect on existing drainage patterns. The noise environment will be altered as different types and numbers of aircraft operate out of Roosevelt Roads. The change, however, will affect primarily the duration of increased noise (i.e., a High Ldn level will persist for eight weeks vice six) and not cause the intensity of the noise (greater Ldn) to increase appreciably. The harbor area will experience increased usage with the resultant potential for more accidents.

The sum of the above potential adverse effects, however, is determined to be both minimal and of short duration. The preliminary planning which is required for all projects, operational changes, etc., should pinpoint any potential problem areas before the proposal is implemented. This allows sufficient time for the development of tactics which will minimize or eliminate the negative effects of the proposal and shorten the period during which the negative effect exists.

An example to this is the large-scale development of aircraft support facilities. The total development will include extensive paved areas which will dramatically increase surface run off water. The anticipated increase must be adequately addressed during design to ensure that existing drainage structures can handle the loading or make

recommendations to enlarge specific structures. The crucial item is to not disturb existing drainage patterns or cause excessive siltation at discharge points.

D. Considerations Offsetting Adverse Environmental Impacts

The Master Plan provides for facilities which are necessary to enhance the overall defense posture of the United States. Consideration has been afforded in every area to be compatibility of these recommendations with the preservation of the natural environment in all of its many aspects, wherever consistent with national defense readiness requirements.

E. Compliance with the National Environmental Policy Act

In compliance with the National Environmental Policy Act of 1969 (NEPA), the Navy is required to give appropriate consideration to the environmental effects of its proposed actions in its decision making process. Through proper planning at the earliest possible time, U.S. Naval Station Roosevelt Roads can ensure that their decisions reflect environmental values and provide guidance for implementation of NEPA.