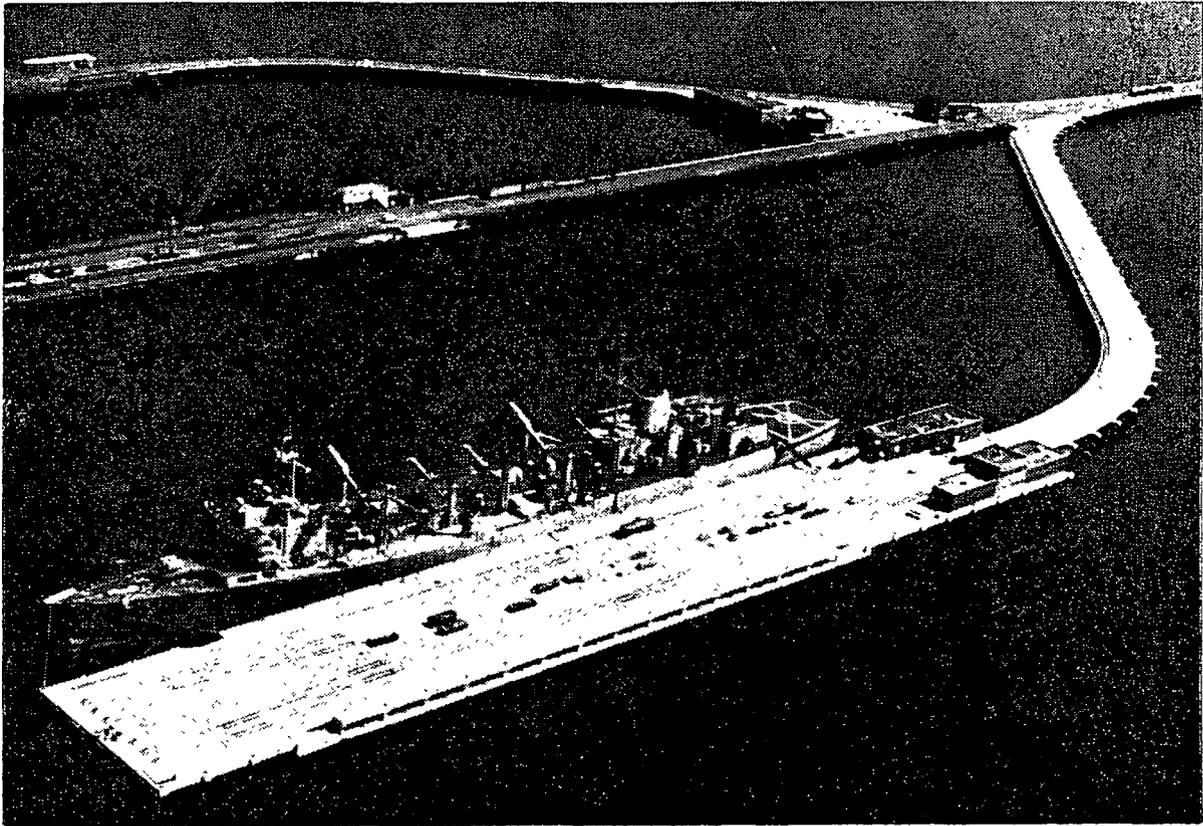


NAVAL WEAPONS STATION EARLE
MASTER PLAN



C o l t s N e c k • N e w J e r s e y

August 1991

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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, DC 20350-2000

IN REPLY REFER TO
11000
Ser 44E/1U598003
29 Oct 91

From: Chief of Naval Operations
To: Commander, Naval Sea Systems Command
Commanding Officer, Naval Weapons Station, Earle

Subj: MASTER PLAN AND CAPITAL IMPROVEMENTS PLAN FOR NAVAL
WEAPONS STATION, EARLE, COLTS NECK, NEW JERSEY

Ref: (a) OPNAVINST 11000.16A of 28 Apr 87

1. The Master Plan and Capital Improvements Plan for Naval Weapons Station (WPNSTA), Earle, Colts Neck, New Jersey, is approved in accordance with reference (a).

2. This plan provides an analysis of Navy mission essential facilities requirements and identifies several major facility needs. The proposed military construction program represents an expansion and upgrading theme. This is based upon the projection that by 1999, WPNSTA Earle will be the homeport for one AE, two AOE 1 class and two AOE 6 class ships; also, other mission tasks will increase including research, development, testing and evaluation (RDT&E) associated with the Center of Excellence for Ordnance Packaging, Handling, Storage, and Transportability (PHST).

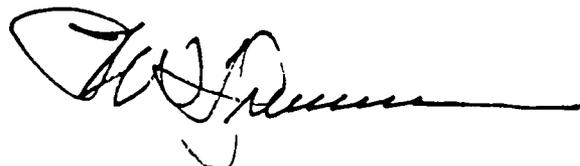
3. A major consideration of the Master Plan is to accommodate facility expansion needed at the Waterfront area to support increased homeporting while remaining sensitive to environmental, operational, and functional concerns. A major recommendation is pier facilities expansion and/or replacement in accordance with the 1990 Han-Padron Associates "Pier/Trestle Alignment Study." The plan also proposes upgrading, expansion, and construction of new storage, shops, and operating facilities to support increased AOE homeporting. Additional recommendations call for the construction of a new explosives truck holding yard and scale house in the Chapel Hill area to replace the existing function currently being satisfied by Pier 1. The plan recommends for the Waterfront area, new or expanded community/recreational/parking facilities for the support of military personnel living on homeported ships and in the planned Bachelors Enlisted Quarters to be located there. Major facilities projects are needed at the Mainside Administrative area required to support increased AOE homeporting and to satisfy other deficiencies. They include the expansion of the existing test and evaluation laboratory, supply warehouse, Explosive Ordnance Disposal (EOD) facility, training facilities and new, expanded, and/or relocated community/recreational facilities. A number of facilities are recommended for construction in the peripheral ordnance areas at the Mainside such as an explosive truck holding yard, reaction force facility,

Subj: MASTER PLAN AND CAPITAL IMPROVEMENTS PLAN FOR NAVAL
WEAPONS STATION, EARLE, COLTS NECK, NEW JERSEY

seven Type Box D projectile magazines, and other ordnance related training facilities. A conceptual plan for siting up to 600 family housing units in the Wayside Area was developed in order to support increased AOE homeporting without significant environmental impact.

4. This approval does not guarantee funding to execute the plan, but projects for future development of the WPNSTA Earle should conform to this plan. The activity, its major claimant, and its resource sponsor shall utilize this plan as a guide in channeling resources to improve productivity and readiness through the acquisition of new facilities, maintenance and use of existing facilities, and the disposal of obsolete facilities.

5. This plan represents a point-in-time assessment of future requirements and will require periodic updating. If problems arise in implementing this plan, they should be made a matter of record with the next higher echelon of command or with the cognizant Engineering Field Division, as appropriate.



P. W. DRENNON
by direction

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WPNSTA Earle

NAVAL WEAPONS STATION EARLE
MASTER PLAN

C o l t s N e c k • N e w J e r s e y

prepared for

NAVAL WEAPONS STATION EARLE

COLTS NECK, NJ 07722

NAVAL SEA SYSTEMS COMMAND HEADQUARTERS

ARLINGTON, VA 22022

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August 1991

EXECUTIVE SUMMARY

Naval Weapons Station (WPNSTA) Earle, located in Monmouth County, New Jersey, is one of three major ammunition activities serving Fleet units on the East Coast. It is comprised of two major land areas, the Mainside and Waterfront, connected by a 15-mile long road and rail right-of-way. The total area of the Station is 11,118 acres.

WPNSTA Earle's mission is to receive, renovate, maintain, store and issue ammunition, explosives, expendable ordnance items and/or weapons and technical ordnance material and perform additional tasks as directed by the Commander, Naval Sea Systems Command. In conjunction with its mission, WPNSTA Earle has been designated a Center of Excellence for Retail Ammunition Management and for Ordnance Packaging, Handling, Storage and Transportability (PHST). In addition, Earle currently serves as homeport for three AE and two AOE 1 class ammunition ships.

It is expected that, by 1999, WPNSTA Earle will be the homeport for one AE, two AOE 1 class and two AOE 6 class ships. Because of the projected growth in homeporting and increases in other mission tasks including research, development, testing and evaluation (RDT&E) associated with the Center of Excellence for Ordnance PHST, new or expanded facilities are required throughout the Station. The Station's facility requirements are described in WPNSTA Earle's Basic Facilities Requirements document (BFR). An analysis of these needs in relation to current facilities is presented in the Station's Facility Planning Document (FPD) and summarized in Section 3.0 of the Master Plan.

Section 5.0 of the Master Plan, Proposed Development Plan, presents a comprehensive series of planning actions recommended to meet projected 1998 facility deficiencies identified by the BFR and FPD. This plan was formulated in accordance with principles and objectives established to guide the master planning process, which are described in Section 4.0.

The potential for new facility development at WPNSTA Earle is limited by the restrictions posed by explosive safety quantity distance (ESQD) arcs, which encompass the majority of land at the Mainside and the Chapel Hill area at the Waterfront, and by environmental constraints, in particular the presence of wetlands and wetland buffers regulated by the New Jersey Department of Environmental Protection. The natural and man-made environment of WPNSTA Earle including development opportunities and constraints is thoroughly described in Section 2.0 of the Master Plan.

Environmental constraints are particularly severe at the Waterfront where the presence of wetlands and floodplain limit the amount of buildable land available. Therefore, a major focus of the Master Plan is to accommodate facility expansion needed at the Waterfront to support increased homeporting while remaining sensitive to environmental, operational, and functional concerns. Major planning actions recommended for the Waterfront include:

- Provide for expansion and/or replacement of pier facilities in accordance with the recommendations of the Pier/Trestle Alignment Study (Han-Padron Associates, August 1990).
- Provide for upgrading/expansion of existing and construction of new storage and shop facilities to support increased AOE homeporting, including a second transit shed, ships' storage facility, Public Works/SIMA shops, covered dunnage storage shed, off-specification fuel storage facility, and a second Waterfront operations building.

- Construct a new explosives truck holding yard and scale house in the Chapel Hill area to replace the existing function currently being satisfied by Pier 1.
- Construct a new fleet parking lot and Public Works vehicle compound.
- Construct a new BEQ and enlisted dining facility for military personnel whose work tasks are directly related to the support of homeported and other ships.
- Provide new or expanded community/recreational facilities (new indoor training pool, theater, and consolidated hobby shop; larger exchange, mess, etc.) to support military personnel living on homeported ships and in BEQ's.

Additional facilities are also required at the Mainside (primarily in the core Administrative area) to support increased AOE homeporting and provide for other deficiencies. In meeting facility deficiencies identified by WPNSTA Earle's planning documents, the Proposed Development Plan attempts to maximize use of existing buildings and minimize new construction. Major recommendations for the Mainside Administrative area include:

- Provide for expansion of the existing test and evaluation laboratory, Supply warehouse, Explosive Ordnance Disposal (EOD) facility, telephone exchange building, and police station.
- Construct a new Public Works vehicle compound, vehicle ready fuel storage facility, and hazardous waste storage facility.
- Upgrade Building C-3 to accommodate an expanded medical/dental facility and administrative and data processing space for the departments currently located in this facility with the exception of Code 70 (Fleet Support). Code 70's calibration laboratory and administrative offices would be relocated from Building C-3 to Building C-33.
- Provide a central training facility in the space currently occupied by the theater in Building C-9.
- Provide new, expanded, upgraded, and/or relocated community/recreational facilities. Recommended new facilities include a BOQ, chapel/religious education building, child development center, housing recreation center, exchange, Navy lodge, and gymnasium. Expanded and/or upgraded facilities include the officers' club and enlisted dining facility, among others. Relocated facilities include the youth center (relocated to Building C-49) and the theater (relocated to the space occupied by the existing gym in Building C-29), among others.

The Master Plan also recommends construction of a number of facilities in peripheral ordnance areas at the Mainside, such as an explosives truck holding yard, reaction force facility, seven Type Box D projectile magazines, ordnance training facility, outdoor small arms firing range, and explosives shipping/transfer depot.

In order to support increased AOE homeporting, a conceptual plan for siting up to 600 family housing units in the portion of the Mainside known as the Wayside was developed. Based upon this plan, it appears to be feasible to site family housing in this area without significant environmental impact. Abandonment of approximately five rail barricades in the adjacent In-Transit area will be required.

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INTRODUCTION

Section 1.0

INTRODUCTION

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THE MASTER PLAN

This Master Plan is an update of a previous Master Plan for Naval Weapons Station (WPNSTA) Earle prepared in 1985. Its purpose is to provide a comprehensive planning document which can be used by decision makers as a guide for future land use and facility development. It presents information regarding the regional context of WPNSTA Earle; existing natural and man-made conditions such as natural constraints to development (wetlands, floodplains, etc.) and the Station's infrastructure; Earle's mission, organization and projected (1998) requirements; master planning principles and objectives; and a development plan proposed to meet identified facility deficiencies in the most economically, environmentally, and operationally feasible manner possible.

WPNSTA Station Earle is located in Monmouth County, New Jersey. Originally established in June 1943, it consists of two major land areas, the Mainside and the Waterfront, connected by a 15-mile long road and rail right-of-way (Normandy Road). The major administrative and personnel support facilities are located at the Mainside off of State Highway 34 and are accessible through the main Station gate. The majority of land at the Mainside is undeveloped land encumbered by explosive safety quantity distance (ESQD) arcs associated with ordnance operations, production, and storage facilities.

WPNSTA Earle's Waterfront consists of a core area of administrative/operational buildings, shops, and personnel support facilities north of State Highway 36; a larger, predominantly undeveloped area (Chapel Hill) south of State Highway 36 encumbered by ESQD arcs associated with explosive rail barricades; and a three-mile long pier/trestle complex extending into Sandy Hook Bay which accommodates homeported ammunition ships and ordnance operations to support fleet operations.

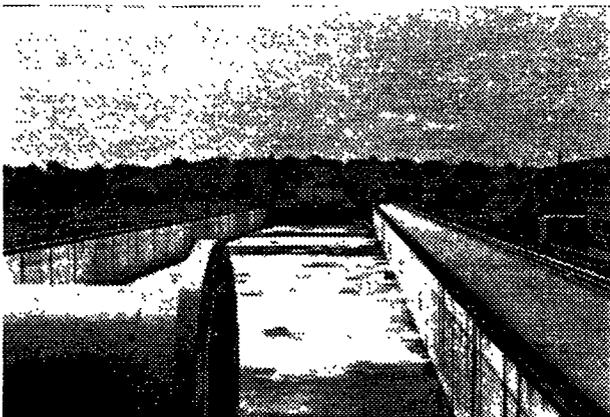
The mission of WPNSTA Earle is to receive, renovate, maintain, store and issue ammunitions, expendable ordnance items and/or weapons and technical ordnance material and perform additional tasks as directed by the Commander, Naval Sea Systems Command. A Master Plan

update is needed because of a proposed change in mission since 1985 from projected homeporting of three AE class and two AOE class ships to homeporting of one AE class and four AOE class ships. The Master Plan addresses base support facilities for a scenario whereby four AOE's are in port and one AE is deployed.

In addition to making Station-wide recommendations for future land use and facility development at WPNSTA Earle, the Master Plan addresses two specific planning issues. These issues are:

- The feasibility of siting up to 600 family housing units in the portion of the Mainside referred to as the Wayside area.
- The feasibility of adaptively reusing the OHMSETT facility, or wave tank, to satisfy facility deficiencies at the Waterfront.

Adaptive reuse of the wave tank was explored in the initial concept development phase which preceded formulation of a Proposed Development Plan. The wave tank was leased to the



OHMSETT Facility (Wave Tank) outgranted to Department of the Interior

Department of the Interior Minerals Management Service for use in oil and hazardous materials spill research. The Proposed Development Plan assumes that this facility will not be available to meet projected facility requirements during the time frame of this plan. The current lease expires 25 April 95. Upon expiration of the lease, the wave tank will be considered for satisfying homeporting requirements (see Wave Tank Reutilization Study, WRT, January 1991).

For planning purposes, the Master Plan addresses several areas of the Station in greater detail than others. These planning subareas include the core developed areas at the Mainside and Waterfront (referred to as the Mainside and Waterfront Administrative areas), where the majority of new or expanded facilities are required, and the Wayside housing area.¹

¹ The Mainside Administrative area includes the developed core east of the Main Gate as well as the adjacent family housing areas. The Wayside is located at the Mainside in Tinton Falls, north of the Ordnance area known as the In-Transit area next to the intersection of Wayside Road (State Highway 38) and Shafto Road (State Highway 547). The Waterfront Administrative area includes the ashore area at the Waterfront north of Chapel Hill. (Refer to Figures 2.6, 2.7 and 2.8 for the extent of the planning subareas.) Other areas of WPNSTA Earle are referred to as peripheral areas in the Master Plan.

Development at the pier/trestle complex was addressed by a separate study (Pier/Trestle Alignment Study, Han-Padron Associates, August 1990). Recommendations for this area contained in the Master Plan are, for the most part, derived from that study. Ordnance production facilities are the focus of a separate contract initiated while the Master Plan was under preparation and thus are not addressed in the Master Plan.

1.2 PLANNING METHODOLOGY AND ASSUMPTIONS

The Master Plan for WPNSTA Earle is the end result of an orderly planning process begun in March 1990 (see Figure 1.1). The initial steps in this process included data collection and inventory of existing natural and man-made conditions; site visits and interviews with departments and tenants to gain an understanding of existing facilities, land use, operations, and functional relationships; establishment of principles and objectives to guide the master planning process; and development of concept alternatives for fulfilling identified facility requirements.

The concept alternatives, developed for the Mainside and Waterfront Administrative areas, were presented to Navy representatives in September and October 1990. For each alternative, advantages and disadvantages of planning actions proposed to rectify individual facility deficiencies were articulated. Based upon input received regarding the concepts and further evaluation and refinement of proposed planning actions, a Proposed Development Plan was formulated and is presented in the Master Plan.

Two companion documents, Basic Facilities Requirements and Facility Planning Document, were prepared concurrently with the Master Plan in accordance with the Navy's Shore Facilities Planning System. The Basic Facilities Requirements document, which identifies projected requirements stemming from WPNSTA Earle's expanded 1998 mission, was used as a guide to determine the new and expanded facilities shown in the initial concept alternatives and the Proposed Development Plan. The Facility Planning Document identifies the individual planning actions comprising the Proposed Development Plan. A third document provided by the Navy, the Station's updated Engineering Evaluation (EE), was used as a source for determining the condition of existing facilities. This information was used in formulating proposed planning actions for existing facilities involving demolition, rehabilitation, or conversion to another use.

Planning assumptions made while preparing the Master Plan include:

- One AE class, two AOE 1 class, and two AOE 6 class ships will be homeported at WPNSTA Earle by 1998.
- Projected 1998 base loading is derived from the Projected Bachelor Housing Survey for WPNSTA Earle as revised by NAVFACENGCOC Northern Division in June 1990, which assumes a full complement of one AE class and four AOE class ships. Individual facility requirements derived from the Basic Facilities Requirements document assume that the four AOE's will be in port and the one AE will be deployed (NAVSEA LTR 11000 OPR 654PH SER 654/427 of 12 JUL 90).
- ESQD arcs for ordnance facilities are as delineated on record plans provided by Northern Division and the WPNSTA Earle Public Works Department. (A study is currently underway under separate contract to update the ESQD information.)

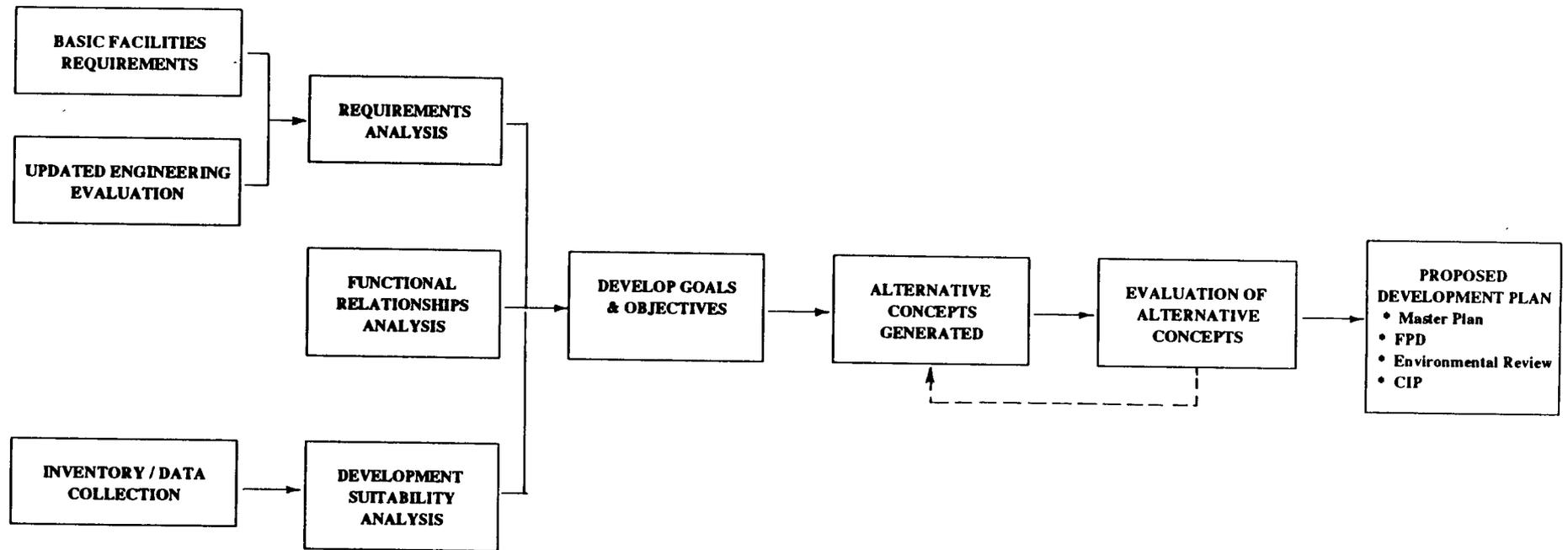


Figure 1.1 Master Planning Process

- The current outgrant of facilities at the Mainside Administrative area to the Department of Defense Reutilization and Marketing Service will remain in effect.
- The Proposed Development Plan assumes that the wave tank will be outgranted to the Department of the Interior and therefore will not be available in the near term to fulfill facility requirements.

EXISTING CONDITIONS

Section 2.0

EXISTING CONDITIONS

2.0 EXISTING CONDITIONS

2.1 REGIONAL OVERVIEW

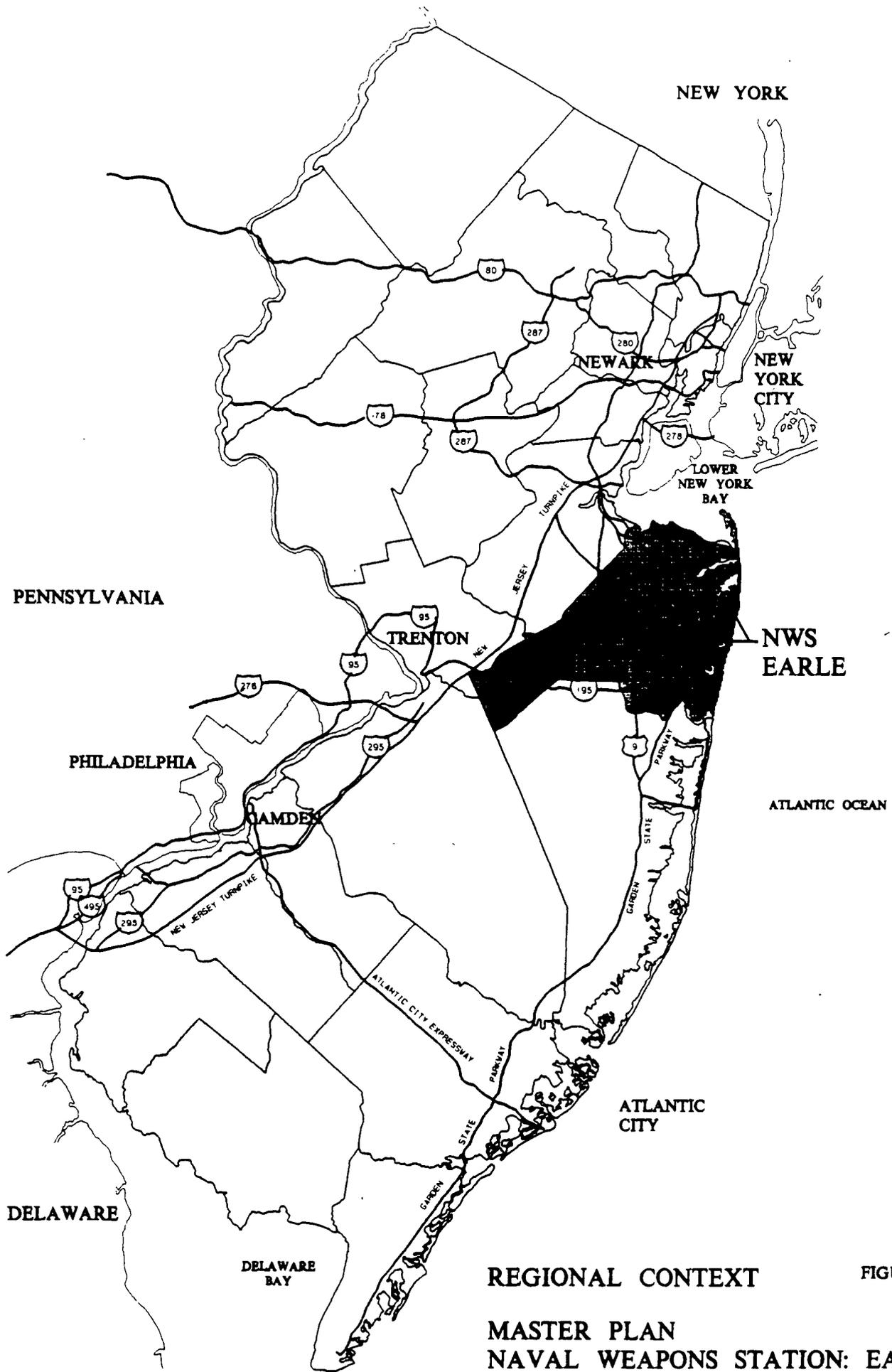
2.1.1 REGIONAL LOCATION

Located in Monmouth County, New Jersey, WPNSTA Earle is comprised of two major areas totalling 10,865 acres and a corridor of 253 acres connecting them. The larger of the two areas, referred to as the Mainside, is 10,160 acres and located in the interior portion of the County. The second area, the Waterfront, is 705 acres in size and located on the shoreline of Sandy Hook Bay. The two parcels are linked by a 15-mile long, government-owned corridor containing Normandy Road and a rail line. The land area for the entire Station, including the Normandy Road corridor, totals 11,118 acres.

WPNSTA Earle is situated in central part of the state between two large metropolitan centers, New York City to the north and Philadelphia to the south. Although the direct distance from the Waterfront area across Raritan Bay to New York City is only 15 miles, the more circuitous road route is approximately 50 miles long. Philadelphia lies some 70 miles southwest of the Mainside area (see Figure 2.1).

The region is accessible by public transit and two major highways. New Jersey Transit operates several bus lines between the New York City Metropolitan area and Monmouth County. The New Jersey Transit North Coast Line provides rail service to a similar area. Several bus companies also provide service linking the region with northern New Jersey, New York City, and developed areas to the south near Philadelphia and Atlantic City. Academy Bus Lines operates the only line providing direct access to WPNSTA Earle, with stops along Highway 36 near the Waterfront main gate.

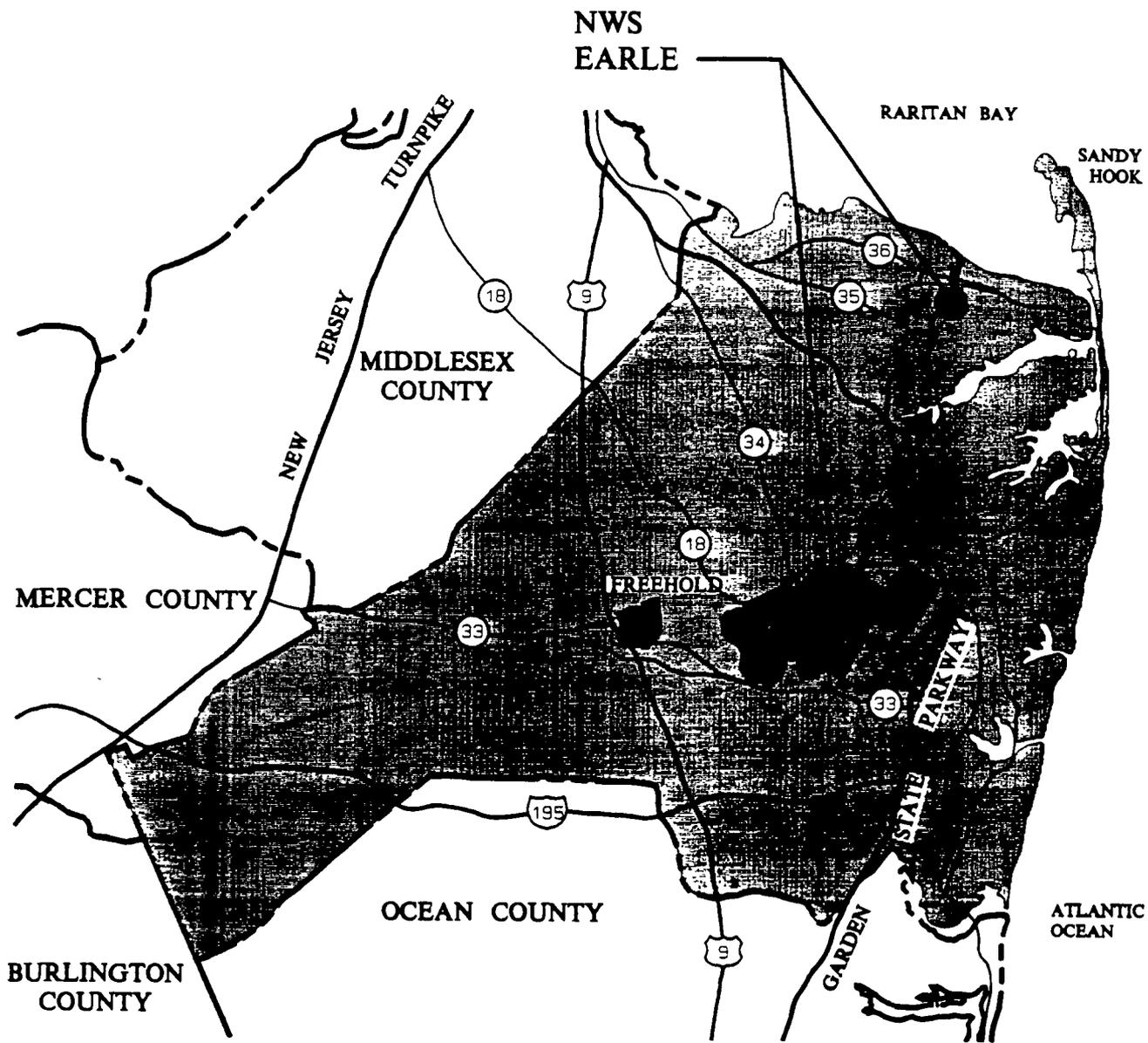
Monmouth County and WPNSTA Earle are accessible through a well-developed network of interstate, state, and county roads illustrated in Figure 2.2. Major regional highway corridors in or near Monmouth County include the Garden State Parkway, the New Jersey Turnpike, and Interstate 195. The Garden State Parkway connects Monmouth County with points in



REGIONAL CONTEXT

FIGURE 21

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



MONMOUTH COUNTY, NJ FIGURE 2.2

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

northeastern New Jersey as well as shore areas along the central and southern coast. Exit 105 is located approximately four miles from the Mainside main gate. The closest access point for the New Jersey Turnpike, a major link in the I-95 northeast corridor network, is approximately 15 miles from the Mainside main gate. Interstate 195, located south of the Mainside, provides an east-west link connecting Trenton and the New Jersey Turnpike with the Garden State Parkway and shore points.

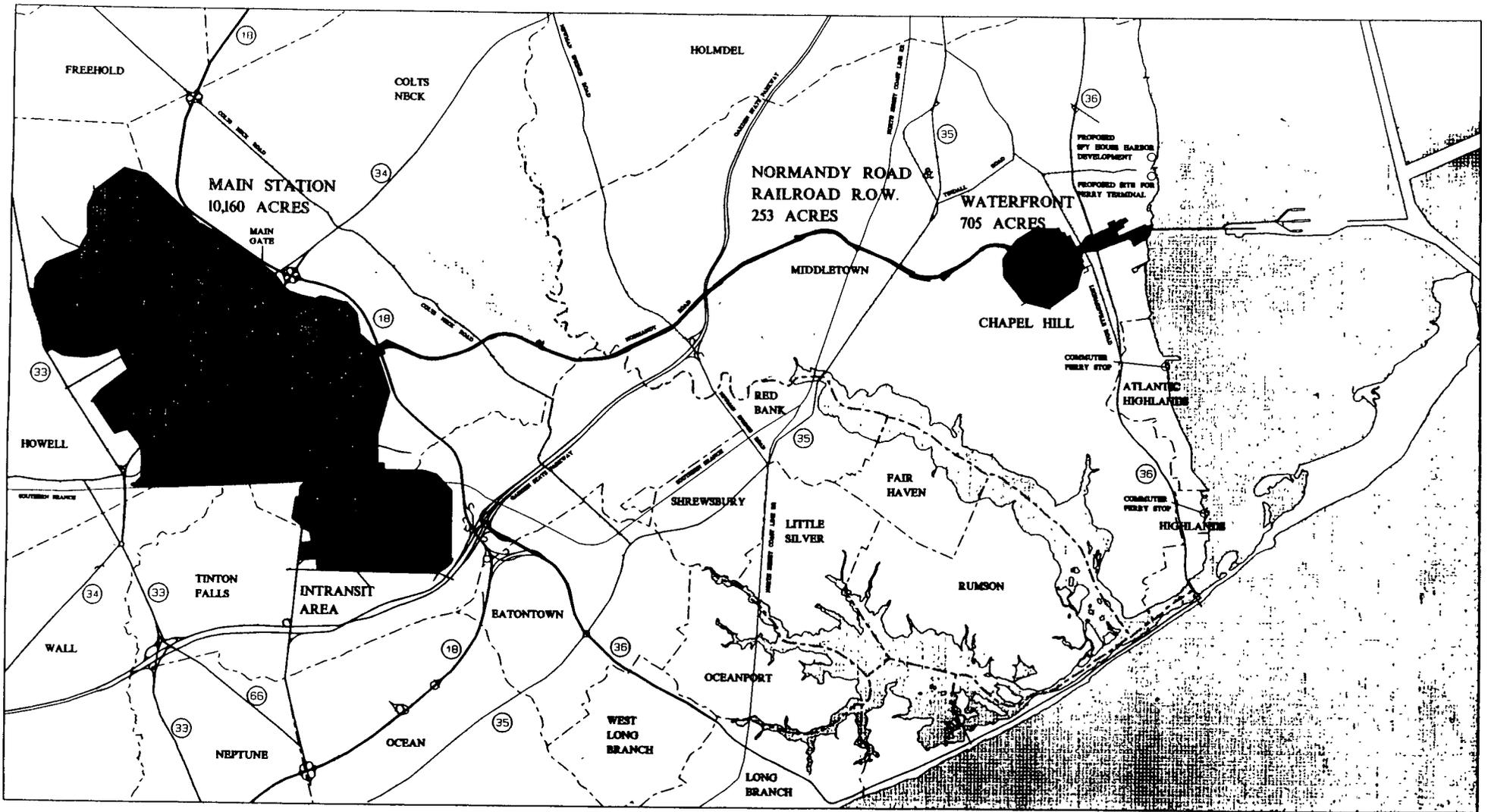
Other major roads proximate to WPNSTA Earle include State Highways 18, 33, 34 and 36. State Highway 18, which intersects State Highway 34 north of the Mainside main gate, is a limited access roadway. It runs in a northwest/southeast direction from East Brunswick to Spring Lake and connects with both the Garden State Parkway and the New Jersey Turnpike. State Highway 34, which begins at Matawan at the northern edge of Monmouth County, bisects the Mainside and terminates at Point Pleasant in Ocean County to the south. The Mainside main gate is located off of this highway. The major links from WPNSTA Earle Mainside area to the County seat of Freehold are State Highway 33 which parallels the Mainside's southern boundary and State Highway 537 (Colts Neck Road) immediately north of the Mainside. The primary access to the Waterfront is via State Highway 36 which runs parallel to the northern shoreline of Monmouth County.

Currently, a private ferry service crosses the Sandy Hook and Raritan Bays to lower Manhattan from two locations in Monmouth County, Atlantic Highlands and Highlands. Service is primarily for weekday rush hour commuting with a limited schedule in effect on Saturdays. Ferry service may be expanded in the future as indicated by Monmouth County's recent purchase of 253 acres west of WPNSTA Earle's Waterfront area. This parcel is currently under study as a possible site for a ferry terminal (see Figure 2.3).

2.1.2 ADJACENT MUNICIPALITIES

Monmouth County is bordered by the counties of Middlesex and Mercer to the west, and Burlington and Ocean to the south (see Figure 2.2). Within Monmouth County, five local municipalities include portions of WPNSTA Earle within their boundaries. The Mainside is located in four municipalities: Colts Neck, Tinton Falls, Wall and Howell. The Waterfront area is located in Middletown Township. The Normandy Road/rail corridor passes through both Colts Neck and Middletown Townships. In general, the municipalities in northern Monmouth County are more densely developed suburban communities while those to the south are less dense residential and agricultural communities (see Figure 2.3).

Colts Neck - Colts Neck Township is a predominantly low density community, encompassing both residential and agricultural lands. The mixed character of its inhabitants, middle and upper middle class suburbanites and working farmers, is consistent with the variety of structures dotting the community: older farmhouses, exclusive subdivisions, horse farms and roadside produce stands. Farms, pastures and wooded land dominate the picturesque landscape.



**SITE AREA AND
ADJACENT
MUNICIPALITIES**

FIGURE 23



**MASTER PLAN
NAVAL WEAPONS STATION: EARLE**

Middletown - Middletown Township, the County's most populous municipality, stretches from the northern bayshore area to the central part of the County. It is composed of a number of diverse neighborhoods including redeveloping and older shore communities, former fishing villages along Raritan Bay, and large estates and horse farms east of the Navesink River. Commercial areas are concentrated along State Highways 35 and 36 or in newer office-research development districts clustered near the Garden State Parkway exits.

Tinton Falls - Although still one of the smaller municipalities in Monmouth County, the Borough of Tinton Falls has experienced rapid development over the past decade, particularly in the southeastern sector, due to its proximity to fast growing Neptune and Ocean Townships. The borough's long, narrow configuration is bisected by the Garden State Parkway.

Howell - Howell Township has the largest land area as well as the fastest rate of growth of all Monmouth County municipalities. According to the Draft Development and Redevelopment Plan for the State of New Jersey, Howell has undergone and will continue to undergo substantial and sustained development. The township offers a wide variety of housing types set in densely developed as well as rural, agricultural areas. Commercial development in the township is located primarily along Route 9.

Wall - Although adjacent to two-fast growing municipalities, Tinton Falls and Howell, Wall Township has experienced population growth below the County average during the last decade. Despite development pressures in adjacent municipalities, Wall has maintained much of its rural residential character.

2.1.3 REGIONAL LAND USE

Land use in Monmouth County is primarily residential with densities ranging from urban to rural. In general, land use is less intensive in the southern and western portions of the County. The coastal areas, north and east of the Garden State Parkway, are the most intensely developed. Land use in the section of the County between Route 9 and the Garden State Parkway is a mix of low-density residential and agricultural uses. West of Route 9, the principal land use is farming. Commercial development in the County tends to be concentrated along major thoroughfares such as Highways 9, 18, 33, 34, 35, 36 as well as near the access points for the major regional routes, I-195 and the Garden State Parkway.

WPNSTA Earle has two distinct land use settings - urban/suburban uses surrounding the Waterfront and low density residential and agricultural uses bordering the Mainside. In addition to the low-density residential or agricultural uses, rapidly developing suburbs occur along the eastern boundary of the Mainside. The area bisected by Normandy Road is characterized by a variety of land uses and densities including agricultural, undeveloped and environmentally sensitive areas near the Mainside and denser residential areas close to the Waterfront.

2.1.4 REGIONAL POPULATION TRENDS

Table 2.1 shows population projections for Monmouth County as a whole and for each of the municipalities adjacent to WPNSTA Earle. Based on these figures, the population for the entire County grew by 48,678 (a 10% increase) between 1980 and 1988. Projections through the year 1995 show that the Monmouth County Planning Board expects the population to rise to 655,322, a 21% increase from 1980. Of the communities adjacent to WPNSTA Earle, Howell is projected to experience the largest absolute population increase (+28,254) and Tinton Falls the largest percentage increase (+79%) in the County during the 1980-1995 period.

Table 2.1 Monmouth County Population Projections

Municipalities	1980 US Census	1988 MC Proj.	1995 MC Proj.
Colts Neck (Index)	7,888 (100)	8,202 (104)	9,479 (120)
Middletown (Index)	62,575 (100)	67,358 (108)	67,078 (108)
Howell (Index)	25,065 (100)	37,668 (150)	43,319 (173)
Tinton Falls (Index)	7,740 (100)	10,788 (139)	13,823 (179)
Wall (Index)	18,952 (100)	20,242 (107)	23,962 (126)
Monmouth County (Index)	503,173 (100)	551,851 (110)	608,450 (121)

Source: Monmouth County Planning Board, February 1989

2.1.5 REGIONAL HOUSING

Estimates by the Monmouth County Planning Board show that the number of housing units in Monmouth County increased during the 1980-1989 period. Howell and Tinton Falls experienced dramatic increases, well above the 16% rate of growth for the entire County. In Howell, 5,846

housing units were added representing a 70% increase. The number of housing units in Tinton Falls grew by 63% over the same period, a net increase of 1,525 units. Housing growth in Colts Neck was below the County average, and growth in Middletown and Wall was about average.

A survey prepared by the Monmouth County Planning Board, New Residential Development in Monmouth County May-June 1989, illustrates the wide range in the price and type of new housing in Monmouth County. At the high end are spacious, single-family homes in Colts Neck priced to sell for up to \$2,000,000. At the opposite end are multi-family units such as townhouses and condominiums that have sold in recent years for approximately \$100,000. These prices reflect the strong housing market and peak housing costs in the mid to late 1980's. Consistent with the national trend over the past decade, housing prices in Monmouth County rose rapidly during this period. According to a Monmouth County housing study completed in 1989, the median housing price was \$186,900, a figure strikingly higher than the \$65,500 reported in the 1980 US Census. Local realtors indicate that housing prices have fallen over the past several years due to a depressed residential market.

2.1.6 REGIONAL EMPLOYMENT

Employment statistics compiled in 1988 by the New Jersey Department of Labor show that jobs in the County are concentrated in the service, retail, and government sectors. These three sectors account for approximately 65% of all jobs in the County. The 1988 annual average for unemployment in Monmouth County was roughly 3.2%, slightly lower than the 3.8% reported for the State of New Jersey. The 1980 US Census reported a per capita income of \$14,364, placing Monmouth County fifth of the twenty one counties in the State.

WPNSTA Earle ranks 16th in Monmouth County's list of major employers in the County. Over 700 civilians work directly for WPNSTA Earle. In addition, many local businesses supply goods and services to WPNSTA Earle on a contract basis.

2.1.7 REGIONAL GROWTH TRENDS

In 1990, the State of New Jersey completed a draft Development and Redevelopment Plan for the entire state which has been reviewed and refined by the local municipalities. County level review of the draft plan was scheduled to begin in June 1991. Regional growth trends can be inferred from the system of seven tiers which identify areas of growth, no growth, and preservation within the State. The Plan projects the continued redevelopment of older communities on the northern edge of Monmouth County and the preservation of the rural, agricultural areas in the south and west. The draft plan as related to WPNSTA Earle is described in Section 2.2.1.C.

2.2 PUBLIC LAND USE POLICY AND REGULATION

2.2.1 STATE AND LOCAL LAND USE POLICY AND REGULATION

As a part of the Federal government's landholdings, WPNSTA Earle is exempt from most state and local zoning and planning regulations, but bound by Federal regulations affecting land use. Regardless of the applicability of state or local policy and regulations, an awareness of proposed zoning and land use for the properties adjacent to WPNSTA Earle allows the future growth and planning of on-station facilities to be compatible with existing or future off-station uses. A brief summary of current state and local regulations, policies and plans is presented in this section.

A. Township Master Plans and Zoning Ordinances

For the most part, zoning for lands adjacent to WPNSTA Earle at the Mainside is oriented towards agricultural or preservation uses. Exceptions include a business and village residential district in Colts Neck along State Road 34 opposite the main gate. Wall and Tinton Falls have designated an industrial and office research zone along WPNSTA Earle's south-east border near the In-Transit area.

The Normandy Road and rail corridor traverses agricultural zones in Colts Neck. Further north the corridor crosses medium and low-density residential zones in Middletown.

At the Waterfront, Middletown Township's Master Plan calls for mixed-use to the west and medium-density residential use east of the core Waterfront Administrative area. Lands adjacent to the Waterfront ballfield, between Leonardville Road and State Road 36, are proposed for commercial use. The Township Plan designates the area west of Chapel Hill for high-density residential use and the area to the east for commercial/medium-density residential uses. Local zoning in Middletown is consistent with the Township's Master Plan with one exception. The area between Compton's Creek and WPNSTA Earle is planned for mixed use, but zoned for light industrial uses. This area includes land purchased by the County which is under study as the site of a future ferry terminal.

B. Monmouth County Bayshore Access Plan

In December 1987, the Bayshore Waterfront Access Plan was released by the Trust for Public Land. The plan proposes three elements to improve public access to and along the southern shore of Raritan Bay: the Bayshore Waterfront Park, the Bayshore Trail, and the Bayshore Bikeway. The Waterfront Park will link existing and proposed open space, recreation, and preservation areas with pedestrian and bike paths. As proposed, the Bayshore Trail and Bayshore Bikeway cross WPNSTA Earle property within the existing right-of-way of the old Seashore Branch of the Central Railroad of New Jersey which is located parallel to and north of State Highway 36. If the right-of-way is not acquired, the Bayshore Trail and Bikeway will use the existing public roads.

C. New Jersey Development and Redevelopment Plan

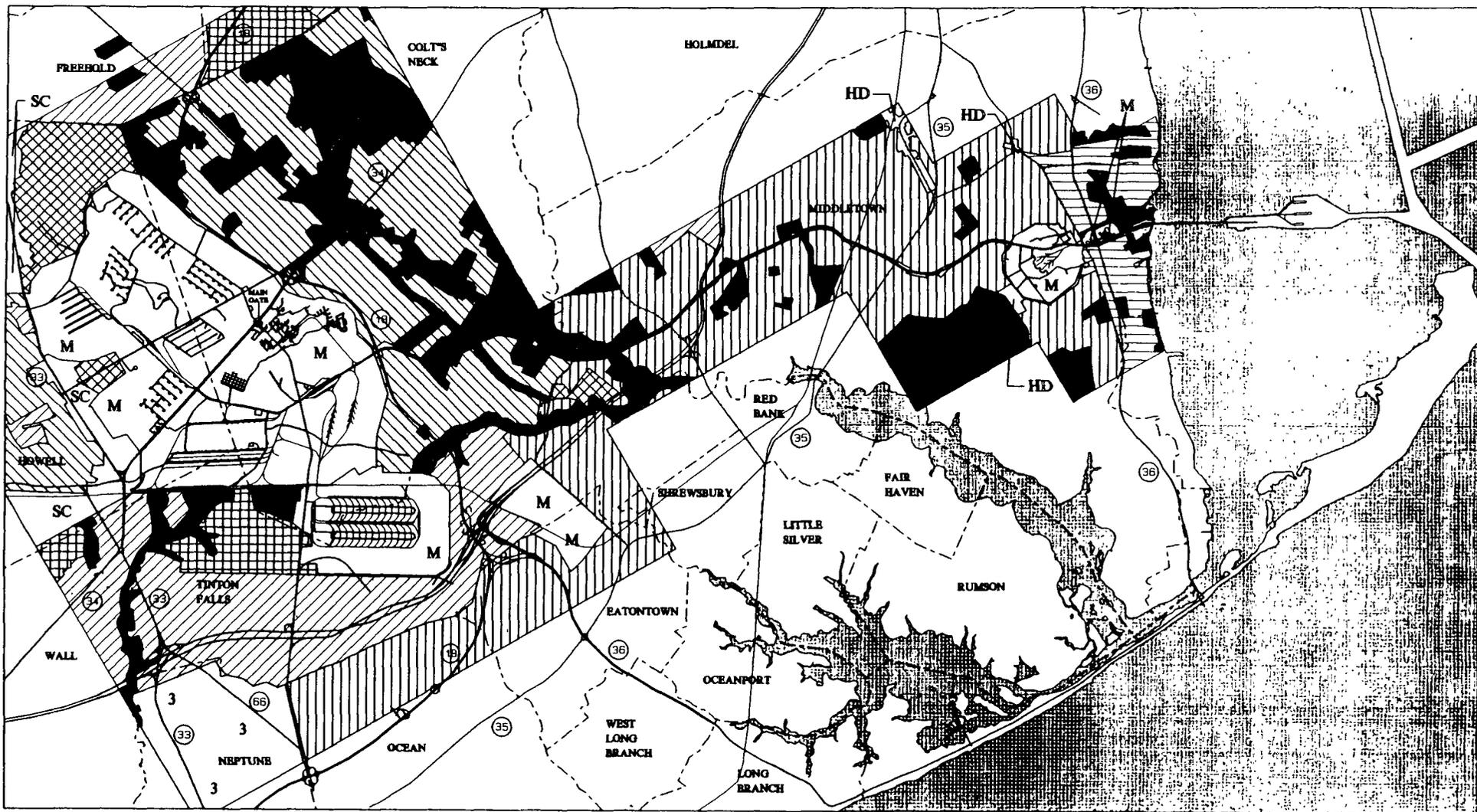
The State of New Jersey has formulated a development strategy which categorizes land in a series of seven tiers which define growth, non-growth, and preservation areas within the State. The Plan encourages growth in tiers 1 through 4 where the infrastructure capacity exists, or is planned, to support it. Future limited and non-growth areas, tiers 5 through 7, are planned so that the need for new infrastructure will be minimized and natural resources will not be impaired. The general intent of each tier is described below.

- Tier 1 includes the most distressed cities and suburbs. Because of massive investment in underutilized and deteriorating public facilities and services, this tier is considered the most desirable to accommodate future growth.
- Tier 2 includes less distressed communities and the established, but still growing, suburbs that generally surround Tier 1.
- Tier 3 includes the more isolated or free standing towns in suburban and rural areas that contain extensive networks of public services.
- Tier 4 includes new suburban areas that have grown out from Tiers 2 and 3, generally along major transportation routes.
- Tier 5 includes areas that lack basic public services, particularly sewers. While these areas may be developed for urban uses in the future, growth should be managed so as to be serviced efficiently.
- Tier 6 includes the best agricultural land in the State. Development intensities must be carefully managed in Tier 6 to assure the viability of the agricultural industry in the future.
- Tier 7 includes undeveloped areas where development densities must be carefully established and controlled to protect environmentally sensitive resources.

WPNSTA Earle is identified as a military installation and is excluded from any tier. The classifications of areas adjacent to WPNSTA Earle are illustrated in Figure 2.4. In general, the communities surrounding the Waterfront are earmarked for growth and redevelopment with the exception of the environmentally sensitive shoreline. The Mainside is surrounded by agricultural and preservation areas (north, west, and southwest) and by developing suburban areas (on the east and southeast).

D. New Jersey Coastal Area Facility Review Act (CAFRA)

The Coastal Area Facility Review Act of 1978 (N.J.S.A. 13:9-1 et seq.), commonly referred to as CAFRA, authorizes the New Jersey Department of Environmental Protection (NJDEP) to



-  TIER 1 Redeveloping Cities & Suburbs
-  TIER 2 Stable Cities & Suburbs
-  TIER 3 Suburban & Rural Towns
-  TIER 4 Suburbanizing Areas
-  TIER 5A Exurban Reserves

-  TIER 6A Agricultural Areas
-  TIER 6B Environmentally Sensitive Agricultural Areas
-  TIER 7 Environmentally Sensitive Areas
-  Scenic Corridor
-  Parks & Recreation Areas

-  Military Installation
-  Historic District
-  Suburban Corridor

NOTE: Tiers show only for areas within ± 5000 ft. of the station boundaries.

**MONMOUTH COUNTY
CROSS-ACCEPTANCE
TIER MAP**

**MASTER PLAN
NAVAL WEAPONS STATION: EARLE**

FIGURE 24



regulate and approve development in the coastal zone as defined by Section 13:9-4 of the Act. WPNSTA Earle property at the Waterfront north of State Highway 36 is within the CAFRA zone. Certain types of development are regulated under CAFRA and, if proposed, an application and an Environmental Impact Statement (EIS) must be submitted to NJDEP in order to obtain a CAFRA permit. A public hearing and review of the EIS by other NJDEP divisions and state agencies are required before a decision on the permit application is made.

The applicability of the CAFRA regulations to U.S. Naval projects is determined on a case by case basis. Examples of activities at Earle which may be defined as CAFRA regulated activities are: public facilities such as roads, parking facilities with at least 300 spaces, housing developments of 25 units or more, marine terminals, and cargo handling and storage facilities. The Navy may be required to obtain CAFRA permits for proposed actions of this type in the CAFRA defined coastal zone.

E. Wetlands Act of 1970

The Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.) regulates development in coastal (tidal) wetlands. Coastal wetlands subject to the Wetlands Act are delineated on wetlands maps originally promulgated in 1972. In general, development is prohibited in these wetlands unless the proposed development meets the following four conditions:

1. The proposed use is on or adjacent to waterways and is water dependent;
2. The proposed use has no prudent or feasible alternative on a non-wetlands site;
3. The proposed use will result in minimum feasible alteration or impairment of the natural contour or natural vegetation of the wetlands; and
4. The proposed use will result in minimum feasible alteration or impairment of natural tidal circulation.

The marshes north and west of the Waterfront Administrative area and east of the wave tank were mapped in 1972 as coastal wetlands by NJDEP. More recent delineation of these wetlands by the U.S. Department of Agriculture, Soil Conservation Service (SCS) indicates that tidal influence in this area has diminished and therefore the coastal designation may no longer be accurate.¹ However, the regulatory designation will remain in effect until the wetlands are declassified by NJDEP through on-site survey (see Section 2.2.1.G).

¹ David Smart, Project Manager, personal communication, December 1990.

F. Coastal Resources and Development Policies

The Coastal Resource and Development Policies of 1980 (N.J.A.C. 7:7E-1.1 et seq., 1980), as amended, constitute the core of New Jersey's Coastal Zone Management Program and are used to guide all NJDEP decisions regarding coastal resources, including approvals for CAFRA, and Coastal Wetlands permits. The overall geographic area to which these policies apply is identical to the coastal zone defined under CAFRA.

Only the Waterfront portion of WPNSTA Earle is affected by the Coastal Resource and Development Policies. In general, the policies identify 48 Special Areas within the coastal zone which merit special attention and treatment. Of the 48 areas, the following four Special Area policies are particularly significant to development planning for WPNSTA Earle.

1. Wetlands (Section 7:7E-3.27) - In general, the policy regarding wetlands regulated under the Wetlands Act of 1970 prohibits development of all kinds in coastal wetlands.

2. Wetlands Buffers (Section 7:7E-3.28) - The policy for wetlands buffers states that all land within 300 feet of coastal wetlands and within the drainage area of those wetlands comprise an area within which the need for a wetlands buffer shall be determined. The size of the buffer is determined on a case by case basis. Development is prohibited in a wetlands buffer unless the proposed development will not have a significant adverse impact on the wetlands or the natural ecotone between the wetlands and the surrounding upland.

Based upon informal discussion with the NJDEP Division of Coastal Resources, it appears highly unlikely that a 300-foot buffer would be required for development adjacent to coastal wetlands.² The Freshwater Wetlands Transition Area Rules have influenced the Division's policies regarding wetlands buffers. Although Section 7:7E-3.26 has not been amended, as a general rule the Division requires transition areas similar to the Freshwater Wetlands requirements to protect coastal wetlands (i.e., 0 to 150 feet depending upon the resource value of the wetlands). (See discussion of transition areas in Section 2.2.1.G below.)

3. Excluded Federal Lands (Section 7:7E-3.42) - According to Section 307 of the Federal Coastal Zone Management Act, Federal lands are technically excluded from New Jersey's coastal zone and therefore are not subject to various permitting procedures. However, the Act allows states with approved coastal management programs to object to direct Federal activities, Federal permits, or funding activities in or affecting the coastal zone which are found to be inconsistent with elements of the approved coastal program.

² Ernest Hahn, Supervising Planner, Bureau of Inland Regulation - Division of Coastal Resources, personal communication, August 1990.

The State of New Jersey interprets Federal consistency to mean consistency is required where Federal actions have spillover impacts. Section 7:7E-3.42(b) of Coastal Resources and Development Policies reads:

(b) Federal actions on excluded public lands that significantly affect the coastal zone (spillover impacts) shall be consistent with the Coastal Resource and Development Policies, to the maximum extent practicable.

For a development proposal likely to result in spillover impacts, the Navy will require a Coastal Zone Consistency Determination from NJDEP Division of Coastal Resources confirming that the proposed project is in conformance with the state coastal zone policies to the maximum extent feasible.

4. National Defense Facilities (Section 7:7E-7.13) - National defense facilities in the coastal zone are the subject of specific policies addressed in Section 7:7E-7.13. According to this section such facilities are conditionally acceptable and will be approved provided that one of the two following findings can be made:

- i. The proposed facility is consistent with all relevant Coastal Resource and Development Policies; or
- ii. The proposed facility is coastally dependent, will be constructed and operated with the maximum possible consistency with Coastal Resource and Development Policies, and will result in minimal feasible degradation of the natural environment. Further, the construction of new facilities or expansion of existing facilities on land not owned by a defense agency is discouraged unless it can be shown that the facility cannot be accommodated on an existing base.

G. Freshwater Wetlands Act and Transition Area Rules

The Freshwater Wetlands Act of 1987 (N.J.S.A 13:9B:1 et seq.), The Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A) and The Freshwater Wetlands Transition Area Rules (incorporated into N.J.A.C. 7:7A in July, 1989) regulate development in and adjacent to freshwater wetlands. Under the Act, freshwater wetlands are classified in a three-tier system according to resource value - exceptional, intermediate, or ordinary. The Freshwater Wetlands Transition Area Rules requires a transition area (buffer) for each tier as follows:

- 150 foot buffer for exceptional resource value wetlands
- 50 foot buffer for intermediate resource value wetlands
- no transition area for ordinary resource value wetlands.

At WPNSTA Earle, freshwater wetlands are found at both the Mainside and the Waterfront (see Section 2.3.5). Based upon available information and the NJDEP's description of criteria used

to classify freshwater wetlands, it appears that the majority of the freshwater wetlands at Earle are of intermediate value, requiring a 50-foot wide transition area. It is possible that some Mainside wetlands locations may be classified as possessing exceptional resource value due to the occurrence of threatened or endangered species and, therefore, would require a larger (150-foot) transition area.

In general, development is prohibited in all wetlands and wetland transition areas. In certain cases, the NJDEP can reduce the required transition area width provided the proposed action will not result in substantial wetland impacts and the waiver is necessary to avoid extraordinary or substantial hardship to the applicant. For exceptional resource value wetlands, reductions to a minimum of 75 feet are allowed. For intermediate resource value wetlands, reductions to a minimum of 25 feet are allowed. Two types of waivers are possible:

- A reduction of the required width which decreases the overall acreage of the required transition area; or
- A modification in the shape of the transition area which does not decrease the overall acreage but which increases the width of the transition area in certain locations to compensate for a reduced width in other locations. This is called a "transition area averaging plan."

At some locations, wetlands mapped in 1972 as coastal (tidal) wetlands have been severed from coastal influences as they were filled or altered. Although these areas were classified as freshwater wetlands in a recent Soil Conservation Service wetlands survey of WPNSTA Earle, the coastal regulations apply unless the NJDEP surveys and reclassifies the coastal status of those wetlands affected.³

The application and approval procedure needed to have the NJDEP verify wetlands, agree to a transition area waiver, and reclassify coastal wetlands would likely require a minimum of six months if presented as a single application for all three components. If an application request were made for a single action (e.g., verification of wetlands classification), the time required would likely be the same, six months minimum. Any request for additional NJDEP services (e.g., waivers or reclassification of coastal wetlands) would likely also require six months from the time of application.

For a full discussion of the location, classification, and extent of freshwater wetlands and wetlands transition areas at WPNSTA Earle see Section 2.3.5 (Wetlands).

³ Ernest Hahn, Supervising Planner, Bureau of Inland Regulation - Division of Coastal Resources, personal communication, August 1990.

2.2.2 FEDERAL LAND USE POLICY AND REGULATION

A. Clean Water Act

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (ACOE) regulates the dredging and filling of freshwater and coastal wetlands. The ACOE no longer plays an active role in most of New Jersey wetlands development applications due to the scope of the State's permitting programs. Proposed revisions to the Freshwater Wetlands Act will if adopted allow the NJDEP to assume the ACOE's role in regulating development in freshwater wetlands in New Jersey.

B. Executive Order 11988: Floodplain Management Executive Order 11990: Protection of Wetlands

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program, which sets standards for development within the 100-year floodplain in participating communities. These standards do not apply to Federal properties. Therefore, the principal Federal policy affecting floodplain development at WPNSTA Earle is Executive Order 11988: Floodplain Management, enacted in 1977. This policy requires Federal agencies to recognize the full value of floodplains and, to the greatest extent possible, avoid adverse impacts that would result from Federal activities in such areas.

In response to Executive Order 11988, the Navy has established standards for development in floodplains in MIL-HDBK-1190. Part 4 of this publication requires that if a proposed project is sited in a floodplain, construction may be undertaken only if an analysis demonstrates that alternative sites, alternative actions, or no action are not practicable. Notification of governmental agencies and the public before planning or undertaking a project in a floodplain or wetland is required.

Because Federal lands are not covered by the FEMA program, the FEMA maps do not show the 100-year floodplain for WPNSTA Earle. Based on interpretation of FEMA maps for areas surrounding the Waterfront, it was reasonably concluded that the 100-year flood elevation is approximately 13 feet above the mean sea level (MSL). For a full discussion of the location of floodplains at WPNSTA Earle see Section 2.3.3 (Hydrology).

Executive Order 11990 currently requires that Federal agencies minimize the loss or degradation of wetlands. New construction should be avoided in wetland areas unless there is no practicable alternative. If wetland impacts are unavoidable, assurance that the new construction includes all practicable measures to minimize harm to wetlands is required.

In April 1989, The Department of the Navy issued an internal policy memorandum which supports the "no net loss" policy endorsed by President Bush. The policy permits no overall net loss of Navy wetlands and requires that impacts to wetlands be avoided wherever possible.

Furthermore, the Department is committed to increasing the quantity and quality of the Navy's wetlands resource base by the year 2000.

C. National Environmental Policy Act (NEPA)

If Federal development actions are determined to have the potential to significantly affect the environment, this Act requires that an Environmental Assessment (EA), or if warranted an Environmental Impact Statement (EIS), be prepared in accordance with applicable regulations. These regulations provide for review and comment by government agencies and the general public before a decision is made to proceed.

D. National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966 requires Federal agencies to consider the potential effects of a proposed action on any known or potential historical, architectural, or archaeological resources, and to afford the President's Advisory Council on Historic Preservation an opportunity to comment on the project. The firm of Ecology and Environment, Inc. completed a survey of cultural and archaeological resources at WPNSTA Earle in February 1990. The results of this survey are presented in Section 2.4.

E. Endangered Species Act of 1973

This Act authorizes the US Fish and Wildlife Service and the National Marine Fisheries Service to act as regulatory agencies to review site plans and development proposals when they jeopardize the existence of endangered species or modify critical habitats. The New Jersey Department of Environmental Protection conducted a study of rare species on WPNSTA Earle in 1988. The results of this survey are discussed in Section 2.3.4.C.

F. The Fish and Wildlife Coordination Act of 1958

This Act requires consultation with the US Fish and Wildlife Service and the New Jersey Wildlife Office regarding the potential impact of proposed projects on wildlife and water resources.

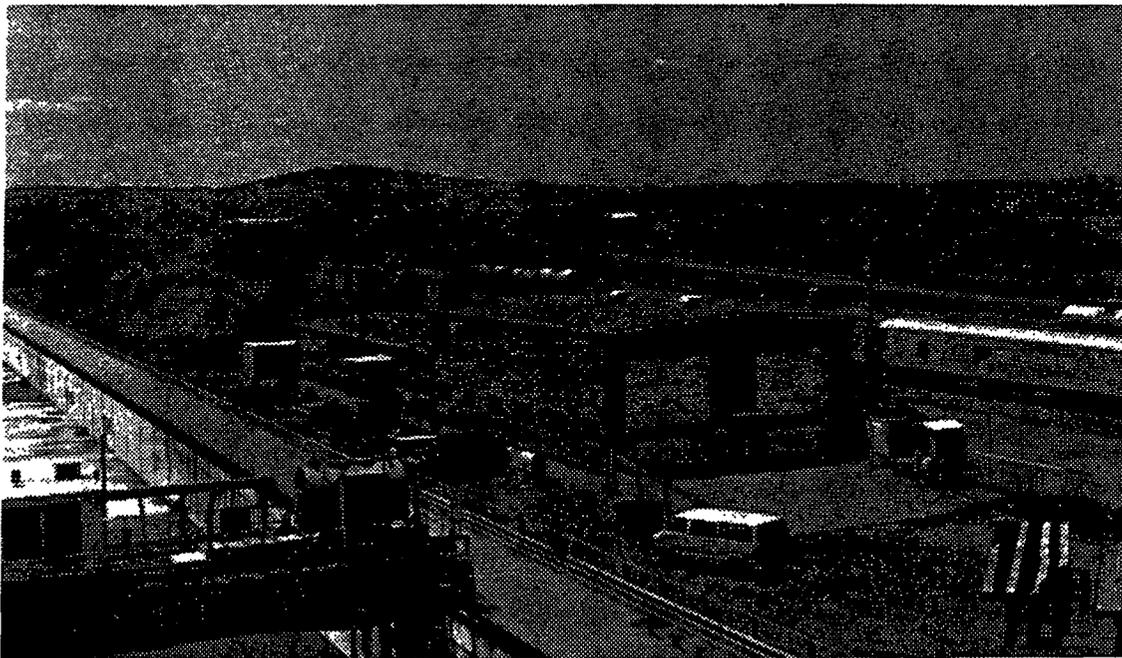
2.3 NATURAL FEATURES

Although the Waterfront and Mainside areas of WPNSTA Earle both lie within the Atlantic Coastal Plain Physiographic Province, each possesses a distinct natural and physical character. The mostly wooded Mainside is situated within New Jersey's Outer Coastal Plain and is affected by the numerous creeks and streams which form the headwaters of many of Monmouth County's major rivers. The Waterfront is situated within the Inner Coastal Plain and is subjected to the climatic and tidal changes inherent to its coastal location. Both areas reflect human use and modification since the establishment of WPNSTA Earle in 1943.

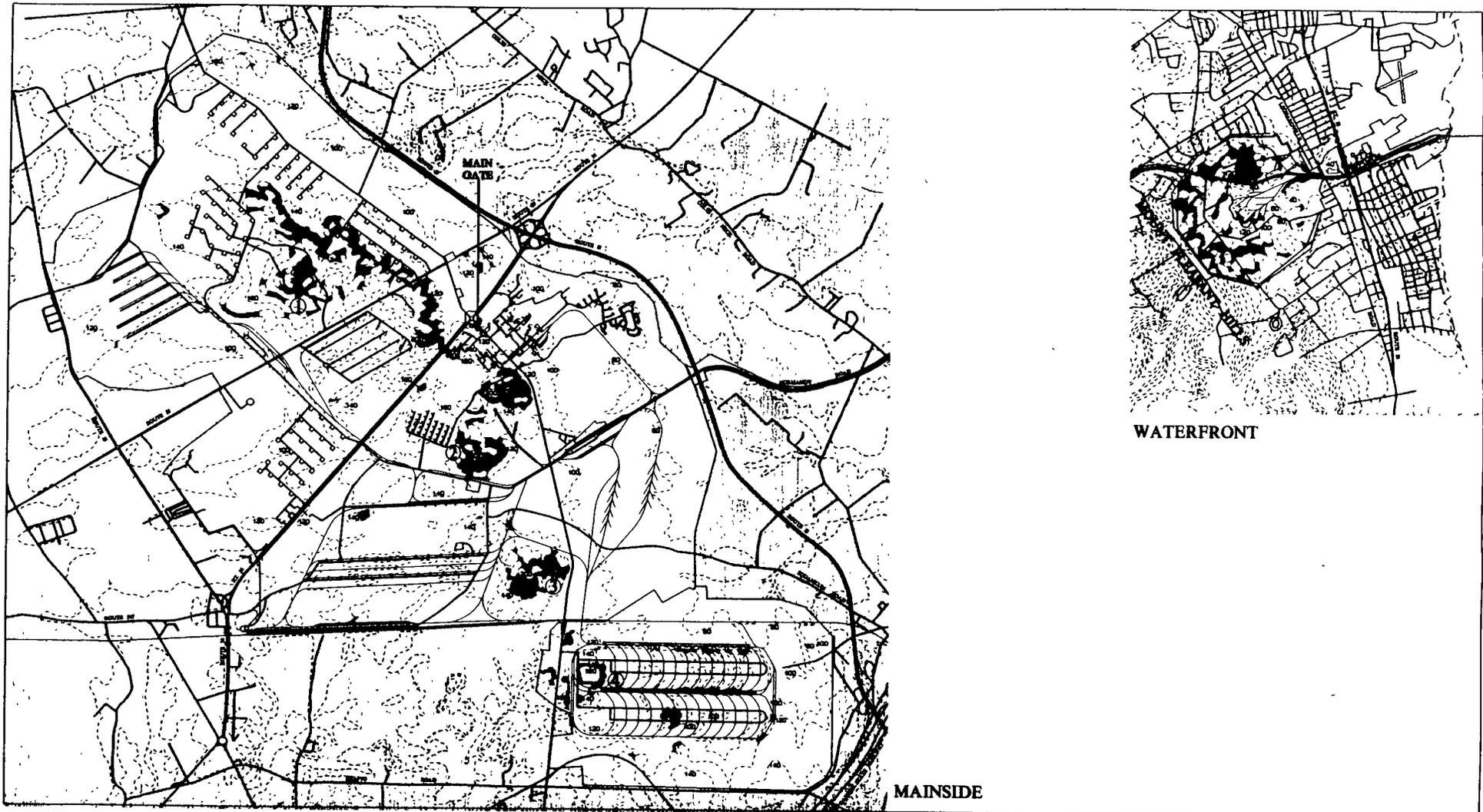
2.3.1 TOPOGRAPHY/SLOPES

The physiographic pattern of the Mainside is dominated by an east-west ridge, known as Hominy Hills, which runs through the central portion of WPNSTA Earle (see Figure 2.5). The highest point is Throckmorton Hill which rises to an elevation of 307 feet above mean sea level (MSL). Other prominent mounds in this series of hills include Cranberry, Lippincott and Oak Hills. The Mainside Administrative area and the Wayside area are relatively level with elevations ranging from approximately 80-160 feet above MSL. Steep slopes, those above 15%, are limited in these two areas and pose minimal constraints for new development (see Figures 2.6 and 2.7).

The most prominent feature of the Waterfront area is the Mount Pleasant Hills, a series of geological formations known as cuestas which separate the Inner and Outer Coastal Plains. Typically, cuestas are hills or ridges with a gentle slope on one side and a steep slope or bluff



View from Wave Tank towards Chapel Hill



STEEP SLOPES (20 FT. INTERVAL)

- 10% TO 25%
- OVER 25%

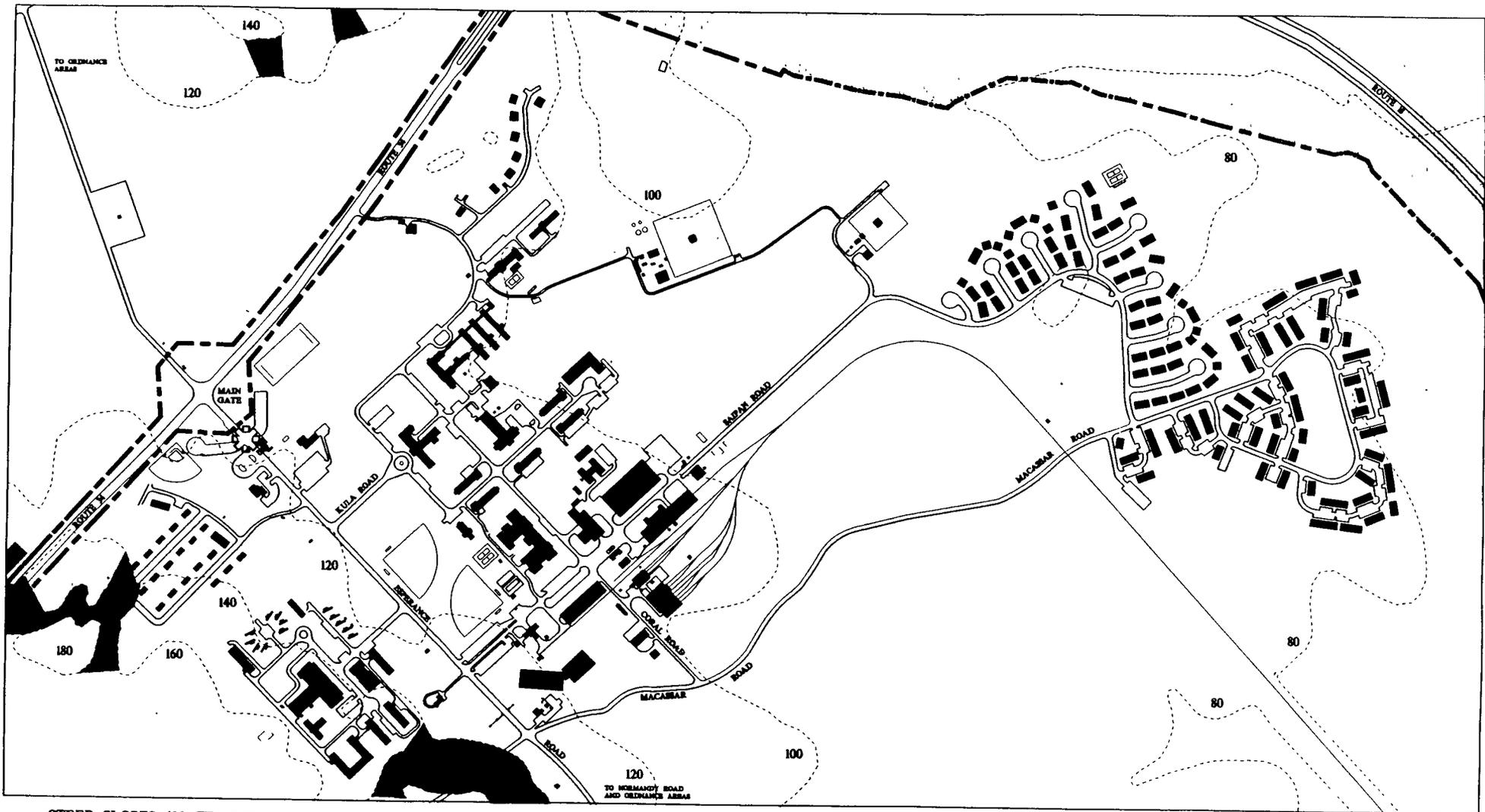
- ① Throckmorton Hill
- ② Cranberry Hill
- ③ Lippincott Hill
- ④ Oak Hill

SITE TOPOGRAPHY
AND SLOPES

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 25





STEEP SLOPES (20 FT. INTERVAL)

- 10% TO 25%
- OVER 25%

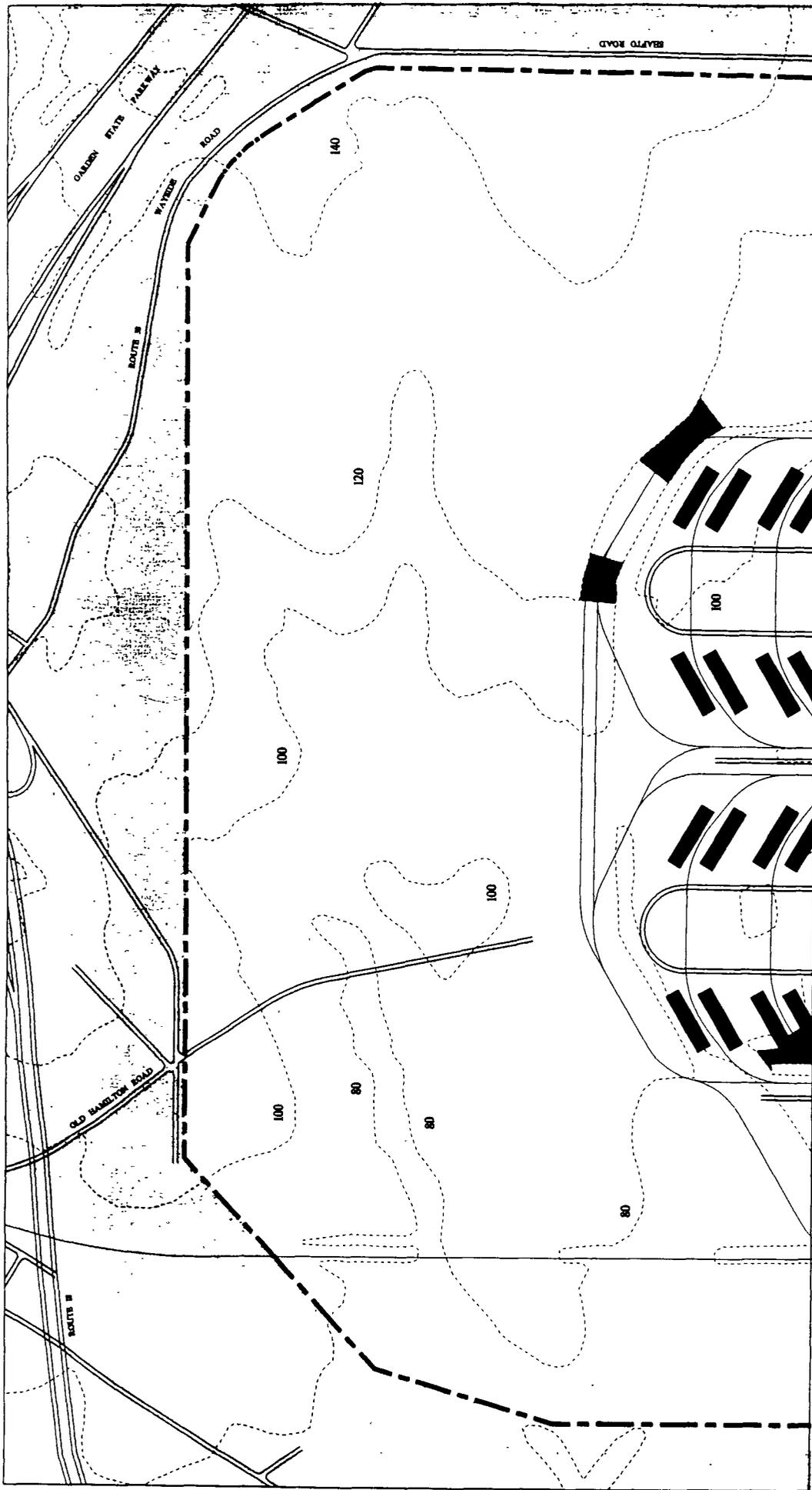
SITE TOPOGRAPHY
AND SLOPES

MAINSIDE ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 26





STEEP SLOPES (20 FT. INTERVAL)

10' TO 25'

OVER 25'

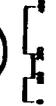
SITE TOPOGRAPHY
AND SLOPES

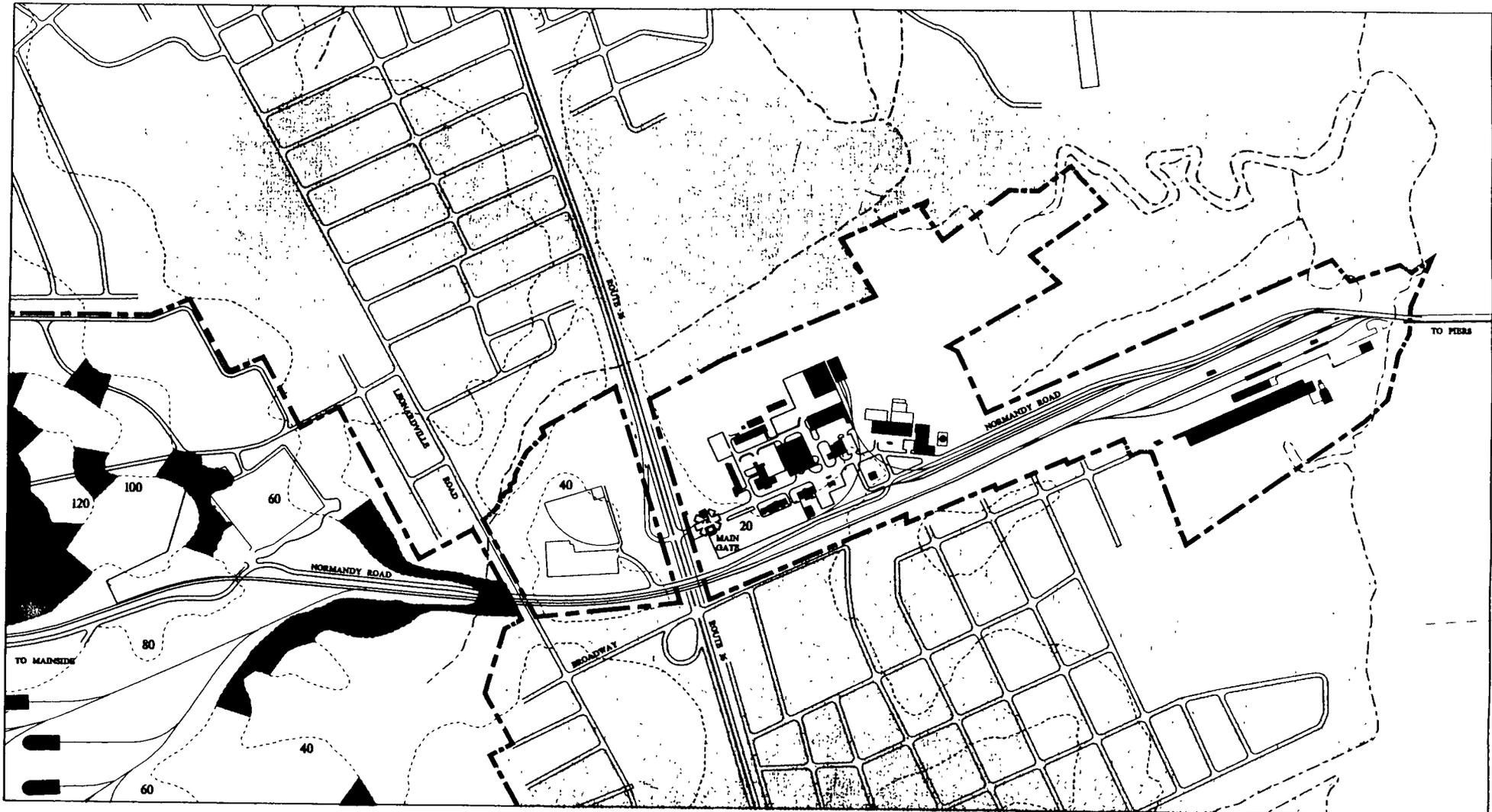
WAYSIDE AREA

MASTER PLAN

NAVAL WEAPONS STATION: EARLE

FIGURE 27





STEEP SLOPES (20 FT. INTERVAL)

- 10% TO 25%
- OVER 25%

SITE TOPOGRAPHY
AND SLOPES

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 2A



on the other. The Mount Pleasant Hills extend westward from Keyport to Imalystown and south into Ocean County. The Chapel Hill area contains some steep slopes with elevations ranging from 100-200 feet above MSL. These slopes provide a natural barrier for the rail barricades located in this area which temporarily hold ordnance transported from the Mainside. The shoreline area and the core Waterfront Administrative area are very flat with elevations ranging from 0-20 feet above MSL (see Figure 2.8).

2.3.2 SOILS

The General Soil Map for Monmouth County prepared by the Soil Conservation Service in April 1989 shows six major soil associations at WPNSTA Earle (see Figure 2.9). Each soil association typically consists of one or more major soils (series) and some minor soils. Soils at the Mainside belong to three major soil associations as follows:

Lakewood-Lakehurst-Evesboro-Klej Association - Nearly level to moderately sloping, deep, excessively drained, moderately well drained, and somewhat poorly drained sandy soils on uplands (approximately 50% of the Mainside area).

Atsion Association - Nearly level, deep, poorly drained, sandy soils on upland flats (approximately 35% of the Mainside area).

Tinton-Collington-Colts Neck Association - Nearly level to steep, deep, well drained, loamy soils on uplands (approximately 15% of the Mainside area).

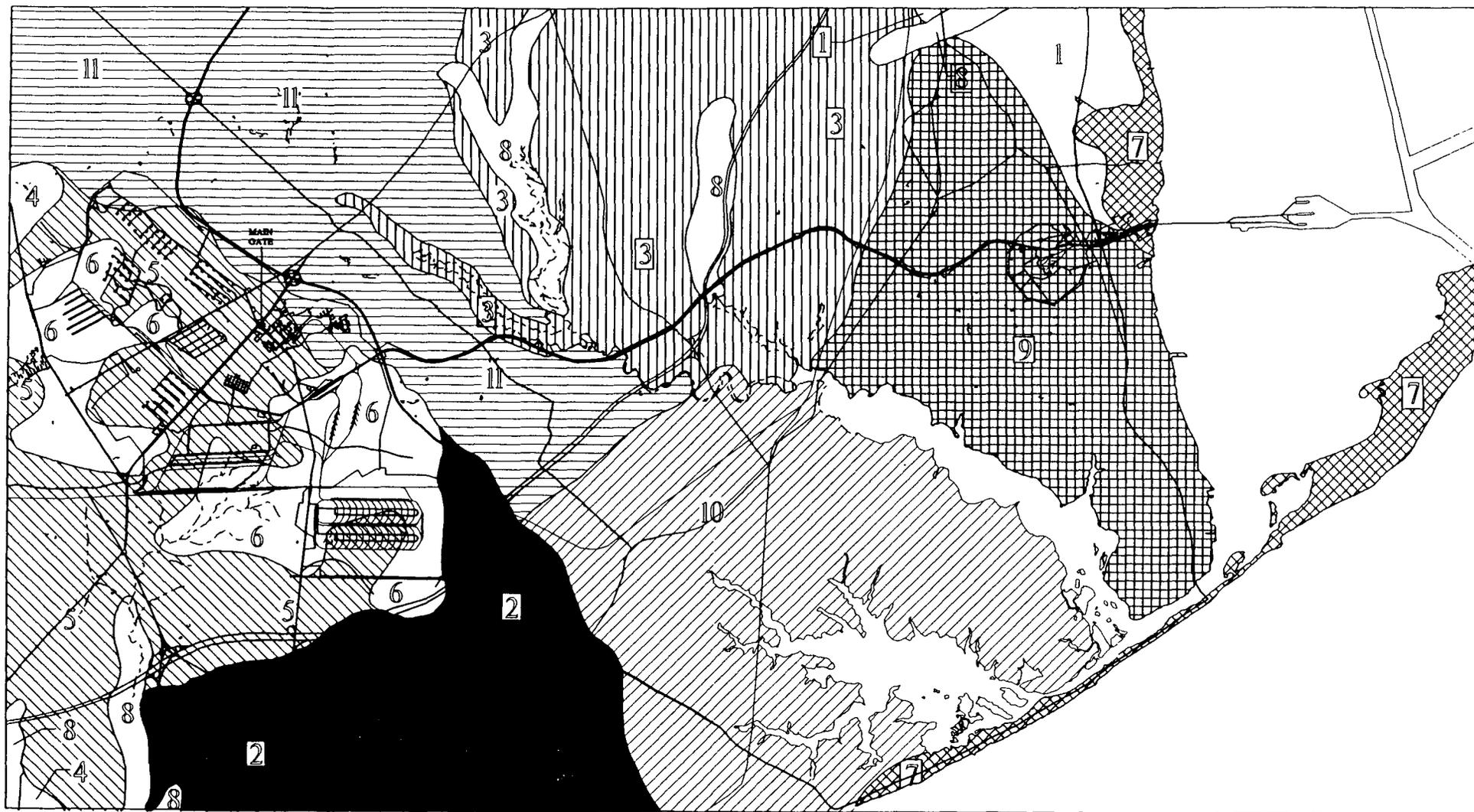
The soils of the Waterfront area belong to the following three major soil associations:

Klej-Keyport-Urban Land Association - Nearly level to moderately steep, deep, somewhat poorly drained and moderately well drained sandy and clayey soils and urban land on uplands (approximately 10% of the Waterfront area).

Sulfaquents-Sulfihemists-Hooksan Association - Nearly level and gently sloping, deep, poorly, very poorly and excessively poorly drained, mucky and sandy soils on coastal dunes and tidal flats (approximately 5% of the Waterfront area).

Tinton-Phalanx-Urban Land Association - Nearly level to steep, deep, well drained, loamy soils and urban land on uplands (approximately 85% of the Waterfront area).

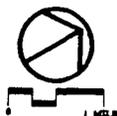
Table 2.2 lists the 49 different soils series that are present at WPNSTA Earle. Soils marked with (*) are considered constrained. The majority of constrained soils are unsuitable for building and development due to a shallow depth to water table (1 foot or less), steep slopes (greater than 15%), or frequent flooding.



- | | | |
|----------------------------------|--|---------------------------------|
| 1 KLEJ-KEYPORT-URBAN LAND | 5 LAKEWOOD-LAKEHURST-EVESBORO-KLEJ | 9 TINTON-PHALANX-URBAN LAND |
| 2 EVESBORO-KLEJ | 6 ATSION | 10 FREEHOLD-URBAN LAND-HOLMDEL |
| 3 FREEHOLD-URBAN LAND-COLLINGTON | 7 SULFANQUENTS-SULFIHEMITIS-HOOKSAN | 11 TINTON-COLLINGTON-COLTS NECK |
| 4 SASSAFRAS-DOWNER-WOODSTOWN | 8 HUMAQUEPTS, FREQUENTLY FLOODED-MANAHAWK IN | 12 FREEHOLD-SHREWSBURY-TINTON |

SOIL ASSOCIATIONS

FIGURE 29



MASTER PLAN
NAVAL WEAPONS STATION: EARLE

Table 2.2 Soil Characteristics

Soil Symbol/Name	Depth to Seasonal High Water Table	Slope
AeA Adelphia Loam	1.5-4 feet	0-2%
AeB Adelphia Loam	1.5-4 feet	2-5%
* At Atsion sand	0-1 feet	-
* Cm Colemantown loam	0-1 feet	-
CnB Collington sandy loam	>6 feet	2-5%
CnC2 Collington sandy loam	>6 feet	5-10%
CnD3 Collington sandy loam	>6 feet	10-15%
CRB Collington sandy loam	>6 feet	0-10%
CtB Colts Neck sandy loam	>6 feet	2-5%
DnA Downer loamy sand	>6 feet	0-5%
DoB Downer loamy sand	>6 feet	2-5%
En Elkton loam	0-1 feet	-
EvB Evesboro sand	>6 feet	2-5%
EvC Evesboro sand	>6 feet	5-10%
EvD Evesboro sand	>6 feet	10-15%
Fb Fallsington loam	0-1 feet	-
FnA Freehold loamy sand	>6 feet	0-5%
FnC Freehold loamy sand	>6 feet	5-10%
FrB Freehold loamy sand	>6 feet	2-5%
FrC Freehold loamy sand	>6 feet	5-10%
* FrE2 Freehold sandy loam	>6 feet	15-25%
* HnB Holmdel sandy loam	0.5-4 feet	2-5%
* HV Humaquepts, frequently flooded	-	-
HwB Hookson Sand	>6 feet	0-5%
KeA Keyport sandy loam	1.5-4 feet	0-2%
KeB Keyport sandy loam	1.5-4 feet	2-5%

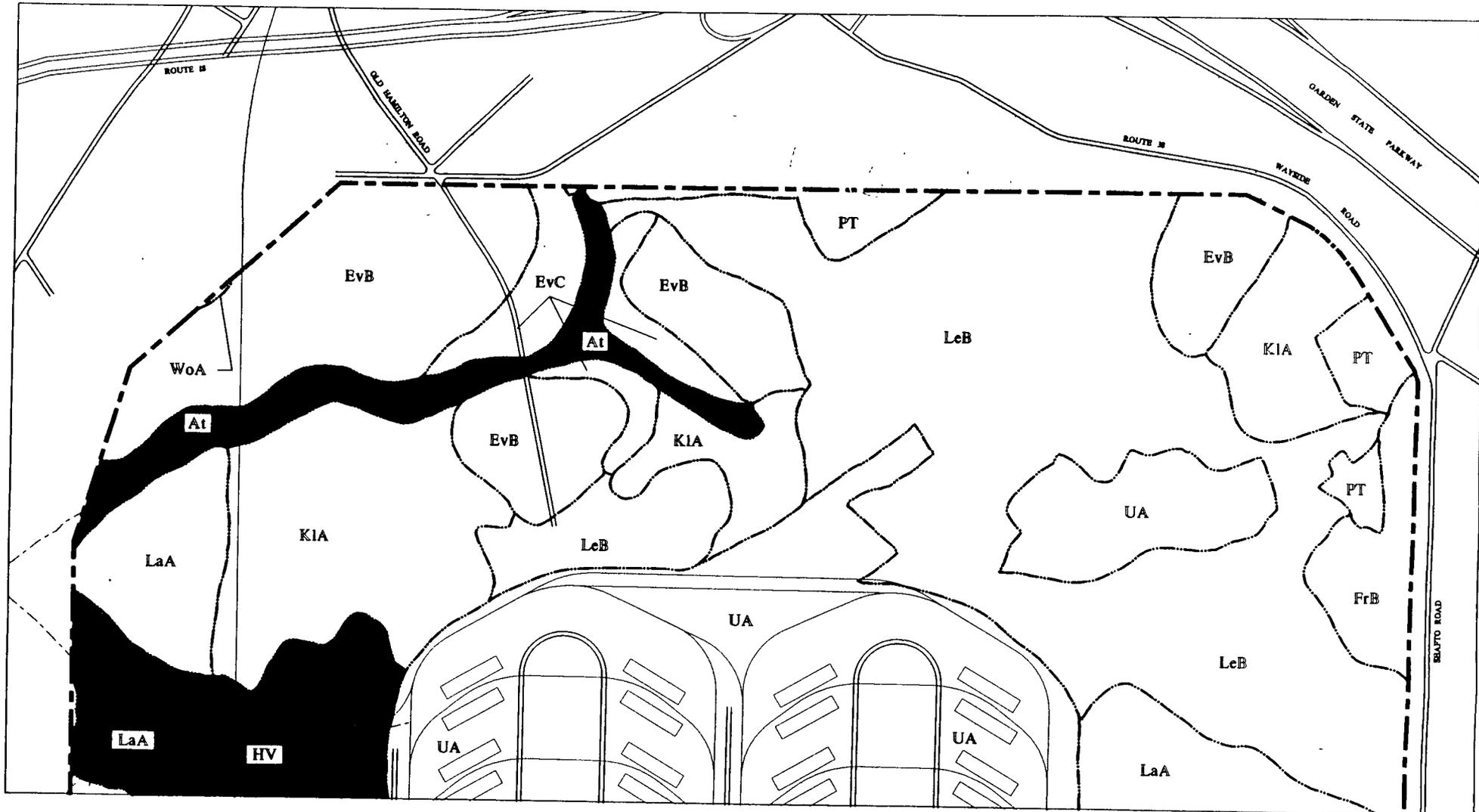
Table 2.2 Soil Characteristics (cont.)

Soil Symbol/Name	Depth to Seasonal High Water Table	Slope
KUA Klej loamy sand, urban land	>2 feet	0-3%
LaA Lakehurst sand	1.5-3.5 feet	0-2%
LeB Lakewood sand	>6 feet	0-5%
LeC Lakewood sand	>6 feet	5-10%
* Ma Manhawkin muck	+1.0-0 feet	-
MIB Marlton loam	2-5 feet	2-5%
PeA Pemberton loamy sand	1.0-4.0 feet	0-5%
* PhD Phalanx loamy sand	>6 feet	10-25%
PT Pits, sand, gravel	-	-
PW Psammments, waste substratum	-	-
SaB Sassafrass sandy loam	>6 feet	2-5%
Sn Shrewsbury sandy loam	0-1 feet	-
* SS Sulfaquents & sulfihemists, frequently flooded	-	-
ToA Tinton loamy sand	>6 feet	0-5%
ToC Tinton loamy sand	>6 feet	5-10%
ToD Tinton loamy sand	>6 feet	10-25%
TUB Tinton loamy sand, urban complex	>6 feet	0-5%
UA Udorthents, smoothed	-	-
UD Udorthents, urban land complex	-	0-3%

Source: Soil Conservation Service Survey for Monmouth County, 1989

* Constrained Soil

A more detailed review of soil characteristics was undertaken to identify the approximate location of vacant or underutilized land where soil constraints prohibit or limit development in the Mainside Administrative, Wayside, and Waterfront Administrative areas. The location of soil types including constrained soils in these areas are shown in Figures 2.10, 2.11 and 2.12.



CONSTRAINED SOILS

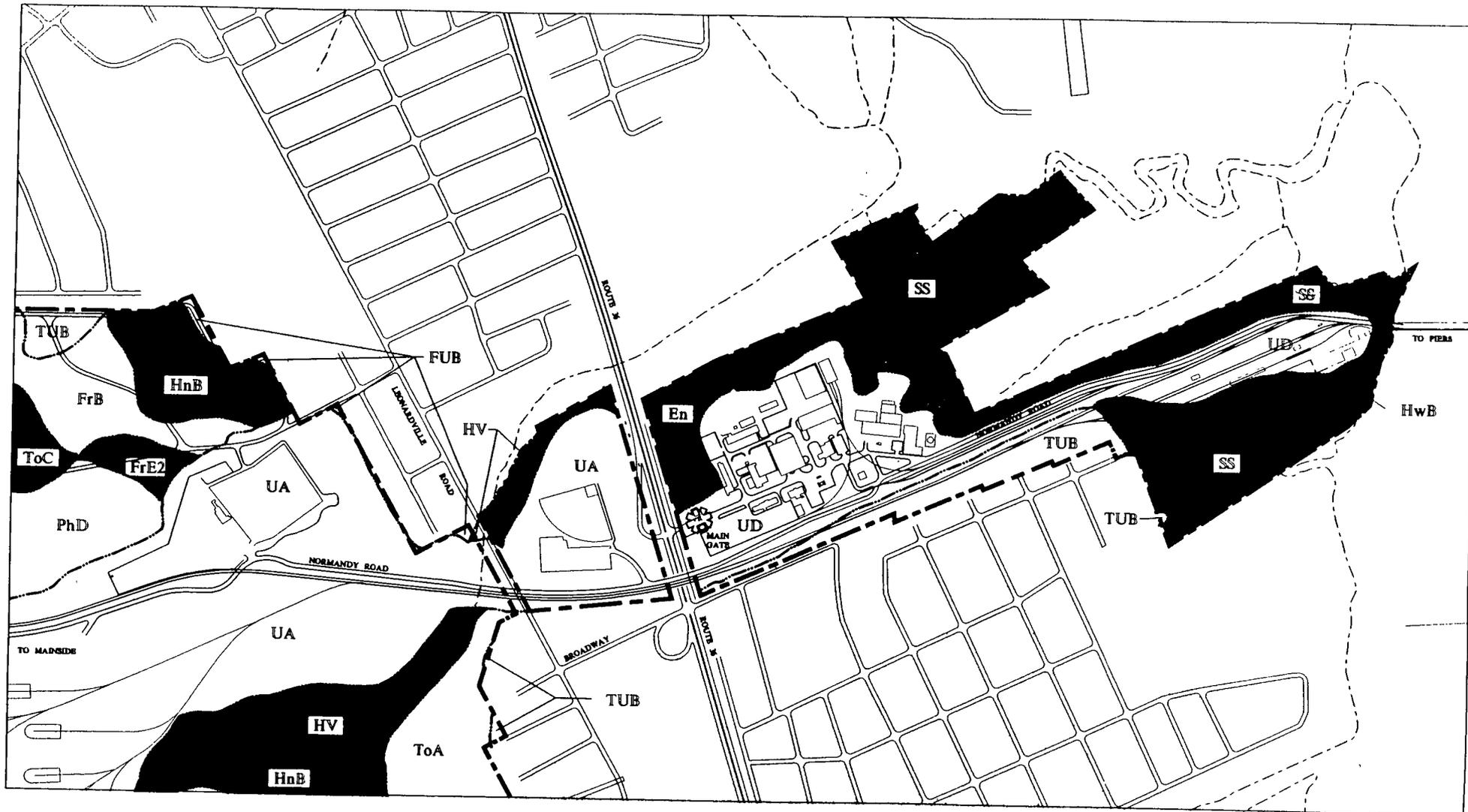
SOILS SERIES
(SEE TABLE 2.2)

WAYSIDE AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 2.11





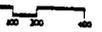
■ CONSTRAINED SOILS

SOIL SERIES
(SEE TABLE 2.2)

FIGURE 2.12

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE



2.3.3 HYDROLOGY

Hydrology at WPNSTA Earle is composed of diverse elements - headwaters of major streams, small waterways, rivers, ponds, wetlands and tidal influences, the Raritan Bay estuary, and land use. The two areas of WPNSTA Earle, Mainside and Waterfront, have separate drainage systems and watersheds. Major streams are identified in Figure 2.13.

A. Mainside

The Hominy Hills form the drainage divide for three distinct river basins:

1. Marsh Bog Brook and Mingamahone Brook, tributaries of the Manasquan River, drain the southern part of the Mainside.
2. Tributaries of the Shark River drain the eastern part of the Mainside.
3. The Mine Brook, Hockhockson Brook, Yellow Brook and Pine Brook, all tributaries of the Swimming-Navesink Rivers, drain the northern part.

Streams at the Mainside can be described as "underfit", meaning that present flows are much lower than those which originally incised the stream bed. These streams have low gradients and travel short distances within the site. The presence of impermeable localized clay strata as well as low drainage gradients have created numerous localized freshwater swamps, particularly in the In-Transit area and the Hockhockson Swamp.

The New Jersey Department of Environmental Protection (NJDEP) classifies streams, regulates discharges, and protects water quality. The NJDEP has established three classes for trout associated streams: trout production, trout maintenance, and non-trout. Of the three, trout production streams have the most stringent standards for discharges. Trout maintenance streams have stricter standards for discharges than non-trout waters. Trout associations for brooks and streams flowing from WPNSTA Earle as classified by the NJDEP⁴ are listed below:

Hockhockson Brook	Trout Maintenance
Mingamahone Brook	Trout Maintenance
Pine Brook	Trout Maintenance
Marsh Bog Brook	Non-Trout
Mine Brook	Non-Trout
Shark River Tributaries	Non-Trout
Yellow Brook	Non-Trout

⁴ Natural Resources Management Plan for NWS Earle, p. 15, issued by Department of Natural Resources - NORTHDIV, 6 October 1987.

The approximate location and estimated elevation of the 100-year floodplain is typically shown on the Federal Emergency Management Act (FEMA) flood maps. Federally-owned lands are not part of the FEMA program and flood hazard mapping is not available for WPNSTA Earle properties. Based on information available for areas surrounding the Mainside, no areas at the Mainside are believed to be within the 100-year floodplain.

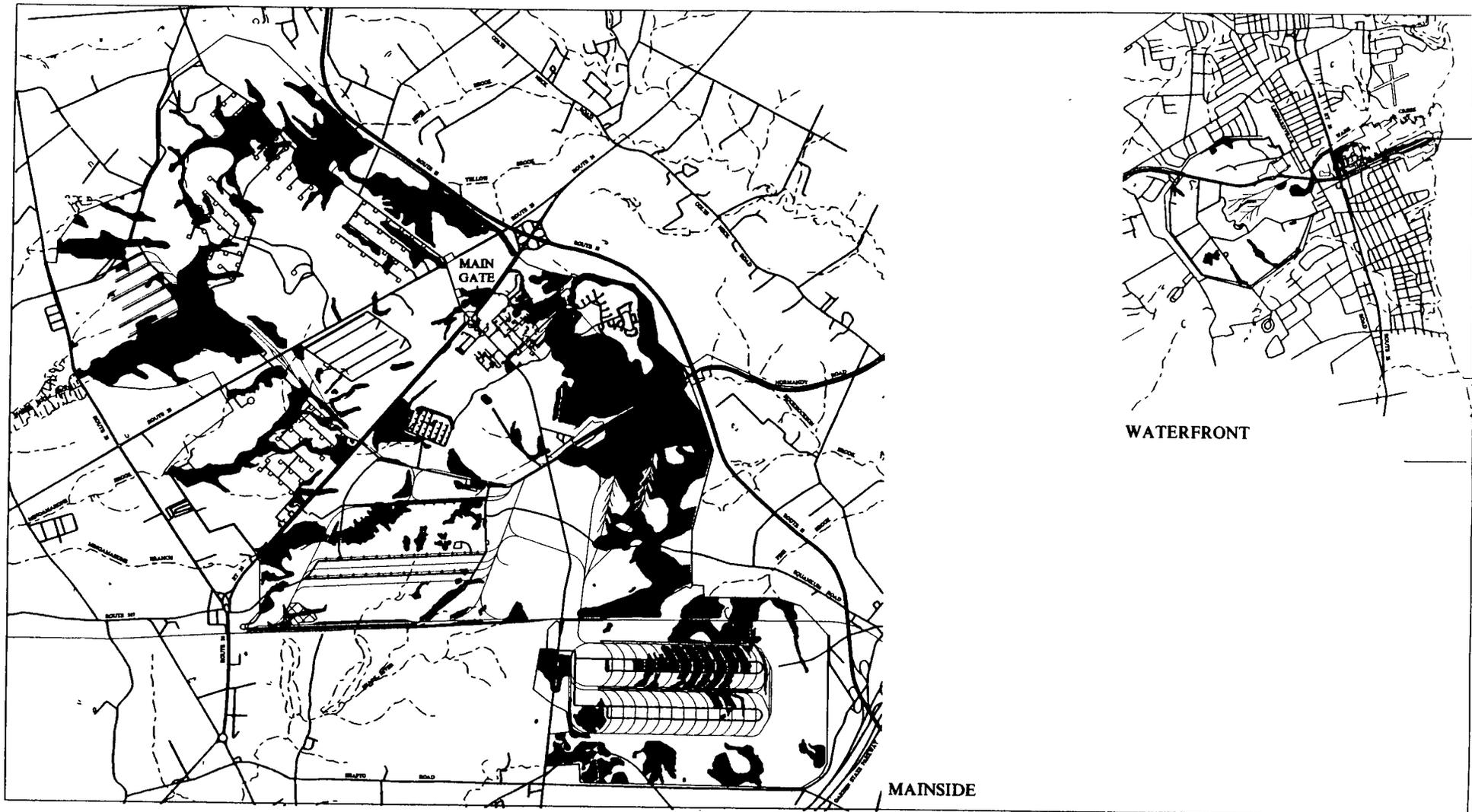
B. Waterfront

Whereas the hydrology of the Mainside is influenced by the headwaters of major streams and land use, the major hydrologic influence at the Waterfront, particularly along the shoreline, is tidal. The mean range of tides at the Waterfront is 4.7 feet. The range of the spring tide is 5.7 feet. The extreme range of high tide occurred during Hurricane Donna in 1960 and was estimated at 8.6 feet above Mean Sea Level. The extreme low water has been recorded at 4 feet below Mean Low Water. The tidal current in the area averages 0.7 miles per hour on an annual basis and 0.8 miles per hour during the Spring. The flood tidal current travels principally in a NW to SE direction, and the ebb tide reverses this direction.

Besides normal tidal action, there are two types of wave actions which affect operations at the Waterfront: wave action generated by onshore winds and wave action from ocean swells as a result of heavy storms at sea. Ocean swells in deep water (generally considered as water having a depth greater than or equal to the wavelength divided by two) are usually oscillatory. Swells as high as 15 feet between Sandy Hook and Rockaway Point are estimated to diminish to heights of 6 feet or less in the area of the pier/trestle complex. The piers extend nearly two miles into Raritan Bay.

Low lying shoreline areas are periodically subject to tidal flooding. The location of the tidal flood hazard zone (100-year floodplain) at the Waterfront was extrapolated from the FEMA information given for the surrounding areas and on-site elevations. For planning purposes, the 100-year flood elevation is estimated to be 13.0 feet. The area at the Waterfront estimated to occur within the 100-year floodplain is illustrated in Figure 2.21 (see Section 2.3.5). New development within the 100-year floodplain should be avoided to the maximum extent possible.

The drainage pattern of the Waterfront consists of small streams which flow north and empty into Raritan and Sandy Hook Bays. The Administrative area and ballfield site are drained by Ware Creek to the west. Chapel Hill, which is above the elevation affected by tidal and wave action, is drained by the upland tributaries of Compton Creek and Ware Creek to the west, and Wagner Creek to the east of WPNSTA Earle's property at the Waterfront.



WETLAND CLASSIFICATIONS

-  UPLANDS
-  STREAM
-  NJ STATE REGULATED WETLANDS
-  EXISTING WETLAND MITIGATION SITE

NOTE:

This plan shows NJ State Regulated Wetland Boundaries derived from the Soil Conservation Service's 1990 Study. The information shown has not been field verified (accuracy ± one acre) and is for planning purposes only.

WETLANDS AND STREAMS

FIGURE 213



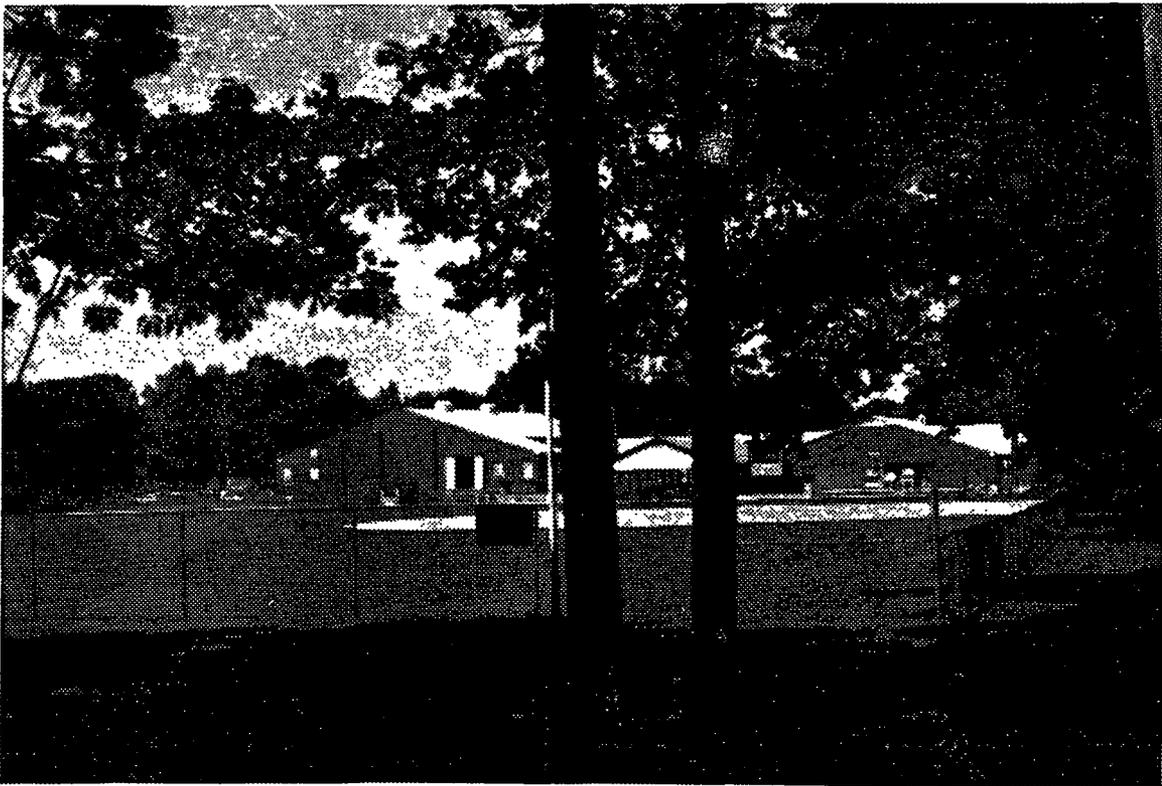
MASTER PLAN
NAVAL WEAPONS STATION: EARLE

2.3.4 VEGETATION AND WILDLIFE

A. Vegetation

The majority of the land area at WPNSTA Earle is covered by native vegetation communities, either forest or marsh (see Figure 2.14).

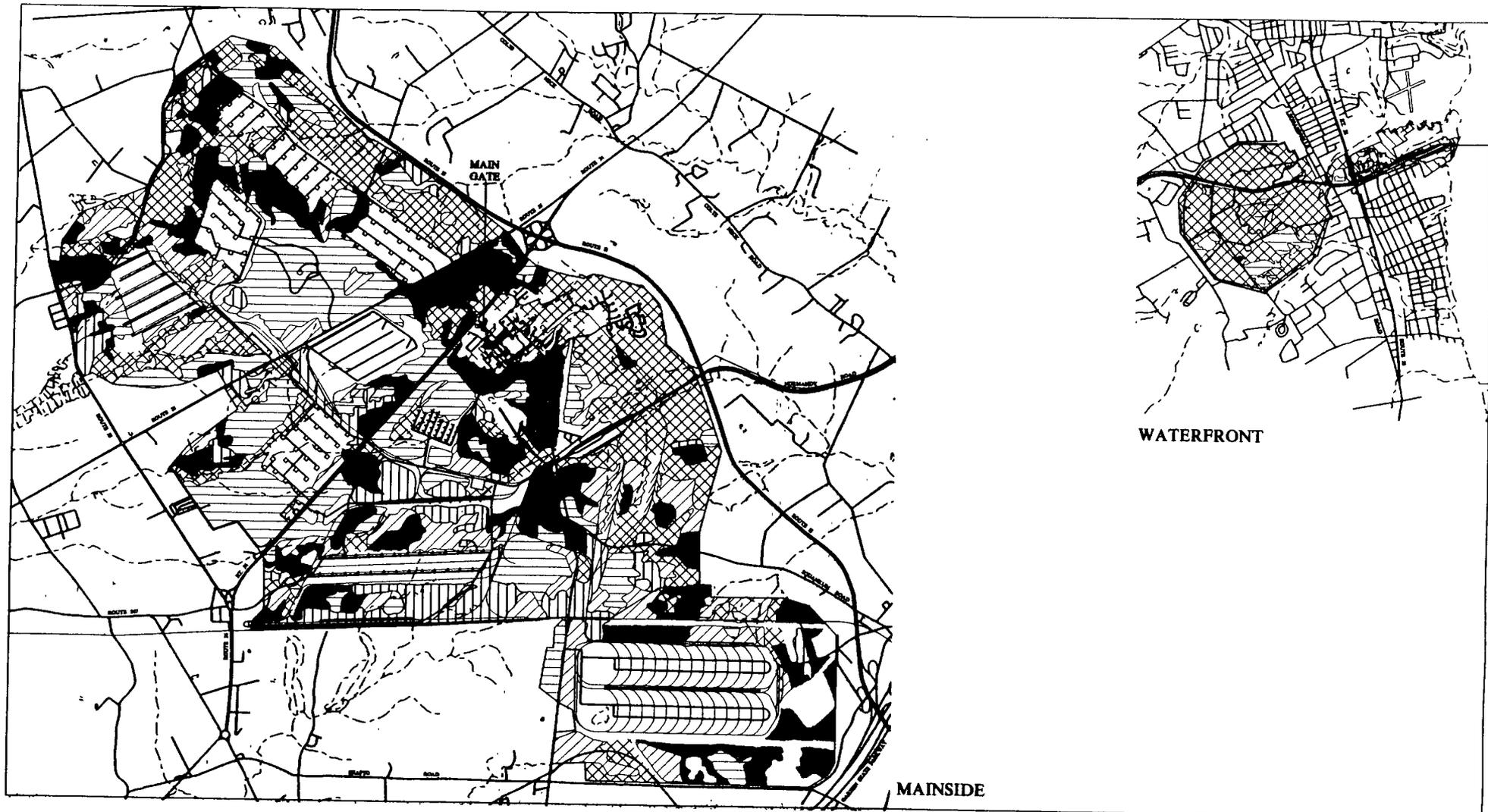
The vegetated areas of the Mainside are predominantly woods typical of the Outer Coastal Plain including mixed oak, oak/pine, and scattered areas of mixed oak. The lowland communities are typically dominated by red maple swamps, occasional Atlantic white-cedar stands and abandoned cranberry bogs, streams, and man-made ponds. Unwooded, developed areas at the Mainside include earth covered ordnance magazines characterized by native and exotic grasses or herbaceous cover and the lawns of the administrative and residential areas (see Figures 2.15 and 2.16).



Grassed playing fields at the Mainside

A particularly pristine area at the Mainside is the Hockhockson Swamp. This area is a vast mature hardwood swamp consisting of large red maple, sweetgum, black gum, white pine, and an open understory with scattered American holly.

The vegetated portions of the Waterfront area contain mostly mixed hardwood communities characteristic of the Inner Coastal Plain and Piedmont. Dominant species are yellow poplar, sweetgum, red maple, beech, red oak, black locust, and black cherry. White pine, silver, and



COVER TYPE

■ MIXED OAK

▨ OAK AND PINE

▩ MIXED HARDWOODS

▧ HARDWOOD AND PINE

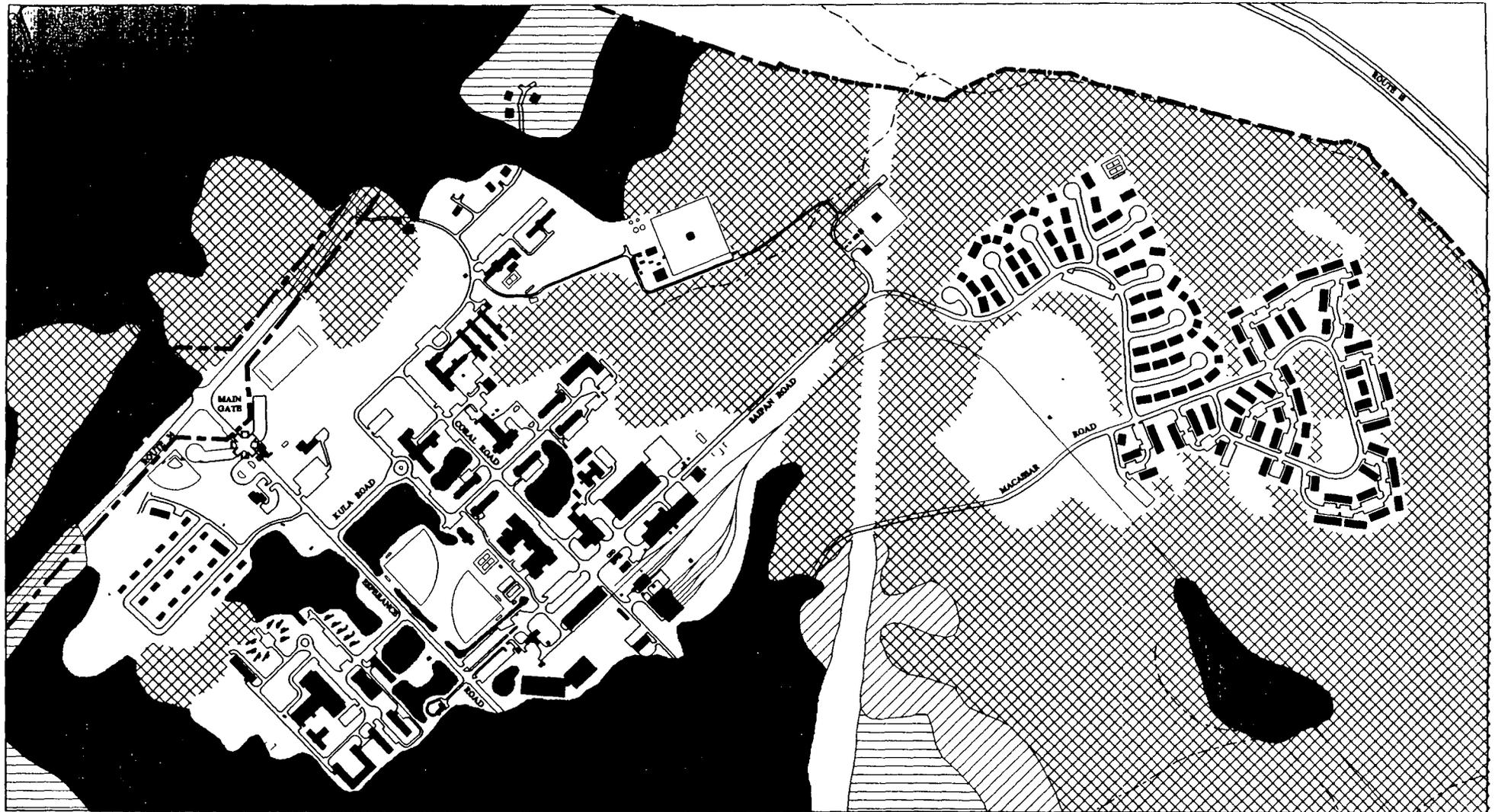
▤ PINE

▦ MARSH

VEGETATIVE COVER

FIGURE 214

MASTER PLAN
NAVAL WEAPONS STATION: EARLE



COVER TYPE

- MIXED OAK
- OAK AND PINE
- MIXED HARDWOODS
- HARDWOOD AND PINE
- PINE

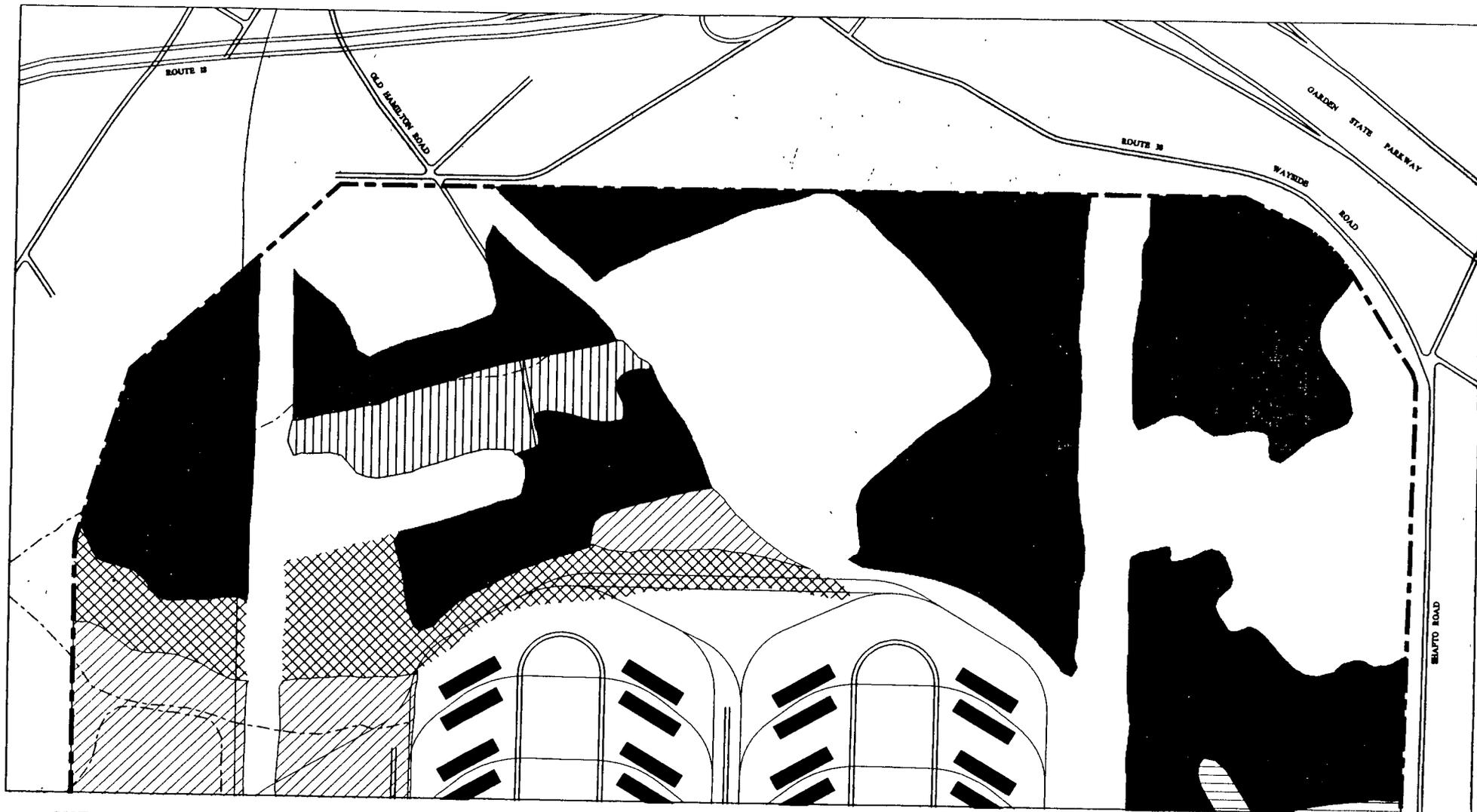
VEGETATIVE COVER

MAINSIDE ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 215





COVER TYPE

-  MIXED OAK
-  OAK AND PINE
-  MIXED HARDWOODS

-  HARDWOOD AND PINE
-  PINE

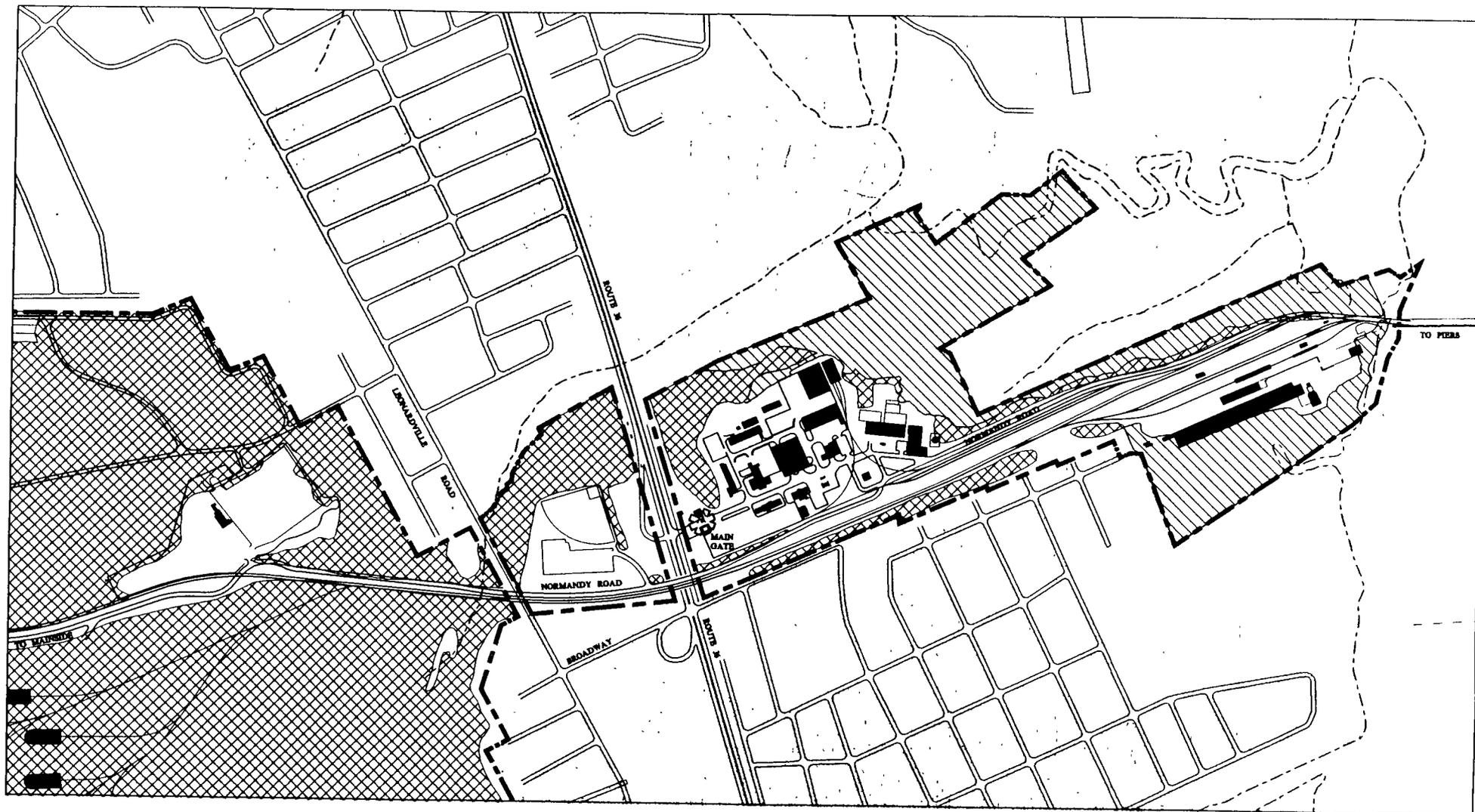
VEGETATIVE COVER

WAYSIDE AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 216





COVER TYPE

MIXED OAK

OAK AND PINE

MIXED HARDWOODS

HARDWOOD AND PINE

PINE

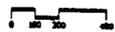
MARSH

VEGETATIVE COVER

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 217



sugar maple have been planted in some areas. Tidal marshes north of the Waterfront Administrative area mark the transition from forest to coastal beaches. Weedy fields surround much of the administrative areas and railroad barricades (see Figure 2.17).

B. Fauna

Common wildlife species in the forested areas of WPNSTA Earle include white-tailed deer, white footed mouse, pine vole, gray fox, eastern gray squirrel, racoon, and long tailed weasel. Old fields and disturbed areas are likely to contain eastern cottontail, white footed mouse, meadow vole, and meadow jumping mouse.

A wide variety of birds are believed to inhabit the station. Typical birds of upland forests include the rufous-sided towhee, pine warbler, tufted titmouse, brown thrasher, mourning dove, red-eyed vireo and ovenbird. Birds common in low-lying areas include the parula warbler, American red-start, yellowthroat, catbird, screech owl, hairy and downy woodpeckers, and white-eyed vireo.

C. Rare and Endangered Species

In order to identify possible locations of rare or endangered species, the Navy contracted with the NJDEP, Division of Fish, Game and Wildlife to conduct a rare species survey of WPNSTA Earle in 1988. Some 15 threatened or endangered species were confirmed to occur on WPNSTA Earle property. Classifications from three different agencies were taken into account in defining species as threatened or endangered:

- US Fish and Wildlife Service (USFWS)
- New Jersey Department of Environmental Protection (NJDEP)
- New Jersey Natural Heritage Program (NHP)

Table 2.3 lists confirmed occurrences of endangered or threatened species. Each of the monitoring organizations cited in this table uses a different classification system. An abbreviated explanation of rankings is shown following Table 2.3.⁵ The locations of confirmed occurrences and corresponding critical habitat areas to be protected are shown in Figure 2.18.

⁵ For a more complete explanation of rankings see NWS Earle Rare Species Survey, February 1988, pages 134-138.

Table 2.3 Endangered or Threatened Species

	NAME		STATUS		
			USFWS	NJDEP	NHP
Birds	Pie-billed grebe	Podilymbus podiceps	-	E	G5,S1
	Red shouldered hawk	Buteo lineatus	-	T	G5,S3
	Merlin	Falco columbarius	-	T	G5,SN
	Barred owl	Strix varia	-	T	G5,S3
Herptile	Pine Barrens treefrog	Hyla andersoni	-	E	G4,S4
Insects	Barren's bluet damselfly	Enallagma recurvatum	C2	N/A	G3,S3
	A noctuid moth	Chytonix sensilis	-	-	G4,S1,S3
Plants	Curly grass fern	Schizaea pusilla	C2	T	G3,S3
	Pine Barrens reed grass	Calamovilfa brevipilis	C2	T	G3,S3
	Barratt's sedge	Carex barrattii	C2	T	G3,S3
	Knieskern's beak rush	Rhynchospora knieskernii	C1	T	G1,S1
	Pale beaked rush	Rhynchospora pallida	-	-	G2,G3,S3
	Slender nut rush	Scleria minor	-	-	G4,G5,S3
	New Jersey rush	Juncus caesariensis	C2	T	G2,S2
	Swamp pink	Helonias bullata	E	T	G2,S2

USFWS E = Endangered
T = Threatened

C1 = have information to support listing
C2 = need more information to support listing

NJDEP E = Endangered
T = Threatened

NHP G1 = critically imperiled globally
G2 = imperiled globally
G3 = rare globally
G4 = apparently globally secure
G5 = demonstrably globally secure

S1 = critically imperiled in the state
S2 = imperiled in the state
S3 = rare in the state
S4 = apparently secure in the state
S5 = demonstrably secure in the state

Source: Rare Species Survey WPNSTA Earle, 1988

2.3.5 WETLANDS

A wetlands survey was conducted in late 1989 by the Soil Conservation Service (SCS) to delineate the general location and type of wetlands found at WPNSTA Earle. As shown in Figure 2.13, there are extensive wetland areas at both the Mainside and the Waterfront.

The methods used by the SCS to delineate wetlands boundaries included soil borings, vegetation identification, and remote sensing techniques. The presence of hydric soils was considered the primary determinant and hydrophytic vegetation the secondary factor for delineating and classifying the different types of wetlands. Wetlands boundaries were delineated in the field using 1"=200' scale field maps. The actual lines were not flagged in the field. The information was then transferred onto a set of maps at 1"=800' which were provided to the Navy. Based on methods used and the accuracy of aerial photographs, the SCS estimates the delineation of these wetlands as shown on the 1"=800' maps to be accurate within approximately one acre.

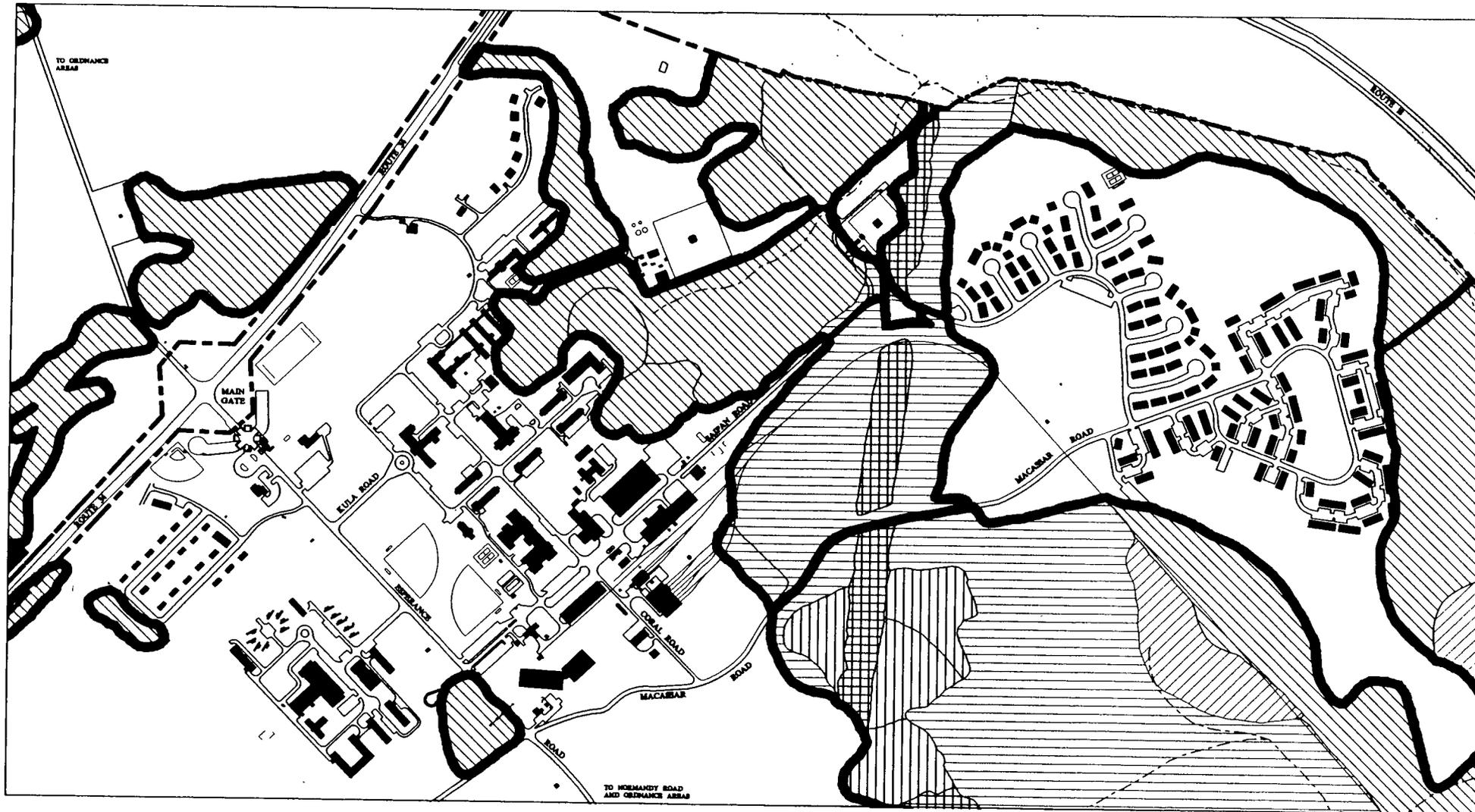
According to the SCS survey, all wetlands at WPNSTA Earle are part of the palustrine system. As developed by the US Fish and Wildlife Service, this system includes freshwater wetland types such as swamp, marsh, bog, and ponds.⁶ Classes of palustrine wetlands identified by the SCS at WPNSTA Earle include:

- PFO1 Palustrine forested, broad-leaved, deciduous
- PFO4 Palustrine forested, needle-leaved, evergreen
- PEM Palustrine emergent
- POW Palustrine open water
- SS1 Palustrine scrub/shrub

The location and extent of wetlands identified by the SCS in the three major planning subareas are illustrated in Figures 2.19, 2.20, and 2.21. A large proportion of the developed areas at the Mainside and the Waterfront are bounded by large tracts of wetlands.

The State of New Jersey regulates freshwater wetlands through the Freshwater Wetlands Act (see Section 2.2.1.G). Based on the NJDEP criteria, most wetlands at WPNSTA Earle are likely to be classified as intermediate resource value wetlands which require a 50-foot transition area. Possible exceptions to this general assumption are two areas where rare species occurrences have been documented (see Section 2.3.4.C). Wetlands which are present or documented past habitats for threatened or endangered species are classified as exceptional resource value and require a 150-foot transition area. Two wetland areas at the Mainside which may be classified as exceptional resource value because of the possible presence of threatened or endangered species are:

⁶ U.S. Department of the Interior Fish and Wildlife Service, Classification of Wetlands and Deepwater Habitats of the United States, U.S. Government Printing Office, December 1979.



WETLAND CLASSIFICATIONS

UPLANDS	SSI	POW	50 FT. BUFFER
PF01	DITCH	PF01/PF04	STREAMS
PF04	PEM	PF04/PF01	

NOTE: 1
 This plan shows NJ State Regulated Wetland Boundaries derived from the Soil Conservation Service's 1990 Study. The information shown has not been field verified (accuracy ± one acre) and is for planning purposes only.

NOTE: 2
 FEMA 100 Year Floodplain delineation for the Mainside is not existent

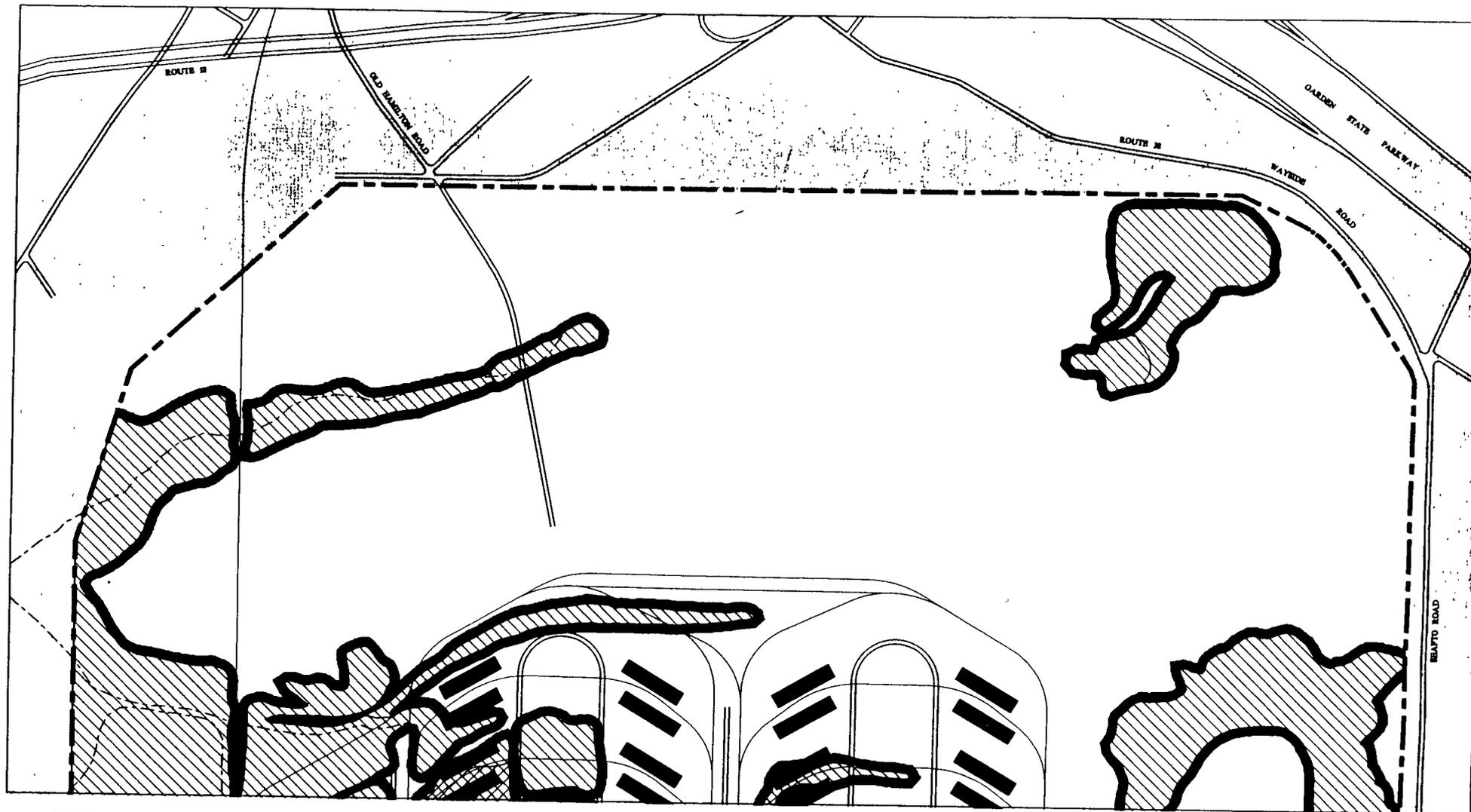
FLOODPLAIN, WETLANDS AND STREAMS

MAINSIDE ADMIN AREA

**MASTER PLAN
 NAVAL WEAPONS STATION: EARLE**



FIGURE 219



WETLAND CLASSIFICATIONS

- | | |
|---------|---------------|
| UPLANDS | DITCH |
| PF01 | STREAMS |
| POW | 50 FT. BUFFER |

NOTE: 1
 This plan shows N.J. State Regulated Wetland Boundaries derived from the Soil Conservation Service's 1990 Study. The information shown has not been field verified (accuracy ± one acre) and is for planning purposes only.

NOTE: 2
 FEMA 100 Year Floodplain delineation for the Wayside is not existant.

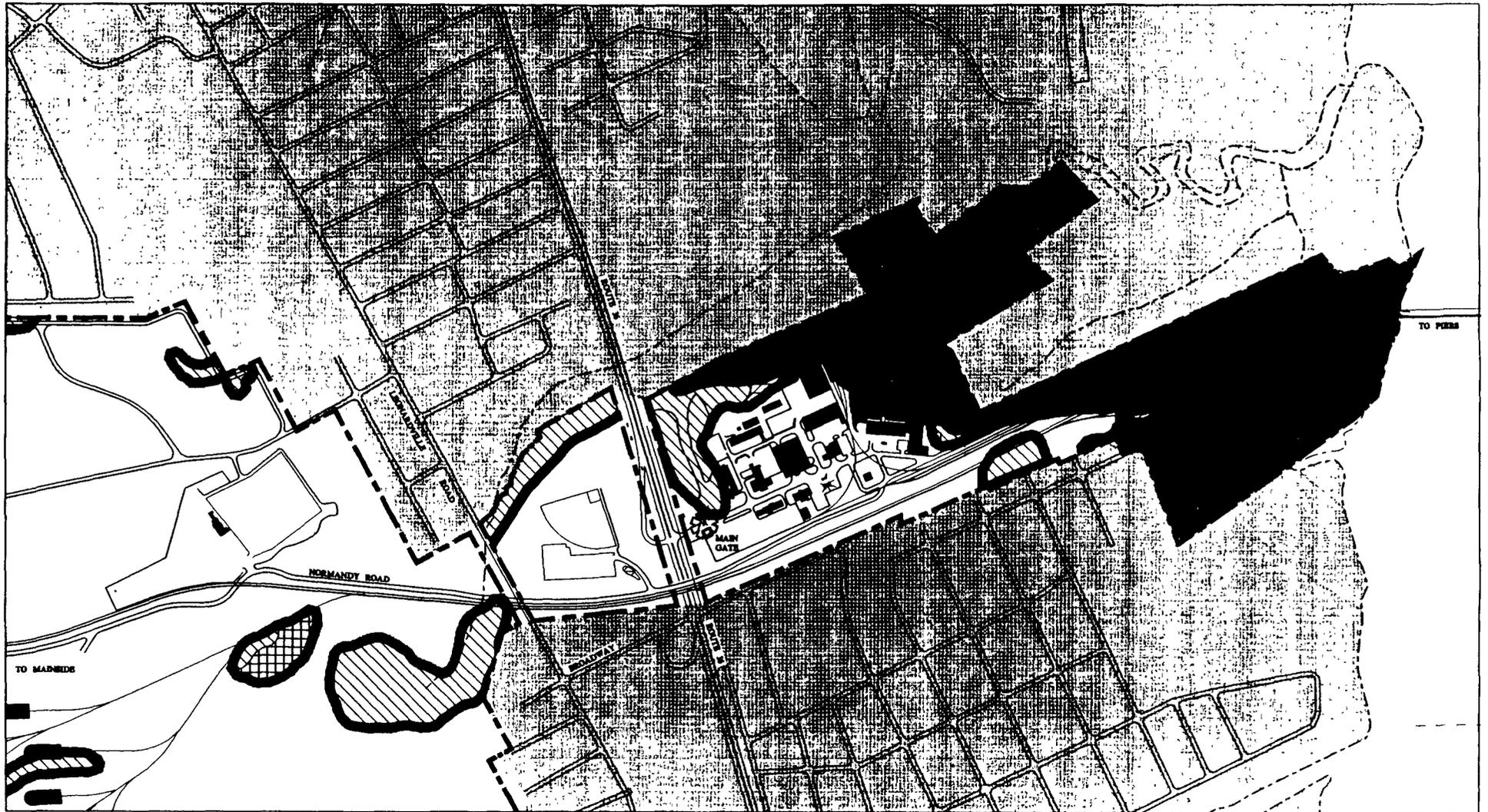
FLOODPLAIN, WETLANDS AND STREAMS

WAYSIDE AREA

**MASTER PLAN
 NAVAL WEAPONS STATION: EARLE**

FIGURE 2.20





TO FERRIS

TO MANNING

WETLAND CLASSIFICATIONS

- | | | |
|---------|---------|--|
| UPLANDS | SSI | 50 FT. BUFFER |
| PF01 | DITCH | ESTIMATED LIMIT OF 100 YEAR FLOODPLAIN |
| PEM | STREAMS | |

NOTE: 1
 This plan shows N.J. State Regulated Wetland Boundaries derived from the Soil Conservation Service's 1990 Study. The information shown has not been field verified (accuracy ± one acre) and is for planning purposes only.

NOTE: 2
 Estimated Limit of the 100 Year Floodplain for the Waterfront is derived from FEMA delineation of adjacent areas, and existing topography.

FLOODPLAIN, WETLANDS AND STREAMS FIGURE 2.21

WATERFRONT ADMIN AREA

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

- wetlands near Hockhockson Swamp, east of the new family housing area, and
- wetlands near Pickerel Lake in the southwestern area of the Mainside.

For master planning purposes, Figures 2.19, 2.20 and 2.21 show the approximate limits of a 50-foot buffer (transition area) at the Mainside Administrative Area, Wayside, and Waterfront Administrative Area within which development should be avoided.

Under the provisions of the New Jersey Freshwater Wetland Act, NJDEP required mitigation actions to compensate for wetlands impacted by the recent development of family housing at the Mainside. Approximately 10 acres of new wetlands are being created to compensate for this wetlands loss (Figure 2.13).

2.3.6 CLIMATE

Temperature, precipitation and wind patterns for the vicinity of WPNSTA Earle are described in Figure 2.22. In general, WPNSTA Earle's climate is maritime at the Waterfront and continental at the Mainside. The Atlantic Ocean exerts a major influence at the Waterfront, but is less significant at the Mainside.

Summer temperatures at WPNSTA Earle seldom exceed 100° Fahrenheit (37°C), but frequently exceed 90°F from late May until early September. Winter readings rarely drop below 0° Fahrenheit (12°C).

Precipitation in Monmouth County ranges from 45 to 47 inches (114 to 120 cm) a year. The heaviest rainfall normally occurs during the summer months. Snowfall averages 25 to 26 inches (63 to 66 cm) a season. The majority of snow falls between the months of December and March, although snow has fallen in all months from September through May.

In the months of October through March, when the incidence of severe weather is greatest, the prevailing winds are from the northwest. The greatest frequency of high velocity winds also come from the northwest. Gales with speeds up to 39 miles per hour (63 km/hr.) or more occur on the average of 20 to 45 days during the year.

The results of studies conducted by the U.S. Navy Hydrographic Office for the area indicate that 41 percent of the time the wind is blowing either from the northwest, north or northeast with an average velocity of 13 to 18 miles per hour (29 km/hr).

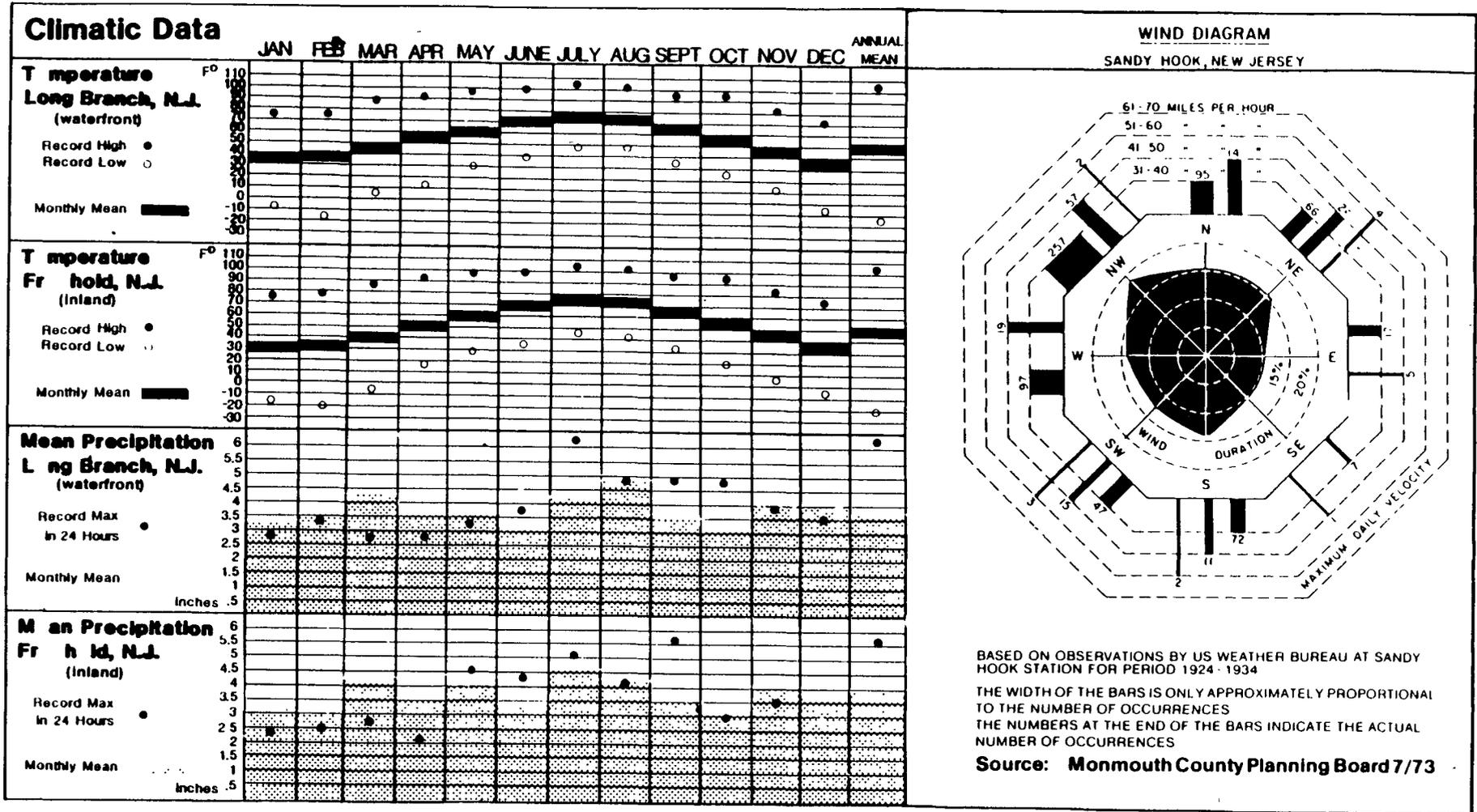


Figure 2.22 Climatic Influences

2.4 CULTURAL AND ARCHEOLOGICAL RESOURCES

A cultural resources assessment for WPNSTA Earle was carried out from November 1989 to February 1990 by the firm Ecology and Environment, Inc.⁷ The purpose of the study was to identify known prehistoric, historic and architectural resources which are eligible or potentially eligible for nomination to the National Register of Historic Places (NRHP) and to identify areas on the Station that could contain such resources.

Military development which took place during WWII severely impacted any cultural resources existing on Station property at that time. By 1946, all but six pre-1943 structures were demolished and their sites bulldozed. Since 1943, over 700 buildings and structures including approximately 240 magazines and 82 rail barricades plus utilities, 140 miles of rail lines, 97 miles of paved roads, and 16 athletic fields and courts have been constructed on the Station.⁸

At present, no prehistoric, historic or architectural resources within WPNSTA Earle are listed by the New Jersey State Museum, Office of New Jersey Heritage, Monmouth County Historical Site Survey or Monmouth County Architectural Survey. The only listing for the National Register of Historic Places is the wreck of a Hudson River Day Line steamship which sank while tied up to Pier 1.

2.4.1 PREHISTORIC RESOURCES

Prehistoric artifacts have been found at approximately 10 locations within the Mainside area. Significant finds include a fluted Paleo-Indian Clovis point datable to 9000-8000 B.C. and a Late Archaic corner-notched point of the Vosburg type circa 3000-2500 B.C.. Based on assessment of cultural and environmental characteristics, thirteen sites at the Mainside and six sites at Chapel Hill have been designated areas of high potential for the presence of undisturbed prehistoric sites (see Figure 2.23).

The cultural resources study recommends that subsurface testing be undertaken in these areas prior to any future development. The study also advises that the Paleo-Indian site on the north slope of Lippincott Hill at the Mainside be protected by avoidance of any future impact or by salvage data retrieval by archeological means.

⁷ Cultural Resources Assessment for Naval Weapons Station Earle, Colts Neck, New Jersey, December 1990.

⁸ Cultural Resources Assessment for Naval Weapons Station Earle, Colts Neck New Jersey, December 1990, p. 4-2.

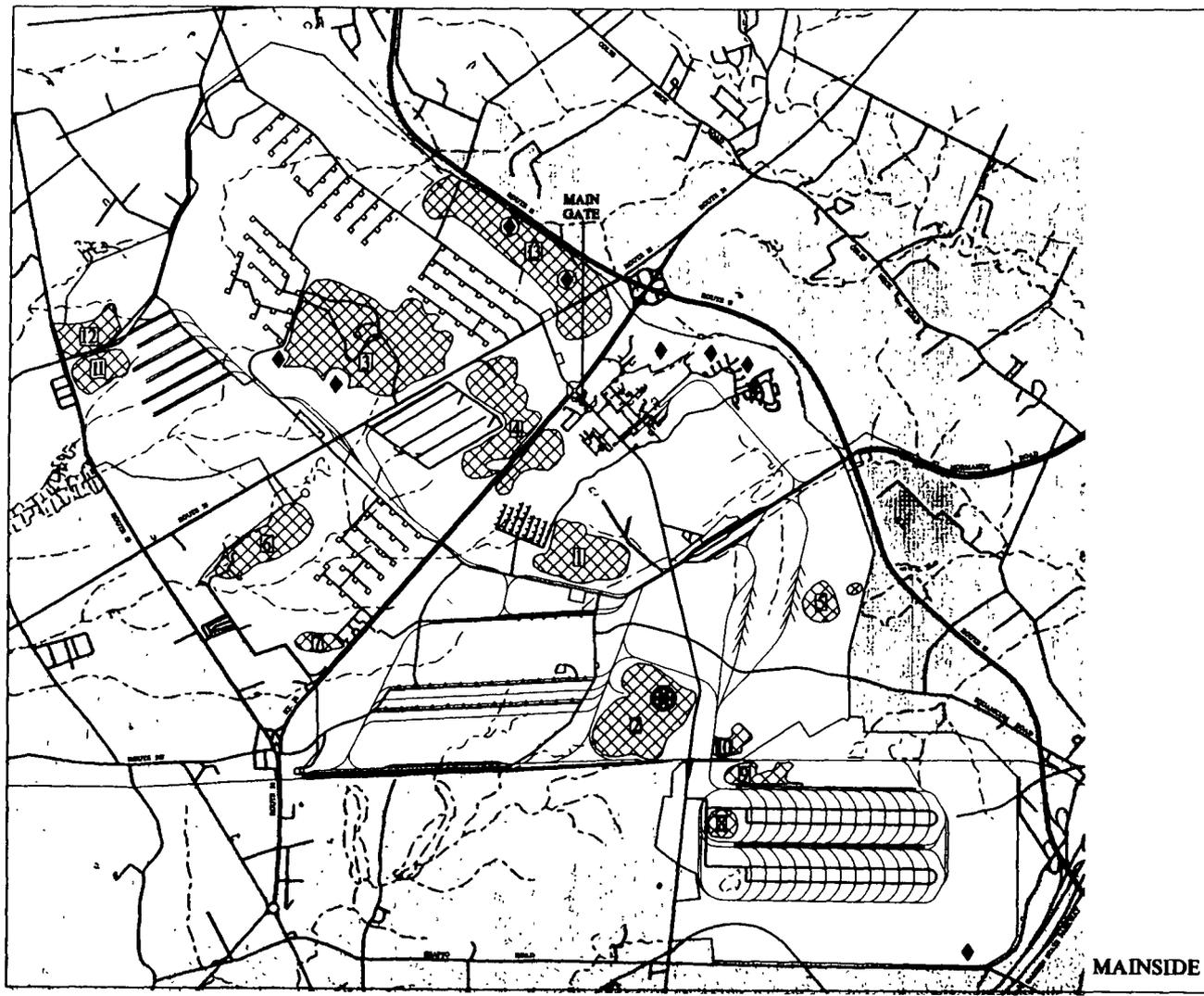
2.4.2 HISTORIC RESOURCES

In order to identify any significant historic remains, locations of former historic occupations and industrial activity were visited and assessed. The study concluded that no areas within WPNSTA Earle are eligible or potentially eligible for nomination to the National Register.

Five areas at the Mainside and sixteen locations at Chapel Hill, corresponding to locations of historic roads and structures, showed some surficial manifestations of historic archeological materials and were judged to have moderate potential for historic deposits. These areas may contain historic archeological materials or subsurface historic features which were not impacted by heavy equipment used to demolish structures and grade sites. The only intact historic property observed during the investigation was the Walling/Schenck Cemetery, a small 19th century cemetery located at Chapel Hill.

2.4.3 ARCHITECTURAL RESOURCES

A survey of some 718 buildings and structures was conducted to determine if any were eligible or potentially eligible for nomination to the National Register of Historic Places. Only six structures predating WPNSTA Earle have survived, five historic wood frame houses and a barn. None possess qualities justifying a National Register nomination.



WATERFRONT

MAINSIDE

-  HIGH PROBABILITY OF PREHISTORIC SITES
-  PREHISTORIC ARTIFACTS FOUND
-  LIPPINCOTT HILL PALEO INDIAN SITE
-  WALLING/SCHENCK CEMETERY

CULTURAL RESOURCES

FIGURE 123

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



2.5 STATION LAND USE

Figure 2.24 depicts the overall pattern of existing land uses at WPNSTA Earle. At the broadest level, land use at WPNSTA Earle can be divided into three principal categories:

- Ordnance storage - This category includes 1) the Mainside ordnance area consisting of storage magazines and areas encumbered by Explosive Safety Quantity Distance (ESQD) arcs, and 2) the Chapel Hill area consisting of rail barricades to hold ordnance in transit from the Mainside to the piers and associated ESQD arcs.
- Ordnance production - This category includes Mainside production facilities which are located in the general area of ordnance storage.
- Developed/populated areas - This category includes Mainside and Waterfront administrative, personnel support, residential, and industrial areas.

The uses of the Mainside and Waterfront Administrative areas can be further defined according to facility classification.⁹ There are eight separate classes of facilities at WPNSTA Earle:

- Facility Class 100 - Operational and Training
- Facility Class 200 - Maintenance and Production
- Facility Class 300 - Research, Development, Test and Evaluation
- Facility Class 400 - Supply/Storage
- Facility Class 500 - Hospital and Medical
- Facility Class 600 - Administrative
- Facility Class 700 - Housing and Community
- Facility Class 800 - Utilities and Ground Improvements

A single building often houses more than one facility class. Also, an individual facility class typically encompasses a number of buildings. While all facilities in one class may not be located in close proximity, certain groups of buildings within the same class do occur at both the Mainside and the Waterfront. Examples of such groups at the Mainside Administration Area include: family housing, Bachelor Enlisted Quarters (BEQ) on Burma Road, storage facilities near Building C-33, community facilities near Building C-29, and Public Works facilities north of Coral Road (see Figure 2.25).

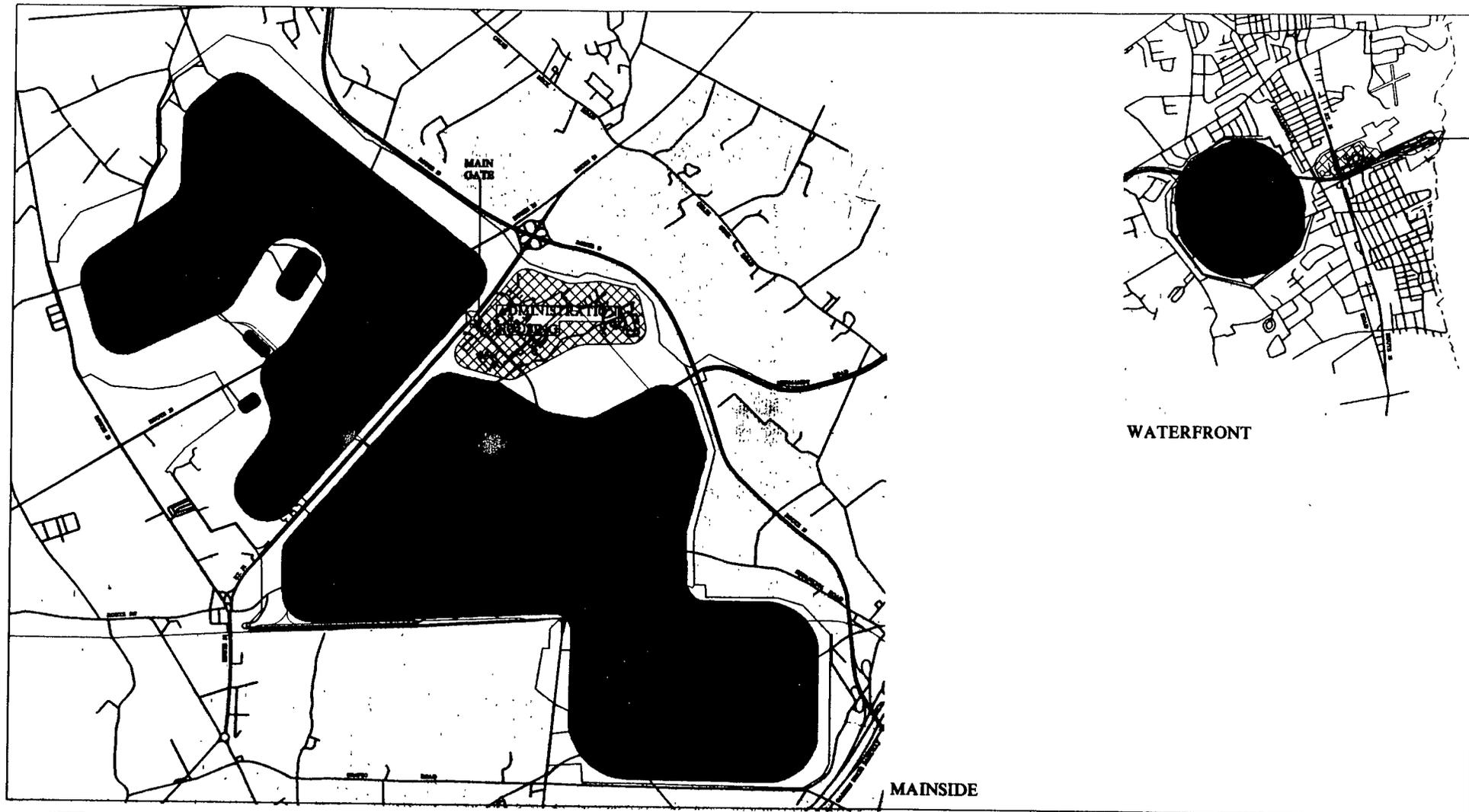
Facility Class 700 includes 565 family housing units located in several areas within the Mainside Administrative area. Thirty-seven housing units for officers and their families are located on

⁹ Facility classes are derived from Facility Planning Criteria for Navy and Marine Corps Shore Installations (NAVFAC P-80), Department of the Navy Facilities Engineering Command, October 1982, amended through December 1985.

Green Drive, north of Gela Road. Green Acres, located just south of the Main Gate, houses 28 enlisted families. A 500 unit housing complex was recently constructed north of the core Administrative area off of Saipan and Macassar Roads and is now occupied by enlisted men and their families.

Although facilities at the Waterfront are located in a smaller, more compact area, some patterns are perceptible such as recreation uses clustered near Building R-15, shops clustered near Building R-10, and operational uses clustered on the piers (see Figures 2.26 and 2.27).

In areas outside of the Mainside and Waterfront Administrative areas, the majority of existing facilities are used for ordnance storage. One ordnance storage area, F-Group, is illustrated in Figure 2.26B. Some ordnance production and training facilities are also located in these peripheral areas. Another peripheral area, located east of the Mainside Administrative area near the intersection of Esperance and Normandy Roads, contains the rail classification yard and a long-term parking lot for deployed ship's personnel (see Figure 2.26A).



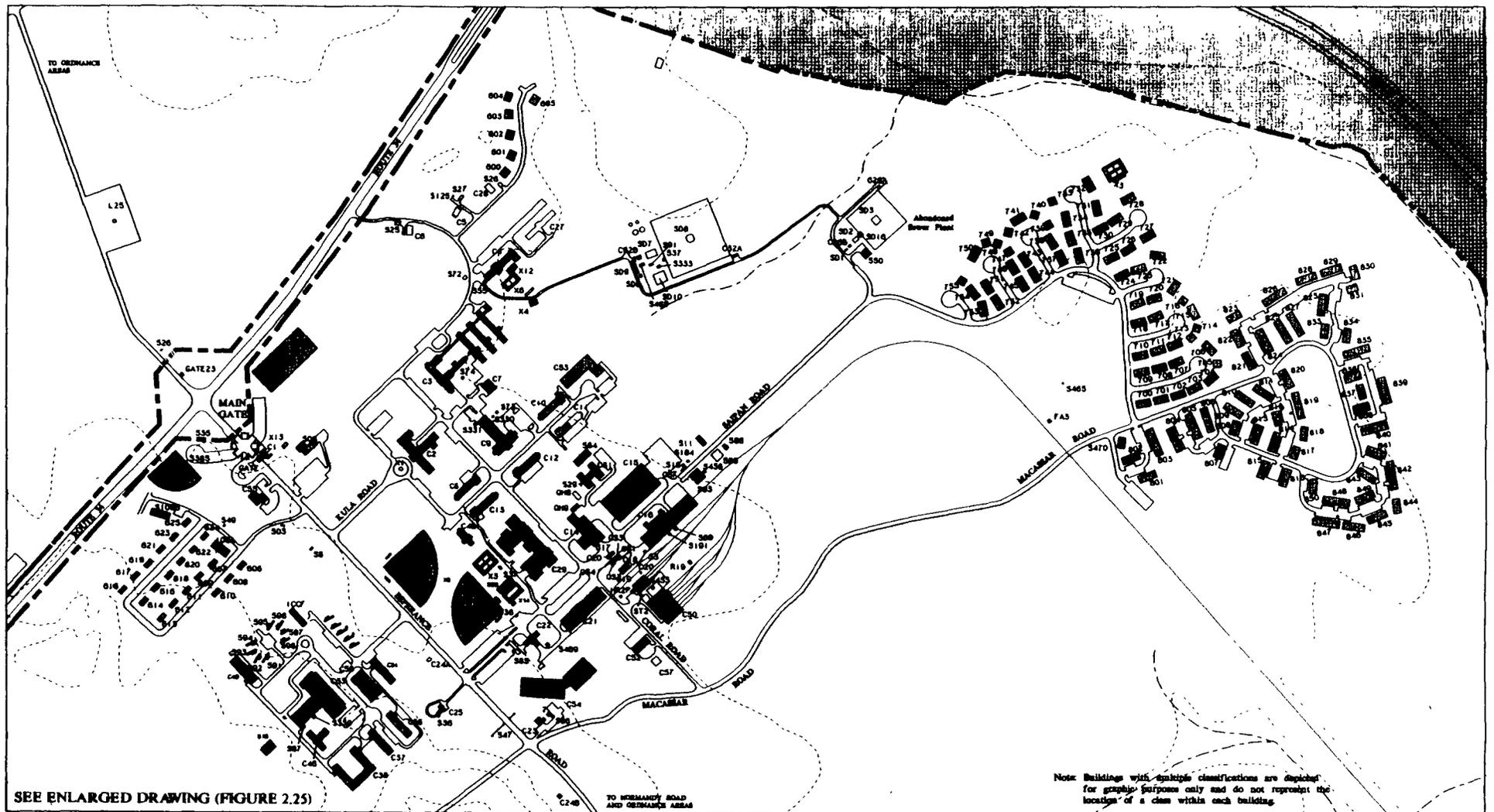
- ORDNANCE STORAGE
- ORDNANCE PRODUCTION/OPERATIONS
- NON-ORDNANCE AREAS (ADMINISTRATION, HOUSING, RECREATION, ETC)

EXISTING LAND USE

FIGURE 2.24

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

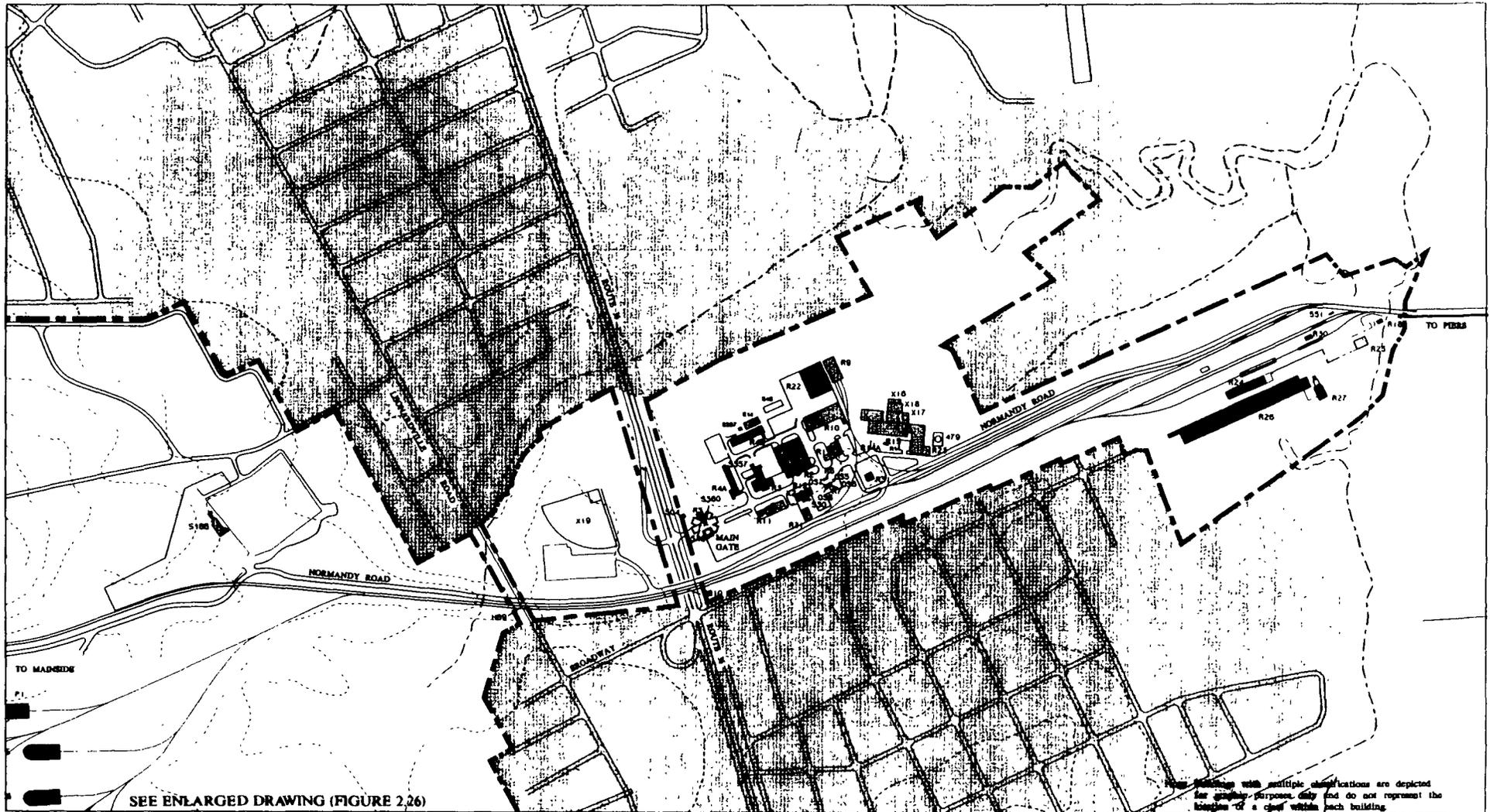




Note: Buildings with multiple classifications are depicted for graphic purposes only and do not represent the location of a class within each building.

SEE ENLARGED DRAWING (FIGURE 2.25)

- | | | | |
|--|--|--|-------------|
|  CLASS 100 OPERATIONAL AND TRAINING |  CLASS 500 HOSPITAL AND MEDICAL | EXISTING FACILITY USE | FIGURE 2.25 |
|  CLASS 200 MAINTENANCE AND PRODUCTION |  CLASS 600 ADMINISTRATIVE |  MAINSIDE ADMIN AREA | |
|  CLASS 300 RESEARCH, DEVELOPMENT, TEST AND EVALUATION |  CLASS 700 HOUSING AND COMMUNITY |  MASTER PLAN | |
|  CLASS 400 SUPPLY |  CLASS 800 UTILITIES AND GROUND IMPROVEMENTS |  NAVAL WEAPONS STATION: EARLE | |



SEE ENLARGED DRAWING (FIGURE 2.26)

EXISTING FACILITY USE

CLASS 100 OPERATIONAL AND TRAINING

CLASS 500 HOSPITAL AND MEDICAL

CLASS 200 MAINTENANCE AND PRODUCTION

CLASS 600 ADMINISTRATIVE

CLASS 300 RESEARCH, DEVELOPMENT, TEST AND EVALUATION

CLASS 700 HOUSING AND COMMUNITY

CLASS 400 SUPPLY

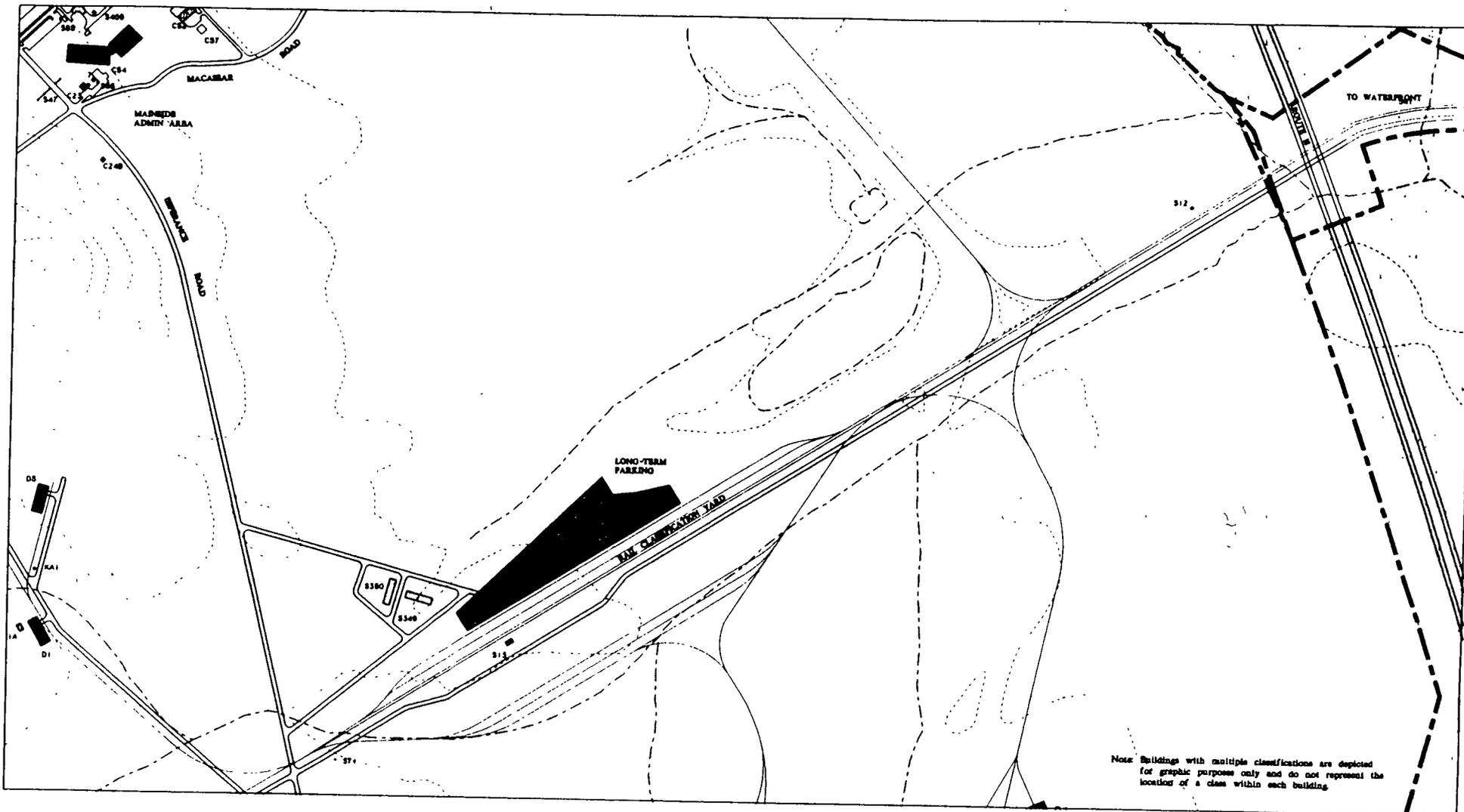
CLASS 800 UTILITIES AND GROUND IMPROVEMENTS

FIGURE 2.26

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE



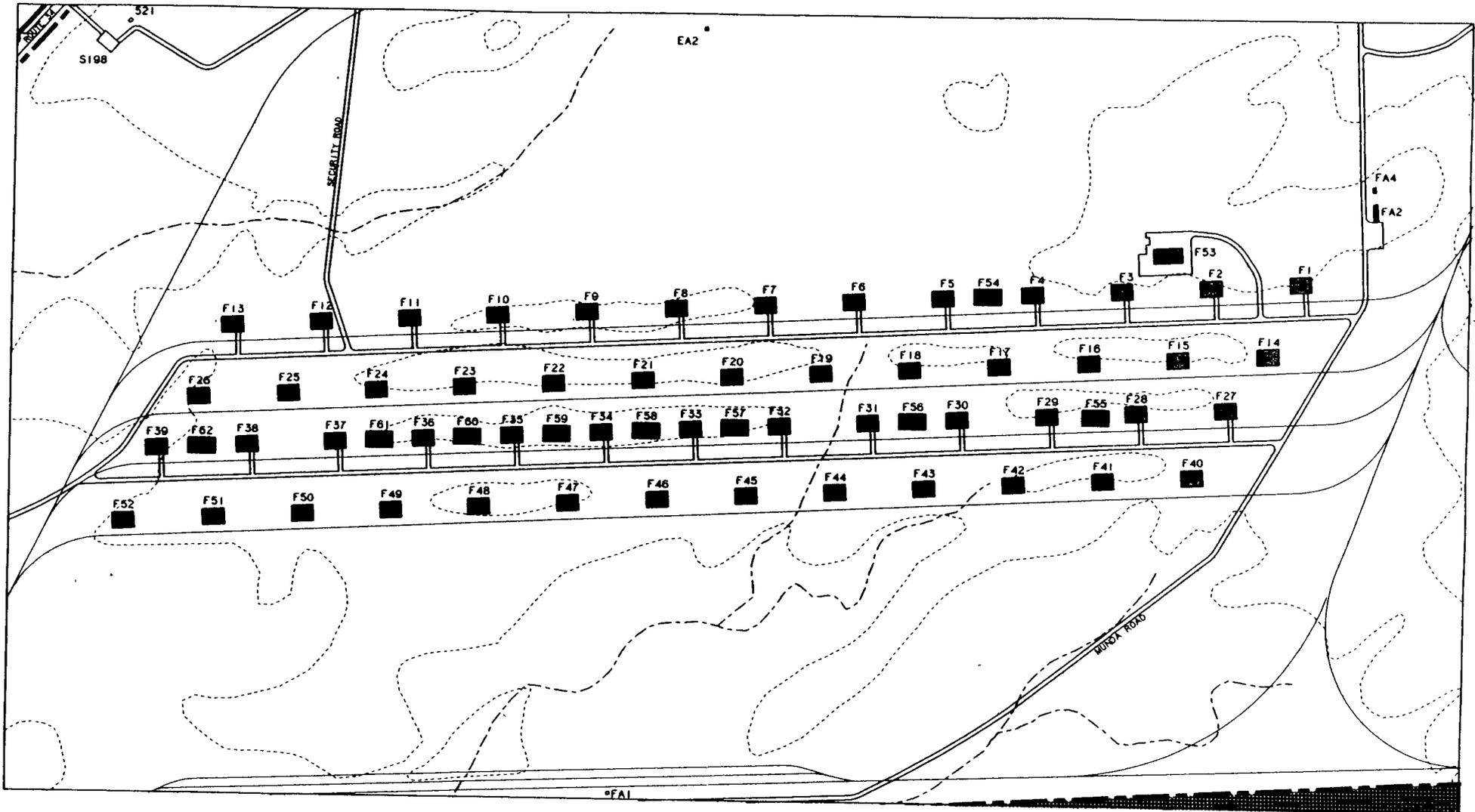


- | | |
|--|--|
|  CLASS 100 OPERATIONAL AND TRAINING | CLASS 500 HOSPITAL AND MEDICAL |
|  CLASS 200 MAINTENANCE AND PRODUCTION |  CLASS 600 ADMINISTRATIVE |
|  CLASS 300 RESEARCH, DEVELOPMENT, TEST AND EVALUATION | CLASS 700 HOUSING AND COMMUNITY |
| CLASS 400 SUPPLY |  CLASS 800 UTILITIES AND GROUND IMPROVEMENTS |

EXISTING FACILITY USE **FIGURE 2.26A**

MAINSIDE RAIL CLASSIFICATION YARD 

MASTER PLAN NAVAL WEAPONS STATION: EARLE 



- CLASS 100 OPERATIONAL AND TRAINING
- CLASS 200 MAINTENANCE AND PRODUCTION
- CLASS 300 RESEARCH, DEVELOPMENT, TEST AND EVALUATION
- CLASS 400 SUPPLY

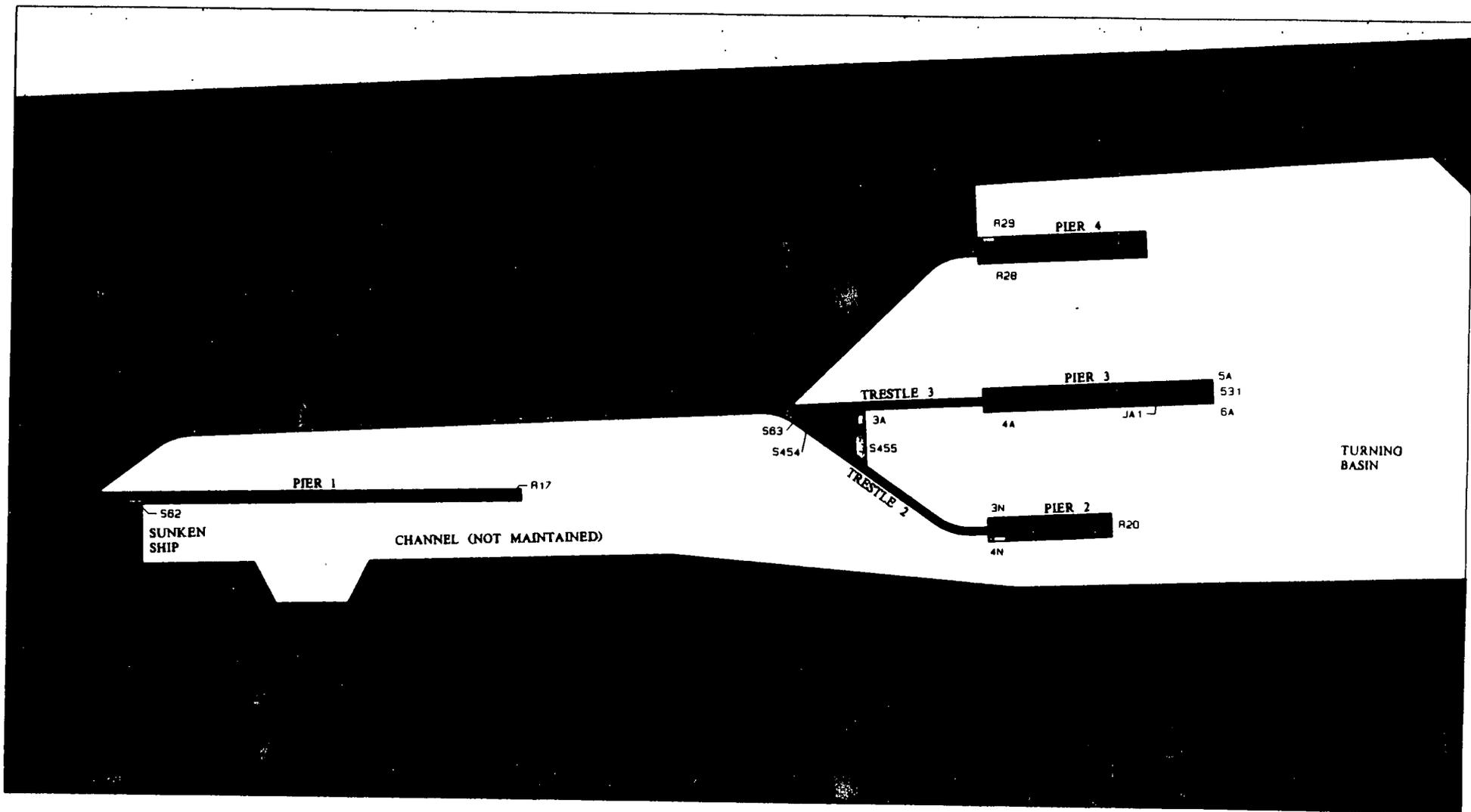
- CLASS 500 HOSPITAL AND MEDICAL
- CLASS 600 ADMINISTRATIVE
- CLASS 700 HOUSING AND COMMUNITY
- CLASS 800 UTILITIES AND GROUND IMPROVEMENTS

EXISTING FACILITY USE FIGURE 2.26B

F-GROUP MAGAZINE AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE





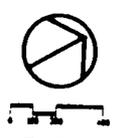
- CLASS 100 OPERATIONAL AND TRAINING
- CLASS 200 MAINTENANCE AND PRODUCTION
- CLASS 300 RESEARCH, DEVELOPMENT, TEST AND EVALUATION
- CLASS 400 SUPPLY

- CLASS 500 HOSPITAL AND MEDICAL
- CLASS 600 ADMINISTRATIVE
- CLASS 700 HOUSING AND COMMUNITY
- CLASS 800 UTILITIES AND GROUND IMPROVEMENTS

EXISTING FACILITY USE FIGURE 2.17

TRESTLE AND PIERS

MASTER PLAN
NAVAL WEAPONS STATION, EARLE



2.6 EXISTING INFRASTRUCTURE

To carry out its assigned mission, WPNSTA Earle relies on an extensive infrastructure network, including buildings, magazines, circulation systems (roadways, parking areas and rail lines), and utility systems. Much of the existing infrastructure dates back to the construction of the Station in the 1940's. An analysis of WPNSTA Earle's supporting infrastructure is presented in this section.

2.6.1 BUILDINGS

WPNSTA Earle has approximately 820,000 SF of buildings and structures (not including magazines and RR barricades) within its bounds. The majority of construction on the Station



Typical architectural character of WPNSTA Earle (Building C-29)

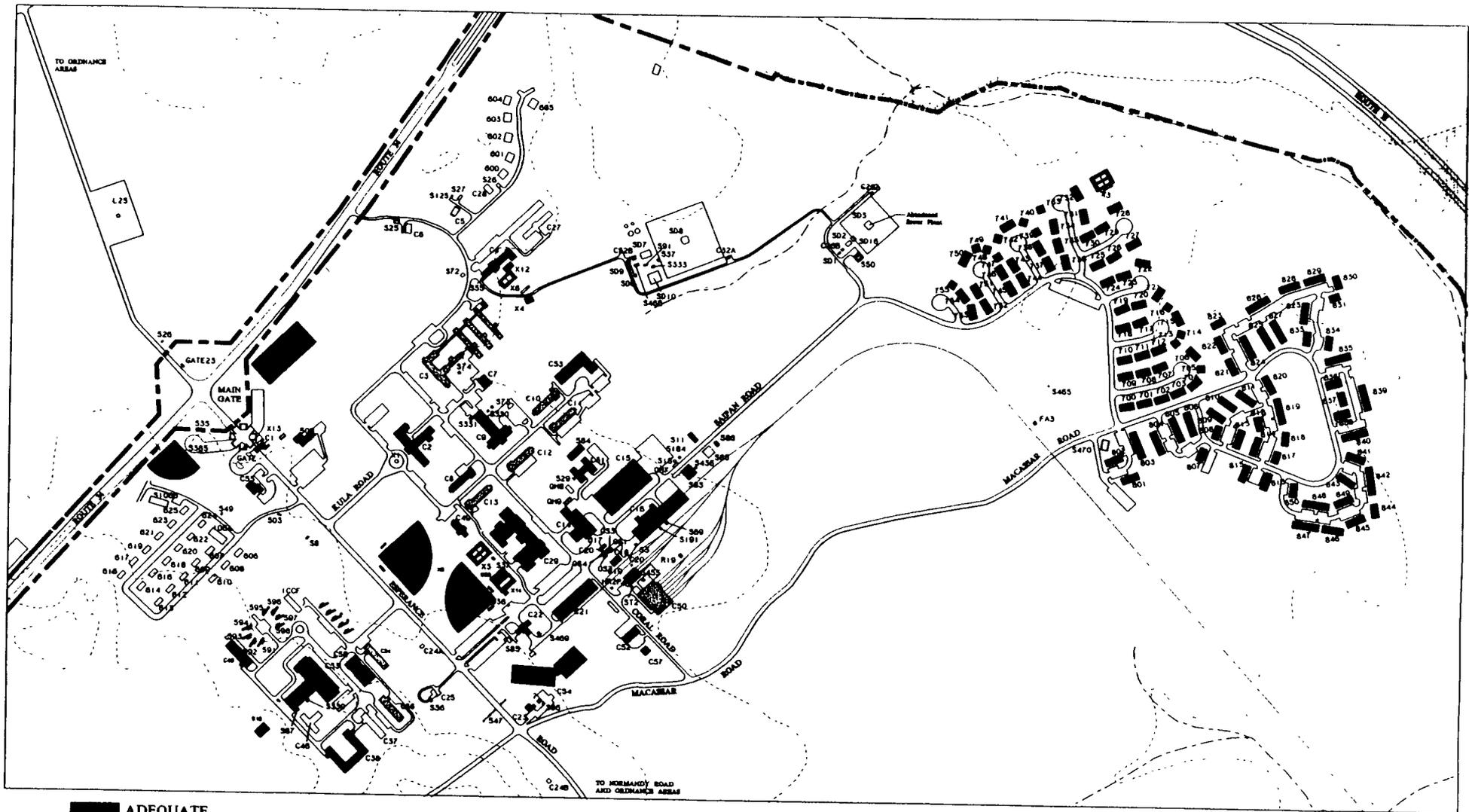
took place during World War II. Over 80% of these buildings and structures are over 40 years old although many buildings have been added to in subsequent years. Most buildings are rectangular, one-two story brick or concrete boxes, utilitarian and economical in design. Architectural coherence in the administrative areas at the Mainside and the Waterfront is achieved through the use of red brick materials, gabled roofs and white trim.

An Engineering Evaluation (EE) of WPNSTA Earle's facilities was conducted by Navy personnel at the onset of the master planning work. The EE records the condition of each

building or structure according to the following categories:

- Adequate - A facility fully capable of supporting its current use without modification or repairs.
- Substandard - A facility capable of supporting its current use but which requires modifications or repairs to make the facility adequate for its present function.
- Inadequate - A facility that cannot be made adequate for its present use through economically justifiable means.

A summary of total building square feet at WPNSTA Earle by condition is presented in Table 2.4. Figures 2.28, 2.29 and 2.30 show the space condition (adequate, substandard, or inadequate) for buildings and structures within the Mainside Administrative area, Waterfront Administrative area, and Pier/Trestle complex.



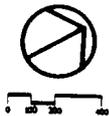
- ADEQUATE
- SUBSTANDARD
- INADEQUATE

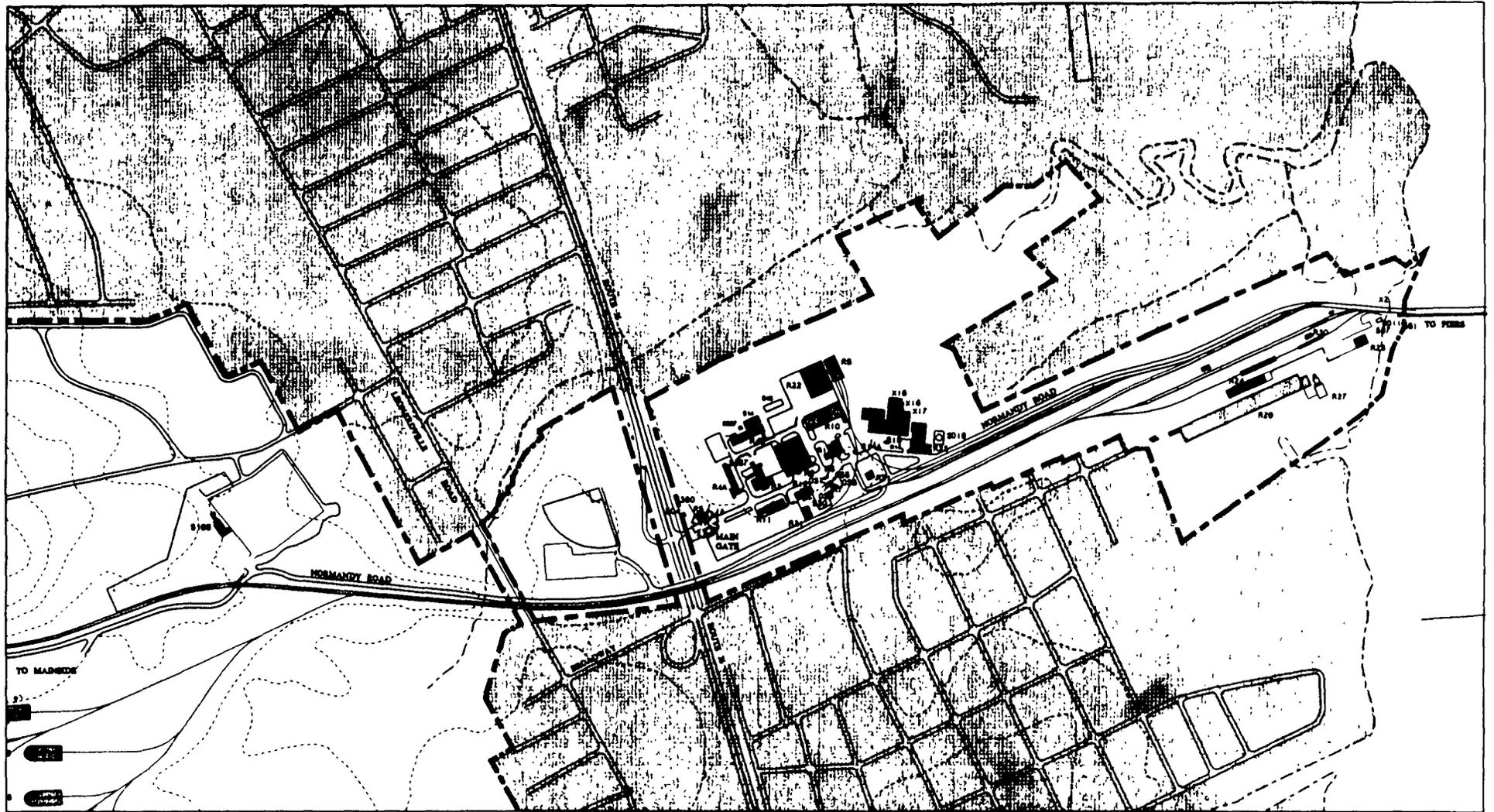
EXISTING FACILITY
CONDITIONS

MAINSIDE ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION EARLE

FIGURE 2.28





- ADEQUATE
- SUBSTANDARD
- INADEQUATE

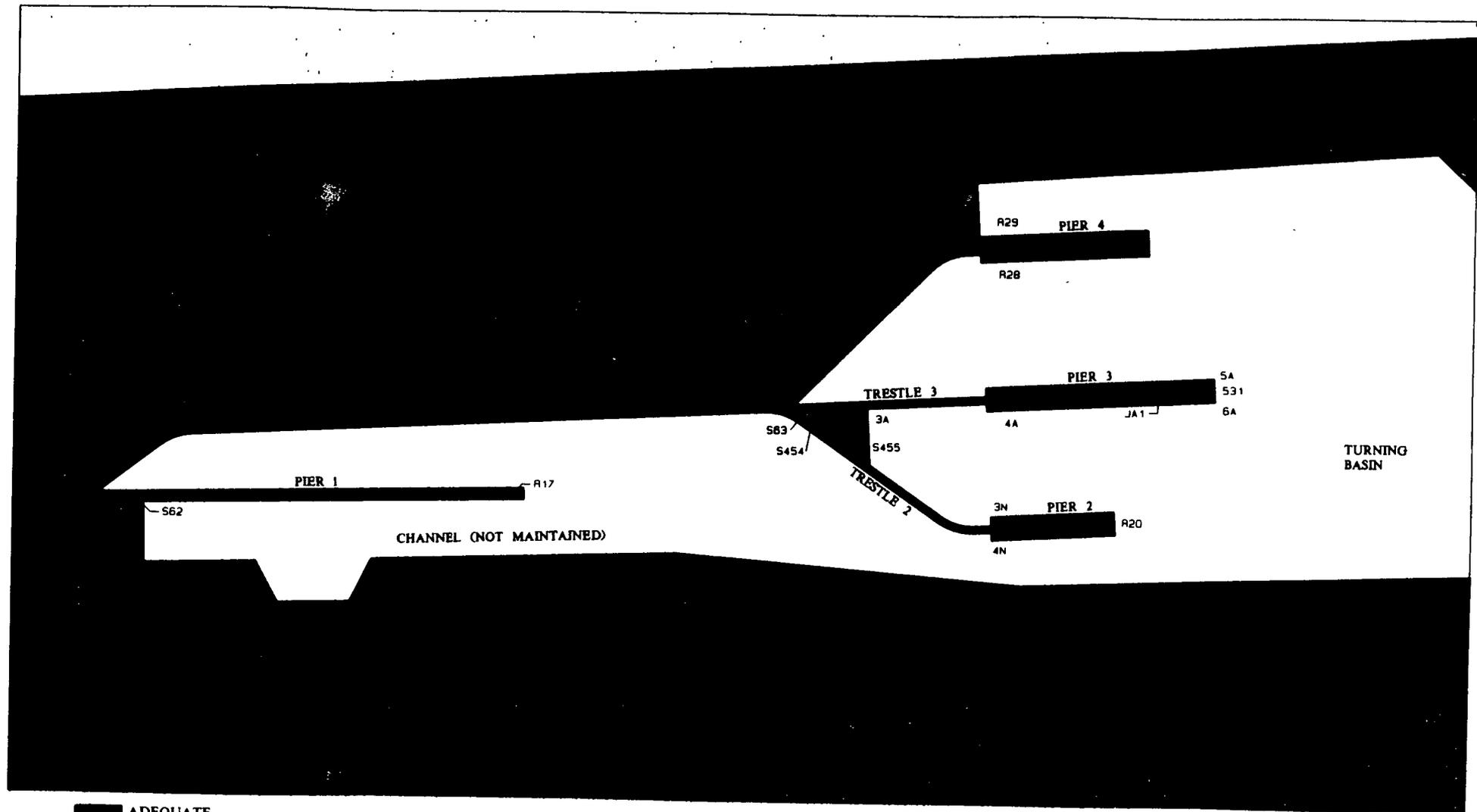
EXISTING FACILITY CONDITIONS

WATERFRONT ADMIN AREA 

MASTER PLAN

NAVAL WEAPONS STATION: EARLE 

FIGURE 2.29



ADEQUATE
 INADEQUATE

EXISTING FACILITY
CONDITIONS

TRESTLE AND PIERS

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

FIGURE 2.30



Table 2.4 Building Conditions

LOCATION	CONDITION	SF	%
MAINSIDE (Administrative and Ordnance Area but excluding magazines)	Adequate	417,599	68.6
	Substandard	149,096	24.5
	Inadequate	41,779	6.9
	TOTAL	608,474	100.0
WATERFRONT (Administrative and Pier Support Complex)	Adequate	178,773	84.5
	Substandard	26,417	12.5
	Inadequate	6,363	3.0
	TOTAL	211,553	100.0

Source: Engineering Evaluation, WPNSTA Earle, January 1990

2.6.2 MAGAZINES

The storage of ordnance and non-explosive ordnance materials is an essential part of WPNSTA Earle's mission. The Station has a total of 261 magazines that provide 956,140 SF of storage space (see Table 2.5). Magazines of similar type are sited in different areas named by group: F,G,H,I,K,L,M and N Groups (see Figure 2.24).

Magazines are above-ground and earth-covered storage structures. Most magazines are accessible by road. At the present time magazines in F,I M and N Groups are also accessible by rail. The majority of magazines on the Station date back to 1944 and were built in accordance with World War II standards. Therefore, many of them are not suitable for storage of newer weapons. However, WPNSTA Earle has nine Box Type D magazines (F-54 through F-62) recently constructed or currently under construction in the F-Group area (see Figure 2.26B).

Table 2.5 Magazines

TYPE	CAT. CODE	NO.	SF	%
Fuse & Detonator	421-12	30	16,584	1.7
High Explosive	421-22	128	275,708	28.8
Inert	421-32	15	157,394	16.5
Ready Magazine	421-35	0	-	-
SP&P	421-52	59	405,882	42.5
M Group	421-62	22	51,828	5.4
Missile Magazines	421-72	7	48,744	5.1
TOTAL		261	956,140	100

Source: Engineering Evaluation, WPNSTA Earle, January 1990

2.6.3 PIER/TRESTLE COMPLEX

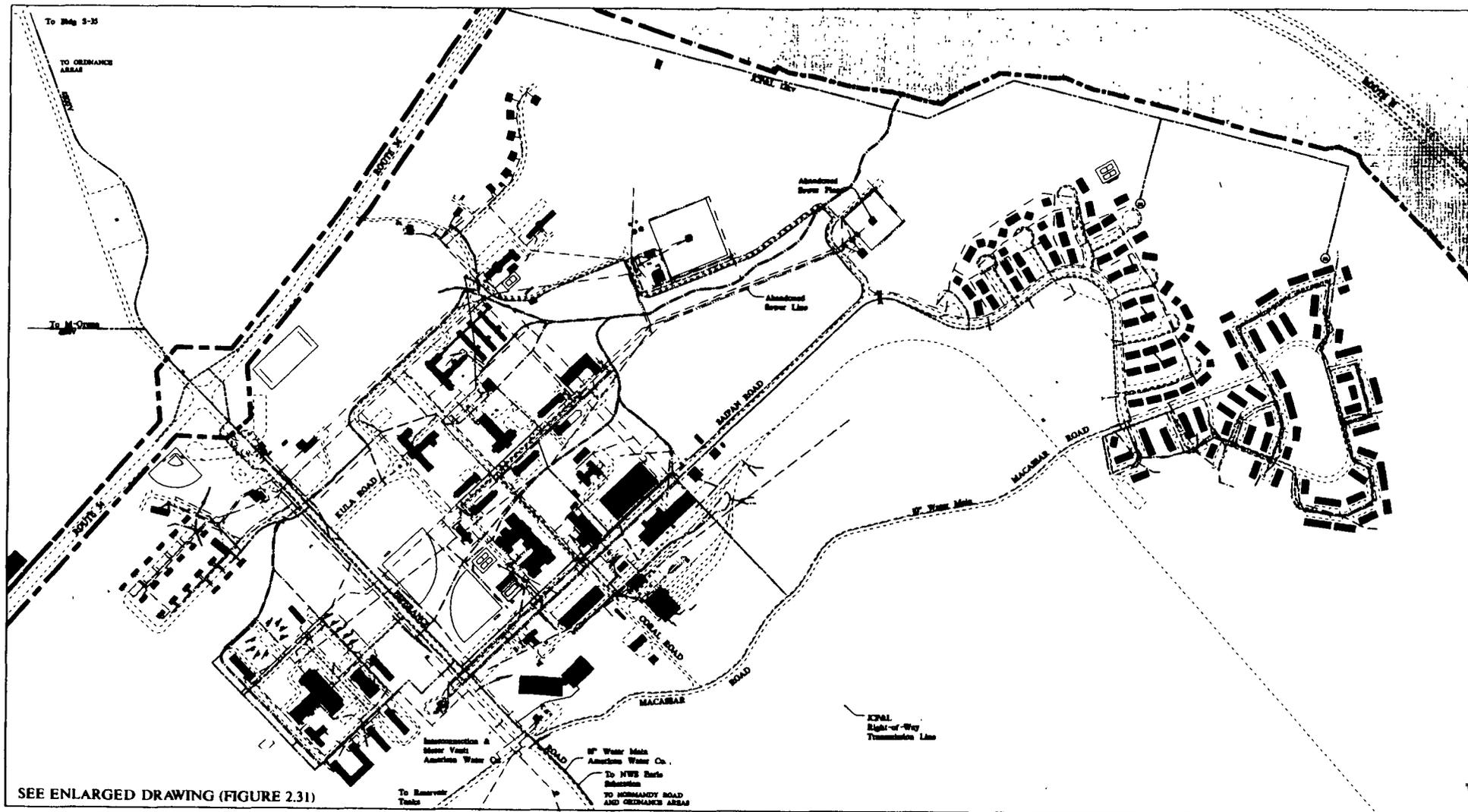
The existing pier/trestle complex is made up of a two-mile long approach trestle which branches into four piers. Pier 1 is an extension of the trestle approximately one mile from shore. It functions as a temporary truck holding area for ammunition and is no longer used for ship berthing. The three primary finger piers function as follows:

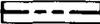
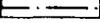
- Pier 2 - General Berthing Pier (homeport for three AE class ships)
- Pier 3 - Ammunition Pier (four berths for ordnance handling and visiting ships)
- Pier 4 - General Berthing Pier (homeport for two AOE-1 ships)

All the structures, with the exception of Pier and Trestle 4, were built in the 1940s and are in inadequate condition (see Figure 2.30). Pier 4 and the associated trestle were completed in February 1990. A three-year project to replace the main approach trestle is scheduled to begin in FY 1991. Thirteen support buildings are located on the pier complex including utility buildings, storage buildings, operations buildings, electrical substations, and a fire station.

2.6.4 UTILITY SYSTEMS

The major utility systems that serve WPNSTA Earle include water supply and distribution systems, wastewater treatment and collection systems, electrical power and distribution systems, heating and steam production and distribution systems, and a telecommunications system. For



-  DOMESTIC WATER
-  ELECTRICAL TRANSMISSION LINE OVERHEAD
-  ELECTRICAL TRANSMISSION LINE UNDERGROUND
-  GAS LINE
-  SANITARY SEWER
-  STORM DRAIN

NOTE:
 This plan was compiled from numerous maps and oral descriptions provided by NWS EARLE Public Works Department, and is for planning purposes only.

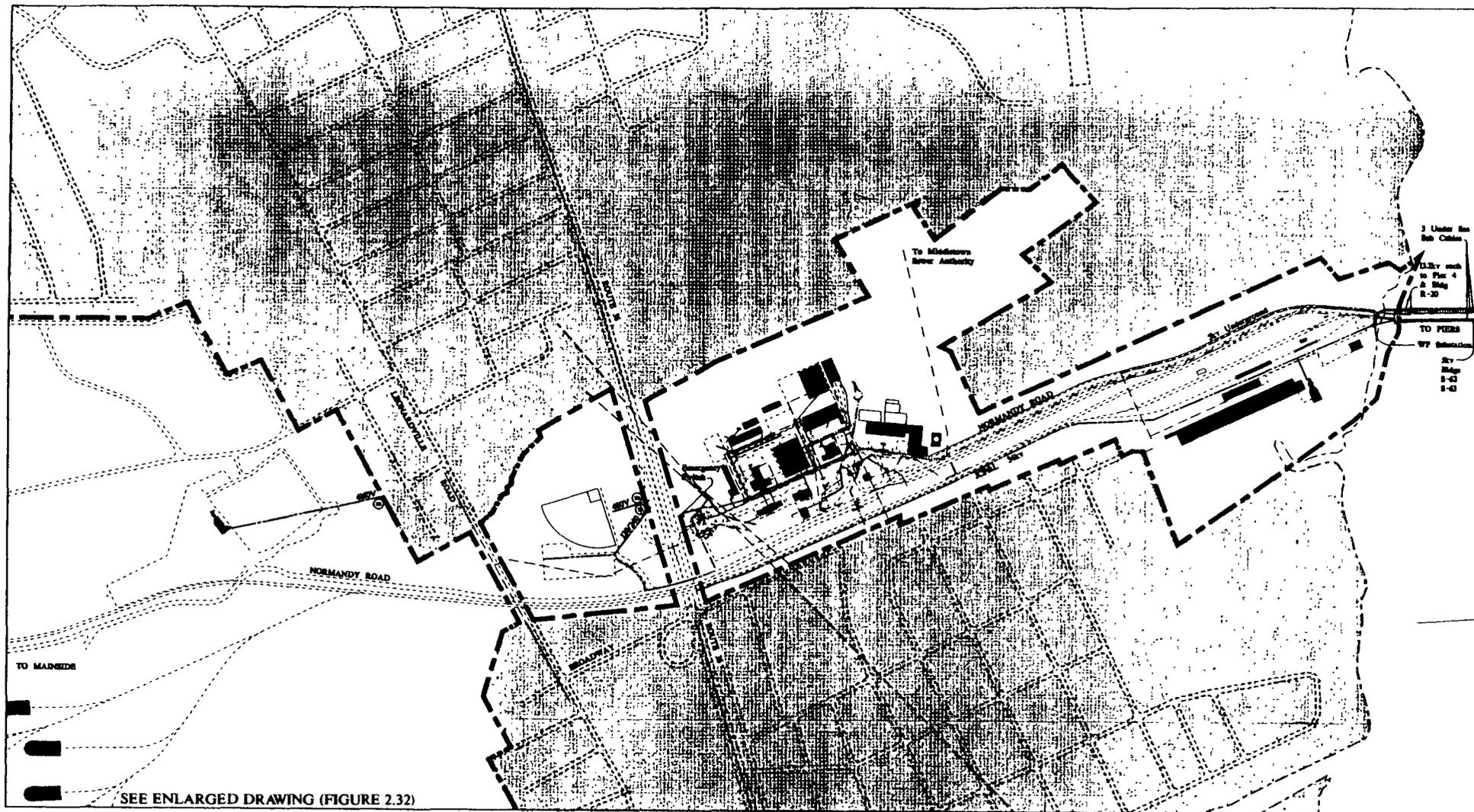
GENERAL LOCATION OF MAJOR UTILITIES

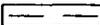
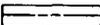
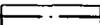
MAINSIDE ADMIN AREA

**MASTER PLAN
 NAVAL WEAPONS STATION: EARLE**

FIGURE 2.3

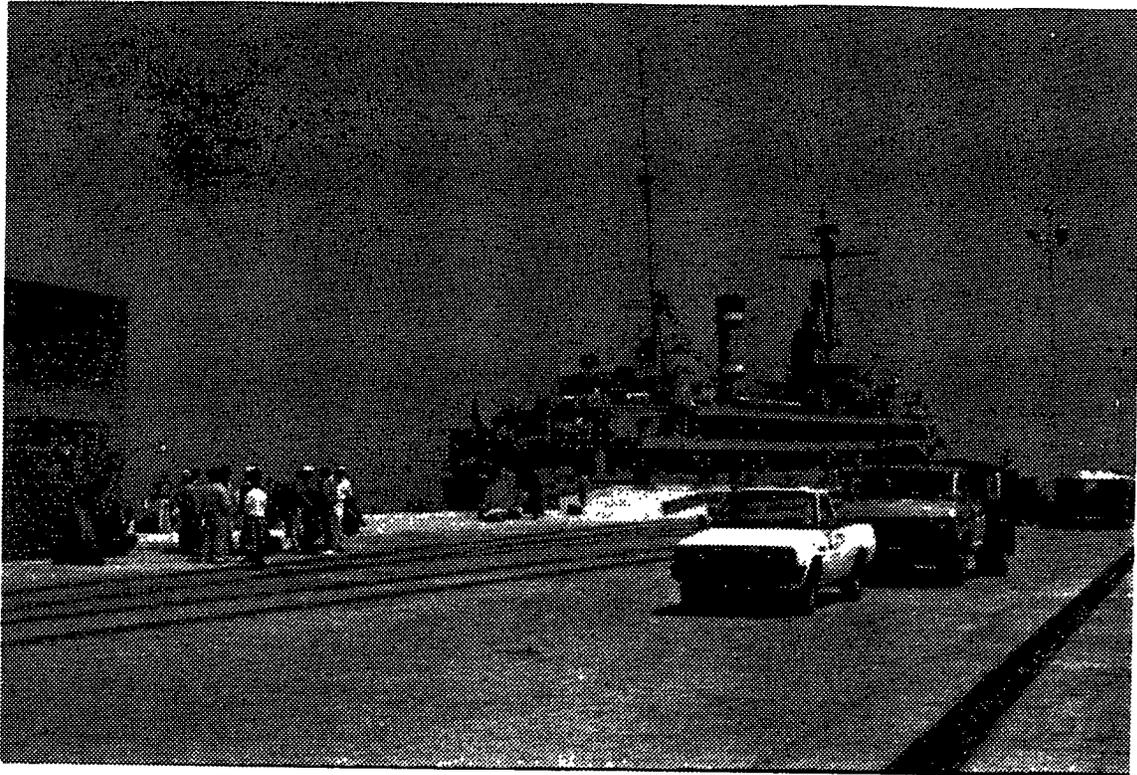




-  DOMESTIC WATER
-  ELECTRICAL TRANSMISSION LINE OVERHEAD
-  ELECTRICAL TRANSMISSION LINE UNDERGROUND
-  GAS LINE
-  SANITARY SEWER
-  STORM DRAIN

NOTE:
 This plan was compiled from numerous maps and oral descriptions provided by NWS EARLE Public Works Department, and is for planning purposes only.

GENERAL LOCATION OF MAJOR UTILITIES FIGURE 2.32
 WATERFRONT ADMIN AREA 
 MASTER PLAN 
 NAVAL WEAPONS STATION: EARLE



Visiting ship berthed at Pier 4

the most part, the Mainside and Waterfront are served by separate utility systems. The approximate locations of the utility lines comprising the various systems are shown on Figures 2.31 and 2.32.

A. Water Supply and Distribution Systems

WPNSTA Earle is served by two different water distribution systems, one at the Mainside and one at the Waterfront. Until recently, the Mainside administrative complex was served by two on-site wells, a water treatment plant, and four reservoir tanks. A second water distribution system at the Mainside serves the area west of Highway 34, including MOMAG Unit Three, the limited area and M Group magazines. This area is primarily served by a 130 gallon per minute (GPM), 350 feet deep well with booster pumps to a 300,000 gallon water tank.

In 1989, in anticipation of construction of family housing units which approximately doubled water consumption at the Mainside, the New Jersey-American Water Company (NJAWC) installed a 16-inch water main which enters the Station from the east end of Esperance Road near Gate 24 and extends along Esperance Road to Highway 34. Thus the Mainside Administrative area including family housing is now served by public water rather than on-site wells. The water is piped to the existing reservoir, which consists of four 250,000 gallon underground storage tanks. NJAWC is negotiating an easement from WPNSTA Earle to extend the new water main along Esperance Road, across Highway 34, and through the ordnance areas to the western portion

of Monmouth County. Eventually, the areas across Highway 34 will be connected to the public water supply and the existing well at Throckmorton Hill will be capped.

The Waterfront is also served by public water supplied by NJAWC at two separate locations: a connection near the Main Gate off Highway 36, and a second connection near the wave tank. After metering, water flows to the administrative core and the pier/trestle complex. The administrative core is tied into a 12-inch main which is sufficient to meet existing and projected needs. The pier/trestle complex is served by a 6-inch main which should be replaced by a 12 to 16-inch main to adequately serve future homeporting requirements.

In 1990, water consumption at WPNSTA Earle was approximately 225,000 gallons per day (GPD) at the Mainside and 200,000 GPD at the Waterfront. NJAWC is planning to expand capacity to meet current and future demand in the region.¹⁰ The main NJAWC treatment plant at Swimming River has a current capacity of 24 MGD. An additional 6 MGD is supplied by the Neptune plant and 6 MGD by the Jumping Brook plant to provide a total capacity of 36 MGD. The Jumping Brook Plant, which went back on line in April 1990, will eventually increase its capability to 30 MGD which will boost overall capacity substantially.

Construction of family housing units is currently being considered in the Wayside area. Such construction would require connection to public water. Because of NJAWC's currently planned water system expansion, any new housing at the Wayside should not present a capacity problem. New housing units could be connected to the existing water main which runs along Wayside Road.

Fire protection at the pier/trestle complex is provided by a network of salt-water mains located beneath the piers and trestles, electric motors, and diesel pumps. The result of an inspection in October 1990 concluded that only Pier 4 has an operable fire protection system which consists of a freeze protected 12-inch looped main. Fire protection mains located under Piers/Trestles 1, 2 and 3 are either damaged or broken off. All electric motors and diesel pumps are in need of repair to return them to working condition. Interim repairs to Piers/Trestles 1, 2 and 3 are recommended to correct the fire protection deficiencies until such time as these facilities are replaced.

B. Wastewater Treatment and Collection Systems

The Mainside and Waterfront Administrative areas are served by separate wastewater collection systems. The treatment plant and collection system at the Mainside were constructed in the early 1940s. The design capacity of the plant was originally rated at 370,000 GPD, but studies in 1988 indicated a capacity of 250,000 GPD with regard to current effluent standards. Since that time, the plant has been improved by the construction of trickling filters and clarifiers as a secondary treatment step. The intermediate sand filters were rehabilitated and are now used for tertiary

¹⁰ Patty Gannon, Construction Department, NJAWC, personal communication

treatment, and a dechlorinated step was added after the chlorinator. The plant will now meet the latest New Jersey Department of Environmental Protection standards for effluent discharges of up to 370,000 GPD into Hockhockson Creek.

Flows to the plant have averaged about 90,000 GPD in recent years. Since connecting 500 new family housing units to this system, flows now average about 205,000 GPD. However, due to the excessive infiltration and inflow (I/I), peak flows can reach 1,400,000 GPD during rainy periods. Much of the I/I can be removed cost effectively through various rehabilitation techniques. Some lengths of pipe are not structurally sound and will be replaced. When the sewer rehabilitation is complete, the waste water collection and treatment system will be adequate to serve the Mainside Administrative area including the 565 existing family housing units.

Because of the distance between the existing treatment plant and the Wayside, construction of additional housing in this area will require separate wastewater treatment measures. Such housing would most likely be connected to the North East Monmouth Sewer Authority (NEMSA) public sewer system. NEMSA has two 12-inch mains in the vicinity of the Wayside. Connections to these mains are available at the intersection of Pine Brook and Wayside Roads and at the intersection of Wyckoff and Hope Roads.

The Township of Tinton Falls has not yet reached its wastewater flow limit established by NEMSA. Additional capacity for the entire sewer system is expected to be available by June 1991.¹¹ Therefore, NEMSA should have adequate capacity to provide sewer service to new housing units in the Wayside area.

In the fall of 1990, the Township of Tinton Falls was negotiating with a developer who proposed extending the sewer at Pine Brook and Wayside Roads along Wayside Road to service future industrial development in that area.¹² A sewer line servicing industrial development is likely to have inadequate capacity for the number of housing units currently being considered for the Wayside area. WPNSTA Earle may wish to coordinate with the Township to ensure that in the event a new line is constructed, it is capable of serving future housing as well as industrial development.

Sewage flows at the Waterfront are pumped from the administrative area and pier/trestle complex to a Township of Middletown Sewerage Authority (TOMSA) interceptor and then to the TOMSA Treatment Plant. Sewage from the administrative area flows in a gravity sewer system to a central wastewater pumping station in Building R-14.

Sewage from ships berthed at the pier/trestle complex and buildings on the piers is collected by the Ship Waste Water Collection Ashore (SWWCA) system, which consists of gravity sewers

¹¹ Frank Kaszuba, Construction Supervisor, NEMSA, personal communication

¹² John Chmielowic, Township Engineer, Tinton Falls, personal communication

flowing to a series of pumping stations which convey flows to a central pumping station in Building S-63. From the central booster station, flows are conveyed in an eight-inch force main to the TOMSA interceptor. An existing aerator tank adjacent to Building R-22 is currently unused. Although the condition and capacity of the wastewater collection system at the Waterfront is considered adequate for the current and projected needs of ashore facilities, a new sanitary pumping station is required to handle increased flows from Pier 4 extended.¹³

C. Electrical Power and Distribution Systems

WPNSTA Earle receives its electrical power from the Jersey Central Power and Light Company (JCP&L) at two locations - a substation located at the East Gate serving the Mainside and a substation located at the Waterfront. Both substations receive electric power from JCP&L at 34.5 KV. Additional service is provided to the family housing units and is billed directly by JCP&L to the Government.

The Mainside substation consists of a 2,500 KVA transformer bank and a three phase, 3,750 KVA transformer. A major renovation of this substation has been completed within the last several years to meet previously identified needs and to accommodate anticipated growth. Two sets of aerial lines convey power from this substation to the Mainside Administrative area. The lines and poles have been replaced in conjunction with the renovation of the substation. Although the Mainside substation and distribution system are considered adequate to meet current needs, expansion is required to meet future demands.

The Waterfront substation consists of two components. A 34.5 KV/4.16 KV, 750 KVA transformer serves all ashore facilities, all pier buildings, and Pier 1 (currently utilized as a temporary holding yard for ammunition vans). Two 34.5KV/13.2 KV, 3,750 KVA transformers provide "cold-iron" power to ships homeported at Piers 2 and 4. There are also two 15 KV submarine feeder cables. Like the Mainside substation, this substation has been renovated within the last several years. Homeporting of four AOE class ships will increase electric demand and consumption at the Waterfront. JCP&L has adequate capacity to meet the increased power requirements. However, one of the two 3,750 KVA transformers, which supplies all power to Pier 4 and part of the power to Pier 2, is currently exceeding peak capacity, resulting in periodic power shortages. In association with the Pier 4 extension, a new Pier 4 substation and other electrical distribution services will be required.¹⁴

According to the Utilities Systems Assessment (USA) for WPNSTA Earle (September 1988), WPNSTA Earle's power distribution system appears to be in fairly good condition. However, frequent instantaneous interruptions indicate that problems with the condition or capacity of the system may exist. The most questionable parts of the system are the underground cables in M

¹³ Han-Padron Associates, Pier 4 Extension (Project P-952), December 1990

¹⁴ Han-Padron Associates, Pier 4 Extension (Project P-952), December 1990

Group, along Munda Road in E and F Groups, and the ashore buildings at the Waterfront. A Utilities Technical Study is currently underway to ensure that the electrical distribution system is capable of supporting the Station's expanded mission.

D. Heating and Steam Production and Distribution Systems

The majority of the buildings at the Mainside are heated by individual steam or hot water boilers. However, a small steam production and distribution center consisting of two 5,000 lbs./hour boilers is located in Building MA2 in M Group. This system supplies steam to buildings MA1, MA2, MA3, 558 and 559 and has been upgraded in recent years. The individual boilers at the Mainside are in generally good condition due to an ongoing maintenance/replacement program.

The new family housing units at the Mainside are heated by natural gas fired boilers/furnaces. A gas line has been installed from a main on Highway 34 along Esperance Road and Saipan Road to serve these units. The conversion of the existing oil fired boilers/furnaces to natural gas is currently being implemented.

The buildings at the Waterfront Administrative area are heated by individual steam or hot water boilers. The pier/trestle complex, including homeported ships, is served by two boiler houses located on Pier 2 (Building R-20) and Pier 4 (Building R-28). Building R-28 was recently constructed and together with Building R-20 provides adequate capacity to meet the current requirements of homeported ships. However, the extension of Pier 4 will create the need for a second steam plant.

E. Telecommunications System

Administrative telephone service at WPNSTA Earle is provided by two systems, one at the Mainside and a second at the Waterfront. The System 85, located in Building C-2 at the Mainside, is equipped with 560 lines but has the capacity to carry up to 1000 lines. Included are 11 trunk lines which consist of Autovon and Defense Communication Telephone Network (DCTN) lines. The current Dimension 400 system at the Waterfront carries 250 lines and has a total capacity of 330 lines. This system is being replaced by a System 75 which will increase capacity to slightly less than that of the Mainside System 85. Local telephone service is provided by New Jersey Bell and long distance service by U.S Sprint. Equipment on the base is installed and serviced by an outside contractor. Antiquated cables throughout the entire Station are currently being replaced.

F. Solid and Hazardous Waste Disposal

Solid waste disposal at WPNSTA Earle is handled by a contractor and eventually disposed of at a local landfill. However, a basewide recycling program has enabled WPNSTA Earle to recycle approximately 25% of its solid waste. Separate bins are provided throughout the base for scrap metal, glass, cans, and paper. Contractors collect the material and transport it to the appropriate recycling center.

WPNSTA Earle has a separate system for the collection and disposal of hazardous wastes. Hazardous wastes are stored at one of three permitted storage facilities located at the Station. The Environmental Division within the Public Works Department at WPNSTA Earle prepares the necessary paperwork, describing the type and amount of hazardous waste collected and stored. That documentation is forwarded to the Defense Reutilization and Marketing Office (DRMO) located at Lakehurst Naval Air Station, Lakehurst, NJ. Subsequently, DRMO contracts with registered haulers to remove the hazardous waste from WPNSTA Earle. The waste handled by DRMO is mainly paints, petroleum products and corrosives.

The shop buildings at WPNSTA Earle that use solvent compounds are serviced by a solvent recycling contract which is administered by the Supply Department (Code 11). This contract is renewed yearly.

"Bilge water", considered a hazardous waste in New Jersey, but not in many other states, accounts for about 90% of the total hazardous waste generated at WPNSTA Earle. Approximately 7,000,000 pounds (roughly 700,000 gallons) of bilge water is disposed of through a contract administered by Code 11.

2.6.5 CIRCULATION SYSTEMS

The on-base circulation system at WPNSTA Earle is comprised of an extensive network of roads, parking areas, rail lines, pedestrian paths and bus routes. The Military Traffic Management Command (MTMC) has scheduled a comprehensive traffic study starting in late 1991.

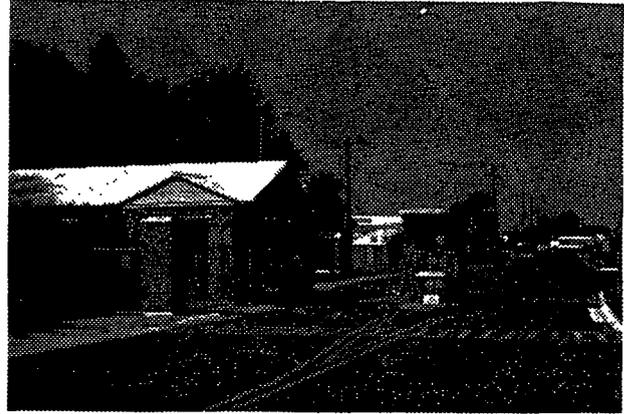
A. Roads

There are approximately 97 miles of paved and 19 miles of unpaved roads at WPNSTA Earle. Both developed areas and magazine areas are served by paved roads in good condition. In six of the magazines areas, (G,H,J,K,L and M Groups), existing roads which currently dead end should be made continuous to provide two-way access. The unpaved roads provide security access around the perimeter of the Station.

The primary public access road to the Mainside is State Highway 34 which runs in a north/south direction from Highway 18, past WPNSTA Earle's main gate to meet State Highway 33 at the southern border of the Station. The main gate is located at the intersection of Esperance Road and Highway 34 (see Figure 2.33).

The most important road at the Mainside is Esperance Road. It is the main collector road for the Mainside Administrative area, linking the main gate with major destination points such as Command, administrative and personnel support areas, Normandy Road, and family housing areas. Esperance Road runs eastward from State Highway 34 past the core administrative area to Normandy Road, eventually connecting to Route 16 beyond the In-Transit area.

Direct passage from the Mainside to the Waterfront is by way of Normandy Road. Normandy Road is a two-lane, 15-mile long, limited access route used to transport ordnance between the two areas. Vehicles traveling on Normandy Road have the right-of-way at the several public road crossings. Improvements are currently being made to this road to upgrade safety conditions at the crossings.



Main Gate to the Waterfront Administrative Area

Other than Normandy Road, the only entry to the Waterfront is via State Highway 36 where the main gate for the Waterfront is located (see Figure 2.34).

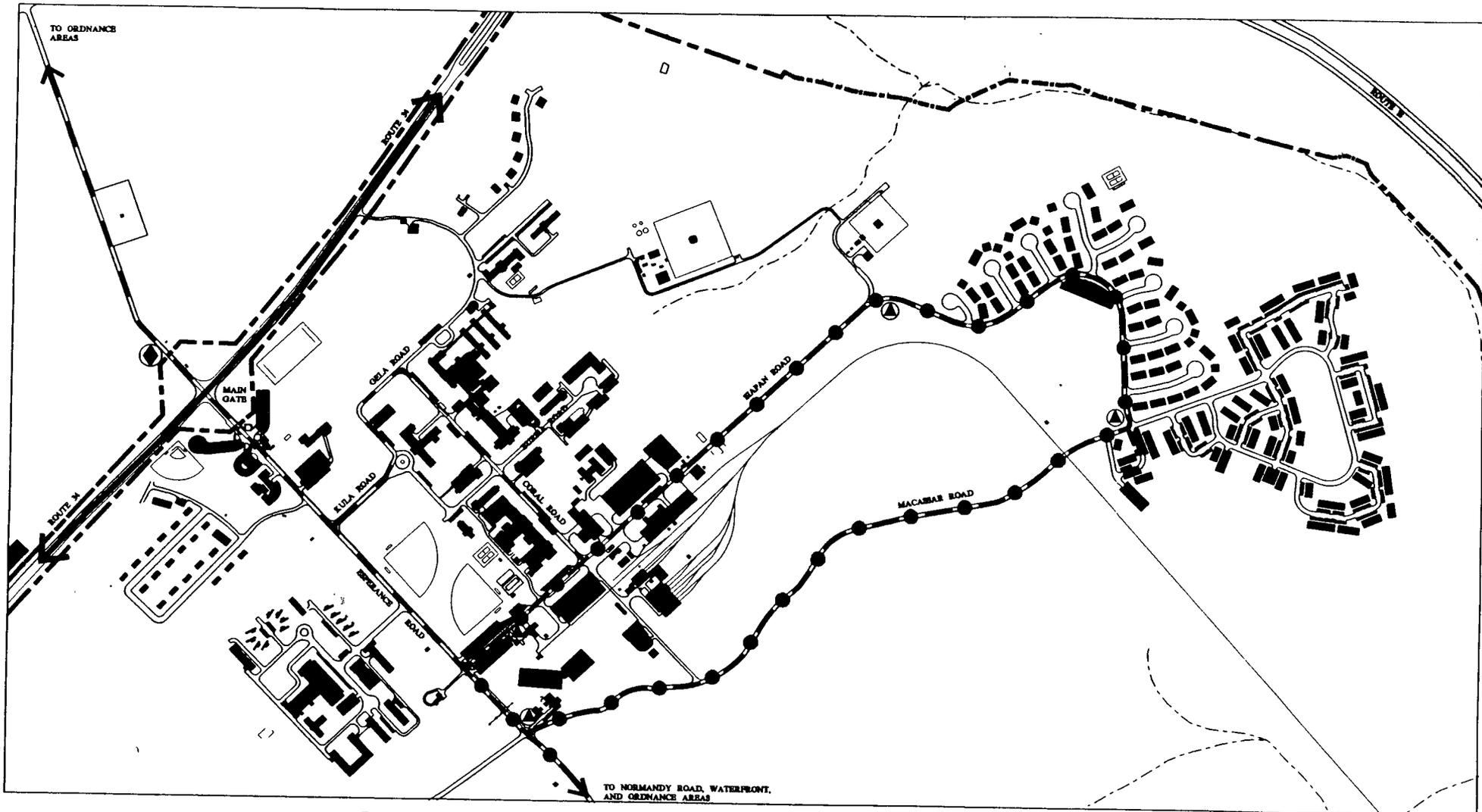
B. Parking

Parking is required at WPNSTA Earle for organizational and non-organizational vehicles. Organizational vehicles include cars, vans, trucks, cranes, and forklifts which are used by a variety of departments but stored and maintained by Public Works. Organizational vehicles should be parked in a fenced lot dedicated for that purpose. Currently, cars, vans and trucks are parked in various daily parking areas while larger vehicles are stored near public works facilities (in and around Building C-14 at the Mainside and Building R-2 at the Waterfront).

Non-organizational, private occupancy vehicle (POV) parking is required for a variety of users:

- Civilian and military personnel who live off base and commute to the Station require daily parking.
- Sailors on homeported ships require long-term parking for their private vehicles while deployed.
- Sailors on homeported ships require short-term parking during periods when ships are in port when they commute from Mainside family housing to the Waterfront.
- Users of community and recreation facilities require parking adjacent to those facilities.
- Ashore military personnel living in bachelors quarters require parking near their Mainside or Waterfront accommodations.

Parking on the Station is exclusively surface parking in either paved or gravel off-street lots, perpendicular or parallel parking along streets or next to buildings, and informal lots on vacant land. Traditionally, off-street parking lots have been located behind or between buildings. A new pattern has emerged with recently constructed lots being located in front of buildings or



- MAJOR PUBLIC ROAD
- MAJOR ON-STATION ROAD
- - ON-STATION BUS ROUTE
- ⊙ BUS STOP
- ⊙ MAIN GATEHOUSE
- ⊙ GATEHOUSE
- MAJOR PARKING AREAS

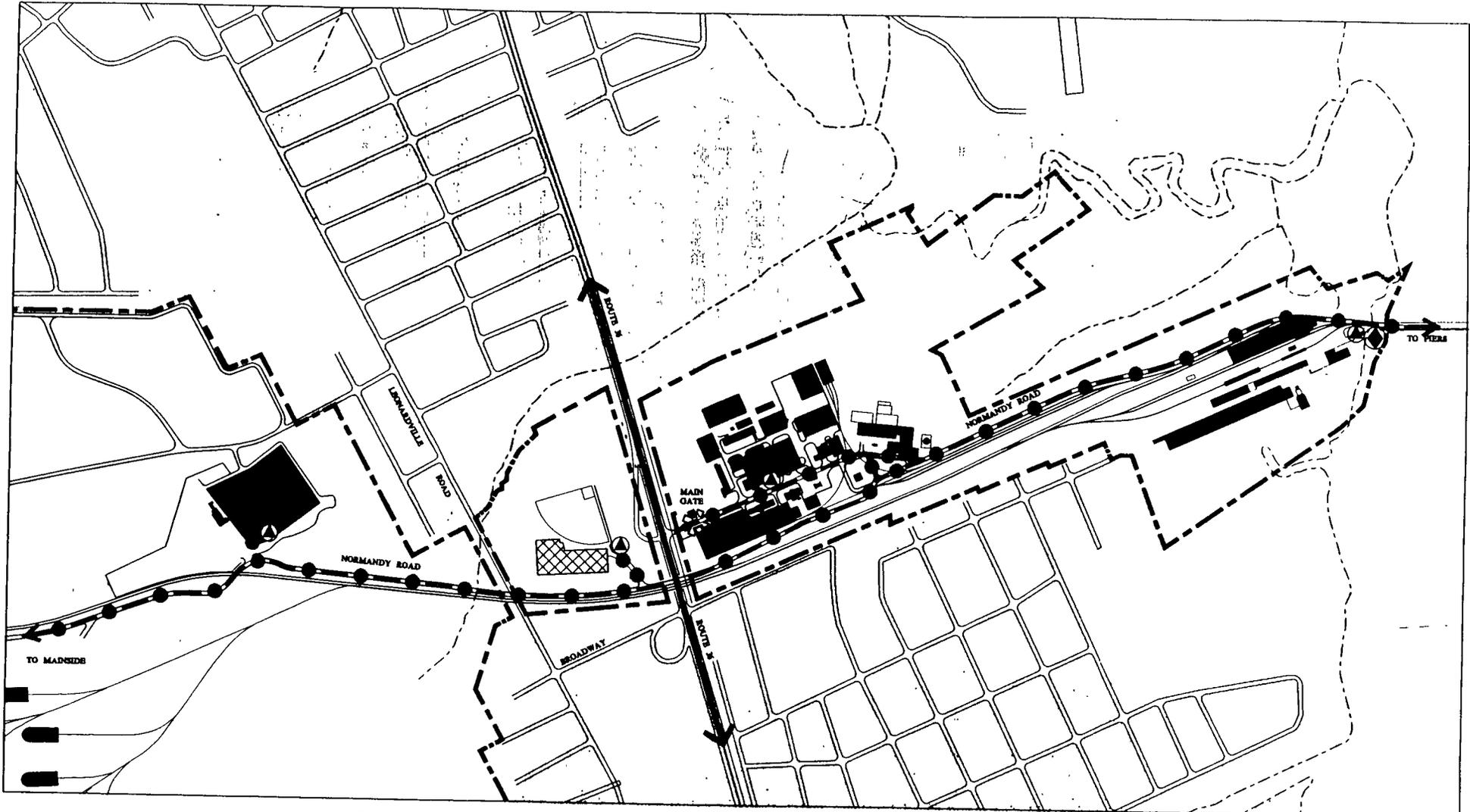
**CIRCULATION AND
PARKING**

MAINSIDE ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 2.33





- MAJOR PUBLIC ROAD
- MAJOR ON-STATION ROAD
- ● — ON-STATION BUS ROUTE
- ⊙ BUS STOP
- ⊙ MAIN GATEHOUSE
- ⊙ GATEHOUSE
- MAJOR PARKING AREAS
- ▣ DEPLOYED PARKING

CIRCULATION AND
PARKING

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 2.34



alongside main roads (e.g., lots on Saipan Road). The locations of existing parking lots at the Mainside and Waterfront Administrative areas are highlighted in Figures 2.33 and 2.34.

Because there is very limited public transit to the Station, most personnel living off-base commute to WPNSTA Earle by private automobile. Most commuters park in unassigned, off-street spaces located close to their place of work. In general, there is sufficient POV parking available at the Mainside Administrative area to serve current and projected needs for short-term and daily parking. Localized parking problems exist near some facilities (e.g., Buildings C-14, C-15 and C-16). While the available daily parking at the Waterfront Administrative area is generally adequate to serve existing needs, it is anticipated that additional parking will be required to serve proposed future facilities.

Vehicle parking for deployed military personnel is currently accommodated in two long-term parking lots. A paved, secured lot near the Waterfront ballfield holds approximately 224 cars. A larger lot, located near the Mainside rail classification yard, has roughly 625 spaces (see Figure 2.26A).

Short-term ships' parking is needed by military personnel serving on ships in port. At the present time, much of this short-term parking occurs informally in an unpaved, unsecured area near the wave tank or in the parking lot near the Main Gate to the Waterfront Administrative area. A new 625-space lot, intended for ships' parking, is currently under construction on Chapel Hill near the dunnage yard. When that lot is completed a total of 1,474 spaces will be available for long-term or short-term parking by ships' personnel.

C. Rail System

Most ordnance is delivered to WPNSTA Earle by truck. In addition, the Station can receive rail shipments and move ordnance between the Mainside and Waterfront by rail. Approximately 140 miles of rail line exist throughout WPNSTA Earle for the transport of ordnance. The Southern Branch line diverges at Red Bank and connects with WPNSTA Earle near the In-Transit and F-Group areas. Parallel to Normandy Road are two government-owned tracks exclusively used to carry ordnance and supplies between the Waterfront and the Mainside. Rail lines also extend to the Public Works railroad equipment shop which service, repair, and store railroad engines and equipment.

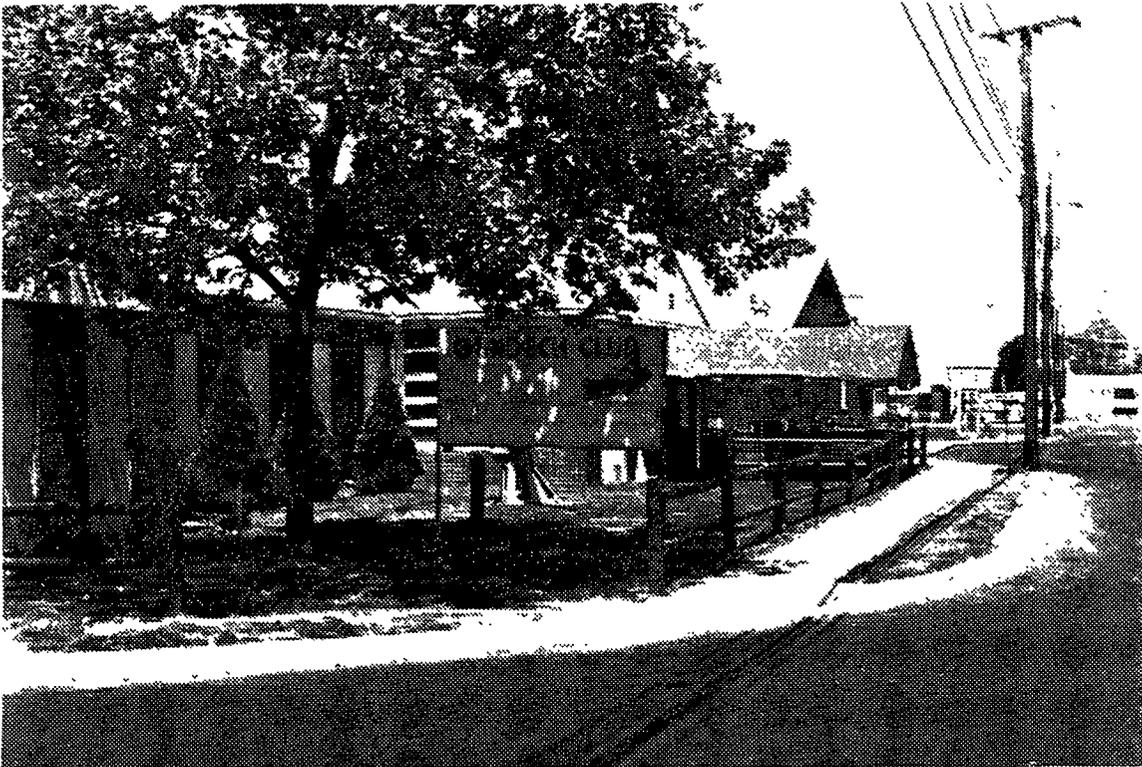
Ordnance being transported to WPNSTA Earle by rail is conveyed from the Southern Branch line to the rail holding yard at the Mainside. From this yard, the ordnance can be moved to rail barricades at the Mainside or transported to the Chapel Hill and Waterfront areas via Normandy Road.

The majority of the rail system has been repaired and renovated within the last five years and is now maintained on a regular basis. Portions of the rail system, including the rail barricades and approach tracks, remain in poor condition.

The Station's rolling stock consists of approximately 10 locomotives and 500 boxcars and flatcars. The locomotives are generally in adequate condition but most of the boxcars, many of which date back to World War II, are in poor condition.

D. Pedestrian Circulation

Pedestrian traffic in the Mainside and Waterfront Administrative areas appears to be light. At the Mainside, the distances between many buildings are suitable for travel by foot, but the lack of continuous sidewalks or separation from automobile traffic is a deterrent to pedestrians. Sidewalks are provided along Kula Road, Burma Road, and bordering Building C-29 on Coral Road. Perpendicular parking for cars along Saipan Road and parts of Burma Road force pedestrians to share the road with vehicular traffic.



Sidewalk along Main Street near Gundeck Club (Building R-3)

At the Waterfront, sidewalks are provided along the primary street ("Main Street") in front of the existing enlisted mess (Building (R-3) and BEQ (Building R-11). Pedestrian routes between buildings off "Main Street" pass through parking areas and roads.

E. Bus Service

In order to provide efficient travel for personnel between Mainside and Waterfront destinations and to reduce the amount of non-ordnance traffic on Normandy Road, WPNSTA Earle has instituted a shuttle bus route. On weekdays this bus service makes four morning, two midday

and three evening return trips between the Mainside and the Waterfront. Weekend service is limited to one run in morning, noon and evening. The route includes five stops at the Mainside and one at the Waterfront:

MAINSIDE

- Building C-21
- Saipan/Stark Roads (family housing)
- Stark/Macassar Road (family housing)
- Macassar/Esperance Roads near building C-23
- Long-term parking lot at the rail classification yard near building S-13

WATERFRONT

- Building R-3

A second on-station bus route carries passengers between the Waterfront ashore areas and the piers. The seven stops on this route include Piers 2, 3 and 4, the pier gatehouse, Building R-3, the ballfield parking lot, and the Chapel Hill parking lot.

There is also regular bus service to off-station destinations. On summer weekends and holidays, bus service from the Waterfront to Sandy Hook Beach is available. Another daily service transports passengers from Building R-3 at the Waterfront to Shrewsbury Mall, Fort Monmouth PX, Monmouth Mall, and Building C-54 at the Mainside. A van leaves Building R-3 at the Waterfront two times a day (weekdays) for Monmouth Hospital.

2.6.6 SPECIAL MAN-MADE CONSTRAINTS

Special man-made constraints are restrictions related to health and safety considerations. These restrictions are required in order to assure the separation of potential hazards from other facilities, equipment and personnel.

A. Explosive Hazards

Because of WPNSTA Earle's mission, ammunition facilities and their associated explosive safety arcs pose a fundamental planning constraint. The Explosive Safety Quantity-Distance (ESQD) standards, established by the Department of Defense Safety Board, are based on:

- the hazard source (type and quantity of ammunition, material segregation);
- the potential target of an explosion (inhabited buildings, public transit route, other magazines);

- operations being conducted (transport, storage, inspection, testing); and
- construction aspects of hazardous materials structures (concrete/steel barricades, natural earth berms).

The ESQD arcs with the most stringent requirements and of greatest importance in master planning are those for inhabited buildings. The following ESQD classifications are relevant to WPNSTA Earle:

- Inhabited Buildings - the distance required between explosive sites and unrelated inhabited buildings such as administrative and support facilities.
- Public Transportation Routes - the distance required between explosive sites and public highways, passenger railroads, airfields and shipping channels.
- Ship Separation Distances - the distance required between explosive sources and unrelated ships.
- Intra-line Distance - the distance required between related explosive production facilities.
- Inter-magazine Distance - the distance required between earth covered magazines and/or above ground explosive material storage including short term storage in rail barricades.

The ESQD arcs illustrated in Figure 2.35 are based on information as of December 1990 provided by WPNSTA Earle.¹⁵ The arcs do not reflect the maximum storage capacity of all magazines since some magazines have been downloaded (quantities restricted to less than capacity) to keep the ESQD arcs within the boundaries of the Station.

Some activities do not require separation distances: ammunition in transit, interchange and classification yards, inspection sites, and ammunition loaded aboard combatant ships. However, if explosive materials in transit are parked for any length of time, an ESQD arc is generated. Therefore, uninterrupted transport of such materials is extremely important.

At the Waterfront, ESQD arcs are generated by the rail barricades at Chapel Hill. All of the ESQD encumbered land at Chapel Hill is government owned and restricted. However, there is a private family cemetery located within the arcs and relatives have permission to visit this particular site.

ESQD arcs are also generated by ships berthing at the pier complex (Piers 2, 3 & 4)) and the truck holding yard (Pier 1). Pier buildings and a substantial portion of Sandy Hook Bay (including the major channel) fall within these arcs. WPNSTA Earle has joined the technical

¹⁵ A study is currently underway under separate contract to update the ESQD information.

planning committee for the ferry terminal proposed for Monmouth County property to the west of the pier/trestle complex (see Figure 2.35). WPNSTA Earle's participation will ensure that concerns regarding ESQD arcs are addressed and impacts on pier operations are avoided.

B. Electromagnetic Radiation Hazards

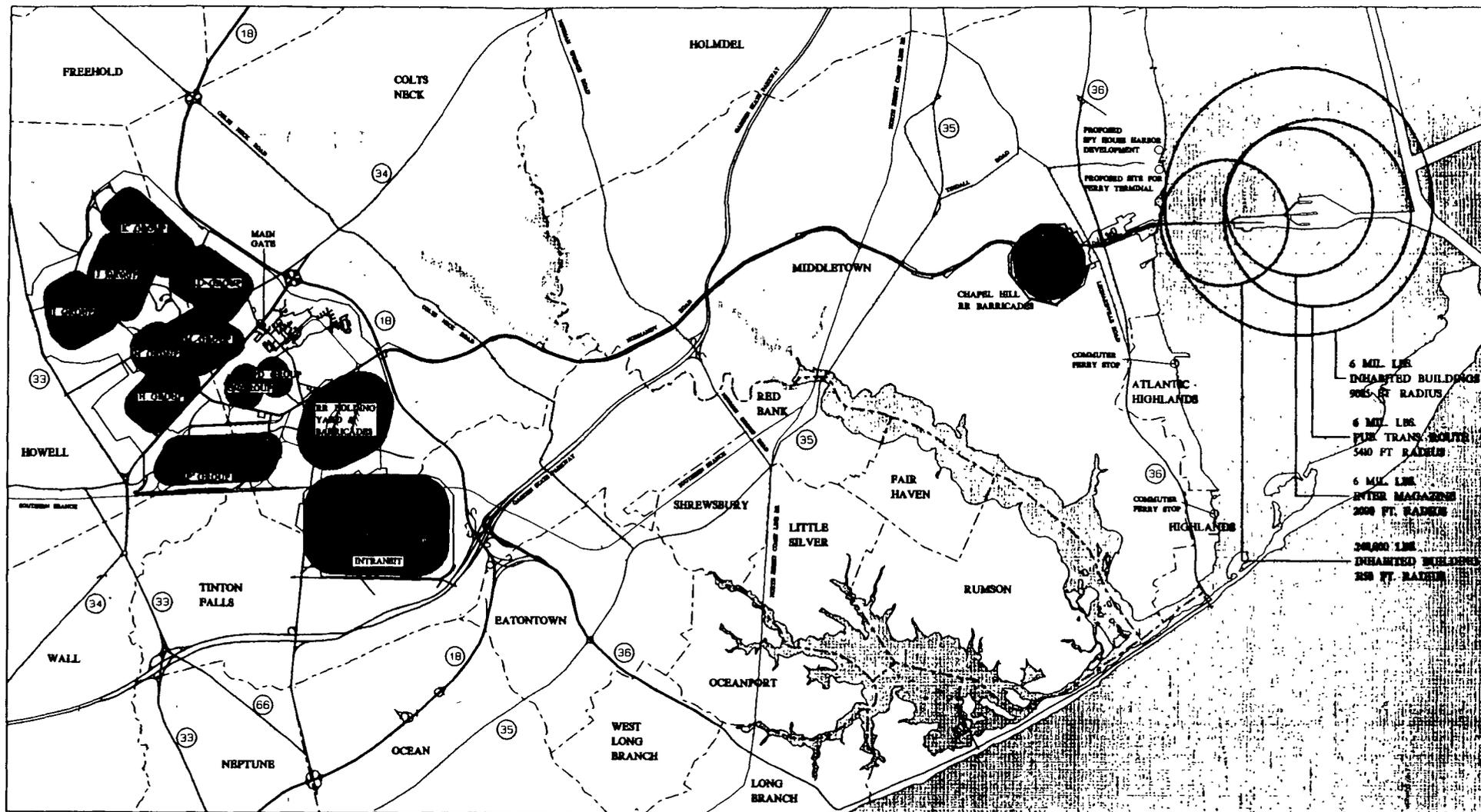
Electromagnetic radiation (EMR) hazard refers to the potential generation by transmitting equipment of electromagnetic fields strong enough to trigger electroexplosive devices (EEDs) in ordnance, ignite flammable substances, or cause harm to humans or wildlife. These hazards are categorized as:

- HERO: Hazards of Electromagnetic Radiation to Ordnance
- HERF: Hazards of Electromagnetic Radiation to Fuel
- HERP: Hazards of Electromagnetic Radiation to Personnel

The majority of ordnance is classified as HERO Safe (HS). Ordnance is classified HERO Susceptible (HS) when EMR can cause it to fail to function properly, or HERO Unsafe (HU) when the EMR can activate ordnance unintentionally. The most recent EMR study of WPNSTA Earle was conducted in July 1988. The results of that survey established HS and HU distances for all existing transmitters on the Station. These transmitters are listed in Table 2.6.

Electromagnetic interference (EMI) refers to any electromagnetic disturbance which interrupts, obstructs, degrades or limits the performance of electronic/electrical equipment.

In accordance with NAVSEA OP3565, WPNSTA Earle has requested that a complete HERO/HERF/HERP survey be performed at the Station.



■ AREA WITHIN INHABITED BUILDING ESQD ARCS

○ PIER EXPLOSIVE SAFETY AREA

NOTE:

1. This plan was compiled from three source maps and is for illustrative purposes only.
2. This plan will be clarified and enlarged by future ordnance contract.

ESQD ARCS

FIGURE 2.35

MASTER PLAN
NAVAL WEAPONS STATION: EARLE



Table 2.6 Antenna and Transmitter Systems

MAINSIDE FIXED BASE STATIONS AND REPEATERS				
Transmitter Type	Location	Power	HERO-HU(FT)	HERO-HS(FT)
MOT C73	Building 566/567	100	115	24
Regency RFH252B	Building C-3	25	83	18
MOT C73	Building C-8	100	115	24
AN/VRC-46A	Building C-8	65	924	48
AN/GRC-171(V)2	Building C-8	20	30	10
AN/GRC-171(V)2	Building C-8	50	48	13
MOT C73	Tower on C-31	100	166	35
AN/FRC-144	Tower on C-31	60	129	27
AN/FRC-70A	Tower on C-31	60	129	27
NOT D33	Building C-33	25	181	38
Midland 70-342AXL	Building C-34	25	58	12
MOT C73	Throckmorton Hill Tower 1	100	166	35
AN/FRC-70A	Throckmorton Hill Tower 1	60	122	26
LTMOT C73	Throckmorton Hill Tower 1	100	256	54
MOTC73	Throckmorton Hill Tower 2	100	362	77
AN/GRC-171(V)2	Helipad	20	30	10
AN/GRC-171(V)2	Helipad	50	48	13
WATERFRONT FIXED BASE STATIONS AND REPEATERS				
AN/FRC-70A	Building 3A	60	94	20
Raytheon Ray 78	Building 3A	25	51	12
Regency Polaris	Building R-12	25	70	16
AN/FRC-144	R-12 Tower	60	129	27
AN/FRC-70A	R-12 Tower	60	129	27
NOT C73	R-12 Tower	100	166	35
COMCO 602	Building S-454	50	86	18
MOT D33		25	58	12
MOT T33		25	58	12

Table 2.6 Antenna and Transmitter Systems (cont.)

MOBILES				
Transmitter Type	Location	Power	HERO-HU(FT)	HERO-HS(FT)
Ray Jefferson 5000M		25	58	12
GE M1274A Convertacon		25	58	12
Johnson 527		25	58	12
CONCO RT-971		25	58	12
COMCO 812		25	58	12
Midland 70-342AXL		25	58	12
Rayethon Ray 400		25	58	12
Regency RFH2528		25	58	12
AM/URC-51		25	58	12
AN-URC-70		25	58	12
Cobra LTD (CB)		4	229	13
MPH Industries K0055		5	10	10
HAND-HELDS				
MOT H43		6	24	10
MOT H33		5	22	10
MOT H33 (EXPO)		2	14	10
RCA TAC-100		5	23	10
OCOM IC/M5		5	23	10
REPCO		5	23	10
Uniden APH56G		5	20	10
PROPOSED ADDITIONS				
MOT C73	Throckmorton Hill Tower 3	100	256	54
Microwave links	Throckmorton Hill Tower 3	1	43	27
AM/URT-23(V)	Building R-12	1000	3620	362
AN/VSC-3(V)3	Building R-12	100	212	56

Source: Electromagnetic Environment Assessment of WPNSTA Earle, July 1988

C. Crane Testing Area

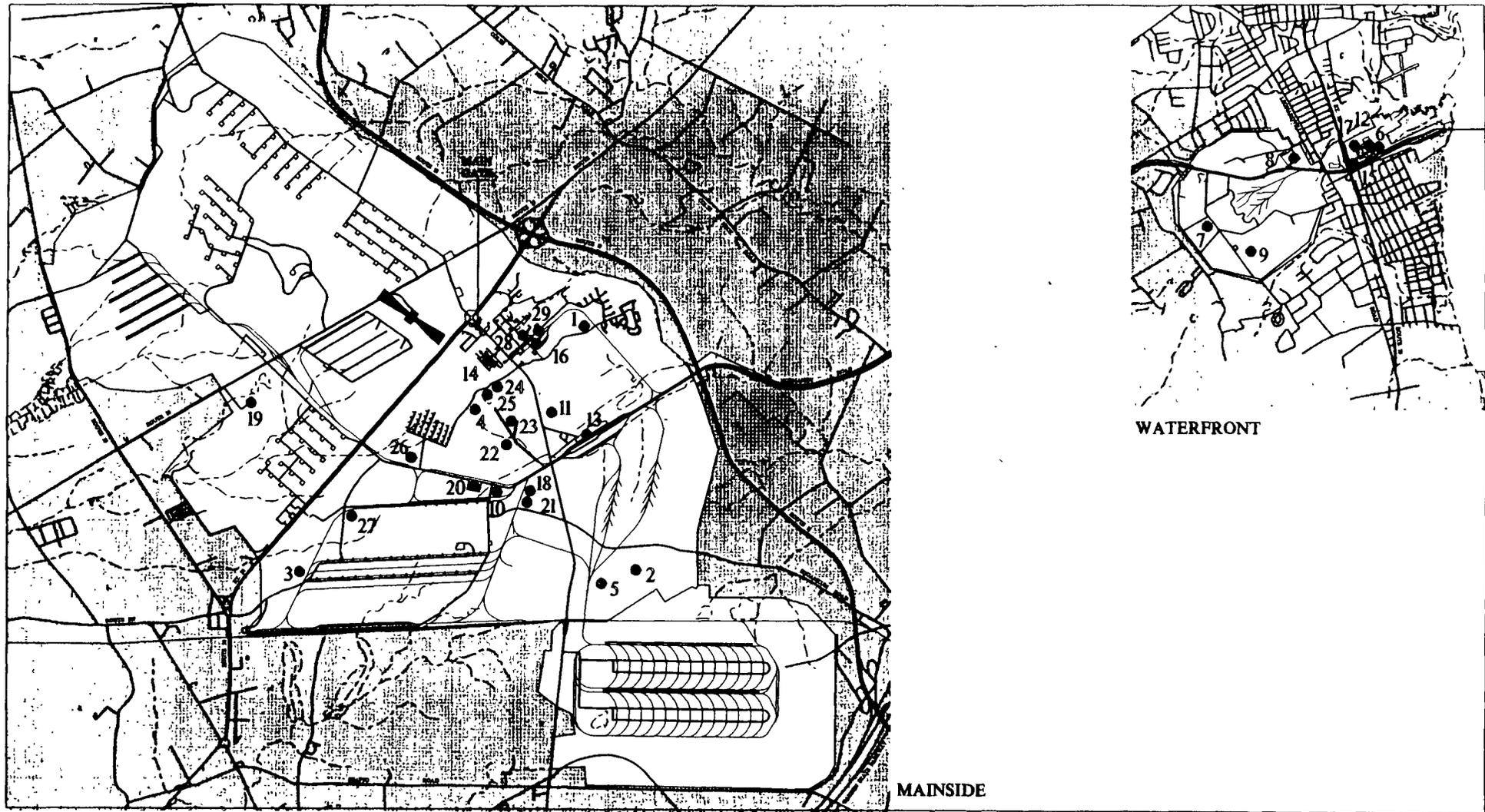
Operations at the Waterfront require large cranes to load and unload ships. In order to minimize the risk of accidents, each of the five cranes operating on the piers is tested once a month. An open area with a 170-foot radius through 270 degrees is required for this purpose. The present testing area, located adjacent to the wave tank, has a 130-foot radius. During testing, the crane arm must swing freely, unobstructed by overhead lines and above ground structures. Because the cranes can travel at only two miles per hour, the testing pad is required as close to the piers as possible (See Figure 2.40).

D. Installation Restoration Sites

The identification and monitoring of possible hazardous waste sites at WPNSTA Earle is an ongoing program under the direction of NORTHDIV as part of the Installation Restoration (IR) Program. WPNSTA Earle was named to the National Priorities List (NPL) in August 1990. Thus far an initial assessment has been completed but more detailed analysis and monitoring is required before any conclusions can be reached. Some 22 sites at the Mainside and 7 sites at the Waterfront have been identified for further investigation (see Figure 2.37). A list of sites appears in Table 2.7.

Sites are classified as Site Investigation (SI) sites or Remedial Investigation (RI) sites. The RI phase of the IR program is the second phase of investigation and the SI phase is the first phase. Because of the NPL status, the Navy is required to investigate all the sites identified in a preliminary report. The sites which present a greater potential threat to the environment have undergone the first phase of investigation and are in the RI phase. The sites which were not studied previously are in the SI phase and are currently undergoing the first round of investigation. The IR Program is dynamic and the status of each of the sites will change as more information is known about them.

Two sites are regulated under the Resource Conservation and Recovery Act (RCRA). Site 18 is undergoing closure and site 21 is a permitted facility. Because the possible hazards posed by installation restoration sites are still under investigation, the environmental group at Northern Division, Naval Facilities Engineering Command (NAVFACENGCOM) should be consulted if any development actions are proposed in the vicinity of one of the sites.



INSTALLATION RESTORATION SITE

⌘ AIR SAFETY ZONE

MISCELLANEOUS
MAN-MADE CONSTRAINTS

MASTER PLAN
NAVAL WEAPONS STATION: EARLE

FIGURE 2.37



Table 2.7 Installation Restoration Sites

	SITE	LOCATION	
MAINSIDE	1	EOD Range behind ROICC	
	2	EOD Range	
	3	Solid Waste landfill SW of F group	
	4	Solid waste landfill W of D group	
	5	Solid waste landfill W of Army Barricades	
	10	Scrap metal landfill near De-Mil	
	11	Contractor/Ord. landfill N of Esperance Rd.	
	13	Property disp. yard near MSC Van yard	
	14	Property disp. Whse. (Building C-33 PMRO)	
	16	Diesel Fuel line between C-50 & C-20	
	18	D-Mil furnace	RCRA site
	19	MHE training (formerly MK ord. stripping)	
	20	Grit blast disposal (MAB 544)	
	21	D-Mil storage pad	RCRA site
	22	Paint chip disposal Bldg. D-2	
	23	Paint chip disposal Bldg. D-5	
	24	Closed pistol range (Macassar Road)	
	25	Closed pistol range (Macassar Road)	
	26	Explosive washout area Bldg. GB-1	
	27	Projectile refurbishing Bldg. E-14	
	28	UC waste oil tank	
29	PCB spill site (Duffy's Locker)		
WATERFRONT	6	Pier const. landfill (bowling alley site)	
	7	Solid waste landfill S of P barricades	
	8	Dunnage disposal landfill E of Bldg. S-186	
	9	Dunnage disposal landfill SE of P barricades	
	12	Battery acid spill site Bldg. R-10	
	15	Bilge sludge spill site along RR tracks at WF entrance	
	17	Disposal area behind barge	

Source: Northern Division, NAVFACENGCOM

E. Firing Range Safety Zone

There is an existing outdoor firing range at WPNSTA Earle, located in the Wayside area. This range is in inadequate condition, is no longer used, and thus has no safety zone associated with it. If a new outdoor range is constructed to replace the existing one, a safety zone will be established.

F. Air Safety Zones

The only aircraft operating at WPNSTA Earle are helicopters. A helicopter landing pad is located near the M Group magazines. The ground surface safety zone associated with this pad is shown on Figure 2.37.

2.7 DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS

Composite constraints to development at the Mainside Administrative area, Wayside, and Waterfront Administrative area are shown in Figures 2.38, 2.39 and 2.40, respectively. Natural constraints to development include steep slopes, soils with severe development constraints, wetlands, wetland buffers, stream corridors, the 100-year floodplain, and confirmed rare species occurrences. Man-made constraints to development include ESQD arcs and installation restoration sites.¹⁶

As shown in Figure 2.38, a significant amount of vacant, unconstrained land remains available for development in the Mainside Administrative area, providing opportunities for the siting of new facilities required in this area. The existing buildings in the core Mainside area, some of which are underutilized, also represent an asset which provides opportunities for adaptive reuse to accommodate expanded or relocated facilities.

Almost all of the Wayside area is encumbered by ESQD arcs associated with the northernmost explosive rail barricades in the adjacent In-Transit area (see Figure 2.39). Relatively few natural constraints to development are present in this area, the most significant being a forested wetland in the northern corner of the site near the intersection of Wayside and Shafto Roads.

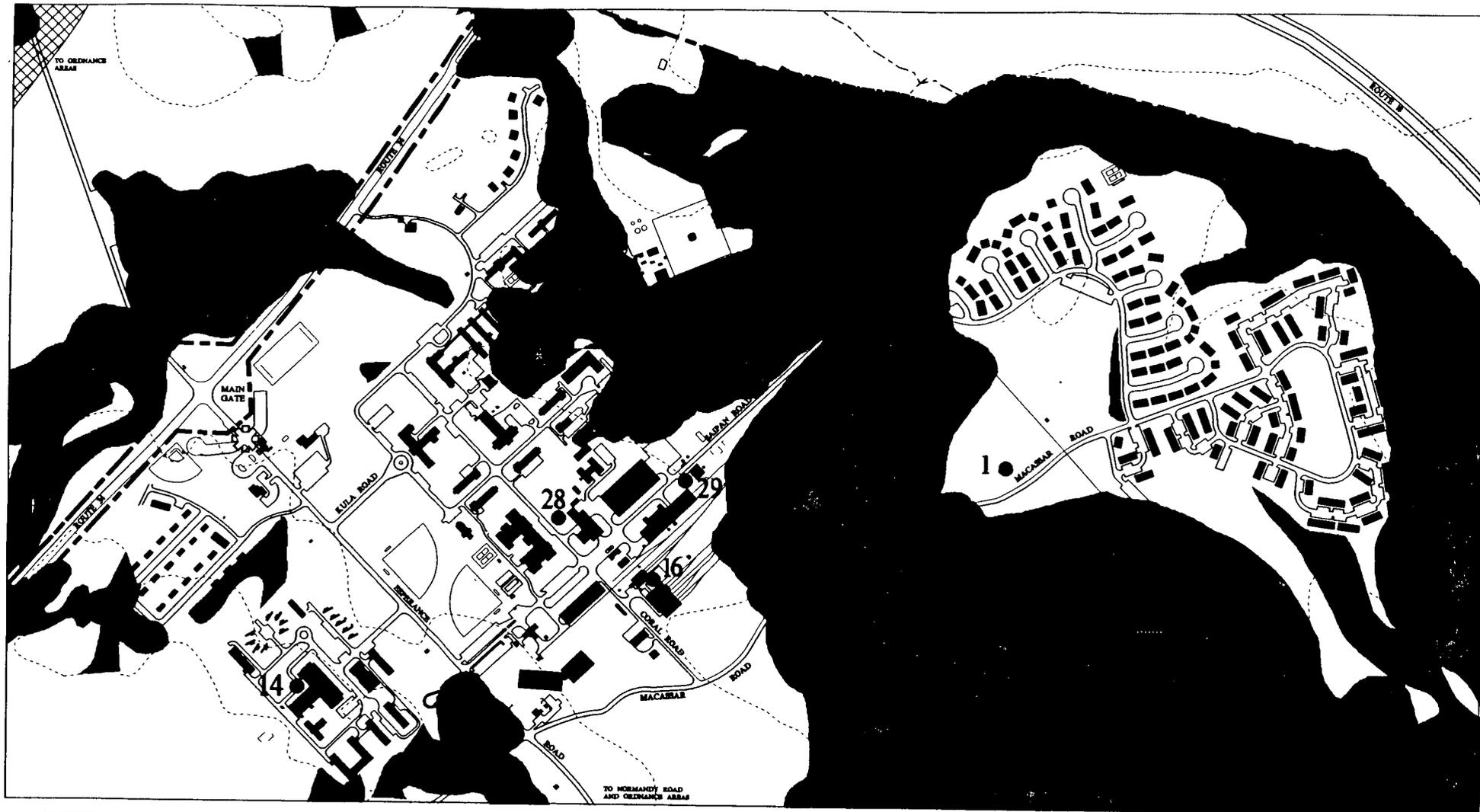
Most of the Waterfront Administrative area north of State Highway 36 is characterized by the presence of soils with severe development constraints, wetlands or wetland buffers, and 100-year floodplain. Development opportunities are mainly limited to infill among existing facilities in the core Administrative area. The ballfield area south of Route 36 lacks major development constraints with the exception of forested wetland bordering a stream corridor along the western property boundary. The presence of the ballfield with surrounding undisturbed woodland, however, suggests that it is more appropriate to maintain this area as a predominantly open space/recreation zone than develop it to meet facility requirements.

The Chapel Hill area, located south of the ballfield and Leonardville Road, is almost entirely encumbered by ESQD arcs associated with explosive rail barricades.

A special man-made constraint to development at the Waterfront is the crane testing area. The approximate location of the existing crane testing area is shown in Figure 2.40. This area, required relatively close to the pier/trestle complex, must be maintained clear of structures and other above ground facilities.

¹⁶ The ESQD arcs shown are based upon record plans provided by Northern Division and NWS Earle's Public Works Department. A study is currently underway under separate contract to update this information.

Opportunities for development of new facilities are limited in portions of WPNSTA Earle outside of the three major planning subareas. As indicated in Figure 2.35, most of this land, located at the Mainside, is encumbered by ESQD arcs associated with ordnance storage and production facilities. Opportunities for development outside of the ESQD arcs are restricted due to the presence of wetlands, poor soils, and other natural constraints, the relative inaccessibility of and lack of infrastructure in unencumbered areas, and potential conflicts with the use of most of the adjacent land for ordnance related facilities. Thus, development opportunities in outlying areas of the Mainside are mainly limited to infill of existing ordnance operations, production, and storage facilities.



 NATURAL CONSTRAINTS (WETLANDS & BUFFERS, STEEP SLOPES, CONSTRAINED SOILS)

 MAN-MADE CONSTRAINTS (ESQD ARCS)

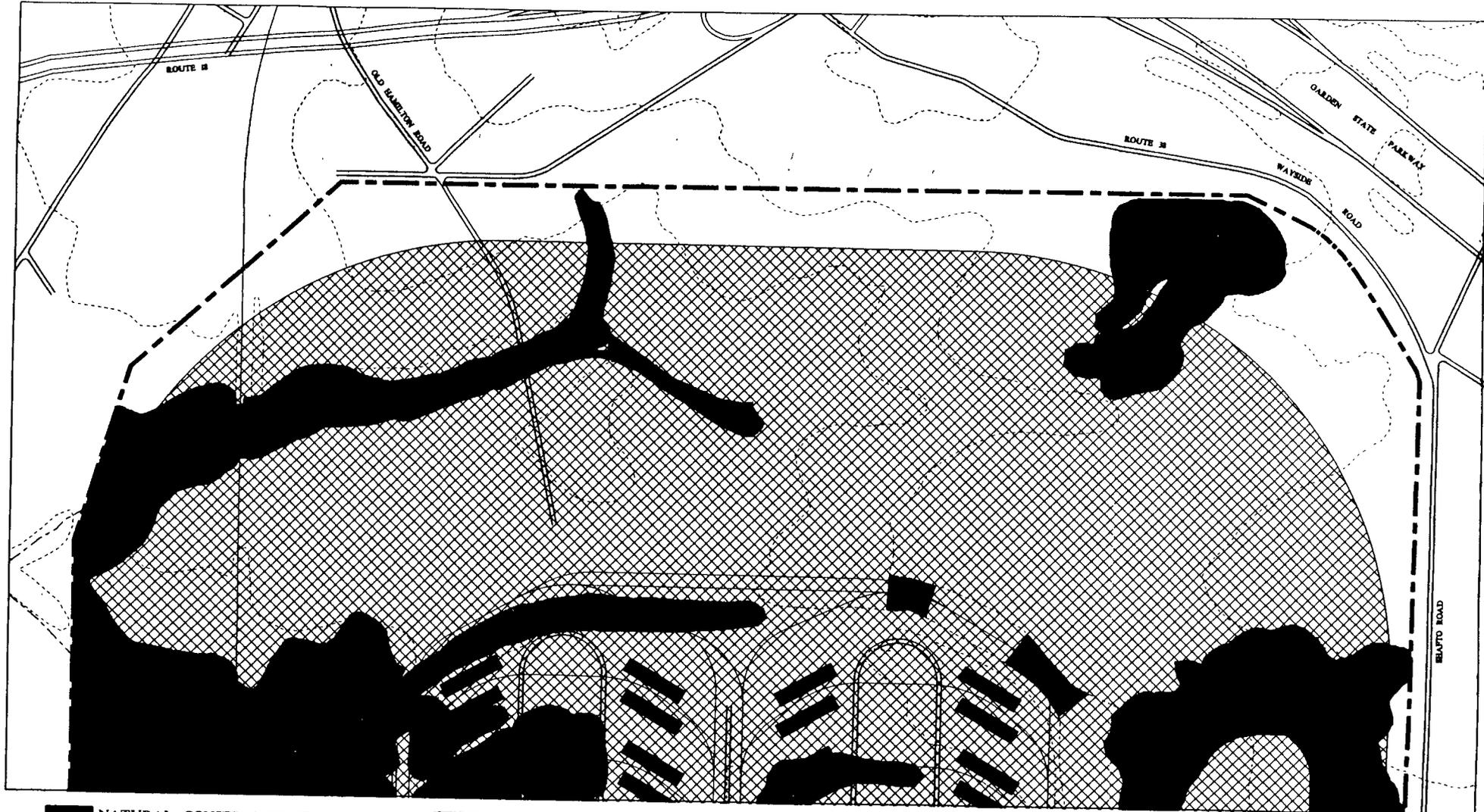
 RARE SPECIES CONFIRMED OCCURRENCE

3 INSTALLATION RESTORATION SITE

COMPOSITE CONSTRAINTS **FIGURE 2.30**

MAINSIDE ADMIN AREA 

MASTER PLAN
NAVAL WEAPONS STATION: EARLE 



■ NATURAL CONSTRAINTS (WETLANDS & BUFFERS, STEEP SLOPES, CONSTRAINED SOILS)

▨ MAN-MADE CONSTRAINTS (ESQD ARCS)

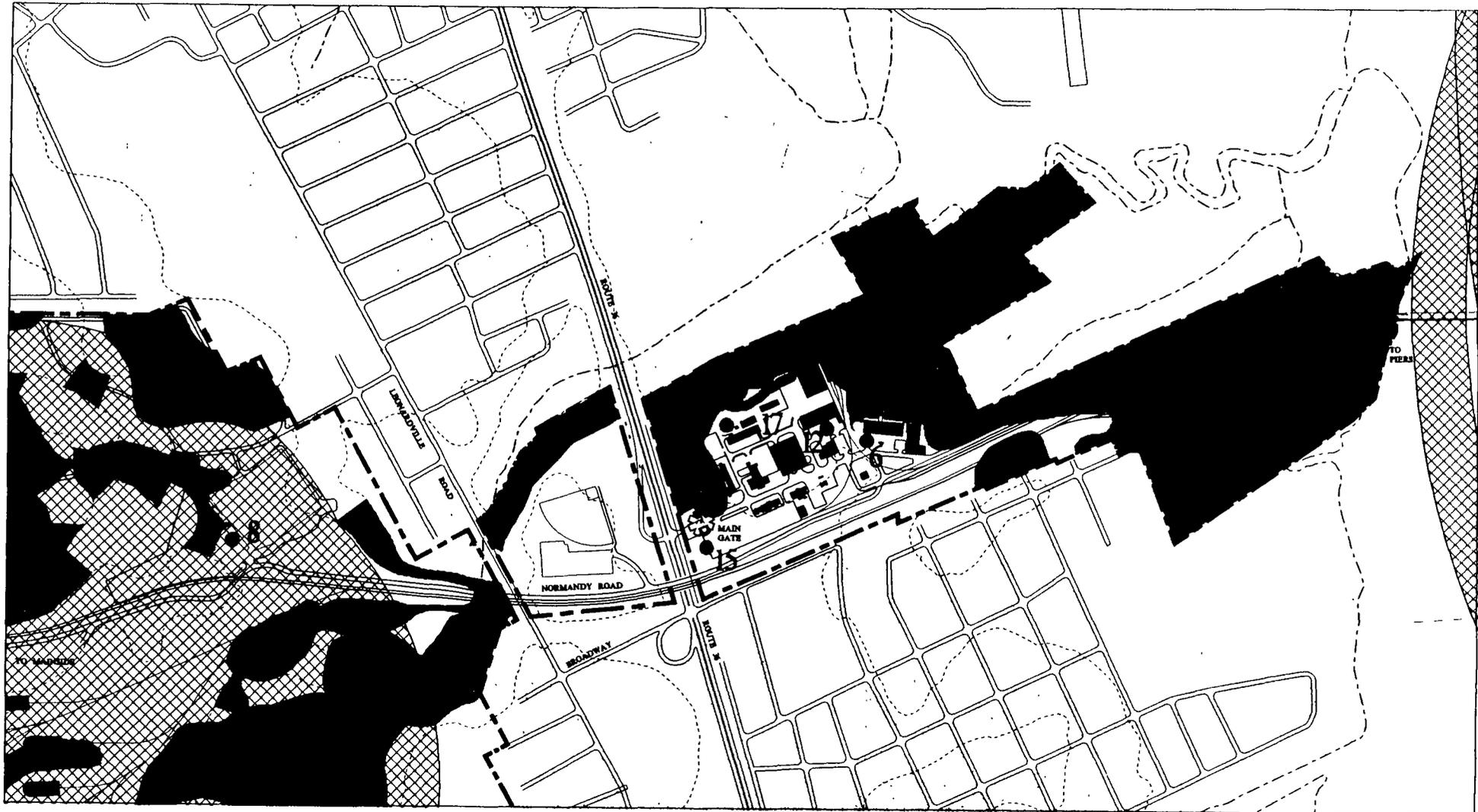
3 INSTALLATION RESTORATION SITE

COMPOSITE CONSTRAINTS **FIGURE 2.39**

WAYSIDE AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE





 NATURAL CONSTRAINTS (WETLANDS & BUFFERS, STEEP SLOPES, CONSTRAINED SOILS)

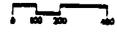
 MAN-MADE CONSTRAINTS (ESQD ARCS)

 INSTALLATION RESTORATION SITE

 CRANE TESTING AREA

COMPOSITE CONSTRAINTS FIGURE 2.40

WATERFRONT ADMIN AREA 

MASTER PLAN 
 NAVAL WEAPONS STATION: EARLE

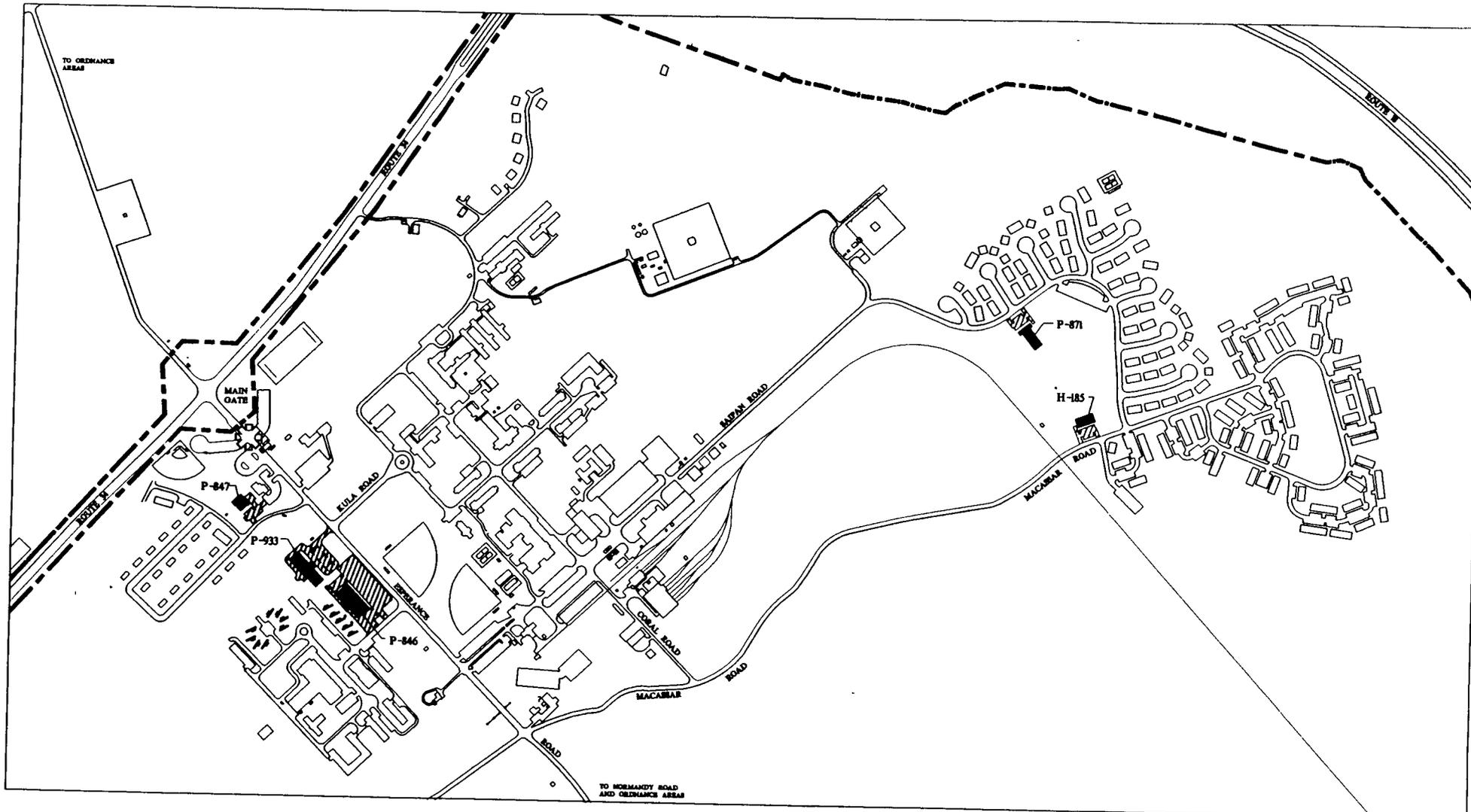
2.8 AUTHORIZED PROJECTS

Projects have been authorized for construction in Fiscal Years 1990 to 1993 under the Navy's Military Construction (MILCON) program or through Non-Appropriated Funds (NAF). Because of the advanced status of these projects, the currently approved locations of these facilities were assumed to be fixed for the purpose of formulating alternative concept plans and a Proposed Development Plan.

Authorized projects are listed in Table 2.8 and shown in Figures 2.41, 2.42 and 2.42A.

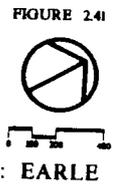
Table 2.8 Authorized Projects

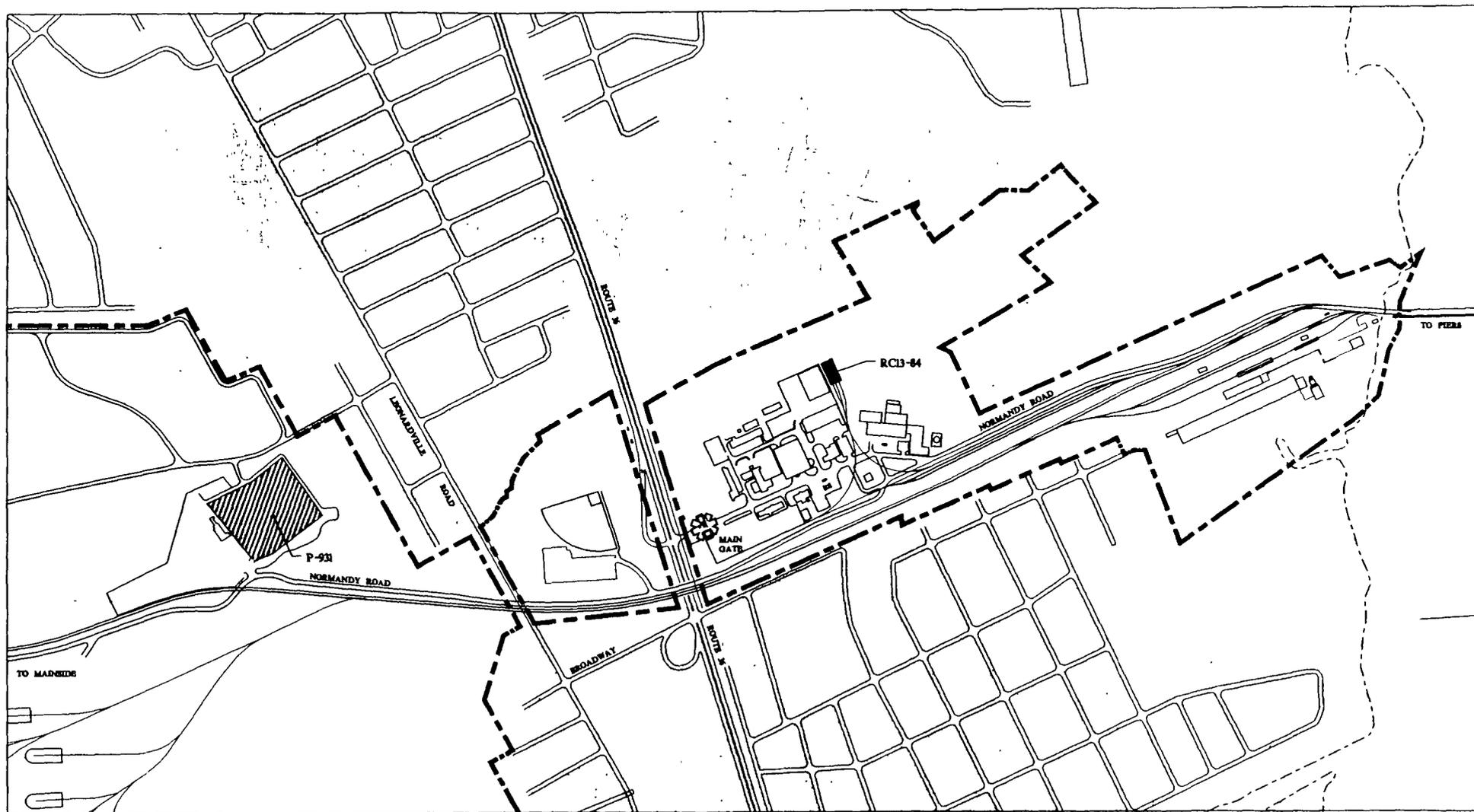
	FY	PROJECT #	TITLE
MAINSIDE ADMINISTRATIVE AREA	90	P-847	Family Services Center (NAF)
	91	P-933	Navy Lodge (NAF)
	91	P-846	Exchange (NAF)
	92	P-871	Child Development Center
	93	H-185	Housing Community Center
WATERFRONT ADMINISTRATIVE AREA	92	P-931	Ships Parking (near Chapel Hill)
		RC13-84	R-9 Renovation
PERIPHERAL AREAS	91-93	P-949	Trestle Replacement
	92	P-931	Normandy Road Improvements
	93	P-909	Magazine (1)



 NEW BUILDING CONSTRUCTION
 NEW P.O.V. PARKING

AUTHORIZED PROJECTS
 1990 - 1993
 MAINSIDE ADMIN AREA
 MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



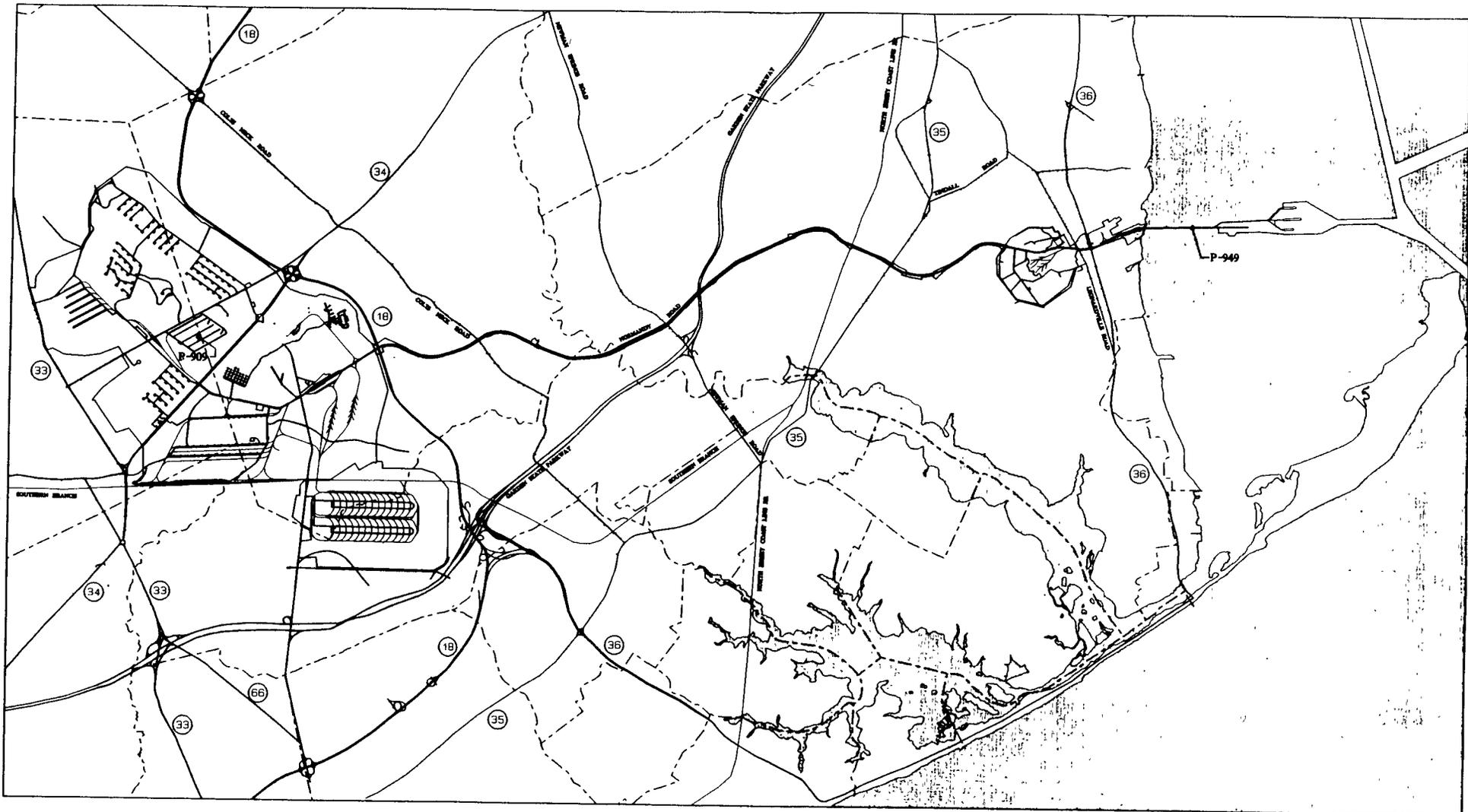


BUILDING REHABILITATION
 NEW P.O.V. PARKING

AUTHORIZED PROJECTS FIGURE 242
 1990 - 1993

WATERFRONT ADMIN AREA

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



P-909 Tomahawk Magazine

P-949 Trestle Replacement

AUTHORIZED PROJECTS FIGURE 242-A
1990 - 1993

PERIPHERAL PROJECTS

MASTER PLAN
NAVAL WEAPONS STATION: EARLE



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REQUIREMENTS ANALYSIS

Section 3.0

REQUIREMENTS ANALYSIS

3.0 REQUIREMENTS ANALYSIS

As defined by the Navy's Shore Facilities Planning System, the Basic Facilities Requirements (BFR) are those minimum facilities necessary to perform the mission of a shore activity. The requirements are organized by functional use or category code. WPNSTA Earle's requirements, described in the Station's Basic Facilities Requirements document (December 1990), were developed based upon a comprehensive analysis of the Station's mission, organization, the projected 1998 workloads and equipment requirements of individual departments and tenants, and projected 1998 personnel loading. For most category codes, the requirements were calculated using criteria derived from Facility Planning Criteria for Navy and Marine Corps Shore Installations (NAVFAC P-80) as a general guide.¹

3.1 STATION MISSION

The current mission of WPNSTA Earle, as defined by the Station Organization Manual², is to:

1. Provide logistic, technical and material support to the Fleet in the areas of combat subsystems, equipment, components, and retail ammunition management;
2. Maintain and operate an explosive ordnance outloading/transshipment facility;
3. Act as Program Manager and provide technical support of ordnance packaging, handling, stowage and transportation (PHST) equipment Navy-wide; and
4. Provide homeporting services as assigned by Naval Sea Systems Command.

¹Department of the Navy Naval Facilities Engineering Command, October 1982, amended through December 1985

² Naval Weapons Station Earle Instruction 5400.3L, 1 September 1988

1. Weapons and ammunition support - WPNSTA Earle is a primary East Coast Fleet Support Activity providing ammunition logistics to Navy, U.S. Marine Corps, and Coast Guard units and shore activities in the northeastern United States. It is one of three major ammunition activities, and the only one north of Virginia, serving Fleet units on the east coast. Earle's strategic importance is compounded by its status as a base for homeported ships as well as an ammunition and supply depot.

2. Explosive ordnance outloading/transshipment - As with other coastal ordnance activities, the preponderance of productive work at WPNSTA Earle is associated with the function of RSS&I (Receipt, Segregation, Store and Issue of ammunition). In conjunction with this function, WPNSTA Earle has been designated a Center of Excellence for Retail Ammunition Management and for Ordnance Packaging, Handling, Storage and Transportability (PHST). Functions associated with the Center of Excellence for Retail Ammunition Management include maintaining and operating ammunition storage and production facilities, coordinating arrangements with Navy shippers for the shipment of foreign military sales and grant aid materials, and coordinating and overseeing the training and activities of assigned military Naval Reserve Units and civilian personnel involved in ammunition or explosive cargo handling, among others. WPNSTA Earle also receives, stores and issues ammunition for the U.S. Coast Guard. Another aspect of this function is the demilitarization of unserviceable and/or dangerous ammunition and explosives.

3. Technical support - A second major center of productive activity at WPNSTA Earle is the area of RDT&E and associated engineering functions carried out by the Center of Excellence for Ordnance PHST. These functions include providing program management, engineering, research, development, testing and evaluation (RDT&E), and logistical support services for PHST of Naval Weapons Systems. Other technical support functions include providing Testing, Measuring and Diagnostic Equipment (TMDE) allowance and analysis support to the Fleet and maintaining and operating a Navy calibration lab for Fleet and Shore Stations.

4. Homeporting services - In 1991, WPNSTA Earle serves as the homeport for three AE class and two AOE 1 class ammunition ships. It is currently expected that one AE class, two AOE 1 class, and two AOE 6 class ships will be homeported at the Station by 1998.

It is anticipated that WPNSTA Earle's RSS&I function will increase as a result of the projected expansion in homeporting. Earle's RDT&E functions are also increasing, as the Ordnance PHST Center is providing expanding testing and evaluation services for Army and Air Force units and private defense contractors, as well as the Navy.

As part of its mission, WPNSTA Earle provides a variety of miscellaneous support functions. These include providing morale, welfare and recreation (MWR) services and facilities for eligible active and retired military personnel and their dependents, providing support to tenant activities, and maintaining and operating family housing units for assigned military personnel.

3.2 STATION ORGANIZATION

As shown in Figure 3.1, WPNSTA Earle is a third echelon activity under the Chief of Naval Operations and the Commander, Naval Sea Systems Command. To carry out its assigned mission, the Station is organized into 17 internal departments (Figure 3.2). In addition, WPNSTA Earle hosts 15 tenant activities. The missions of the individual departments and tenants are briefly summarized in Sections 3.2.1 and 3.2.2.

3.2.1 DEPARTMENTS



WPNSTA Earle Command Headquarters (Building C-2)

Command - This department, responsible for command of WPNSTA Earle, includes the Commanding Officer, Executive Officer, Command special assistants (Chaplain, Dental Officer, etc.); and support staff.

Military Administration (Code 01) - This department provides administrative support for military personnel at WPNSTA Earle and for civilian personnel in several divisions of Command. It also directs Navy mailroom operations.

Comptroller (Code 02) - This department administers WPNSTA Earle's Budget and Financial Operations.

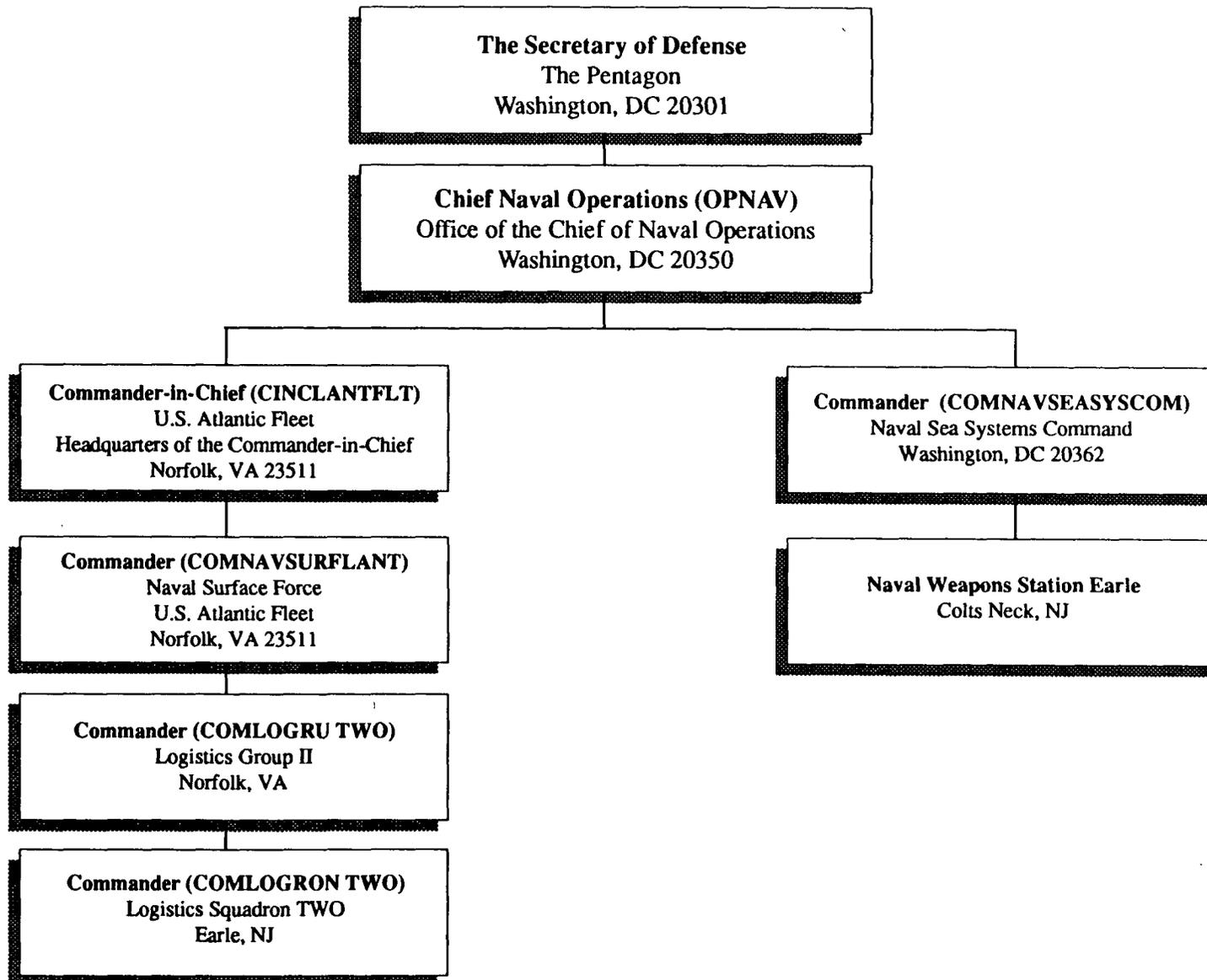


Figure 3.1 NWS Earle Chain of Command

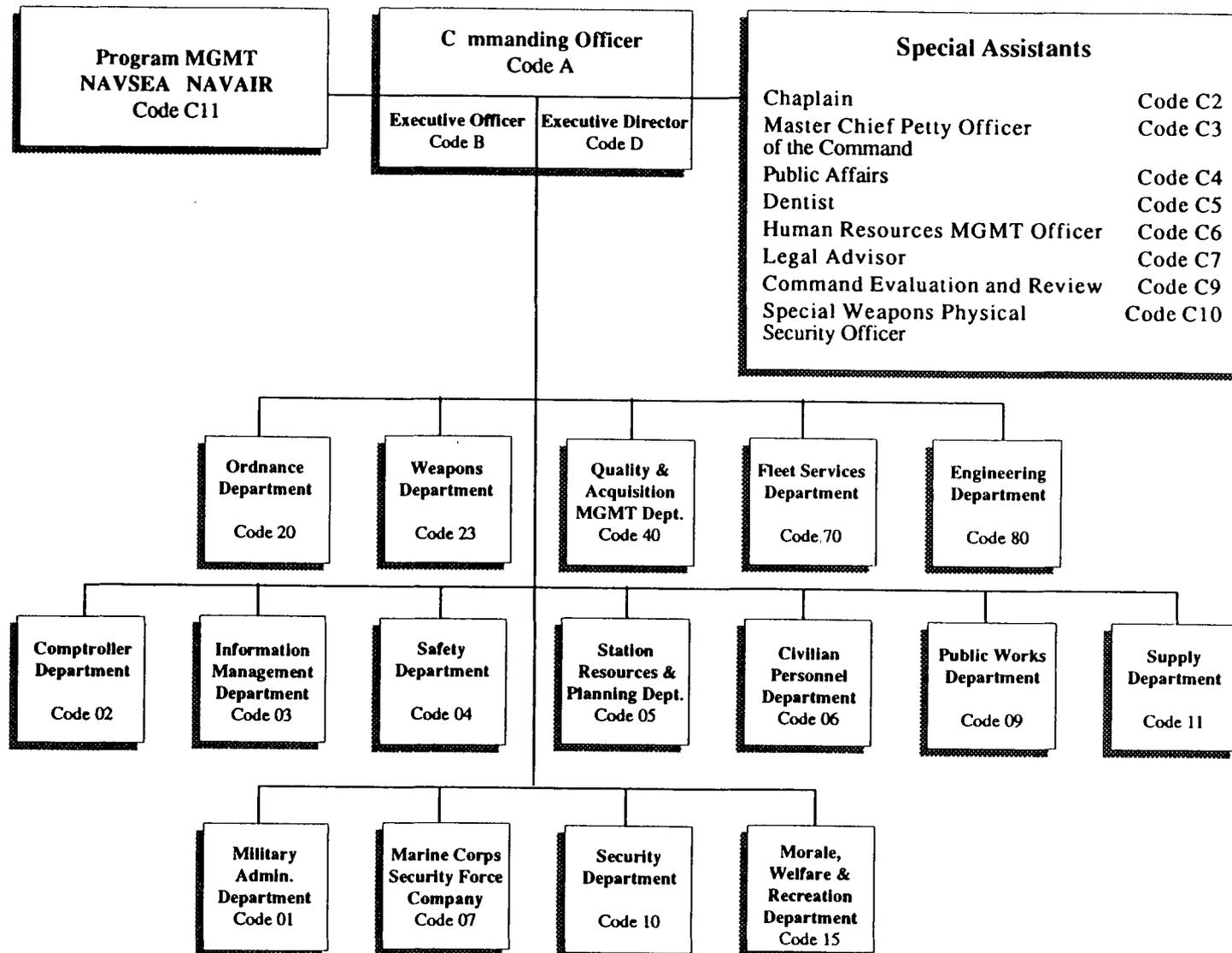


Figure 3.2 NWS Earle Organization

Information Management (Code 03) - This department provides Automatic Data Processing (ADP) Systems staff and support services to Command and all departments at WPNSTA Earle.

Safety (Code 04) - This department is responsible for the explosive safety and other occupational safety programs at WPNSTA Earle. It also provides fire protection and Hazardous Materials Response for the Station.

Station Resources and Planning (Code 05) - This department provides technical and program advisory services related to management analysis, long-range planning, productivity, and industrial engineering functions.

Civilian Personnel (Code 06) - This department directs WPNSTA Earle's civilian personnel services and administers the Station's civilian employment programs including the Equal Employment Opportunity Program and Employee Training Program.

Marine Corps Security Force Company (Code 07) - The Marine detachment at WPNSTA Earle provides security for ordnance magazines and handling operations and for additional functions as directed by the Commandant of the Marine Corps.

Public Works (Code 09) - This department is responsible for the planning, maintenance and repair of Station facilities, utilities, and infrastructure; operation and maintenance of transportation and construction equipment; and management of the Station's housing, environmental programs and telecommunications systems. Code 09 has a close working relationship with the Resident Officer in Charge of Construction (ROICC).

Security (Code 10) - This department manages the Station Physical Security Program and provides internal and perimeter security for the Station.

Supply (Code 11) - This department provides basic supply support for other WPNSTA Earle departments and tenant commands including requisitioning, purchasing, contract services, receipt, stowage and issue of general stores and COSAL material.

Morale, Welfare and Recreation (Code 15) - This department administers MWR programs for the Station's military personnel, tenant commands, berthed ships, eligible active and retired military personnel, and military dependents.

Ordnance (Code 20) - This department performs RSS&I functions for all types of Navy, Marine Corps, and Coast Guard ammunition; performs minor maintenance on some types of ammunition; and provides ammunition/weapons on/offloading of homeported ships, visiting combatants, and support vessels as well as foreign flag vessels for foreign military sales. Code 20 is responsible for coordination of Naval Reserve activities.

Weapons (Code 23) - This department performs RSS&I functions for classified ordnance, antisubmarine weapons, and special weapons.

Quality and Acquisition Management (Code 40) - This department administers WPNSTA Earle's Quality Assurance Program, operates an extensive test and evaluation center for weapons PHST equipment, and manages and coordinates the acquisition of weapons PHST equipment for the Department of the Navy. It also provides technical and general photographic services to the Station.

Fleet Support (Code 70) - This department provides engineering support to the Fleet in the areas of Testing, Measuring and Diagnostic Equipment (TMDE) allowance and analysis, operates a calibration laboratory for Fleet and Shore Stations, and fabricates and overhauls Naval Weapons Systems components.

Engineering (Code 80) - This department provides project and design engineering and logistics support for PHST of Naval Weapons Systems.

3.2.2 TENANTS

Tenant activities at WPNSTA Earle are listed in Table 3.1.

Combat Logistics Squadron Two (COMLOGRON) - COMLOGRON exercises administrative and operational control over homeported ships.

Personnel Support Activity Detachment, Lakehurst, N.J., Customer Service Branch Office (PSD Lakehurst) - This tenant performs a variety of administrative tasks, including handling travel arrangements and distributing military paychecks. It has a close working relationship with WPNSTA Earle's Military Administration Department (Code 01).

Naval Hospital Philadelphia Branch Clinic - This tenant provides clinical support services to WPNSTA Earle, primarily for active duty personnel.

Mobile Mine Assembly Group (MOMAG) Unit Three - This tenant maintains a stockpile of prepositioned war reserve mines in support of CINCLANTFLT and CINCUSNAVEUR operational war plans.

Naval Investigative Service (NIS) - This tenant provides criminal and counter-intelligence support for the Department of the Navy.

Explosive Ordnance Disposal (EOD) Group Two - This tenant provides the capability to detect and dispose of hazardous explosive ordnance.

Resident Officer in Charge of Construction (ROICC) - This tenant provides contract administration services for construction projects at WPNSTA Earle under the command of the Northern Division, Naval Facilities Engineering Command, Philadelphia. ROICC has a close working relationship with Code 09 (Public Works).

Branch Navy Exchange - This tenant provides authorized exchange and/or commissary resale items for sale to authorized customers.

Naval Supply Center Norfolk Detachment - A new tenant at WPNSTA Earle in 1990, Naval Supply Detachment Norfolk provides supply support for homeported ships.

Shore Intermediate Maintenance Activity (SIMA) Staten Island Detachment - A new tenant at WPNSTA Earle in 1990, SIMA provides repair and maintenance support to homeported ships.

Third Coast Guard District Detachment - This tenant provides support for the onloading and offloading of homeported and visiting ships.

Naval Reserves - Twenty Reserve units are assigned to WPNSTA Earle on a periodic basis, receiving training on ordnance handling and safety procedures. The Reserves support approximately 700 personnel throughout the year.

Defense (DOD) Reutilization and Marketing Service - This tenant, based at the Mainside in outgranted facilities, serves as a central collection point and holding activity for DOD precious metals (including those generated by WPNSTA Earle activities) and administers the shipment of precious metals to private contractors for refinement for the government.

Department of the Interior Minerals Management Service (MMS) - A new tenant at WPNSTA Earle, MMS leases the Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) facility at the Waterfront on an outgrant basis, for use in oil and hazardous materials spill research.

Navy Telecommunications and Computer Command (NAVCOMTELCOM) - This tenant directs Station communication services.

Table 3.1 WPNSTA Earle Tenants

1. Combat Logistics Squadron Two (COMLOGRON)
2. Personnel Support Activity Detachment, Lakehurst, N. J.
3. Naval Hospital Philadelphia Branch Clinic
4. Mobile Mine Assembly Group (MOMAG) Unit Three
5. Naval Investigative Service (NIS)
6. Explosive Ordnance Disposal (EOD) Group Two
7. Resident Officer in Charge of Construction (ROICC)
8. Branch Navy Exchange
9. Naval Supply Center Norfolk Detachment
10. Shore Intermediate Maintenance Activity (SIMA) Detachment
11. Third Coast Guard District Detachment
12. Naval Reserves
13. Department of Defense Reutilization and Marketing Service
14. Department of the Interior Minerals Management Service
15. Navy Telecommunications and Computer Command (NAVCOMTELCOM)

3.3 BASE LOADING

Base loading refers to the specific numbers of ships, personnel, and equipment assigned to perform the tasks and services of a shore activity. The projected loading of military and civilian personnel in 1998 at WPNSTA Earle is shown in Table 3.2. Military personnel include ashore personnel assigned to departments and tenants, and ships' personnel assigned to one AE class, two AOE 1 class, and two AOE 6 class ships. Civilian personnel include full-time permanent personnel working for departments and tenants. Contract personnel include civilian computer technicians and security guards working on a contract basis for Code 03 (Information Management) and Code 10 (Security).



Homeported AOE berthed at Pier 4

Also shown in Table 3.2 is projected 1998 married and dependent loading for military officers and enlisted personnel.

TABLE 3.2 Projected Loading (1998)

1. Personnel Loading	Ashore	Ships	Total
Military (Officers)	48	125	173
Military (Enlisted)	503	2,732	3,235
Subtotal (Military)	(551)	(2,857)	(3,408)
Civilians	944	-	944
Contractors	90	-	90
Total Personnel	2,395	2,857	4,435
2. Married/ Dependent Loading	Officers	Enlisted	Total
Married Military	110	1,411	1,521
Dependents/Person	(2.8)	(2.4)	-
Total Dependents	308	3,386	3,694

Source: Projected Bachelor Housing Survey (June 1990, as revised by NAVFACENGCOM Northern Division), Estimated FY Base Loading Data - WPNSTA Earle (April 1990), Code 03 (April 1990), Code 10 (April 1990)

3.4 FACILITIES REQUIREMENTS

As a basis for developing conceptual Master Plan alternatives, the requirements contained in WPNSTA Earle's Basic Facilities Requirements document (BFR) were compared with the size and condition of existing assets listed in the Station's Engineering Evaluation (EE) to identify excesses and shortfalls by functional category code for each department and tenant.³ Additional information was gathered regarding special problems or needs through a series of interviews. The results of this analysis are summarized in Section 3.4.1 (departments) and Section 3.4.2 (tenants).

3.4.1 DEPARTMENTS

Command - Command's administrative facilities are located at the Mainside in Building C-2 with the exception of Command Evaluation and Review (Code C9), located in Building C-3, and Program Management (Code C11), located in Building C-54. Although the overall amount of administrative space occupied by Command technically exceeds the identified square footage requirement, this excess largely reflects the layout of Building C-2, which has sizeable common areas. The space in Buildings C-2 and C-54 is adequate, while Code C9's offices in Building C-3 are classified as substandard.

Several community-serving facilities fall under the purview of Command. These facilities include the chapel, family services center, post office, credit union, Waterfront medical clinic, and dental clinic. The chapel and dental clinic are discussed separately below. Expanded or new post office and credit union facilities (Mainside and Waterfront) and a family services center (Mainside) are required to accommodate the projected population increase caused by AOE homeporting. The existing medical clinic at the Waterfront, located in Building R-4B, is adequate in size and condition.

Chaplain (Code C2) - The existing chapel/religious education building (Building C-49) is of insufficient size to support AOE homeporting requirements. In addition, the existing religious education building is heavily used by other functions at WPNSTA Earle (family services center, Wives' Clubs, Ships' Clubs, Red Cross, etc.) due to the lack of available meeting room space elsewhere on the Station.

Dentist (Code C5) - The existing dental clinic, located at the Waterfront in Building R-4B, is adequate in size and condition. However, due to the number of military personnel based at the Mainside, the distance between the Mainside and Waterfront, and the use of Normandy Road for movement of ordnance, a facility is also required at the Mainside.

³Tenants with outgranted facilities (Department of Defense, Department of the Interior) are not included in this analysis.

Military Administration (Code 01) - This department is based at the Mainside in Building C-2. Code 01 lacks sufficient administrative office space to meet its requirement for this function.

Comptroller (Code 02) - Currently located in Building C-3, this department lacks a conference room and sufficient space for records storage. The existing space is poorly configured and is in substandard condition.

Information Management (Code 03) - This department, based at the Mainside in Building C-3, lacks sufficient area to meet its requirements for administrative office space and a data processing center. Moreover, the currently occupied space is inefficiently configured, offers limited capability for computer expansion, and is in substandard condition.

Safety (Code 04) - This department is in need of expanded administrative space and a training classroom at the Mainside, where it occupies part of Building C-33. An administrative area for three persons and a small medical treatment facility on the pier/trestle complex are required at the Waterfront, preferably in a more central location than the current Safety office in Building 4A. Although the three existing firehouses (Mainside, Inshore Waterfront and Pier Waterfront) are adequate, additional fire protection services will be required for any remotely sited housing projects.

Station Resources and Planning (Code 05) - This department is located in Building C-3. While sufficient in area to meet the identified requirement for office space, the area occupied by Code 05 is in substandard condition. A conference room and record storage area are needed.

Civilian Personnel (Code 06) - This department, located at the Mainside in Building C-3, requires a dedicated training facility configured to accommodate up to 70 persons. This facility should be subdividable into two or three spaces for smaller classes. The currently occupied space in Building C-3 is classified as substandard. A location closer to the main gate would be preferable to the current location in order to make this department more easily accessible to job applicants.

Marine Corps Security Force Company (Code 07) - The administrative/operational facilities (marine barracks) of the Marine Security Force are located in Buildings C-8 (offices) and C-9 (armory). These facilities show a surplus of space compared to the requirement for this function. A new gate house and reaction force facility (RFF) are required in the limited area to replace the existing facilities, which are insufficient in size and in substandard condition. Indoor and outdoor small arms ranges are needed to provide training space for the use of pistols and small caliber rifles. The existing indoor small arms range in Building C-34 is substandard.



Marine Barracks at the Mainside

Public Works (Code 09) - This department has extensive facilities located throughout the Mainside and Waterfront Administrative areas. The main administrative offices, located at the Mainside in Building C-29, exceed the identified requirement for this function. Major shop facilities at the Mainside are located in Buildings C-14, C-16, C-19, and C-50. The vehicle maintenance shop (C-14) and Public Works Shop (C-16) show a surplus of space compared to the requirements for these functions. The railroad equipment shop, located in C-50, also exceeds the identified requirement in area but is in substandard condition. New or expanded facilities required at the Mainside include an organizational vehicle compound, vehicle holding shop, weight handling equipment shop, battery recharging shop, public works maintenance storage facility, and telephone exchange building.

The Public Works administrative offices at the Waterfront are located in Building R-24. Major shop facilities at the Waterfront are located in Buildings R-2 (vehicle maintenance shop), R-9 (railroad equipment shop), and R-10 (Public Works shop). Buildings R-9 and R-10 are in substandard condition. Major needs at the Waterfront, in addition to upgrading of the facilities in R-9 and R-10, include an organizational vehicle compound, covered crane storage area, construction weight handling equipment shop, and battery recharging shop.

Security (Code 10) - The Mainside police station, located in Building C-1 at the main gate, is of insufficient size to meet this department's requirement. The space occupied by contract guards in building C-34 is in substandard condition. The Waterfront police station also requires expansion. Military Traffic Management Command (MTMC) will perform a traffic study in late 1991 to evaluate traffic patterns, parking and access throughout the station.

Supply (Code 11) - Supply's administrative offices and central warehouse are located at the Mainside in Building C-21. Other warehouse and storage facilities are located in several buildings at the Mainside. Code 11 formerly occupied a general warehouse space in Building R-10 at the Waterfront, but it no longer uses this facility since Naval Supply Detachment Norfolk now provides supply support for homeported ships.

At the present time, Supply has insufficient administrative and general warehouse space compared to its requirements for these functions. A 10,000 gallon vehicle ready fuel storage tank is required at the Mainside. A covered storage shed is required at the Waterfront to protect dunnage from adverse weather conditions. Two 5,000 gallons tanks are needed at the Waterfront to store fuel for small crafts.

WPNSTA Earle's Basic Facilities Requirements document identifies a requirement at the Waterfront for a ship fuel replenishment system (diesel fuel storage, jet engine fuel storage, contaminated fuel storage, and ballast/sludge storage) to serve homeported ships. Fullfillment of this requirement has been indefinitely deferred because of environmental concerns. To take the place of the system, a requirement has been identified for a 5,000 barrel off-specification fuel storage facility and a fueling wharf capable of accommodating a 100,000 barrel fuel barge.

In addition to its supply functions, Code 11 is responsible for administering enlisted dining facilities and bachelors enlisted and officers quarters (BEQ's and BOQ's). The existing dining facility and BEQ's at the Mainside exceed the identified requirements in area but are in substandard condition. An enlisted dining facility and BEQ are required at the Waterfront to support the larger population resulting from increased AOE homeporting. A larger BOQ is required at the Mainside.

Morale, Welfare and Recreation (MWR) (Code 15) - MWR's administrative offices are located in Building C-29 along with the Mainside bowling alley, gymnasium, and indoor playing courts. A new consolidated hobby shop (Building C-56) was recently constructed at the Mainside. A gymnasium, bowling alley, and racquetball courts are located at the Waterfront in Buildings R-15 and R-23.

Additional recreational and community facilities are required at both the Mainside and the Waterfront to support increased AOE homeporting. Major needs at the Mainside include a new youth center, child care center, playing field, and outdoor playing courts as well as a larger bowling alley, gymnasium, theater, officers' mess, library, and installation pool. Major needs at the Waterfront include a new theater, library, and consolidated hobby shop as well as an expanded enlisted mess. A requirement has also been identified for a nine-hole golf course and a skeet range at the Mainside.

Ordnance (Code 20) - This department has facilities distributed throughout the Station to handle all types of ammunition, missile components, and other ordnance items. The major concern is to ensure that adequate maintenance and production, handling and storage facilities are available to accommodate a wide range of missile and other ammunition types.

All of the existing rail explosive holding yards, a number of the existing magazines, and the existing ammunition pier (Pier 3) are in substandard or inadequate condition. New explosives truck holding yards are required both at the Mainside and the Waterfront. The existing truck holding yard, located on Pier 1, could potentially cause an explosives incident which would prevent access to Piers 2, 3, and 4. Improved road access is needed to F Group magazines along with a second explosives transfer/shipping depot in this area. A new change/relief facility is required to serve Buildings E-13, E-14 and D Group. Nine type Box D earth-covered magazines have recently been constructed, and six additional type Box D earth-covered magazines are programmed to meet future homeporting requirements.

Weapons (Code 23) - This department's ordnance production facilities, located in Buildings 557 and 566 in M Group, are generally adequate. An additional Type Box D magazine in M Group is required.

Quality and Acquisition Management (Code 40) - This department, located in a relatively new facility (Building C-54), needs additional space due to the expanding work load of its Test and Evaluation Division. Additional space is also needed for the photo/audiovisual laboratory administered by this department.

Fleet Support (Code 70) - This department's administrative offices and calibration laboratory, located in Building C-3, are insufficient in size and are in substandard condition. Its technical service laboratories (Fabrication Branch, Prototype Branch and Mechanical Overhaul Branch), located in Buildings C-15 and C-16, and electronics/communications shop, located in Building C-31, are in adequate condition and show an excess of space compared to the requirements for these functions. It is proposed to renovate Building C-15 by special project to include a welding shop.

Engineering (Code 80) - This department, located in Building C-54, has a need for additional space to accommodate projected personnel increases.

3.4.2 TENANTS

Combat Logistics Squadron Two (COMLOGRON) - All of COMLOGRON's facilities are based at the Waterfront. COMLOGRON's main operational center, including administrative offices, communications center and instructional classrooms, are located in Building R-4A. COMLOGRON is currently using the former Supply warehouse in Building R-10 for miscellaneous ships' storage. A religious education center is located on the second story of Building R-4B. COMLOGRON has an excess of administrative and religious education space compared to its requirements for these functions, a minor shortage of space for classrooms, and a larger shortfall of ships' storage space. New facilities required include a boat shop (operated by SIMA), a small craft berthing/fuel storage facility, an indoor training pool, a new weight handling equipment shop, and an expanded battery recharging shop.

Pier 2, a general purpose berthing pier, is in inadequate condition. Construction of a second pier (Pier 4) was completed in 1990 to serve the two AOE's currently homeported at WPNSTA Earle. In order to support future homeporting of four AOE's, additional berthing space approximately equivalent in size to Pier 4 is required.

Personnel Support Activity Detachment Lakehurst - This tenant is based at the Mainside in Building C-2. It lacks sufficient administrative space to meet its requirement.

Naval Hospital Branch Clinic - WPNSTA Earle's main medical clinic is based at the Mainside, where it occupies a portion of Building C-3. An expanded facility is required to meet the identified requirement for this function. Although Building C-3 was originally constructed as a medical dispensary, the existing medical clinic is in substandard



Existing main Medical Clinic (Building C-3)

condition. An emergency vehicle garage is required next to the medical clinic to house ambulances.

Mobile Mine Assembly Group (MOMAG) Unit Three - This tenant, based in Building MA3 on Throckmorton Hill, also makes use of a number of storage facilities including high explosive magazines in J Group, inert storehouses in E Group, and a weapon-related battery storage facility (Building 511 behind C-21 in the Mainside Admin area). The main production facility in Building MA3 requires expansion. The storage facilities are generally adequate, although consolidation of weapon-related battery storage at the main MOMAG facility is recommended.

Naval Investigative Service (NIS) - This tenant is based at the Mainside in Building C-33. Additional administrative space is required to meet the identified requirement.

Explosive Ordnance Disposal (EOD) Group Two - This tenant is based at the Mainside in Building C-7. Expansion of this facility is required to meet the operational requirement for EOD team facilities defined by NAVFAC P-80.

Resident Officer in Charge of Construction (ROICC) - This tenant is based in Building C-23 at the Mainside and Building R-24 at the Waterfront. The facility at the Mainside lacks sufficient space to accommodate contractors' bid openings and other group meetings. The facility at the Waterfront is adequate.

Branch Navy Exchange - This tenant operates an exchange retail store, cafeteria, and exchange service outlet (barber shop) at the Mainside in Building C-29 plus a location exchange in Building R-12 and exchange service outlets (coin-operated laundromats) in Buildings 4N and R-3 at the Waterfront. Sizeable expansion of all exchange facilities is needed to serve the increased base population resulting from additional AOE homeporting.

Naval Supply Detachment Norfolk - This tenant is based at the Waterfront in Building R-22, a waterfront transit shed recently constructed for storage of cargo awaiting transshipment to the two AOE class vessels homeported at WPNSTA Earle in 1990. An additional transit shed will be required for the two AOE 6 class vessels expected to be homeported at the Station by 1996.

Third Coast Guard District Detachment - This tenant, currently based in Building R-3 at the Waterfront, has an excess of space compared to its requirement.

Naval Reserves - This tenant requires office space at the Waterfront for the Reserve Coordinator and personnel from Naval Reserve Units on a rotating basis.

Naval Telecommunications and Computer Command (NAVCOMTELCOM) - The existing communications center located in Building C-2 at the Mainside is adequate. A minor shortage of space exists in Building R4A at the Waterfront.

3.5 REQUIREMENTS SUMMARY

For the purpose of assessing the overall excess and shortfall of the existing facilities at WPNSTA Earle with respect to projected 1998 requirements, category codes were grouped into broad functional classes comprised of related activities as follows:

- Operations and Administration (Ordnance/Marine operations, communications facilities, instruction/training facilities, offices, data processing center, etc.)
- Shops (Public Works, SIMA and COMLOGRON facilities such as vehicle shops, MHE shops, and a boat shop)
- Storage and Warehousing (Supply, Naval Supply Detachment Norfolk and SIMA/COMLOGRON storage facilities such as general warehouse, Waterfront transit shed, and ships' storage)
- Community Facilities (personnel support facilities such as medical/dental clinic, police and fire stations, chapel, theater, dining, and exchange facilities)
- Recreation Facilities (recreational facilities such as gymnasium, bowling alley, and hobby shops)
- Research Labs (RDT&E facilities, and the photographic/audiovisual laboratory)
- Ordnance Storage (magazines and other ordnance storage facilities)
- Piers (ammunition pier, general purpose berthing pier, and fueling wharf)

For each functional class, the aggregate of existing substandard and adequate building space (or, in the case of the piers, feet of berthing) was compared to the projected 1998 building space requirement for that class as derived from the BFR to identify excesses and shortfalls.⁴ This comparison is shown in Figure 3.3 for the Mainside Administrative area, Figure 3.4 for the Waterfront Administrative area, and Figure 3.5 for other areas, including the piers and ordnance operations and storage facilities located outside the core Mainside and Waterfront areas.

Based upon this analysis, expanded and/or upgraded community/recreation and storage/warehousing facilities are needed at both the Mainside and Waterfront Administrative areas to meet additional requirements resulting from AOE homeporting. The deficiency is particularly

⁴ Category codes whose basic facility requirements are expressed in units of measure other than square feet (playing fields, parking areas, explosives truck holding yards, etc.) were excluded from this analysis.

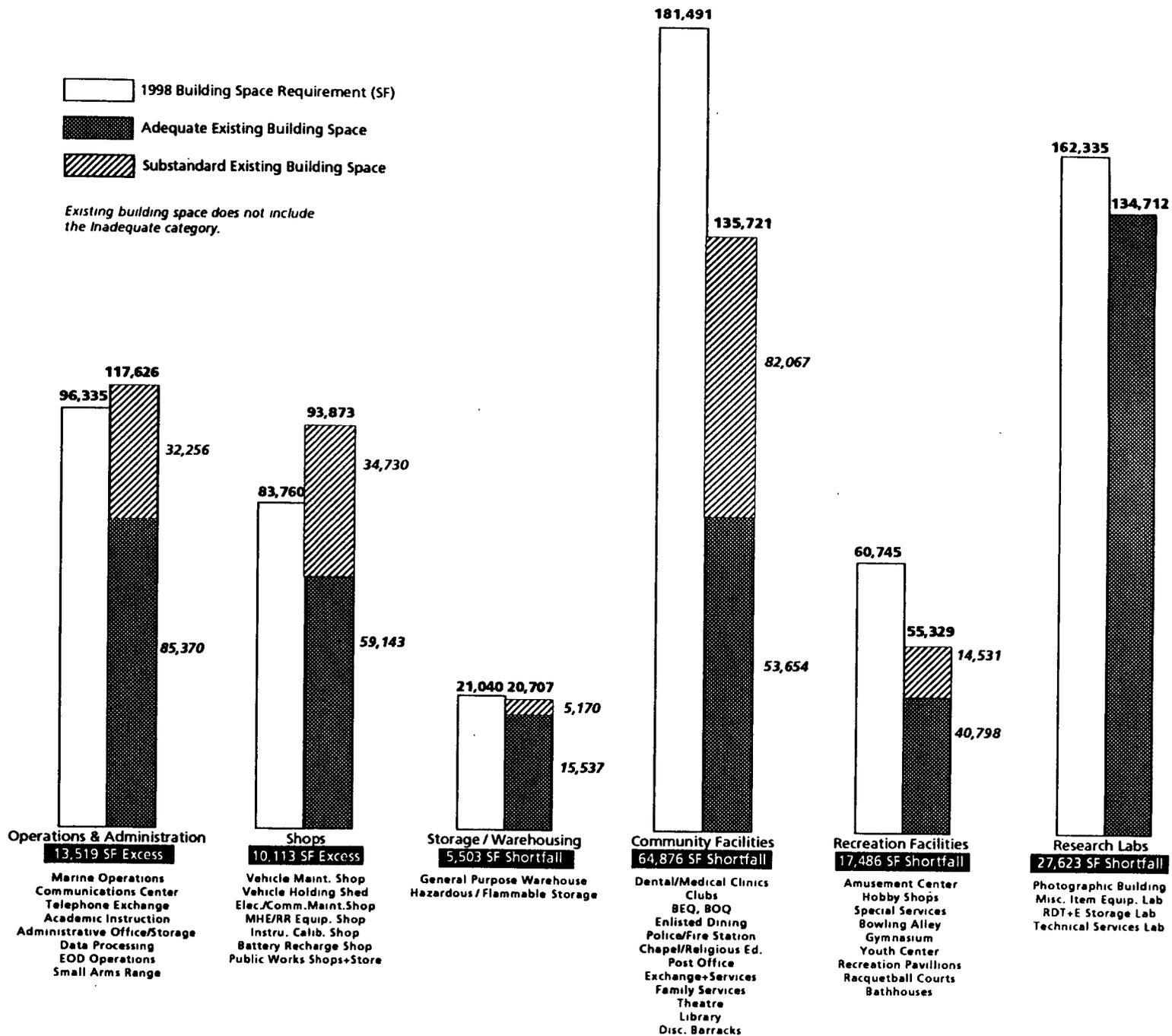


Figure 3.3 1998 Building Space Requirement vs. 1990 Existing Building Space (Mainside Admin Area)



Existing building space does not include inadequate category.

Figures include pier complex buildings and requirements

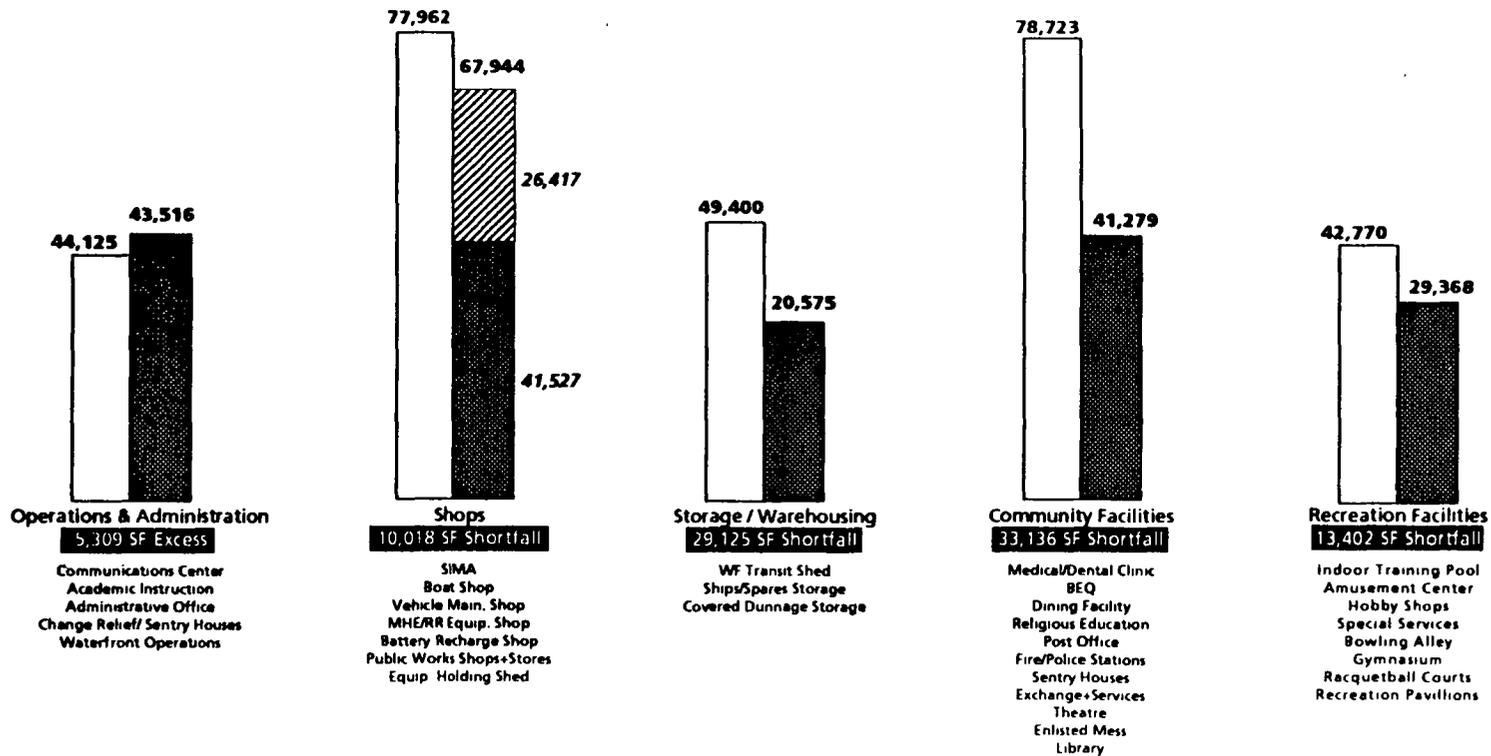
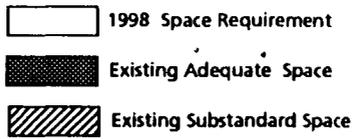


Figure 3.4 1998 Building Space Requirement vs. 1990 Existing Building Space (Waterfront Admin Area)



Existing space does not include the Inadequate category.

Figures refer to building square feet or feet of berthing as noted.

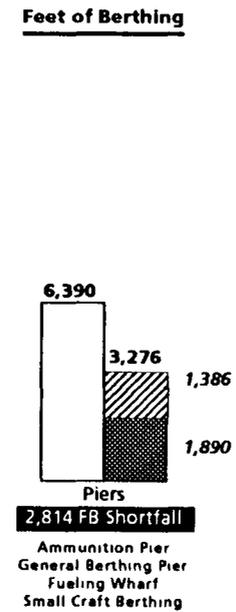
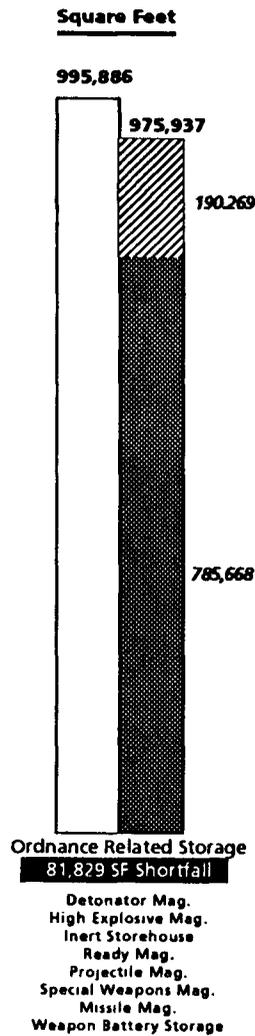
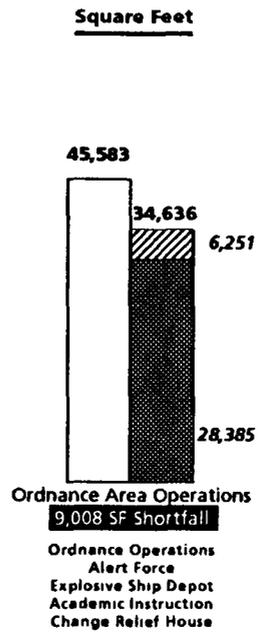


Figure 3.5 1998 Space Requirement vs. 1990 Existing Space (Other Areas)

severe in the case of community facilities. Additional space is required at the Mainside to accommodate expansion of RDT&E functions and at the Waterfront to accommodate expansion of shop functions. Conversely, an excess of operational/administrative and shop building space exists at the Mainside Administrative area with respect to the overall requirement for these functions. This excess largely reflects the World War II era vintage and inefficient configuration of many of the existing buildings. If only adequate building space is considered, there is a deficiency in operational/administrative and shop space at the Mainside. A minor excess of operational/administrative space exists at the Waterfront Administrative area.

As indicated in Figure 3.5, there is a shortfall in ordnance operations, ordnance storage, and pier facilities compared to the identified requirements.

Tables 3.3 and 3.4 present a comprehensive summary of WPNSTA Earle requirements along with planning actions recommended to satisfy identified deficiencies at the Mainside and Waterfront, respectively. For each category code (CCN), the following items are shown: the basic facility requirement (BFR) and primary unit of measure (UM), applicable department(s) and/or tenant(s), size and condition of existing facilities, deficiency or surplus of existing assets compared to the requirement, and proposed planning actions. In accordance with the Navy's Shore Facilities Planning System, a deficiency refers to the requirement identified for an individual category code minus existing adequate assets; it does not reflect substandard or inadequate assets. A surplus refers to the sum of all facilities (adequate, substandard and inadequate) minus the requirement for an individual category code.⁵ The proposed planning actions are the foundation of the Proposed Development Plan described in Section 5.0, Proposed Development Plan. Numbers enclosed in parentheses under the proposed planning actions for individual category codes refer to Master Plan or MILCON projects (see Section 5.0).

⁵ NAVFACINST 11010.44, Shore Facilities Planning Manual, Department of the Navy Naval Facilities Engineering Command, 15 December 1987, p. 6-7

TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
111.20	Helicopter Landing Pad	20	1100	SY	565	1230 SY	Adequate		130	
123.10	Filling Station	11	3	OL	C17	4 OL	Adequate		1	
123.15	Filling Station Building	11	0	SF	536	100 SF	Inadequate		100	Demolish 536
124.50	Vehicle Ready Fuel Storage	11	10000	GA	OS76	2000 GA	Inadequate		-10000	Demolish OS76 and construct new tank (MP-02)
131.15	Communications Center	NCTC	1350	SF	C2	1408 SF	Adequate		58	
131.40	Telephone Exchange Build.	09	2740	SF	C2	1108 SF	Adequate		-1632	Construct 1632 SF addition to C2 (MP-03)
141.60	Photographic Building	40	3600	SF	C54	1040 SF	Adequate		-2560	Construct 3000 SF addition to C-54 (P-977) Convert 1040 SF to 319-10 (P-977)
143.10	Emergency Vehicle Garage	CO	700	SF	-	-	-		-700	Construct 700 SF facility next to C-3 (P-947)
143.20	Ordinance Oper. Building	20,EOD	16960	SF	513	1647 SF	Adequate	1017	-477	Construct 1960 SF addition to C-7 (P-939)
					534	800 SF	Adequate			Construct 4000 SF lumber storage shed near S-34 (SP C9-87)
					C7	3134 SF	Adequate			Demolish S17
					FA2	2584 SF	Adequate			Upgrade S31 to adequate
					FA4	480 SF	Adequate			
					HA1A	120 SF	Adequate			
					HA3	3000 SF	Adequate			
					S13	1140 SF	Adequate			
					S17	900 SF	Inadequate			
					S31	594 SF	Substandard			
					S35	2388 SF	Adequate			
					S53	1050 SF	Adequate			
					S219	140 SF	Adequate			
143.21	Ammo Segregation	20	NOT IN CONTRACT							
143.46	Marine Barracks-Gen. Purp.	07	6975	SF	C8	14812 SF	Adequate	12337		Relocate armory to excess space in C-8 (MP-04)
					C9	4500 SF	Adequate			Convert 4500 SF in C-9 to Vacant Convert 360 SF in C-8 from 740-12
143.47	Alert Force Building	07	10000	SF	567	5497 SF	Substandard		-9472	Construct 10000 SF facility in M Group (P-970) Demolish 475, 476 and 567
					475	144 SF	Adequate			
					476	384 SF	Adequate			
143.60	Expl. Ship/Transfer Depot	20	18000	SF	HA1	12000 SF	Adequate		-6000	Construct 6000 SF facility in the De-Mil area (MP-05)
148.25	Expl. Truck Holding Yard	20	1	EA	-	-	-		-1	Construct yard in barricades AA3/ AA4 (P-913)
148.30	Expl. RR Car Holding Yard	20	72	EA	A1-B10	61 EA	Substandard		-72	Upgrade substandard and replace inadequate barricades
						11 EA	Inadequate			
148.45	Rail/Truck Receiving Stat.	20	1	EA	200807	1 EA	Adequate			
171.10	Academic Instruc. Build.	04,06,20	6525	SF	S179	1055 SF	Inadequate		-6525	Demolish S179 and construct 2250 SF (MP-06) Convert 3325 SF in C-9 from 740-56 (MP-07) Convert 1125 SF in C33 from 319-15
171.50	Small Arms Range-Indoor	07,10	5400	SF	C34	7172 SF	Substandard	1772	-5400	Renovate 7172 SF in C-34 (R7-91)
171.77	Training Material Storage	06	110	SF	-	-	-		-110	Convert 110 SF in C-9 from 740-56 (MP-07)
179.40	Small Arms Range-Outdoor	07,10	1	EA	518	1 EA	Inadequate		-1	Demolish 518 and construct new range (P-973)
212.30	Miss. Assembly/Test Build.	70	NOT IN CONTRACT							
212.40	Missile Sling Test Tower	70	1	EA	584	1 EA	Adequate			
214.20	Auto Vehicle Maint. Shop	09	8310	SF	C14	18604 EA	Adequate	11302		Convert 6300 SF in C-14 to 214-40
					QH9	1008 SF	Substandard			Upgrade QH9 to adequate
214.40	Vehicle Holding Shed	09	6300	SF	-	-	-		-6300	Convert 6300 SF from 214-20

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TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP.TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
216.05	Change/Relief House	20	2775	SF	D1A	1134 SF	Adequate		-499	Construct 500 SF facility (MP-09)
					EA1	320 SF	Adequate			
					EA2	320 SF	Adequate			
					HA2	120 SF	Adequate			
					KA1	120 SF	Adequate			
					S472	262 SF	Adequate			
216.10	Ammo Rework Shop	20	NOT IN CONTRACT							
216.30	Mines/D. Charge Shop	MOMAG	NOT IN CONTRACT							
216.40	Torpedo Shop	23	NOT IN CONTRACT							
216.50	Special Weapons Shop	23	NOT IN CONTRACT							
216.77	Ammo Expl. Maint. Stor.	23	2300	SF	522	952 SF	Adequate		-1228	Provided in 557 under 216-40, Torpedo Shop
					MB2	120 SF	Adequate			
217.10	Electronic/Comm. Maint. Shop	70	3260	SF	C31	9750 SF	Adequate	6490		
218.20	Const./Wght. Equip. Shop.	09	6140	SF	C19	4141 SF	Adequate	1	-1999	Upgrade C-50 to adequate
					C50	2000 SF	Substandard			
218.40	Railroad Equipment Shop	09	7680	SF	C50	17422 SF	Substandard	10062	-7360	Convert 10062 SF to 218-51 (MP-10)
					R19	320 SF	Adequate			Upgrade 7360 SF in C-50 to adequate
218.45	Instrument Calibrat. Lab	70	10570	SF	C3	7480 SF	Substandard		-10570	Convert 5070 SF in C-3 to 610-10 (MP-15)
										Convert 318 SF in C-3 to 610-77 (MP-15)
										Convert 2092 in C-3 to 610-10 (Vacant) (MP-15)
										Convert 10570 in C-33 from 319-15 (P-915)
218.51	Battery Recharging Shop	09	16300	SF	C19	2000 SF	Substandard		-16300	Convert 10062 SF in C-50 from 218-40 (MP-10)
										Upgrade 2000 SF in C-19 to adequate
219.10	Public Works Shops	09	17550	SF	C16	22425 SF	Adequate	6207		Convert 850 SF in C-16 to 219-20
					C31	1220 SF	Adequate			Convert 812 SF in C-16 to 219-25
					S3	112 SF	Adequate			
219.20	Pvmnt./Grnds. Equip. Shed	09	850	SF	-	-			-850	Convert 850 SF in C-16 from 219-10
219.25	Public Works Shop Storage	09	1100	SF	S86	288 SF	Adequate		-812	Convert 812 SF in C-16 from 219-10
219.77	Public Works Maint. Stor.	09	5700	SF	S37	140 SF	Adequate	15251	-3417	Demolish C-40
					C18	1490 SF	Adequate			Upgrade FA3, S83 and S470 to adequate
					C40	13848 SF	Inadequate			
					FA3	320 SF	Substandard			
					S3	112 SF	Adequate			
					S12	208 SF	Adequate			
					S69	140 SF	Adequate			
					S83	4020 SF	Substandard			
					S191	144 SF	Adequate			
					S468	49 SF	Adequate			
					S470	480 SF	Substandard			
226.81	Demilitarization Building	20	NOT IN CONTRACT							
319.10	Misc. Equip./Items Lab	40,80	67150	SF	C54	36036 SF	Adequate		-31114	Convert 1040 SF in C-54 from 141-60 (P-977)
										Construct 23800 SF addition to C-54 (P-977)

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TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION	
319.15	RDT&E Storage Lab	40	54620	SF	C33	37643 SF	Adequate	1423		Convert 1069 SF in C-33 to 610-10 Convert 10570 SF in C-33 to 218-45 (P-915) Convert 1125 SF in C-33 to 171-10 Convert 90 SF in C-33 to 610-77 Convert 1370 SF in C-33 from 740-34 (MP-13) Construct 10240 SF addition to C-54 (P-977)	
					C15	14300 SF	Adequate				
					C52	4100 SF	Adequate				
321.10	Technical Services Lab	70	36965	SF	C15	33085 SF	Adequate	4628			
					C16	8508 SF	Adequate				
411.82	Contaminated Fuel Storage	09	72	BL	—	72 BL	Adequate				
421.12	Fuse and Detonator Mag.	20	16580	SF	G1-G30	16584 SF	Adequate	4			
421.22	High Explosive Magazines	20, MOM	275710	SF	G31-M24	275708 SF	Adequate		-2		
421.32	Inert Storehouse	20, MOM	157394	SF	D3,D4	14382 SF	Adequate	16140		Demolish S108, S349, S350	
					E1-E12	123012 SF	Adequate				
					MA5	20000 SF	Adequate				
					S108	4140 SF	Inadequate				
					S349	6000 SF	Inadequate				
	S350	6000 SF	Inadequate								
421.35	Ready Magazine	EOD	72	SF	-	-			-72		
421.52	Smokeless PDR Proj. Mag.	20	461682	SF	F1-F52	150903 SF	Adequate	190269 SF		-246069	Upgrade substandard magazines Construct six 9300 SF magazines (P-926, P-927)
					F53	8910 SF	Adequate				
					F57-F62	55800 SF	Adequate				
421.62	Special Weapons Magazine	23	61128	SF	M1-M20	47560 SF	Adequate			-9300	Construct one 9300 SF magazine (P-909)
					M25-M26	4268 SF	Adequate				
421.72	Missile Magazine	20	48744	SF	N1-N4	20844 SF	Adequate			0	
					F-54-F56	27900 SF	Adequate				
423.10	Liquid Propellant Storage	23	NOT IN CONTRACT								
424.10	Weapon Rel. Batt. Stor.	MOMAG	2470	SF	S11	1871 SF	Adequate		-599	Construct 2470 SF addition to MA-3 (P-899)	
441.10	General Warehouse Navy	11	20260	SF	C21	13827 SF	Adequate			-6433	Construct 6500 SF next to C-21 (P-917) Convert 5170 SF in C-34 to Vacant
					C34	5170 SF	Substandard				
441.30	Haz. Flamm. Storehouse	11	780	SF	C18	750 SF	Adequate	674			
					GB2	704 SF	Adequate				
451.10	Open Storage Area	11	41700	SY	-	-			-41700	Need more info to determine action	
540.10	Dental Clinic	C5	2	OU	-	-			-2	Convert 1400 SF in C-3 from 610-10 (P-947)	
550.10	Medical Clinic	CO	12730	SF	C3	5920 SF	Substandard			-12730	Convert 6000 SF in C-3 from 610-10 (P-947) Convert 810 SF in C-3 from 740-25 (P-947) Renovate 5920 SF in C-3 (P-947)

TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
610.10	Administrative Office	CO,01,02 03,04,05 06,09,11 15,20,70 PDSLAK NIS ROICC RESERVES	SF	C2	15779 SF	Adequate	14014	-8354	Convert 1400 SF in C-3 to 540-10 (P947)
				C3	21768 SF	Substandard			Convert 6000 SF in C-3 to 550-10 (P-947)
				C15	200 SF	Adequate			Convert 1199 SF in C-3 to 610-20 (MP-17)
				C16	3878 SF	Adequate			Renovate 13169 SF in C-3 (MP-15)
				C21	4320 SF	Adequate			Convert 1035 SF in C-29 to 740-19 (MP-20)
				C23	2900 SF	Adequate			Convert 600 SF in C-34 to 610-10 Vacant
				C29	16422 SF	Adequate			Convert 5070 SF in C3 from 218-45 (MP-15)
				C33	7434 SF	Adequate			Convert 2092 SF in C-3 from 218-45 to 610-10 Vacant (MP-15)
				C34	600 SF	Substandard			Convert 1069 SF in C-33 from 319-15
				C37	4854 SF	Adequate			Construct 2280 SF with new warehouse (P-917)
				C54	1024 SF	Adequate			Renovate 5280 SF in C-33 for Code 70 (P-913)
				C55	2700 SF	Adequate			
				610.20	Data Processing Center	03,20			3540 SF
C3	1716 SF	Substandard	Convert 1199 SF in C-3 from 610-10 (MP-17)						
610.77	Administrative Storage	01,02,03 04,06	1680 SF	C3	1000 SF	Substandard		-1408	Renovate 1000 SF in C-3 to adequate (MP-15)
				C2	272 SF	Adequate			Convert 318 SF in C-3 from 218-45 (MP-15)
690.30	Class. Mat. Incin./Shred.	CO	1 EA	532	1 EA	Inadequate		-1	Locate in C-2
721.11	BEQ	11	163 PN	C10	66 PN	Substandard	129		Convert 16 PN in C-11 to 721-40 (P-850)
721.12	BEQ	11		C11	57 PN	Substandard			Renovate C-10, C-11, C-12, C-13
711.13	BEQ	11		C12	42 PN	Substandard			(P-942, R9-86, R10-86, R11-86, R12-86)
				C13	83 PN	Substandard			
				C53	44 PN	Adequate			
721.40	Disciplinary Barracks	10	16 PN					-16	Convert 16 PN in C-11 from 721-11(P-850)
722.10	Enlisted Dining Facility	11	114 PN	C9	405 PN	Substandard	291	-114	Renovate 9941 SF in C-9 (R19-89)
724.11	BOQ	11	11 PN	C4	5 PN	Adequate		-6	Convert C-4 to 740-60 (P-969)
724.12		11							Construct 4025 SF BOQ across from C-4 (P-981)
730.10	Fire Station	04	6000 SF	C22	5505 SF	Adequate		-175	
				S469	320 SF	Adequate			
730.20	Police Station	10	4350 SF	C1	2507 SF	Adequate		-1843	Construct 1800 SF addition to C-1 (P-960)
				C34	1400 SF	Substandard	Renovate 1400 SF in C-34 for Contract Guards (R7-91)		
730.25	Gate/Sentry House	10,07	730 SF	526	36 SF	Adequate		-453	Construct 570 SF at M Group (C2-85)
				540	36 SF	Adequate	Demolish 561		
				541	48 SF	Adequate	Demolish 556		
				556	160 SF	Substandard			
				561	64 SF	Inadequate			
				571	48 SF	Adequate			
				C51	45 SF	Adequate			
				583	64 SF	Adequate			
730.66	Misc. Weather Shelter	09	450 SF	548	72 SF	Adequate		-246	Construct 250 SF, five bus shelters
				549	72 SF	Adequate			
				572	60 SF	Adequate			
730.83	Chapel	C2	11500 SF	C49	5080 SF	Adequate		-6420	Convert 5080 SF in C-49 to 740-55 (MP-26)
730.84	Religious Educ. Building	C2	7545 SF	C49	1009 SF	Adequate		-6536	Construct 11500 SF (P-957)
									Convert 1009 SF in C-49 to 740-55 (MP-26)
									Construct 7545 SF (P-957)

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TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
730.85	Post Office	CO	1500	SF	C29	600 SF	Adequate		-900	Convert 600 SF in C-29 to 740-40 (MP-21) Convert 1500 SF in C-29 from 740-01 (MP-18)
740.01	Exchange Retail Store	Br Exch	19700	SF	C29	3308 SF	Substandard		-19700	Convert 1500 SF in C-29 to 730-85 (MP-18) Convert 1808 SF in C-29 to Vacant Construct 10033 SF (P-846)
740.04	Exchange Cafeteria	Br Exch	7400	SF	C29	2318 SF	Adequate		-5082	Convert 500 SF in C-29 to 740-28 (MP-21) Convert 914 SF in C-29 to 740-40 (MP-21) Convert 904 SF in C-29 to Vacant Construct 2433 SF (P-846)
740.09	Exchange Service Outlets	Br Exch	4130	SF	C29	190 SF	Adequate		-3940	Convert 190 SF in C-29 to 740-19 (MP-20) Construct 1534 SF (P-846)
740.12	Red Cross/Navy Relief	CO	180	SF	C8	360 SF	Adequate	180		Will be located in Family Services Center (P-847) Convert 360 SF in C-8 to 143-46 (MP-04)
740.19	Credit Union	CO	2000	SF	C29	775 SF	Adequate		-1225	Convert 1035 SF from 610-10 in C-29 (MP-20) Convert 190 SF from 740-09 in C-29 (MP-20)
740.25	Family Services Center	CO	4280	SF	C3	810 SF	Substandard		-4280	Convert 810 SF in C-3 to 550-10 (P-947) Construct 4280 SF center near C-55 (P-847)
740.28	Amusement Center	15	500	SF	-				-500	Convert 500 SF in C-29 from 740-04 (MP-21)
740.34	Thrift Shop	15	1900	SF	C33	1370 SF	Adequate		-530	Convert 1370 SF in C-33 to 319-15 (MP-13) Convert 1900 SF in C-36 from 740-36 (MP-22)
740.36	Hobby Shop-Arts & Crafts	15	5600	SF	C36	7216 SF	Substandard	7216		Convert 1950 SF in C-36 to 740-71 (MP-28) Convert 1900 SF in C-36 to 740-34 (MP-22) Convert 1907 in C-36 to 740-37 (MP-24) Convert 1459 in C-36 to Vacant
740.37	Special Services Issue Office	15	5605	SF	C26A	168 SF	Adequate	554	-2407	Convert 1907 SF in C-36 from 740-36 (MP-24) Construct 500 SF in the new gym (MP-25) Convert 2961 in C-29 to Vacant
					C26B	168 SF	Adequate			
					C29	2961 SF	Substandard			
					C36	2862 SF	Adequate			
740.38	Auto Hobby Shop	15	6400	SF	C36	2800 SF	Substandard	2800		Convert 2800 in C-36 to Vacant
					C54	6400 SF	Adequate			
740.40	Bowling Alley	15	9250	SF	C29	7736 SF	Adequate		-1514	Convert 914 SF in C-29 from 740-04 (MP-21) Convert 600 SF in C-29 from 730-85 (MP-21)
740.43	Gymnasium	15	21000	SF	C29	11085 SF	Adequate		-9915	Convert 11085 in C-29 to 740-56 (P-906), 740-76 (MP-29) Construct 21000 SF on Coral Road (MP-25)
740.55	Youth Center	15	5670	SF	C36	1554 SF	Substandard		-5670	Convert 5080 SF in C-49 from 730-83 (MP-26) Convert 1009 SF in C-49 from 730-84 (MP-26) Convert 1554 SF in C-36 to Vacant
740.56	Theater	15	6500	SF	C9	3435 SF	Adequate		-3065	Convert 3325 SF in C-9 to 171-10 (MP-07) Convert 110 SF in C-9 to 177-77 (MP-07) Convert 7442 SF in C-29 from 740-43 (P-906)
740.60	Officers' Club	15	12000	SF	C4	4864 SF	Adequate		-7136	Convert 3700 SF in C-4 from 724-12 (P-969) Convert 2976 SF in C-4 from 740-71 (P-969)
740.64	Enlisted Mess Open	15	5994	SF	500	5994 SF	Adequate		0	
740.71	Package Store	15	1950	SF	C4	2976 SF	Adequate	1026		Convert 2976 SF in C-4 to 740-60 (P-969) Convert 1950 SF in C-36 from 740-36 (MP-28)

Check Latest Facility Planning Document (FPD)

TABLE 3.3 FACILITY REQUIREMENTS SUMMARY- MAINSIDE

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
740.74	Child Care Center	15	14925	SF	-				-14925	Construct 8500 SF center at new family housing (P-871) Construct 6425 SF center at Wayside (P-966)
740.76	Library	15	5315	SF	C29	1672 SF	Adequate		-3643	Convert 3643 SF in C-29 from 740-43 (MP-29)
740.78	Recreation Pavillion	15	1820	SF	583	4000 SF	Adequate	2180		Construct 1820 SF pavillion (MP-30) Demolish existing pavillion
740.84	Indoor Playing Courts	15	2400	SF	C29	1129 SF	Adequate	379		
					X4	1650 SF	Adequate			
740.89	Bathhouse	15	3000	SF	-				-3000	Construct 1000 SF near installation pool (MP-30)
750.10	Playing Court	15	8	EA	X3	2 EA	Adequate		-5	Construct 3 courts next to new gym (MP-32)
					X6	1 EA	Adequate			Construct 2 basketball courts at family housing areas
750.20	Playing Field	15	5	EA	X8	2 EA	Adequate		-1	Construct 1 softball field in new family housing area
					X9	1 EA	Adequate			
					X10	1 EA	Adequate			
750.30	Outdoor Swimming Pool	15	50	ME	X14	22 ME	Adequate		-28	Construct a 50 meter pool; demolish X14 (MP-30)
750.31	Officers' Swimming Pool	15	25	ME	X12	25 ME	Adequate			
750.32	NCO Swimming Pool	15	25	ME	X13	25 ME	Substandard		-25	Renovate pool to adequate condition
750.40	Golf Course	15	1	EA	-				-1	
750.52	Skeet Range	15	1	EA	-				-1	Construct skeet range near EOD (MP-33)
852.10	Parking Area	All	77590	SY	201825	3100 SY	Adequate	23936		Construct a PW vehicle compound near C-50 (MP-34)
					201882	43190 SY	Adequate			
					201883	55236 SY	Adequate			

TABLE 3.4 FACILITY REQUIREMENTS SUMMARY - WATERFRONT

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
123.10	Filling Station	09	2	OL	R6	2 OL	Adequate			
124.40	Small Craft Fuel Storage	9	10000	GA	-					Construct two 5,000 GA fuel tanks (MP-01)
131.15	Communications Center	15	1250	SF	R4A	990 SF	Adequate		-260	Convert 260 SF in R-4A from 610-10
131.42	Auto. Comm. Swtch. Center	09	450	SF	R12	450 SF	Adequate			
143.10	Emergency Vehicle Garage	CO	430	SF	R4B	1010 SF	Adequate	580		
148.25	Expl. Truck Holding Yard	20	1	EA	1	1 EA	Substandard		-1	Construct new yard in Chapel Hill area (P-945)
148.30	Expl. RR Car Holding Yard	20	10	EA	P1-P10	10 EA	Subs/Inad.		-10	Upgrade existing substandard and inadequate barricades
151.10	Ammunition Pier	20	1890	FB	3	2574 FB	Inadequate	684	-1890	Replace Pier 3 (P-953)
151.20	Gen. Pur. Berthing Pier	COMLOG	3700	FB	2	1386 FB	Substandard		-1810	Replace Pier 2 (P-978)
					4	1890 FB	Adequate			Extend Pier 4 (P-952)
152.40	Fueling Wharf	COMLOG	500	FB	-				-500	Construct 500 FB (P-974)
155.20	Small Craft Berthing	COMLOG	300	FB	-					Construct a small floating dock (MP-01)
156.10	Waterfront Transit Shed	NSDN	43510	SF	R22	20575 SF	Adequate		-22935	Construct 22935 SF next to R-4A (P-928)
159.64	Waterfront Oper. Build.	20	16950	SF	3A	2850 SF	Adequate		-6289	Replace JA1 and 6A as part of Pier 3 replacement (P-953)
					3N	1100 SF	Adequate			Demolish 531
					6A	592 SF	Adequate			Convert 460 SF in R-29 to 740-09 (C25-90)
					531	880 SF	Inadequate			Construct 6050 SF on Pier 4 extension (P-952)
					JA1	120 SF	Adequate			
					R17	1134 SF	Adequate			
					R29	4865 SF	Adequate			
171.10	Academic Instruc. Build.	COMLOG	2700	SF	R4A	2030 SF	Adequate	790		Convert 670 SF in R-4A from 610-10
					R4B	1460 SF	Adequate			Convert 1460 SF in R-4B to 740-70 (P-959)
179.55	Indoor Training Pool	COMLOG	9840	SF	-				-9840	Construct 9840 SF pool addition to R-15 (P-851)
213.30	SIMA	SIMA	12172	SF	R2	12172 SF	Adequate			
213.58	Small Boat Repair Shop	COMLOG	3925	SF	-				-3925	Convert 3925 SF in R-2 from 214-20 (P-904)
213.77	Misc. Strategy Ready I	SIMA	12450	SF	514	3200 SF	Substandard		-12450	Demolish 514 and construct 12450 SF behind R-4B (MP-08)
		COMLOG			R10	5050 SF	Substandard			Convert 3080 SF in R-10 to 218-51 (MP-11) & 1970 SF to 219-10 (MP-12)
214.20	Auto Vehicle Shop	09	6140	SF	R2	14798 SF	Adequate	8658		Convert 3925 SF in R-2 to 213-58 (P-904) and 4733 SF to 218-20 (P-955)
216.05	Change Relief House	20	11425	SF	3N	1570 SF	Adequate		1	Replace 3A and 4A as part of Pier 3 replacement (P-953)
					3A	1550 SF	Adequate			Convert 100 SF in 4A to 610-10
					4A	3210 SF	Adequate			
					4N	1684 SF	Adequate			
					R3	792 SF	Adequate			
					R29	2620 SF	Adequate			
218.20	Const./Wght. Equip. Shop	09	6000	SF	-				-6000	Convert 4733 SF in R-2 from 214-40 (P-955)
		COMLOG								
218.40	RR Equipment Maint. Shop	09	3840	SF	R9	8546 SF	Substandard	4706	-3840	Renovate 4000 SF in R-9 (RC13-84)
										Convert 3000 SF in R-9 to 218-65 for crane storage (RC13-84)
218.51	Battery Recharge Shop	09	17000	SF	R10	291 SF	Substandard		-8868	Convert 3080 SF in R-10 from 213-77 (MP-11)
		COMLOG			S455	8132 SF	Adequate			Renovate 291 SF in R-10 (MP-11)
218.65	Equipment Holding Shed	09	2035	SF	R24	2925 SF	Adequate	890		Convert 3000 SF in R-9 from 218-40 (RC13-84)
219.10	Public Works Shop	09	7525	SF	R10	2970 SF	Substandard		-7525	Renovate 2970 SF in R-10 to adequate
										Convert 2585 SF from 219-77 & 1970 SF from 213-77 (MP-12)
219.20	Pav. Grounds Equip. Shed	09	525	SF	-				-525	Convert 525 SF in R-10 from 219-77
219.25	Public Works Shop	09	650	SF	-				-650	Convert 650 SF in R-10 from 219-77

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TABLE 3.4 FACILITY REQUIREMENTS SUMMARY - WATERFRONT

CATEGORY CODE	DEP/TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
219.77	Public Works Maint. Stor.	09	5700	SF	5A	687 SF	Inadequate	1347	-2200	Convert 2285 SF in R-10 to 219-10 (MP-12)
					R10	5960 SF	Substandard			Convert 525 SF in R-10 to 219-20
					R18	400 SF	Substandard			Convert 650 SF in R-10 to 219-25
					R25	3500 SF	Adequate			Demolish 5A, S186 and R-18
					S186	4796 SF	Inadequate			Renovate 2200 SF in R-10 to adequate
310.37	Ocean Science Lab		0	SF	R26	65455 SF	Substandard	65455		Outgrant to EPA through April 1995
315.15	Ship Weapon System Lab		0	SF	S367	418 SF	Inadequate	418		Demolish S367
319.15	RDT&E Storage Lab		0	SF	S357	234 SF	Inadequate	234		Demolish S357
411.30	Diesel Fuel Storage	11	190000	BL	-	-	-	-190000		P-838
411.50	Jet Engine Fuel Storage	11	103000	BL	-	-	-	-103000		P-838
411.82	Contaminated Fuel Stor.	11	5000	BL	-	-	-	-5000		Construct 5000 BL (P-975)
412.35	Ballast & Sludge Storage	11	50000	BL	-	-	-	-50000		P-838
441.35	Covered Dunnage Storage	11	5890	SF	-	-	-	-5890		Construct 5890 SF near existing open storage area (MP-14)
540.10	Dental Clinic	C5	6	OU	R4B	6 OU	Adequate			
550.10	Medical Clinic	CO	2690	SF	R4B	2690 SF	Adequate			
610.10	Administrative Office	04,09,	11250	SF	R4A	12180 SF	Adequate	5140		Convert 1520 SF in R-3 to 740-64 (MP-27)
		COMLOG			4A	200 SF	Adequate			Convert 260 SF in R4A to 131-15
		Coast G,ROICC			R24	2490 SF	Adequate			Convert 670 SF in R-4A to 171-10
					R3	1520 SF	Adequate			Convert 100 SF in 4A from 216-05
690.30	Class. Mat. Incin./Shred	COMLOG	1	EA	-	-	-	-1		Locate in building R-4A
721.11	BEQ	11	44	PN	-	-	-	-44		Construct a 14596 SF BEQ for 91 PN (P-930)
721.12	BEQ	11	47	PN	R11	20 PN	Adequate			
722.10	Enlisted Dining Facility	11	146	PN	-	-	-	-146		Construct a 146 PN, 5000 SF addition to R-11 (P-956)
730.10	Fire Station	04	8400	SF	R1	6459 SF	Adequate	567	-1941	Construct 3600 SF on Pier 4 extension (P-952)
					S454	2508 SF	Inadequate			Demolish S454 (P-952)
730.20	Police Station	10	1400	SF	R5	1485 SF	Adequate	85		Construct 700 SF addition to R-5 (P-960)
730.25	Gate/Sentry House	10	100	SF	551	64 SF	Adequate	99		
					S360	45 SF	Adequate			
					S369	90 SF	Adequate			
730.66	Misc. Weather Shelter	09	1940	SF	504	50 SF	Adequate		-1598	Construct 6 bus shelters (C2-90)
					505	50 SF	Adequate			
					R3	242 SF	Adequate			
730.84	Religious Educ. Building	COMLOG	1350	SF	R4B	6192 SF	Adequate	5856		Convert 3742 SF in R-4B to 740-56, and 1100 SF to 740-76 (P-959)
					R21	1014 SF	Adequate			Convert 1014 SF in R21 to 740-09 (MP-19)
730.85	Post Office	CO	100	SF	-	-	-	-100		Construct 100 SF as part of Exchange addition (MP-19)
740.02	Location Exchange	Br Exch	7000	SF	R12	3342 SF	Adequate		-3658	Construct 3658 SF addition to R-12 (MP-19)
740.09	Exchange Service Outlet	Br Exch	3810	SF	4N	1050 SF	Adequate		-2285	Construct 136 SF addition to R-12 (MP-19)
					R3	475 SF	Adequate			Convert 1014 SF in R-21 from 730-84 (MP-19)
										Convert 475 SF in R-3 to 740-64 (MP-27)
										Convert 460 SF in R-29 from 159-64 (C25-90)
										Construct 1150 SF on Pier 4 extension (P-952)
740.19	Credit Union	CO	200	SF	-	-	-	-200		Construct 200 SF as part of Exchange addition (MP-19)
740.28	Amusement Center	15	1900	SF	-	-	-	-1900		Convert 750 SF in R-23 from 740-40 and 760 SF in R-15 from 740-43
740.36	Arts and Crafts Hobby Shop	15	500	SF	-	-	-	-500		Construct 500 SF as part of hobby shop near ballfield (MP-23)
740.37	Special Services Issue Office	15	500	SF	-	-	-	-500		
740.38	Auto Hobby Shop	15	2600	SF	-	-	-	-2600		Construct 2600 SF as part of hobby shop near ballfield (MP-23)

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TABLE 3.4 FACILITY REQUIREMENTS SUMMARY - WATERFRONT

CATEGORY CODE	DEP:TEN	BFR	UM	FAC.#	AREA	UM	CONDITION	SURPLUS	DEFICIT	PROPOSED PLANNING ACTION
740.40	Bowling Alley	15	4450	SF	R23	6045	SF	Adequate	1595	Convert 750 SF in R-23 to 740-28
740.43	Gymnasium	15	21000	SF	R15	21723	SF	Adequate	723	Convert 760 SF in R-15 to 740-28
740.56	Theatre	15	3500	SF	-	-	-	-	-3500	Convert 3742 SF in R-4B from 730-84 (P-959)
740.64	Enlisted Mess Open	15	17300	SF	R3	8541	SF	Adequate	-8759	Convert 1995 SF from 610-10 and 740-09 in R-3 (MP-27)
740.76	Library	15	2560	SF	-	-	-	-	-2560	Construct 6764 SF addition to R-3 (MP-27)
740.78	Recreation Pavillions	15	780	SF	-	-	-	-	-780	Convert 2560 from 171-10 and 730-84 in R-4B (P-959)
740.84	Indoor Playing Courts	15	1200	SF	R15	1600	SF	Adequate	400	Construct three pavillions near the ballfield (MP-31)
750.10	Playing Court	15	5	EA	X16	2	EA	Adequate		
					X17	2	EA	Adequate		
					X18	1	EA	Adequate		
750.20	Playing Fields	15	1	EA	X19	1	EA	Adequate		
852.10	Parking Area	All	46950	SY	202011	17444	SY	Adequate	-29506	Construct 622 car parking lot at Chapel Hill (P-931)
										Construct 128 POV spaces in core Admin area
										Construct 4530 SY PW Vehicle compound near R-24 (MP-35)

CONCEPT DEVELOPMENT

Section 4.0

CONCEPT DEVELOPMENT

4.0 CONCEPT DEVELOPMENT

In order to delineate the range of development options available and to highlight tradeoffs associated with key development issues, alternative concept plans were prepared for the two major developed zones at WPNSTA Earle, the Mainside and Waterfront Administrative areas. Alternatives were not generated for peripheral areas in this initial concept development phase because of the constraints posed by land consumptive ESQD arcs at the Mainside, and because the functional and locational criteria governing most required facilities dictate sites within existing developed areas.¹ For both the Mainside and Waterfront Administrative areas, three alternatives were developed, each satisfying the requirements identified in WPNSTA Earle's Basic Facilities Requirements document. Additional factors used both in generating and evaluating alternative concepts were:

- Development opportunities and constraints as described in Section 2.0;
- Master planning principles and objectives; and
- An analysis of functional relationships at WPNSTA Earle.

This section describes master planning principles and objectives established to guide formulation of a proposed development plan (Section 4.1) and presents an analysis of functional relationships at WPNSTA Earle (Section 4.2), both important elements in the planning process. Alternative facility locations and key development issues addressed by the alternatives generated in the initial concept development phase are discussed in Section 4.3.

¹ Options for the pier/trestle complex were addressed separately in Pier/Trestle Alignment Study, Han-Padron Associates, August 1990.

4.1 PRINCIPLES AND OBJECTIVES

In keeping with WPNSTA Earle's primary mission, the fundamental purpose of the Master Plan is to establish a proposed development plan that facilitates the efficient movement of materials and weapons by satisfying operational requirements identified in the Basic Facilities Requirements document, and by maintaining and optimizing relationships between the various Station functions. Given the development constraints posed by the relative scarcity of buildable land at the Waterfront, maximizing the use of this area for homeporting related activities is of prime importance. Other guiding principles are to respect natural and man-made constraints, the established patterns of land use, and WPNSTA Earle's neighbors; to maximize the use of existing facilities and minimize development costs to the greatest extent possible; and to provide a quality place to work and live for the Station's community. The "quality of life" issue is of particular concern given the projected increase in population resulting from AOE homeporting and the relative scarcity of recreational opportunities in the surrounding predominantly rural communities. Consistent with the Base Exterior Architecture Plan (BEAP) for WPNSTA Earle, maintaining and enhancing the predominantly rural character of the Mainside and the small town "Main Street" ambience of the Waterfront is an important objective related to maintaining quality of life.² The principles and objectives established to guide the master planning process are listed below.

MASTER PLANNING PRINCIPLES AND OBJECTIVES

1. PROVIDE SUFFICIENT FACILITIES TO FULFILL WPNSTA EARLE'S EXPANDED 1998 MISSION
 - Meet the requirements established in WPNSTA Earle's updated Basic Facilities Requirements document.
 - Maximize the use of the Waterfront for homeporting and other water-dependent uses.
2. MAXIMIZE USE OF EXISTING FACILITIES TO MEET 1998 REQUIREMENTS
 - Reassign excess adequate space to other departments or functions to meet deficiencies where possible.
 - Minimize new construction.
 - If new construction is necessary, expand existing facilities rather than constructing new ones where feasible.

² The Onyx Group, Base Exterior Architecture Plan: NWS Earle, May 1985

3. SITE NEW OR RELOCATED FACILITIES TO ACHIEVE THE BEST RELATIONSHIP BETWEEN DEPARTMENTS AND FUNCTIONS

- Consolidate departments and tenants in single or proximate facilities where possible.
- In reassigning existing space or constructing new facilities, locate departments, tenants or functions near other functions with which they have a close working relationship.

4. SITE NEW OR RELOCATED FACILITIES TO AVOID NATURAL OR MAN-MADE CONSTRAINTS

- Avoid development in environmentally sensitive areas such as wetlands, floodplains and stream corridors to the greatest extent possible.
- Avoid development within ESQD arcs or other man-made constraints.

5. SITE NEW OR RELOCATED FACILITIES TO RESPECT ESTABLISHED COMMUNITY AND FUNCTIONAL CHARACTERISTICS

- Maintain established land use zones where appropriate.
- Avoid mixing incompatible land uses (for example, community-oriented services and industrial type uses such as shops).
- Maintain and enhance established amenities such as open space and recreational amenities to the greatest extent possible.

6. MAINTAIN AND ENHANCE THE QUALITY OF LIFE AT WPNSTA EARLE

- Provide adequate recreational and community facilities to meet the needs of WPNSTA Earle's military population and dependents.
- Maintain and enhance WPNSTA Earle's visual environment by siting new facilities to respect significant spaces, buildings and views, and screening undesirable uses where appropriate.
- At the Mainside, maintain the existing rural ambience by preserving existing open spaces and wooded areas to the greatest extent possible.
- At the Waterfront, encourage a small town, pedestrian scale environment by locating community facilities along "Main Street" and parking lots behind buildings or in remote locations.



Existing rural character of the Mainside (Gels Road)

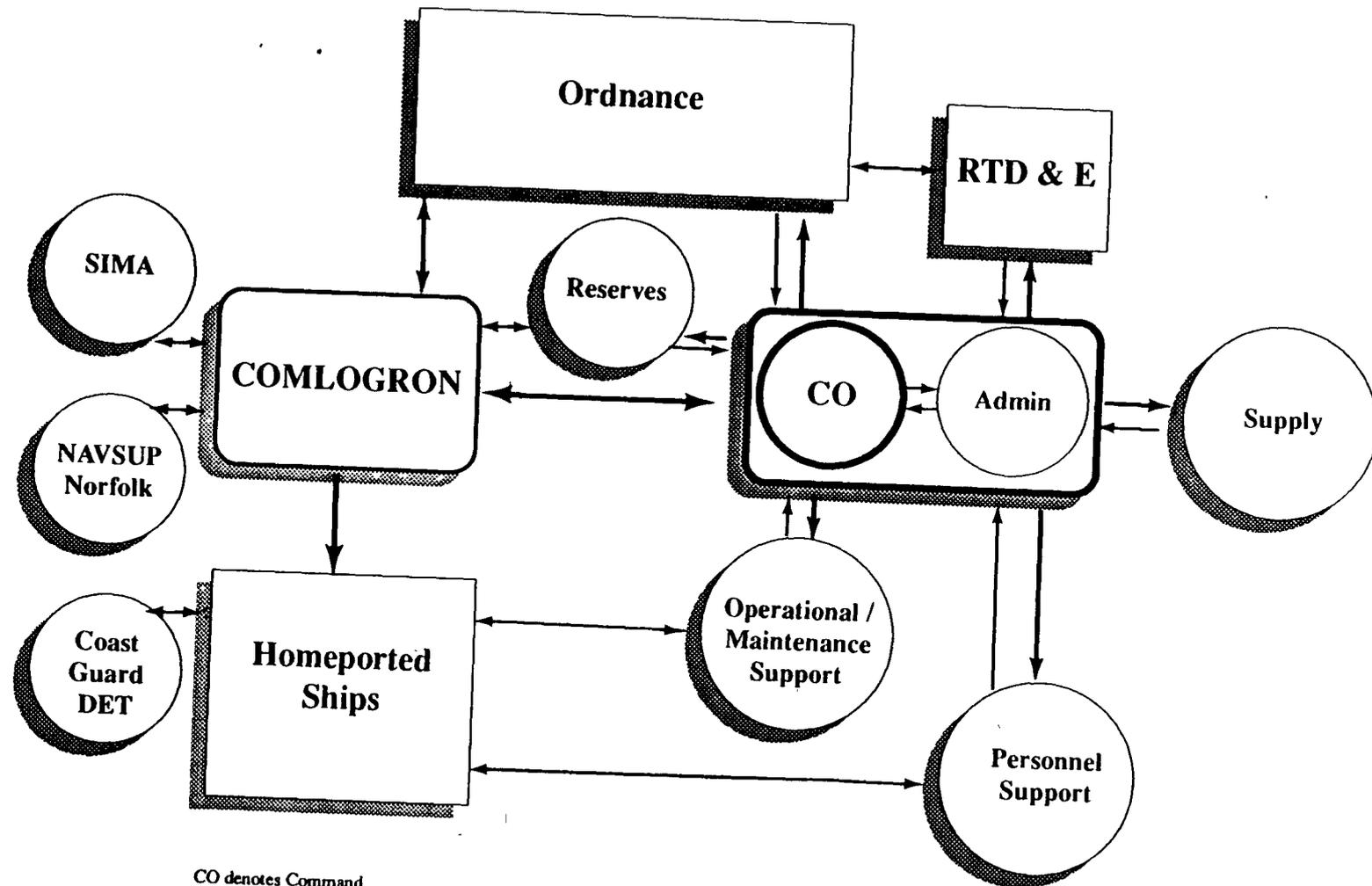
7. SITE FUTURE DEVELOPMENT TO RESPECT NEIGHBORING USES AND USERS
8. IMPLEMENT MASTER PLANNING PRINCIPLES WITH COST EFFECTIVE SOLUTIONS

4.2 FUNCTIONAL RELATIONSHIPS

Functional relationships at WPNSTA Earle revolve around the two primary components of the Station mission: ordnance operations and production including RSS&I and retail ammunition management, administered by the Station Command as directed by the Commander of Naval Sea Systems Command; and homeporting of ammunitions ships, administered by COMLOGRON as directed by the Commander-in-Chief of the U.S. Atlantic Fleet. A third center of productive activity is the Center of Excellence for Ordnance PHST, which conducts research, development, testing, and evaluation of Naval Weapons Systems. Figure 4.1 illustrates the primary relationships between the major functional elements of WPNSTA Earle as they interact in support of the Station mission. These elements include the two centers of command (Commanding Officer and COMLOGRON), the three major operational/productive activities (Ordnance, homeporting, and RDT&E), and several functions which support those activities. Support functions include:

- Military and civilian administrative services as performed by Code 01 (Military Administration) and PSD Lakehurst, which provide support for all military personnel including those on homeported ships; and Codes 02 (Comptroller), 03 (Information Management), 05 (Station Resources and Planning), and 06 (Civilian Personnel), which provide Station-wide support exclusive of homeported ships. All of these departments have a close working relationship with WPNSTA Earle Command.
- Operational (safety and security) and maintenance (infrastructure support) services as performed by Codes 04 (Safety), 07 (Marine Corps Security Force Company), 09 (Public Works), 10 (Security), Naval Investigative Service, ROICC, and Department of Defense Precious Metals. These departments and tenants provide Station-wide support for all activities at WPNSTA Earle, including homeported ships.
- Personnel services as performed by Codes C2 (Chaplain), C5 (Dentist) and 15 (MWR), the Family Housing Office, Branch Navy Exchange, and Naval Hospital Philadelphia Branch Clinic. These departments and tenants provide support for all activities, including unmarried military personnel, families and dependents living at the Mainside, and unmarried ships' personnel living on ships homeported at the Waterfront.
- Supply support for WPNSTA Earle (with the exception of homeported ships), as provided by Code 11 (Supply).
- Several tenant activities which provide supply, maintenance, and support services for homeporting (Naval Supply Detachment Norfolk, SIMA, and the Coast Guard Detachment) and Ordnance (Naval Reserves).

In the master planning process, functional relationships played a major role in determining the proposed sites of new or expanded facilities, both generally in terms of the split between



CO denotes Command.
 Ordnance includes Codes 20 and 23, MOMAG and EOD.
 Admin includes Codes 01, 02, 03, 05, 06, PSD Lakehurst and NAVCOMTELCOM.
 Operational / maintenance support includes Codes 04, 07, 09, 10, Naval Investigative Service, ROICC and DOD Precious Metals.
 Personnel support includes Codes C2, C5, 15, family housing, Exchange and Branch Medical Clinic.
 Supply indicates Code 11.
 RDT & E includes Codes 40, 70 and 80.

Figure 4.1 NWS Earle Functional Relationships

Mainside and Waterfront and specifically in terms of positioning related functions in proximate locations. For the most part, existing facilities are well situated to satisfy functional requirements. Consistent with their respective missions, WPNSTA Earle Command is currently based at the Mainside along with other functions not requiring a Waterfront location, while COMLOGRON is based at the Waterfront close to the homeported ships.

As illustrated in Figure 4.1, most administrative functions, RDT&E, and Supply do not have a direct relationship to homeported ships, and therefore do not require a presence at the Waterfront. Operational/maintenance and personnel support functions, on the other hand, directly interact with homeported ships by providing support in the form of shops, infrastructure maintenance, and community/recreational facilities, and therefore require facilities at the Waterfront as well as at the Mainside. Although homeporting operations are of paramount importance in facility planning for the Waterfront, it is important that adequate community and recreational facilities easily accessible to the increased ships' population be provided as well.

Ordnance operations, production and storage are the predominant activity at WPNSTA Earle, requiring facilities throughout the Station at both Mainside and Waterfront locations. The Ordnance Department's administrative offices require a close link to the WPNSTA Earle Command and therefore are located at the Mainside. Storage and rework facilities, which require large explosive safety zones, are also based at the Mainside where most of WPNSTA Earle's land holdings are located. The explosive safety zones limit the amount of land available for other uses. Because Code 20 loads and unloads homeported ships, visiting combatants, support vessels, and foreign flag vessels, facilities such as an ammunition pier and explosive holding yards are required at the Waterfront. Mainside and Waterfront Ordnance activities are linked by road and rail via the Normandy Road right-of-way. The primary use of this road to transport ordnance and the distance between the Waterfront and the Mainside underscore the importance of providing adequate community and recreational facilities for personnel living at the Waterfront.

As described in Section 4.0, the projected expansion in the Station's mission will result in the need for new or larger community/recreation facilities (Mainside and Waterfront), storage/warehousing facilities (Mainside and Waterfront), shops (Waterfront), RDT&E facilities (Mainside), ordnance operations/storage facilities (Mainside), and ordnance/homeporting facilities (Waterfront). The intent of the Master Plan is to site these facilities so as to maintain and enhance established functional relationships and, where appropriate, develop new connections to satisfy expanded mission requirements or correct existing inefficiencies.

4.3 ALTERNATIVE CONCEPT PLANS

4.3.1 ALTERNATIVE CONCEPT PLANS: MAINSIDE ADMINISTRATIVE AREA

A. Alternatives Developed Prior to October 1990

Three alternative concepts were developed for the Mainside Administrative area prior to October 1990. These concepts explored different options for satisfying major deficiencies identified for facilities which require sites in this locale. These facilities are mostly community/recreational facilities required to serve the increased number of families (married military personnel and dependents) resulting from AOE homeporting, including a larger gymnasium, chapel/religious education building, theater, enlisted mess, and youth center, among others. Other facilities required include a training center and administrative office for Code 06 (Civilian Personnel), an expanded test and evaluation facility for Code 40 (Quality Acquisition and Management), a larger Supply warehouse, and a larger, upgraded calibration shop, among others.

Based upon an analysis of existing building and land use, functional relationships, currently planned projects, and other considerations, optimal locations were identified for certain facilities and established as common to all three alternatives. Among these facilities were the test and evaluation lab (addition to Building C-54), calibration shop (relocation from Building C-3 to Building C-33), and Supply warehouse (expansion of the existing warehouse in Building C-21). Alternative locations identified for other key facilities, including the gymnasium, chapel/religious education building, theater, enlisted mess, youth center, and training center/personnel office, were used to formulate the three concept alternatives. The advantages and disadvantages of the alternative facility sites, together with an assessment of overall functional and land use relationships, provided a basis for evaluating the concept alternatives and selecting a preferred Master Plan alternative.

Gymnasium - The existing gymnasium of 11,085 square feet (SF), located in Building C-29, is 9,915 SF less than the requirement for this facility identified by WPNSTA Earle's Basic Facilities Requirements document. Expansion of the existing gymnasium is not feasible. Options for satisfying this deficiency identified by the three concept alternatives included using the existing gymnasium and constructing a second gymnasium in another site (either across Coral Road from Building C-29 or next to the current enlisted club, Building 500) or converting the existing gymnasium to other use (base theater) and constructing a new gymnasium across Coral Road from Building C-29.

The major disadvantage of retaining the existing gymnasium and building a second one is that this would split this function between two separate facilities. Conversely, construction of a new gymnasium at the Coral Road site would provide a consolidated facility in an established community/recreational zone, easily accessible to existing Bachelor Enlisted Quarters (BEQ's). A disadvantage of this site is that construction would require the removal of an existing wooded area.

Chapel/Religious Education Building - The existing chapel/religious education building of 6,089 SF (Building C-49) is undersized compared to the 19,045 SF required for these two functions.



Existing Chapel (Building C-49)

Options identified to satisfy this deficiency included constructing an addition or additions to C-49 or converting the existing facility to other use (training/civilian personnel center) and constructing of a new chapel/religious education building on Gela Road west of Command headquarters (Building C-2).

New construction would provide a facility properly configured and sized to meet the full requirement, sited in a prominent location with a good visual relationship to the main entrance to the Mainside Administrative area (Kula Road), C-2, and C-49. Meeting the

requirement by adding onto the existing chapel/religious education building, on the other hand, would intrude into an existing wooded area which currently screens C-49 from the adjacent ballfield and would create problems relative to the configuration and scale of the new facility.

Theater - The existing theater in Building C-9, while recently refurbished, is 3,435 SF or 120 seats in size, compared to the requirement of 6,500 SF or 350 seats. Two major options for satisfying this deficiency were identified. These options were to expand the existing theater in Building C-9 by converting space currently used for an enlisted dining facility or to convert the existing gymnasium in Building C-29 to this function.

Expansion of the existing facility in C-9 would require extensive alteration to retrofit the converted space to the new function. The existing gymnasium, while larger than the identified requirement for a Mainside theater, would appear to be a space well suited for this function.

Enlisted Mess - The Enlisted Mess, located in Building 500, currently occupies 5,994 SF compared to a requirement of 23,700 SF initially identified for this function by the Basic Facilities Requirement document for WPNSTA Earle. Options identified for this facility were to convert all or part of Building C-9 (currently an enlisted dining facility, theater, and Marine armory) to an enlisted mess or to build an addition onto the existing enlisted mess.

Conversion of C-9 to an enlisted mess would provide a facility close in size to the identified requirement. C-9 is centrally located in an established community/recreational zone easily accessible to the BEQ's. An addition onto the existing enlisted mess, on the other hand, would perpetuate a relatively remote location for this function in a building potentially well suited for conversion to another use. Also, this action would require new construction rather than rehabilitation of an existing facility.

Youth Center - The existing youth center, located in Building C-36, is in inadequate condition and undersized compared to the requirement of 5,670 SF for this function. The concept alternatives identified three different options for satisfying this deficiency: constructing a new facility in the area south of Esperance Road next to Building C-56 (the consolidated hobby shop), constructing a new facility on Esperance Road next to the existing police station (Building C-1) and enlisted mess (which would be converted to other use), or converting the existing enlisted mess (Building 500) to this function.

Conversion of the existing enlisted mess holds the advantage of allowing rehabilitation of existing building space (which is well configured for use as a Youth Center) rather than requiring new construction. Also, Building 500 is well situated relative to the existing enlisted pool and potential chapel/religious education building site on Gela Road.

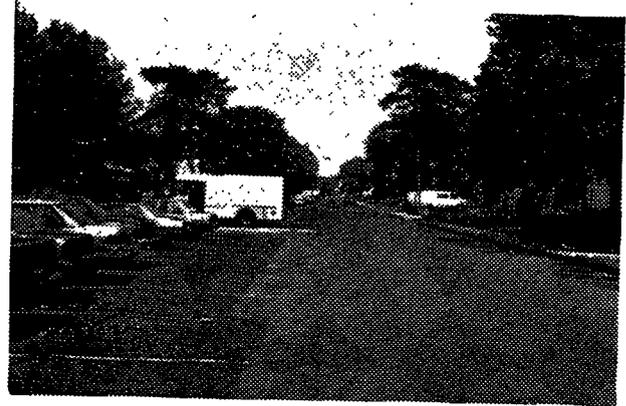
Training/Personnel Center - Code 06 (Civilian Personnel) is currently located in Building C-3, which is in substandard condition and lacks a dedicated training facility. Moreover, the existing facility is not easily found by job applicants arriving for interviews. Options identified for this function included converting the existing chapel/religious education building (Building C-49), upgrading and expanding the existing personnel offices in C-3 to include a training room, or converting the existing enlisted club (Building 500).

Converting the existing chapel/religious education building would provide a personnel office in a prominent location easily accessible to job applicants. Additionally, the chapel would provide a space well configured to serve as a large classroom or two or three smaller ones through the use of moveable partitions. Conversely, if Code 06's existing facility in Building C-3 were expanded and upgraded, its current relative inaccessibility to job applicants would be continued. Moreover, this building, which consists of three long, narrow wings connected by hallways, is not well configured to accommodate a training facility. The existing enlisted club is located near the main gate in a location easily accessible to job applicants and contains two meeting rooms which could potentially serve as classrooms.

A separate development issue explored during formulation of alternative concept plans for the Mainside Administrative area was the recent trend towards siting large parking lots in prominent locations adjacent to major roads, contrasting with the traditional practice of siting smaller lots behind or next to buildings. This new trend threatens to erode the established rural ambiance of the Mainside as epitomized by thoroughfares such as Esperance Road, which affords views into wooded areas and across open spaces. Current plans for the new exchange and Navy lodge, two authorized projects to be located on the south side of Esperance Road across from and east of the intersection with Kula Road, specify parking lots located between the new facilities and Esperance Road. In two of the alternatives prepared during the concept development phase, these parking lots were placed behind the two facilities, thereby preserving an open space buffer along Esperance Road.



Traditional pattern - parking behind Building C-29



New pattern - parking along the roadway

B. Alternative Developed Subsequent to October 1990

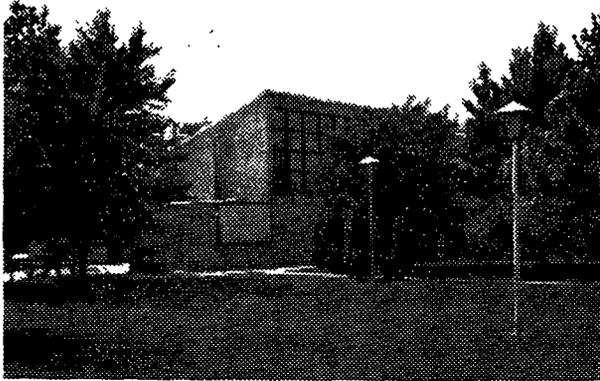
Subsequent to the presentation of the three alternative concepts in the Fall of 1990, additional input from Navy representatives resulted in development of a fourth alternative which consisted of new options for certain facilities at the Mainside. These facilities included the enlisted mess, youth center, and training/personnel center. In addition, further input was received concerning the location of the enlisted dining facility.

Enlisted mess - Based upon patterns of usage of the existing enlisted mess, which is relatively underutilized, consensus was reached that the requirement for this function should be reduced from the 23,700 SF identified by the BFR to 5,994 SF, the size of the existing facility. Therefore, maintaining this facility in Building 500 without expanding it is a viable option.

Youth Center - The new option developed for the youth center involved converting the existing chapel/religious education building to this function. This option would allow the rehabilitation of existing building space well configured for this function rather than new construction. In addition, Building C-49 is located in close proximity to existing community recreation facilities including the installation pool.

Training/Personnel Center - The new option developed for the training/personnel center involved maintaining the Civilian Personnel administrative offices in Building C-3 and locating the central training facility in the space currently occupied by the theater in Building C-9. This option would allow conversion of a portion of C-3 to a conference room which could be used for small training sessions as well as by other departments occupying this building. Larger training sessions could be held in the central facility in C-9 in space which is well suited for this function. Disadvantages of this option include the relative inaccessibility of Building C-3 to job applicants and the fact that Code 06's training and personnel functions would have to be split between two buildings.

Enlisted Dining Facility - The existing dining facility in Building C-9 is in substandard condition and oversized with respect to the requirement identified for this function. The three concept



Arsenal Club, Enlisted Mess at the Mainside (Building 500)

alternatives developed prior to October 1990 identified three possible options for locating this facility. Two of these options involved relocating the dining facility to other buildings (C-3 or C-29) to make the space in Building C-9 available for conversion to an enlisted mess, while the third option involved consolidating and upgrading the existing facility in C-9. Based upon input received subsequent to presentation of the three concept alternatives in Fall 1990, a fourth option was developed. This option involved upgrading the existing dining facility in C-9, which unlike Buildings C-3 and C-29 is centrally located

relative to the existing Mainside BEQ's. This option would, however, maintain the current surplus of space for this function associated with the existing facility.

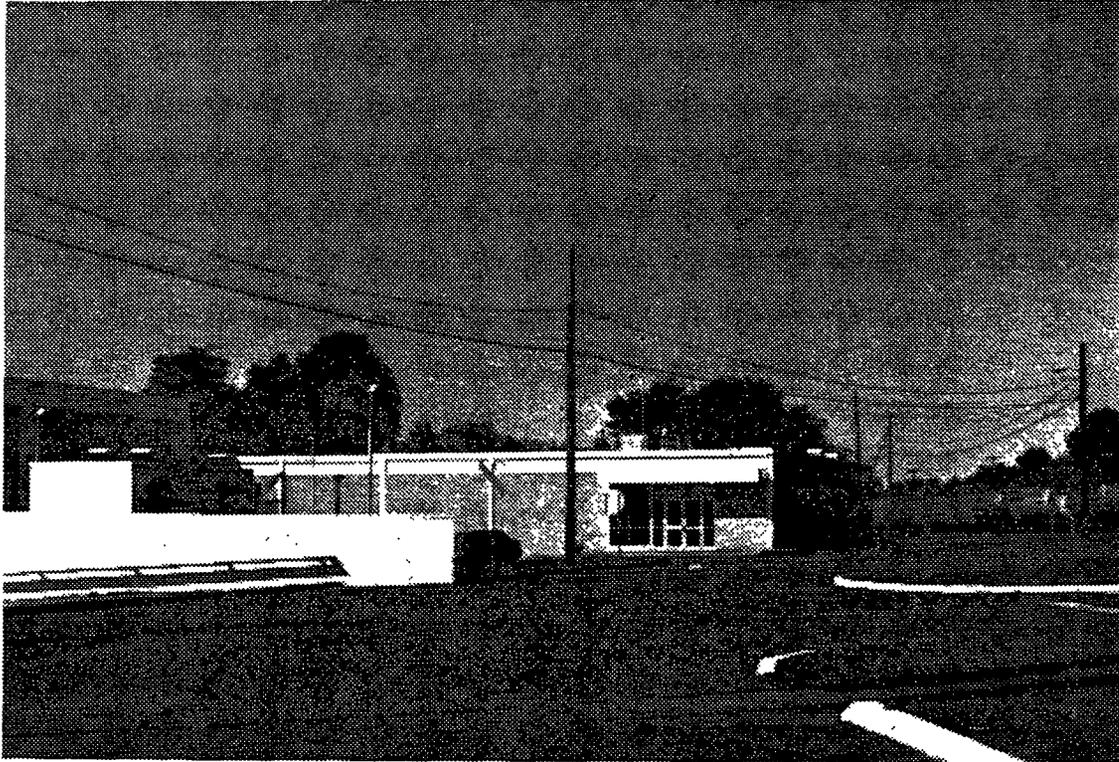
4.3.2 ALTERNATIVE CONCEPT PLANS: WATERFRONT ADMINISTRATIVE AREA

Important facilities required at the Waterfront include a new or expanded transit shed to support the two AOE 6 class ships projected to be homeported by Earle in 1996, a ships' storage facility for use by COMLOGRON, a small boat shop, small craft berthing/fuel storage facility, a covered dunnage storage shed, and a Public Works vehicle compound. A new BEQ and enlisted dining facility are required to support unmarried ashore military personnel (COMLOGRON, SIMA, Code 20's Port Services Division, and the Coast Guard Detachment) whose work tasks are directly related to homeported ships and therefore from a functional standpoint (and to minimize non-ordnance related traffic on Normandy Road) should be berthed at the Waterfront. New or expanded community/recreational facilities such as exchange, enlisted mess, theater, and consolidated hobby shop are required to sustain these personnel and bachelors living on the homeported ships.

A key issue addressed in formulation of concept alternatives for the Waterfront was the possibility of adaptively reusing the OHMSETT facility, or wave tank, to meet facility requirements. Given that WPNSTA Earle's Basic Facilities Requirements document identifies a pressing need for new storage facilities to support homeporting, and the findings of a study of possible uses for the wave tank³, the most feasible use would appear to be for storage and warehousing. Accordingly, two of the concept alternatives explored options for using the wave tank for this function. In the third alternative, the wave tank was not used.

³ Wallace Roberts & Todd, Wave Tank Reutilization Study, January 1990

Another major development issue at the Waterfront is the difficulty of siting new or expanded facilities due to the presence of wetlands, floodplain, and other environmental constraints. The relative lack of buildable land contrasts with the situation at the Mainside Administrative area which, although not without areas of limited development potential due to environmental factors (principally wetlands), generally has enough unconstrained land to accommodate required new



Site for Indoor Training Pool in front of Building R-15

facilities. While all three concept alternatives satisfied facility deficiencies for the Waterfront Administrative area, some of the options identified for siting individual facilities result in a greater degree of environmental impact than others. From a functional standpoint, for example, the logical location for an indoor training pool is within an addition to the existing gymnasium (Building R-15) in order to take advantage of locker room facilities. Of the two potential locations for this facility identified by the concept alternatives, siting the addition on the west side of R-15 would intrude into the New Jersey State-regulated, 50-foot wetland buffer and possibly encroach on the wetland. Therefore, the preferable location for an addition from an environmental standpoint is between R-15 and the street.

As with the Mainside concept alternatives, optimal locations were identified for certain required facilities such as the exchange (addition to the current exchange in Building R-12 and conversion of Building R-21 to this function) and enlisted mess (addition to Building R-3 and conversion of space within this building not currently used for this function) and established as common to all three alternatives. For the purpose of comparison, alternative locations were established for other facilities as follows.

Waterfront Transit Shed - The existing transit shed of 20,575 SF, located in Building R-22, is sized to meet the requirements for this function of the two AOE class ships currently homeported at Earle. An additional 22,935 SF is required to meet the projected needs of two AOE 6 class vessels expected to be homeported by FY 1998. Options for satisfying this deficiency identified by the three concept alternatives included 1) retaining the existing transit shed and constructing a second shed in the same general vicinity next to Building R-4B, 2) retaining the existing transit shed and renovating a portion of the wave tank to accommodate a second shed, or 3) converting Building R-22 to another function and renovating the entire wave tank (and the adjacent Building R-24) to accommodate a transit shed facility sized to meet the full requirement.



Existing Waterfront Transit Shed (Building R-22)

Retaining the existing transit shed and building a second shed nearby would allow continued use of the existing facility as well as consolidation of the entire function in one location. This option would, however, create other problems, including increased truck traffic to and from the pier/trestle complex through the core community/recreational zone at the Waterfront and encroachment upon the 50-foot wetland buffer. Dividing the transit shed between the existing facility and a portion of the wave tank would alleviate these latter problems, but would result in a split functional relationship. Converting the wave tank to accommodate an expanded transit shed would allow consolidation of this function in one location ideally situated with respect to the pier/trestle complex and would remove truck traffic to and from the pier from the core Waterfront area. Although this option would require that the existing transit shed be converted to other uses, Building R-22 could be easily modified to accommodate needed functions such as ships' storage and weight handling equipment shop.

Ships' Storage - The existing ships' storage facilities, located in Building 514 and a portion of Building R-10, are in substandard condition and are undersized compared to the total requirement of 12,450 SF for this function. Options identified for satisfying this deficiency included demolishing Building 514, constructing a new facility in the same general location behind Building R-4B, and converting the space in Building R-10 to other use; demolishing Building 514, upgrading the existing ships' storage area in Building R-10, and converting a portion of the wave tank to meet the remaining requirement; or upgrading Building 514 and converting a portion of Building R-22 (former transit shed) to meet the remaining requirement.

Construction of a new building behind Building R-4B would provide a consolidated facility sized to meet the full requirement for this function. Construction in this location would, however, potentially require encroachment upon the 50-foot wetlands buffer. The other two options, while

splitting the function between two locations, would meet the requirement identified in WPNSTA Earle's Basic Facilities Requirements document without requiring new construction.

Boat Shop - A small boat repair shop of 3,925 SF is required by SIMA at the Waterfront to support homeported and visiting ships. Two options were identified for siting this facility. These options were to convert a portion of the space in Building R-2 currently used as an automotive vehicle maintenance shop to this function or to convert a portion of Building R-24. Converting space in Building R-2, which also houses SIMA's primary maintenance facility, would create an ideal relationship between these two functions. Conversely, use of space in Building R-24 would provide a facility closer to the pier/trestle complex but would split SIMA operations between two locations.

Covered Dunnage Storage Shed - Dunnage used in blocking and bracing ships is currently stored outdoors at the Chapel Hill area, where it is subject to weather damage. A covered area of 5,890 SF is required to replace the current outdoor storage. Options identified for satisfying this deficiency included constructing a storage shed at Chapel Hill, using part of the wave tank, or using part of Building R-10 or R-22.

A storage shed constructed at Chapel Hill would remain relatively remote from the pier/trestle complex where the dunnage is used. Other potential building sites are limited due to environmental constraints and potential land use conflicts (e.g., at the ballfield area). The wave tank is ideally situated with respect to the piers. From an operational standpoint, however, use of this facility for dunnage storage is probably less efficient than using it to satisfy the entire transit shed requirement. If the wave tank and adjacent Building R-24 were converted to a transit shed function, then space in Buildings R-10 and/or R-22 would be available for covered dunnage storage.

Public Works Vehicle Compound - Public Works vehicles are currently stored indoors in the existing automotive vehicle maintenance shop (Building R-2) or informally outside this facility. A fenced in compound with an area of 45,305 SY is required to accommodate approximately 150 vehicles. Such a facility would make space currently utilized for this function in Building R-2 available for other uses. Options identified for satisfying the requirement for a Public Works vehicle compound included siting this facility directly north or west of Building R-4B or, assuming that the area in the vicinity of Building R-4B were used for a second transit shed and ships' storage facility, converting a portion of the existing parking lot on the east side of "Main Street" across from the existing police station (Building R-5) to this function. Subsequent to formulation of the three concept alternatives, a third potential site was identified, west of the wave tank directly adjacent to Building R-24.

Siting a Public Works compound north or west of Building R-4B would provide a facility both convenient to the existing Public Works shops and located away from the community and recreational facilities in the core Waterfront area. Care would be required in siting this facility to ensure that it would not encroach upon the 50-foot wetlands buffer. If the wave tank were not used to accommodate functions such as a transit shed and ships' storage, the area in the vicinity

of Building R-4B would be needed for these uses and the vehicle compound would have to be sited on one of the other alternative sites. Siting the facility west of "Main Street" would compromise the visual character of the street, conflict with the predominantly community oriented use of this area, and result in insufficient private occupancy vehicle parking in the core Waterfront area. Moreover, this site is somewhat removed from the Public Works shops. The site west of the wave tank is also removed from the Public Works shops, but is located next to the Public Works administrative offices in Building R-24.

BEQ - The existing Waterfront BEQ (Building R-11) currently has 20 berths. An additional 71 berths, or 14,596 SF, are required to accommodate unmarried military personnel who work at the Waterfront. Options identified for satisfying this deficiency included building a two-story BEQ across "Main Street" from Building R-4A, adding onto the existing BEQ, or converting the second story of Building R-4B to this function.

Constructing a two-story BEQ across from Building R-4A would reinforce the visual character of "Main Street" by replacing a portion of an existing parking lot with a building in scale with other structures along the street, thus helping to implement an objective established by WPNSTA Earle's BEAP. The proposed site is well situated next to the existing BEQ and would augment a zone which (along with the expanded exchange facility and enlisted mess) consists of buildings used predominantly for community-related functions. Constructing an addition onto Building R-11 would have similar advantages but would create an architectural problem in that the existing BEQ has one story while a two-story addition is required. Either of these options would result in the loss of some existing parking spaces. Converting the second story of Building R-4B to a BEQ would result in a physical separation between the new and existing BEQ and would necessitate additional construction to meet the full requirement for this function.

Enlisted Dining Facility - A new enlisted dining facility of 5,000 SF, capable of serving 146 persons, is required to support personnel housed in the Waterfront BEQ's as well as ships' enlisted personnel who may be working ashore. Options identified for siting this facility included constructing an addition onto the rear of the existing BEQ or constructing a one-story facility on "Main Street" across from Building R-4A. The tradeoffs for these two options are similar to those identified for the first two options discussed above for the new BEQ.

Theater - WPNSTA Earle's Basic Facilities Requirements document identifies the need for a general purpose theater of 172 seats or 3,500 SF, a library of 2,560 SF, and a religious education center of 1,350 SF to support personnel living in the Waterfront BEQ's and on homeported ships. Since these functions are generally compatible, it was determined that the overall deficiency of 7,410 SF could be satisfied through a combined facility located either on the second story of Building R-4B or in a new building located across from Building R-4A. Conversion of the second story of R-4B would make use of a currently underutilized space located in an established community zone. Significant renovation work would be required, however, to retrofit this space for a theater. Construction of a new facility across from R-4A, while feasible, would make use of a prime building site potentially better suited for a more active use (BEQ or enlisted dining facility).

Consolidated Hobby Shop - A consolidated automotive and arts/crafts hobby shop of 3,100 SF is required to provide recreational opportunities for military personnel living at the Waterfront and on homeported ships. The concept alternatives identified three potential locations for this facility: across from Building R-2 next to Building R-4B, in Building R-2, or south of State Highway 36 next to the existing ballfield and deployed parking lot.

Construction of a consolidated hobby shop across from R-2, while feasible, would make use of a prime building site in an area predominantly utilized for operational support activities such as shops and storage. Conversion of a portion of Building R-2 would similarly conflict with the current use of this building for SIMA and Public Works shops. Constructing a hobby shop near the existing ballfield, while eliminating potential land use conflicts, would result in a relatively remote facility situated in an open space/recreational area.

4.4 SELECTION OF THE PREFERRED ALTERNATIVE

The three initial alternative development concepts for the Mainside and Waterfront Administrative areas were presented to representatives of the Navy in September and October 1990. A conceptual plan for siting up to 600 family housing units at the Wayside area was presented at the same time (see Section 5.2.2). As noted in Section 4.3.1 B, a fourth alternative was subsequently developed for the Mainside as a result of input received from Navy representatives. A preferred alternative (Proposed Development Plan) was formulated based upon input received regarding the concept alternatives and further evaluation and refinement of proposed planning actions. The Proposed Development Plan is presented in Section 5.0.

In accordance with the agreement reached with the Department of the Interior to lease the wave tank for use in oil and hazardous materials spill research, the Proposed Development Plan does not make use of this facility to satisfy facility deficiencies. Given the need for additional storage/warehousing facilities to meet projected 1998 requirements and the relative lack of buildable land at the Waterfront due to environmental and safety (explosive arc) constraints, not using the wave tank will have the following impacts:

- Because the wave tank will not be used to satisfy the transit shed requirement, a second transit shed will have to be constructed adjacent to the existing one. This will result in increased truck traffic through the community/recreation core to and from the pier/trestle complex.
- The Public Works vehicle compound will have to be sited in a location separated from the Public Works shops. In general, there will be less efficient vehicle movement and a greater impact on the community core.
- New construction potentially encroaching on the 50-foot wetland buffer will be required for the second transit shed and ships' storage facility.
- Two facilities (covered dunnage storage shed and consolidated hobby shop) will have to be located in remote locations, at Chapel Hill and the ballfield site, respectively.
- Because facility deficiencies that could be met by adaptively reusing the wave tank will instead be satisfied through new construction, there will be limited potential for future expansion to meet expanded mission requirements.

PROPOSED DEVELOPMENT

PROPOSED DEVELOPMENT PLAN

5.0 PROPOSED DEVELOPMENT PLAN

The Proposed Development Plan for WPNSTA Earle is comprised of the planning actions necessary to meet the projected 1998 facility requirements identified in the Basic Facilities Requirements document. The plan encompasses the Mainside Administrative area, Wayside area, Waterfront Administrative area, and peripheral areas including the pier/trestle complex and Ordnance operations and storage areas (Mainside and Chapel Hill).^{1,2} Because most of the proposed planning actions affect the Mainside and Waterfront Administrative areas, these subareas are addressed in the most detail. Conceptual land use plans for the Mainside and Waterfront Administrative areas are described in Sections 5.1 and illustrated in Figures 5.1 and 5.2. The Proposed Development Plans for these areas are described in Sections 5.2.1 and 5.2.3 and shown in Figures 5.3 to 5.6 and 5.11 to 5.14, respectively. A conceptual plan for siting up to 600 housing units in the Wayside area is described in Section 5.2.2 and illustrated in Figures 5.7 to 5.10. Projects proposed in peripheral areas are described in Section 5.2.4 and shown in Figure 5.15. Projects proposed in the F-Group Magazine Area are shown in Figure 5.16.

For each of the three main planning subareas, the overall development plan is presented first. These plans are followed by supporting graphics showing existing facilities to remain essentially unchanged, existing facilities proposed for rehabilitation/conversion to another use, and proposed new construction. On the latter two plans for each subarea and on the plan for peripheral areas, projects are identified by numbers indicating a MILCON (P-xxx) or Master Plan (MP-xx) project status. MILCON (Military Construction) projects include programmed (through FY 1999) and unprogrammed projects for which Project Data Sheets (PDS) have been prepared by the Navy. Master Plan projects are additional projects identified through the master planning process as necessary to meet deficiencies identified by WPNSTA Earle's Basic Facilities Requirements document. A complete list of MILCON and Master Plan projects is contained in Appendix B.

¹ The Proposed Development Plan for the pier/trestle complex was prepared by Han-Padron Associates in Pier/Trestle Alignment Study (August 1990). Pier MILCON projects shown in the Master Plan (with the exception of the proposed fueling wharf) are derived from that study.

² The proposed development plan for Ordnance production facilities is being formulated under separate contract and thus is not addressed in the Master Plan.

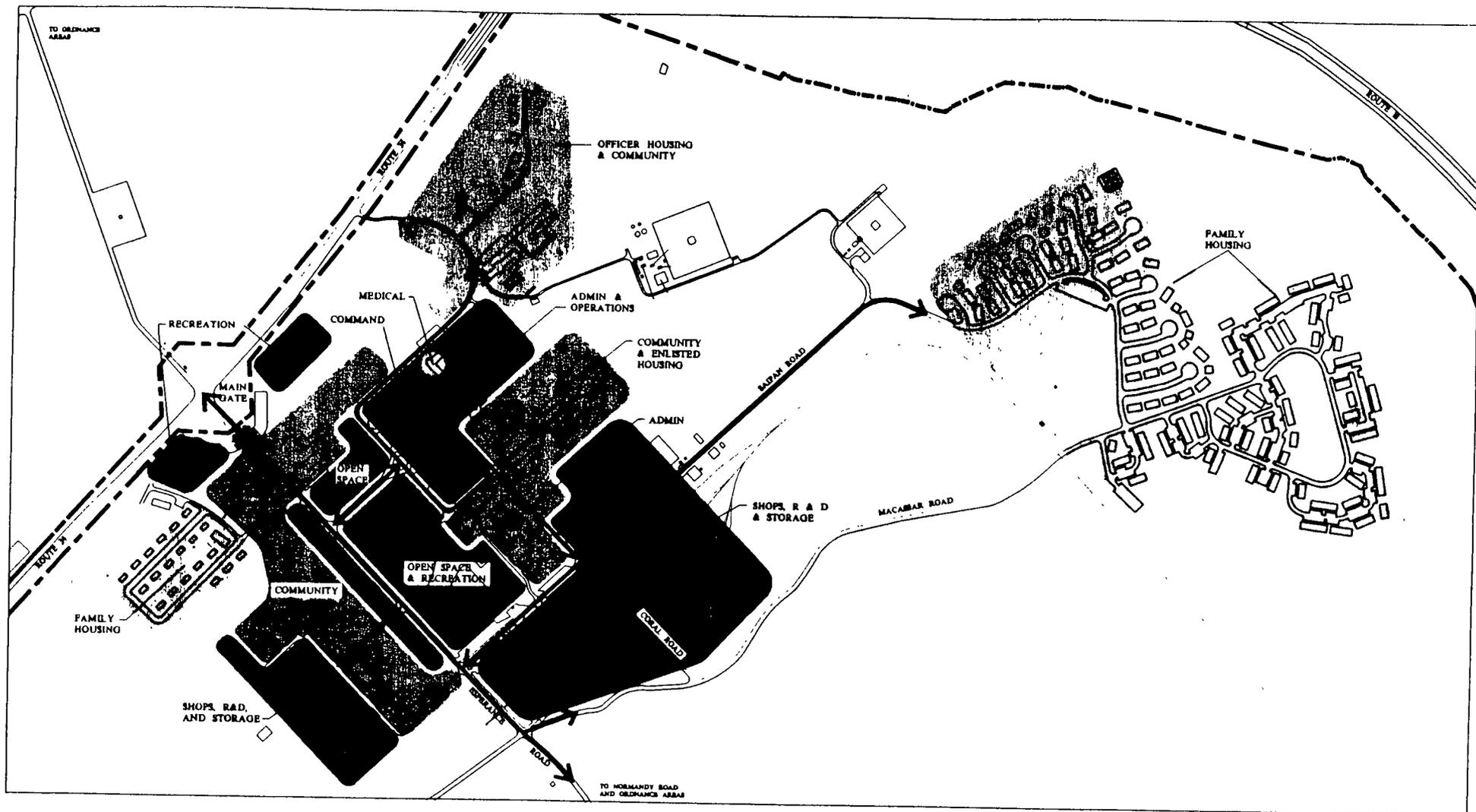
5.1 PROPOSED LAND USE PLAN

5.1.1 PROPOSED LAND USE PLAN: MAINSIDE ADMINISTRATIVE AREA

The Mainside Administrative area currently consists of several identifiable land use zones, including areas where the predominant uses are open space/recreation, general community, administration/operations, shops, RDT&E and storage, officer housing/community, enlisted housing/community, and family housing. Consistent with the master planning principles and objectives described in Section 4.1, the intent of the Proposed Development Plan is to maintain and enhance the established land use zones through the careful siting of new or expanded facilities (Figure 5.1).

The proposed zones generally reflect existing patterns of land use. As shown in Figure 5.1, major proposed land use zones include:

- An operational/administrative zone at the main entrance to the Administrative area off of Esperance Road (Kula Road), including Command and other administrative facilities in Building C-2, Building C-3, and Building C-8 (marine barracks).
- "Industrial" zones (shops, RDT&E, storage and similar uses) east of Saipan Road between Esperance Road and Coral Road and on both sides of Saipan Road north of Coral Road, and behind the proposed community zone south of Esperance Road.
- A community-serving zone on both sides of Esperance Road next to the main gate, extending east parallel to the Esperance Road to include the recently constructed consolidated hobby shop and Building C-36.
- An open space/recreational zone along Esperance Road east of Building 500 (currently the enlisted mess), including the existing parade grounds, wooded areas, and ballfields on the north side of the road, and an open space buffer along the south side of the road.
- An officer housing/community zone at the end of Gela Road north of the administrative/operational zone, including Building C-4 (currently the officers' mess and BOQ) and officers' family housing.
- An enlisted housing/community zone on both sides of Coral Road east of the administrative/operational zone, including the existing BEQ's, Building C-9 (currently the enlisted dining facility, theater, and armory), and Building C-29.
- Family housing zones near the main gate and at the end of Saipan and Macassar Roads.



- | | |
|--|--|
| HOUSING |  ADMINISTRATIVE |
|  COMMUNITY |  INDUSTRIAL |
|  OPEN SPACE | |
| MEDICAL | |

PROPOSED LAND USE
 PLAN
 MAINSIDE ADMIN AREA
 MASTER PLAN
 NAVAL WEAPONS STATION EARLE

FIGURE 51



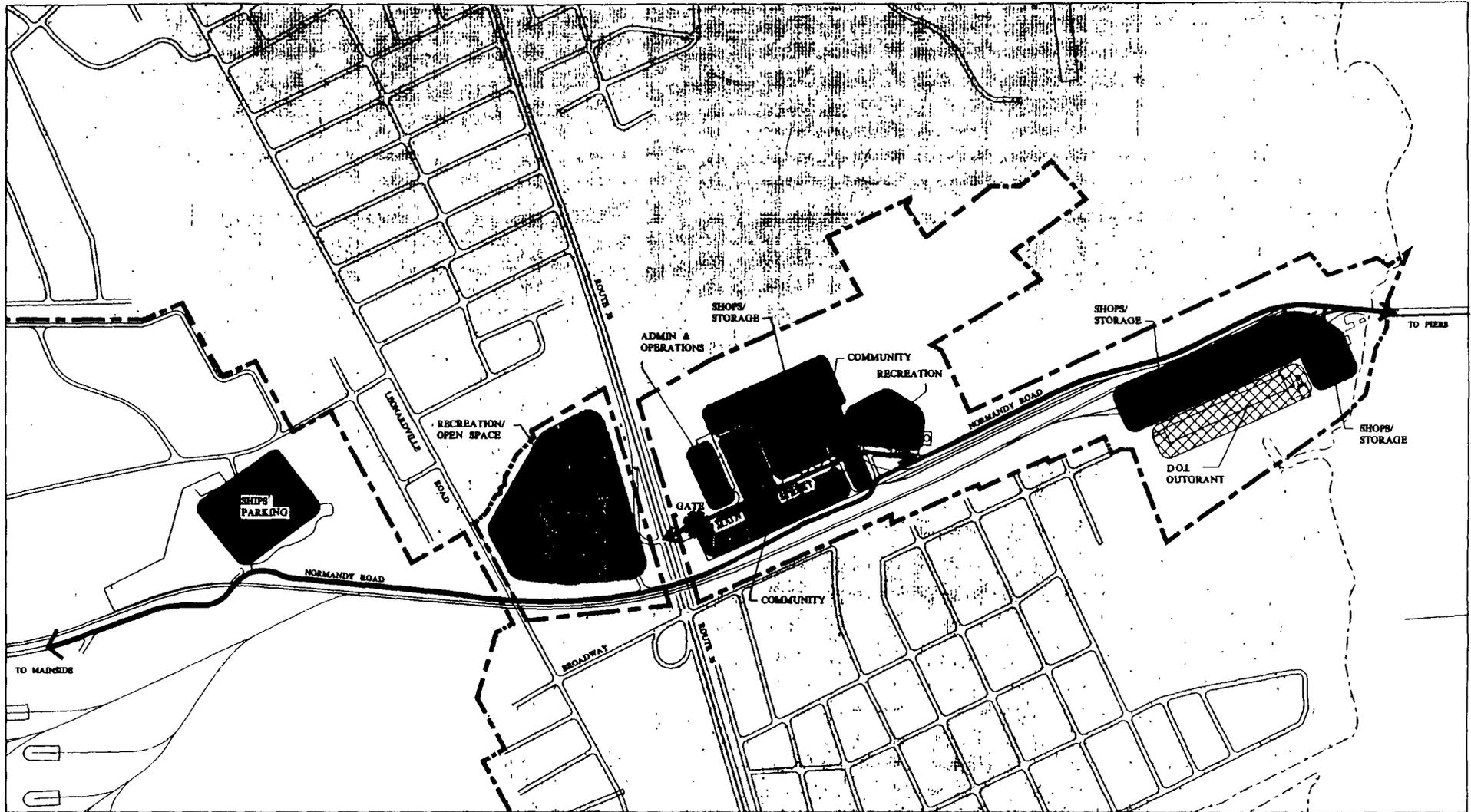
5.1.2 PROPOSED LAND USE PLAN: WATERFRONT ADMINISTRATIVE AREA

Figure 5.2 illustrates the proposed land use for the Waterfront Administrative area. As at the Mainside, the Proposed Development Plan for the Waterfront generally maintains established land uses. Proposed land use zones include:

- An administrative/operational zone (Building R-4A) on the west side of "Main Street" north of the main gate.
- "Industrial" zones located west of "Main Street" next to the community-serving zone (including Buildings R-2, R-9, R-10 and the existing transit shed), west of the wave tank next to Building R-24, and south of the wave tank next to the pier/trestle complex.
- A community-serving zone on the east side of "Main Street" north of the main gate (currently occupied by a BEQ, location exchange and parking lot) and extending west across the street to include Building R-3 (currently the enlisted mess) and Building R-4B (currently the medical/dental clinic).
- A recreational zone at the intersection of "Main Street" and Normandy Road, encompassing Buildings R-15 (gymnasium) and R-23 (bowling alley).
- A recreation/open space zone at the existing ballfield south of State Highway 36.
- Ships' parking in the Chapel Hill area.



View down "Main Street"



- COMMUNITY
- SHIPS' PARKING
- OPEN SPACE
- DOL OUTGRANT
- ADMINISTRATIVE
- INDUSTRIAL

PROPOSED LAND USE PLAN

WATERFRONT ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION, EARLE

FIGURE 52



5.2 PROPOSED DEVELOPMENT PLAN

5.2.1 PROPOSED DEVELOPMENT PLAN: MAINSIDE ADMINISTRATIVE AREA

The overall Proposed Development Plan for the Mainside Administrative area is shown in Figure 5.3. Figures 5.4, 5.5 and 5.6 illustrate existing facilities to remain unchanged, facilities proposed for rehabilitation/conversion to other use, and proposed new construction, respectively. The proposed planning actions have been carefully crafted to resolve deficiencies identified by WPNSTA Earle's Basic Facilities Requirements document, conform with master planning principles and objectives, maintain and enhance operational and functional relationships, and comply with the proposed conceptual land use plan for the Mainside Administrative area. Key planning actions together with MILCON or Master Plan project numbers are listed below according to proposed land use zone.

1. Operational/administrative zone

- Renovate Building C-3 to accommodate administrative offices for Codes 02, 03, 05 and 06, a conference room, and an expanded data processing center (MP-15, MP-17).
- Add an addition to Building C-7 (EOD facility, MILCON P-939).
- Add an addition to Building C-2 to accommodate expansion of the telephone exchange facility (MP-03).
- Expand the existing Medical Clinic and create a Mainside Dental Clinic in Building C-3. Construct an emergency vehicle garage for ambulances next to Building C-3 (MILCON P-947).

2. Industrial zones

- Construct an addition to Building C-54 to accommodate expansion of Code 40's Test and Evaluation laboratory (MILCON P-977).
- Expand the Supply warehouse through construction of additional warehouse space next to Building C-21 (MILCON P-917).
- Relocate the calibration laboratory along with Code 70's (Fleet Support) administrative offices from Building C-3 to Building C-33 (MILCON P-915).
- Convert the existing thrift shop to RDT&E storage (MP-13).
- Construct a Public Works vehicle compound (MP-34) and vehicle ready fuel storage facility (MP-02) east of Building C-50.

- Build a new hazardous waste storage facility on the east side of Saipan Road north of Building C-16 (MILCON P-982).
- Renovate the existing small arms range in Building C-34 (Special Project R7-91).

3. Community zone

- Construct a new chapel/religious education building on Gela Road west of Building C-2 (MILCON P-957).
- Construct a new Exchange (MILCON P-846) and Navy Lodge (MILCON P-933) on the south side of Esperance Road.
- Construct a new family services center (MILCON P-847, P-958) next to Building C-55 (the housing management office).
- Convert the existing chapel/religious education building (Building C-49) to a youth center (MP-26).
- Convert Building C-36 to a thrift shop (MP-22), special service issue and office (MP-24), and package store (MP-28).
- Construct an addition to the existing police station (Building C-1, MILCON P-960).

4. Open space/recreation zone

- Replace the existing 25-meter installation pool with a 50-meter pool together with a reconstructed recreation pavilion and new bathhouse (MP-30).

5. Officer housing/community zone

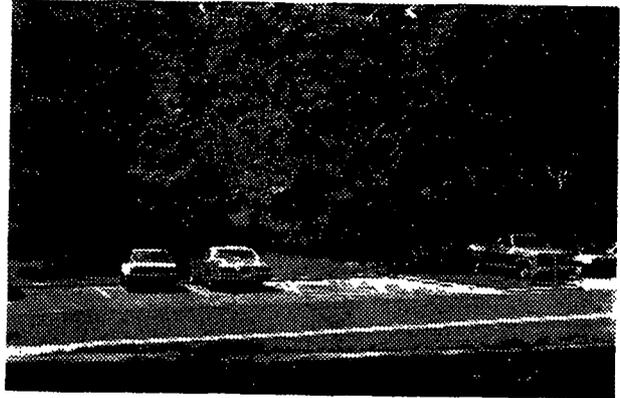
- Expand the officers' club to occupy all of Building C-4 by converting space currently used as a package store and BOQ (MILCON P-969).
- Construct a new BOQ across Gela Road from Buildings C-3 and C-4 (MILCON P-981).



Windjammer Club (Building C-49)

6. Enlisted housing/community zone

- Construct a new gymnasium (MP-25) and outdoor playing courts (MP-32) across Coral Road from Building C-29.
- Convert space in Building C-29 to accommodate a theater (MILCON P-906), and larger post office (MP-18), credit union (MP-20), bowling alley/amusement center (MP-21), and library (MP-29).



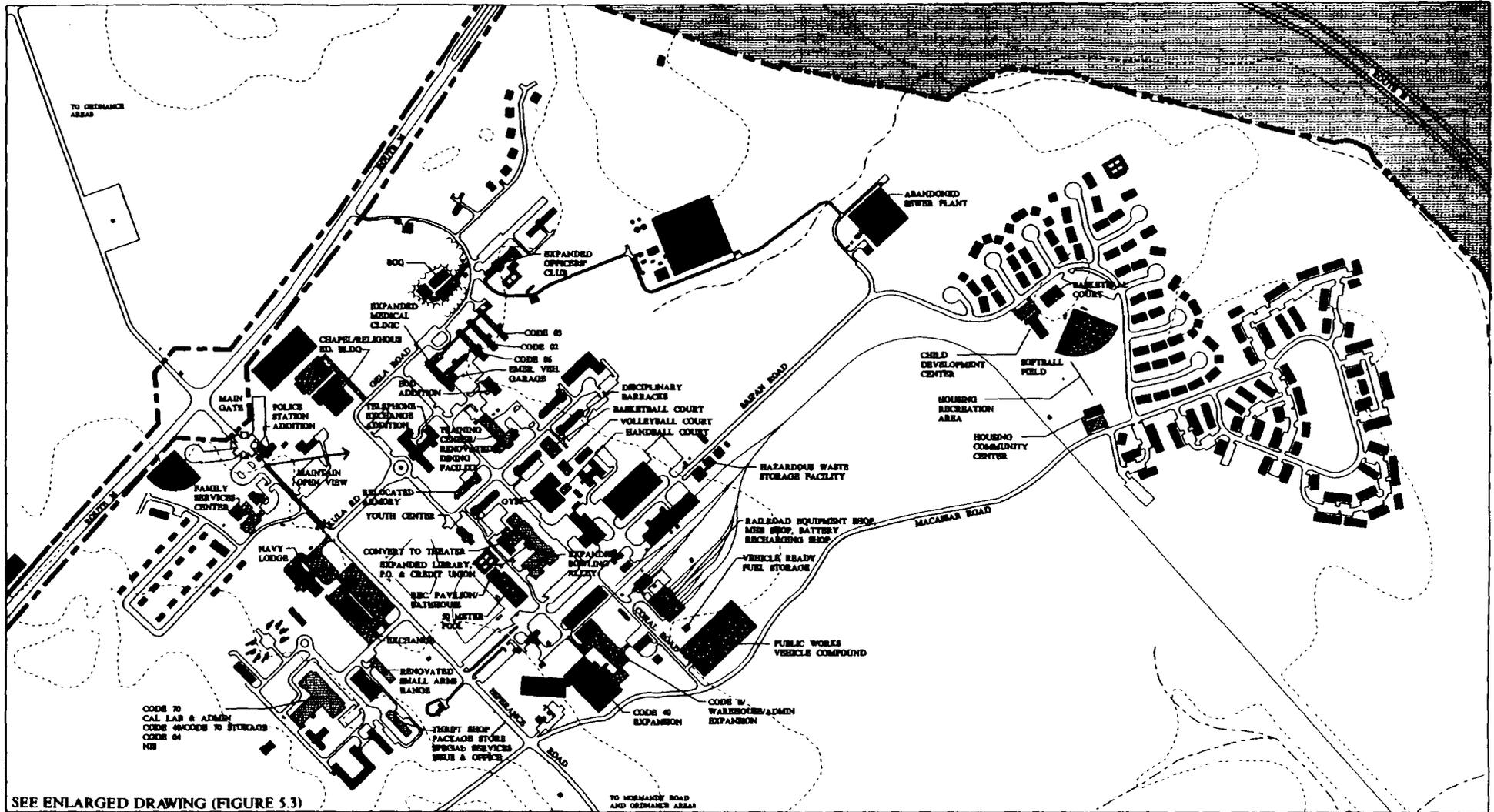
Coral Road site for the new gymnasium

- Renovate the existing substandard BEQ's (Buildings C-10, C-11, C-12, and C-13; MILCON P-942 and several special projects). Convert part of Building C-11 to a disciplinary/restricted barracks for 16 persons (MILCON P-850).
- Renovate the existing dining facility in Building C-9 (Special Project R19-89) and convert the existing theater in this building to a central training facility (MP-07).

7. Family housing zones

- Construct a child development center at the new family housing area at the end of Saipan and Macassar Roads (MILCON P-871).
- Construct a softball field and basketball court next to the new child development center (MILCON P-948).
- Construct a Housing Community Center near the new family housing at the end of Saipan and Macassar Roads (H-185). This center will also serve as an interim youth center until a permanent facility can be located in Building C-49.

Following implementation of the proposed planning actions for the Mainside, a certain amount of surplus building space will remain which cannot be immediately used to meet identified facility deficiencies. As noted in Section 3.5, this surplus largely reflects the age and inefficient configuration of many of the existing buildings. Because of the net surplus of space, future planning actions should focus on internal reorganization and adaptive reuse of excess space rather than new construction wherever possible. Adaptive reuse of excess space should be compatible with established functional relationships and patterns of land use to the greatest extent possible. The area vacated by the armory in Building C-9 and excess administrative space in Building C-3, for example, could be used to satisfy administrative space needs associated with Command and other functions in Building C-2, where no additional space is currently available.



SEE ENLARGED DRAWING (FIGURE 5.3)

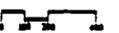
- NEW BUILDING CONSTRUCTION
- ▨ BUILDING CONVERSION
- NO CHANGE TO EXISTING FACILITY
- ▩ FACILITY DEMOLITION
- ⋯ NEW SITE CONSTRUCTION OTHER THAN P.O.V. PARKING
- ▤ NEW P.O.V. PARKING

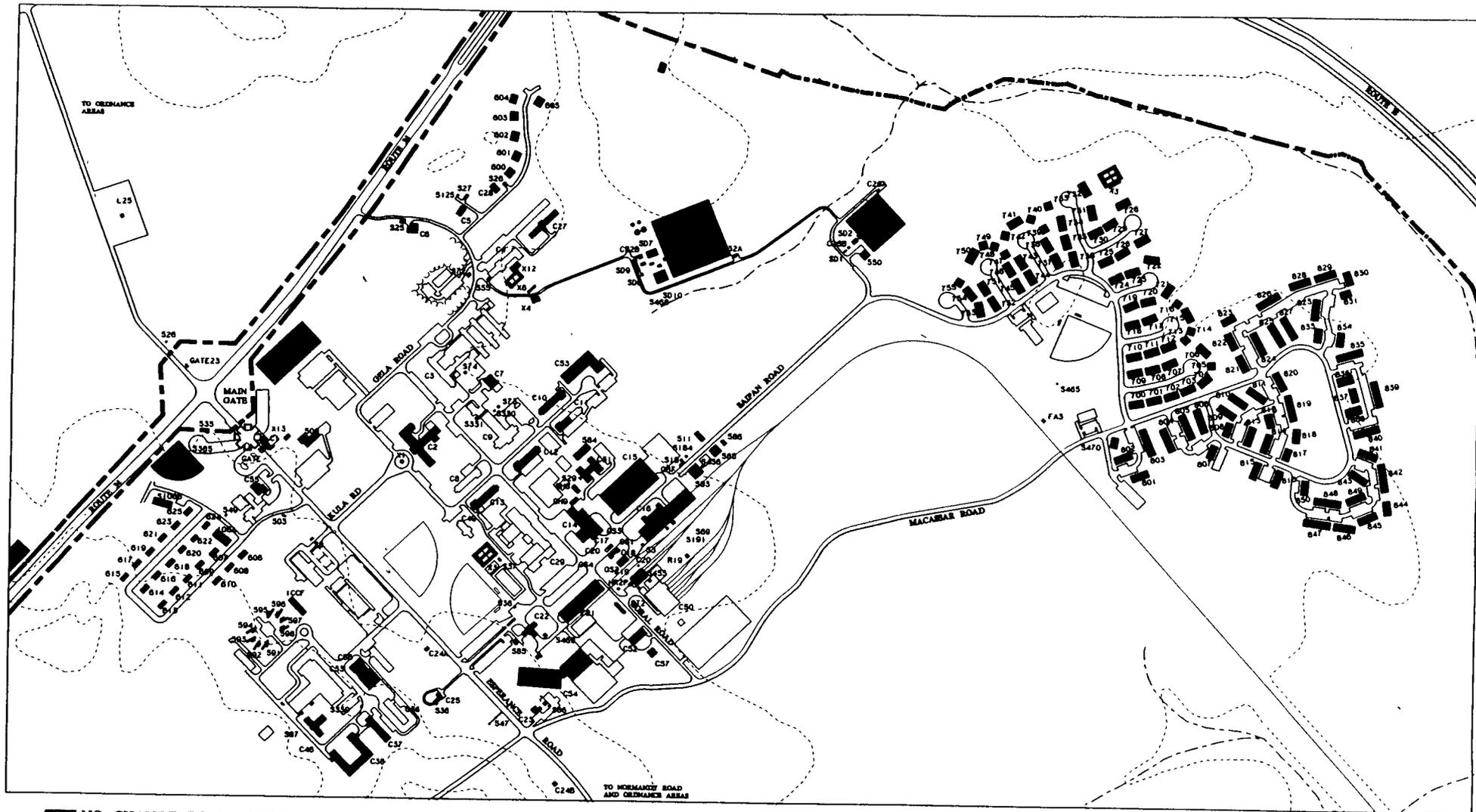
Note: See Figure 5.4 for building numbers

PROPOSED DEVELOPMENT PLAN FIGURE 5.3

MAINSIDE ADMIN AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE





■ NO CHANGE TO EXISTING FACILITY

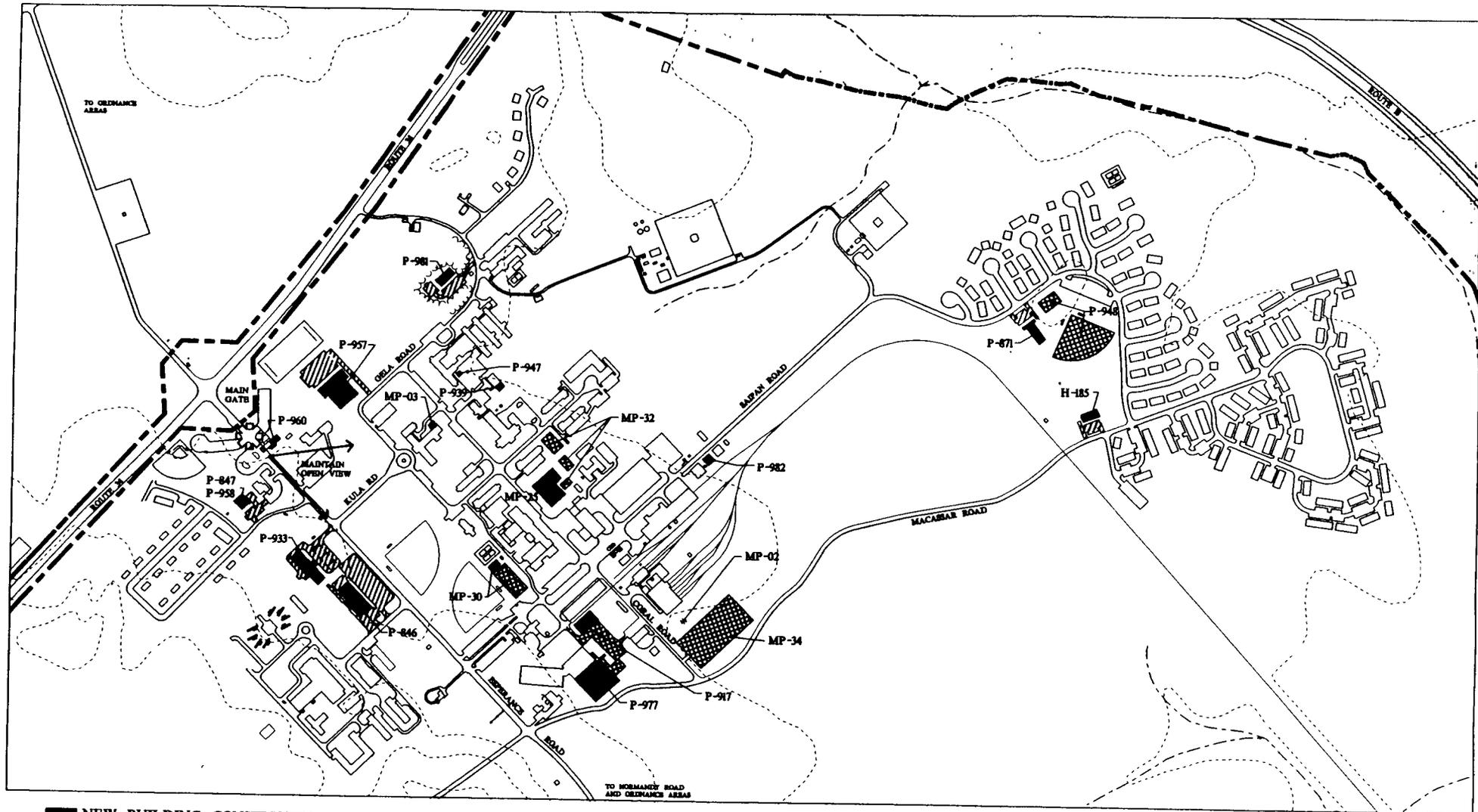
PROPOSED DEVELOPMENT FIGURE 54
 PLAN: EXISTING TO REMAIN

MAINSIDE ADMIN AREA



MASTER PLAN
 NAVAL WEAPONS STATION: EARLE





- NEW BUILDING CONSTRUCTION
- NEW SITE CONSTRUCTION OTHER THAN P.O.V. PARKING
- NEW P.O.V. PARKING
- PROJECT NUMBER

PROPOSED DEVELOPMENT FIGURE 5.6
 PLAN: NEW CONSTRUCTION
 MAINSIDE ADMIN AREA
 MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

5.2.2 PROPOSED DEVELOPMENT PLAN: WAYSIDE AREA

In order to provide housing for married military personnel serving aboard AOE 6 class ships, a need exists for additional family housing units. The Wayside area at WPNSTA Earle Mainside, located north of the In-Transit area next to the intersection of Wayside Road (State Highway 38) and Shafto Road (State Highway 547) in Tinton Falls, has been identified as a potential site for this purpose. As part of the Proposed Development Plan for WPNSTA Earle, a conceptual plan has been formulated for approximately 600 family housing units in this area (Figures 5.7 to 5.10).

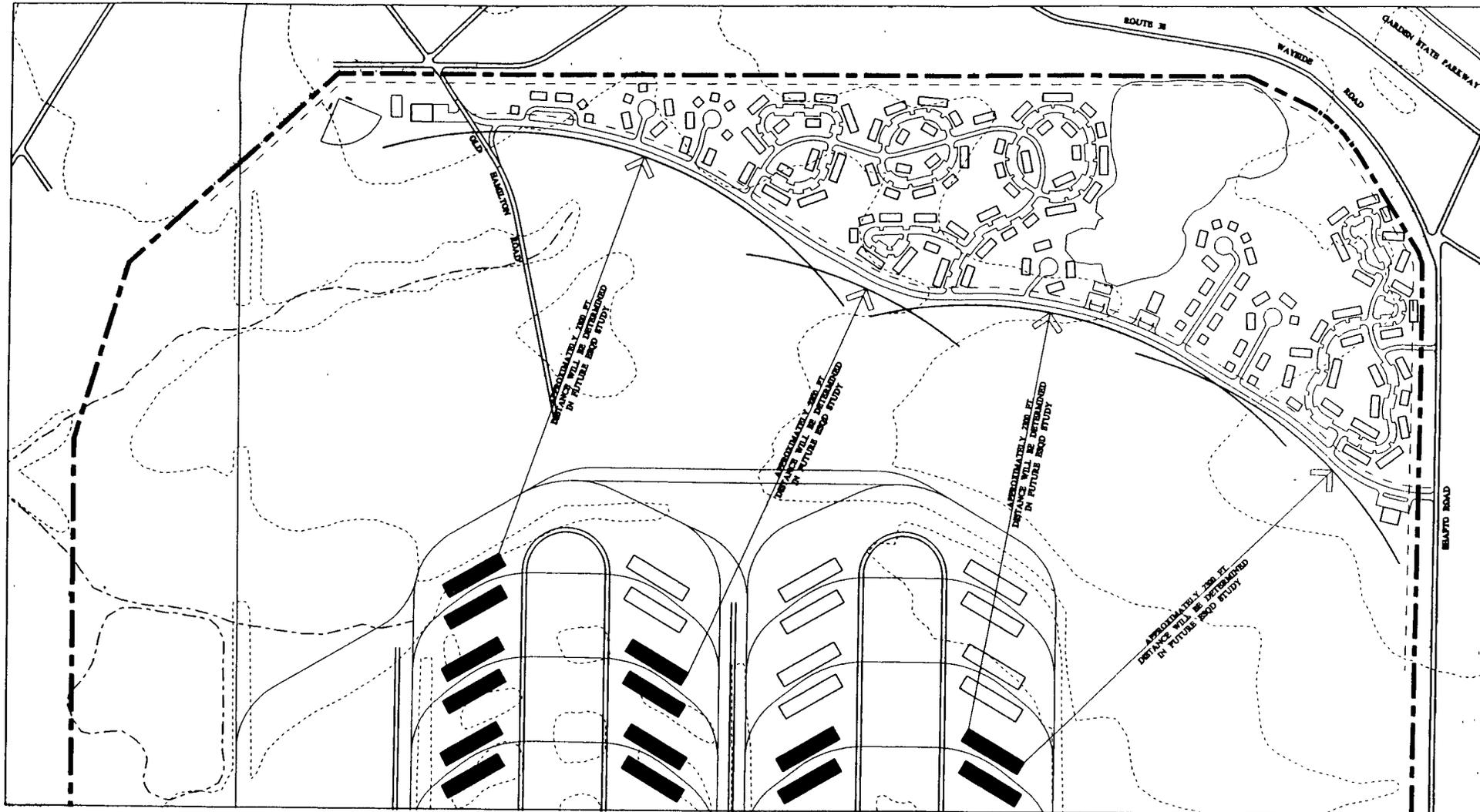
Major development constraints at the Wayside include the presence of explosive rail barricades at the In-Transit area south of the proposed housing site and a palustrine forested wetland west of the intersection of Wayside and Shafto Roads. The ESQD inhabited building arcs, estimated at approximately 2,300 feet, preclude significant development in the area unless certain of the explosive rail barricades are abandoned.³ The barricades are currently underutilized.

An easement encompassing 11.3 acres of WPNSTA Earle property will be acquired by the State of New Jersey along Shafto and Wayside Roads to accommodate widening of these roadways. The affected area includes the entire eastern edge of the In-Transit area along Shafto Road and approximately 1,400 feet along Wayside Road. The proposed widening should not significantly affect the development potential of the Wayside area.

As shown in Figure 5.7, the conceptual development plan for Wayside family housing was developed using as a model the townhouse based layout of the family housing recently constructed at the Mainside. Access to the housing complex is provided by a road running east-west from Shafto Road to Hamilton Road (an existing road running into the In-Transit area from Squankum Road in Tinton Falls). The proposed access road serves to demarcate the boundary between the proposed family housing area and the rail barricade ESQD arcs. As shown in Figures 5.8 and 5.9, it is currently estimated that five barricades will have to be vacated to accommodate the proposed development.

Access to the individual townhouses, which range in size from two to six units per building, is provided by a series of cul-de-sacs and loop roads off of the main access road. Conceptual locations have been identified for support facilities including a fire station, child development center, and convenience store.

³ The extent of the ESQD arcs will be determined by a study being prepared under a separate contract. This information, together with definitive site plans for the housing complex if the project moves forward, will determine the actual number of rail barricades requiring abandonment.



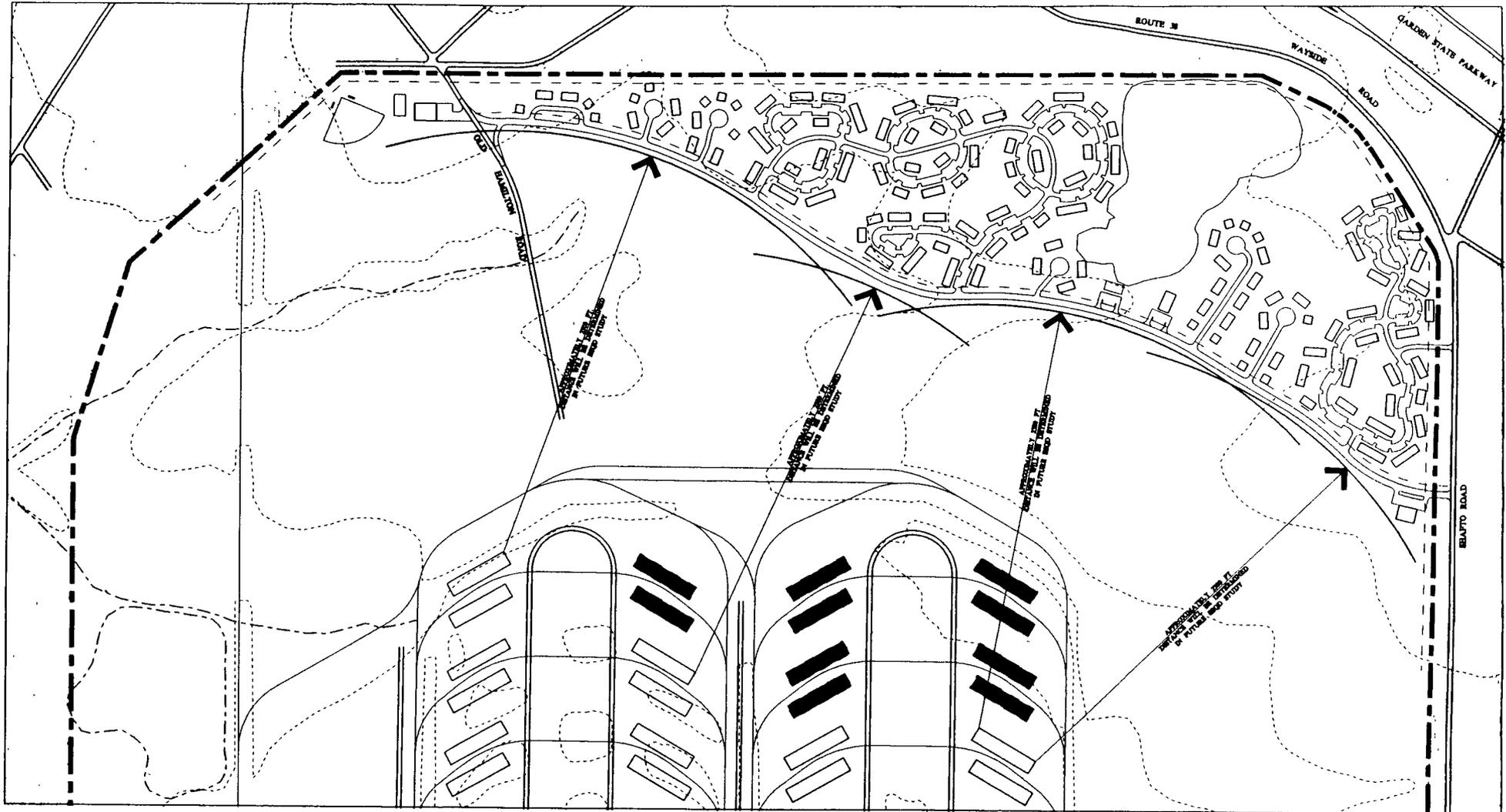
■ NO CHANGE TO EXISTING FACILITY

PROPOSED DEVELOPMENT FIGURE 58
 PLAN: EXISTING TO REMAIN

WAYSIDE AREA

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE





■ VACATED BUILDING

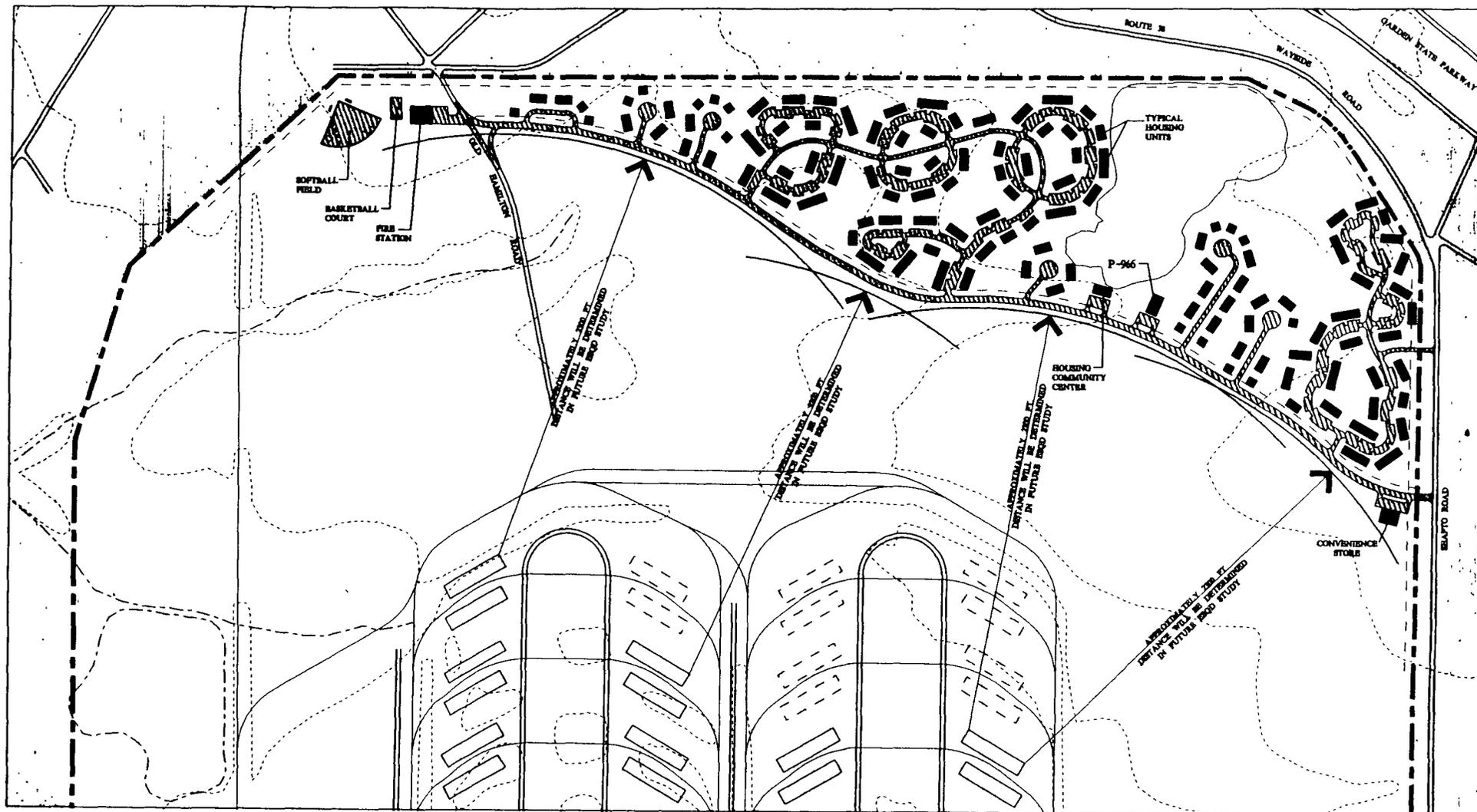
PROPOSED DEVELOPMENT
PLAN: REHABILITATION

FIGURE 59

WAYSIDE AREA

MASTER PLAN
NAVAL WEAPONS STATION: EARLE





■ NEW BUILDING CONSTRUCTION
 ▨ NEW SITE CONSTRUCTION

PROPOSED DEVELOPMENT FIGURE 5.10
 PLAN: NEW CONSTRUCTION

WAYSIDE AREA

MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



5.2.3 PROPOSED DEVELOPMENT PLAN: WATERFRONT ADMINISTRATIVE AREA

The Proposed Development Plan for the Waterfront Administrative Area is shown in Figures 5.11 to 5.14.⁴ The proposed planning actions have been formulated to rectify facility deficiencies, conform with master planning principles and objectives, maintain and enhance operational and functional relationships, and comply with the proposed conceptual land use plan for the Waterfront Administrative area. Key planning actions together with MILCON or Master Plan project numbers are listed below according to proposed land use zone.

1. Administrative/operational zone

- Establish offices in Building R-4A for the Coast Guard Detachment and Naval Reserves.

2. Industrial zones

- Renovate/convert space in Buildings R-2, R-9 and R-10 to establish a Public Works/SIMA shops and storage complex as follows:

Building R-2 - Maintain the existing SIMA facility and convert space from the Public Works automotive vehicle maintenance shop to accommodate a construction weight handling equipment shop (MILCON P-955) and small boat repair shop (MILCON P-904).

Building R-9 - Renovate the existing railroad equipment shop and convert space to accommodate storage and minor maintenance of cranes (Special Project RC13-84).

Building R-10 - Convert space to accommodate a battery recharging shop (MP-11) and expand and renovate the existing Public Works shop (MP-12).

- Construct a second transit shed (MILCON P-928) across from the existing transit shed (Building R-22) next to Building R-4B.
- Construct a ships' storage facility behind Building R-4B (MP-08).
- Relocate the existing crane test area to the south and establish a Public Works organizational vehicle compound west of the wave tank adjacent to Building R-24 (MP-35). (Building R-24 will continue to house the Public Works and ROICC Waterfront administrative offices.)

⁴ Figure 5.11 shows proposed parking spaces and existing parking spaces lost as a result of MILCON or Master Plan project construction (e.g., +16 spaces and -16 spaces). For a discussion of proposed parking and circulation at the Waterfront, refer to Section 5.3.

- Construct a 5,000 barrel off-specification fuel storage facility south of the relocated crane testing area (MILCON P-975).
- Relocate the training barge from behind Building R-2 to a location near the ships' parking zone at Chapel Hill.

3. Community zone

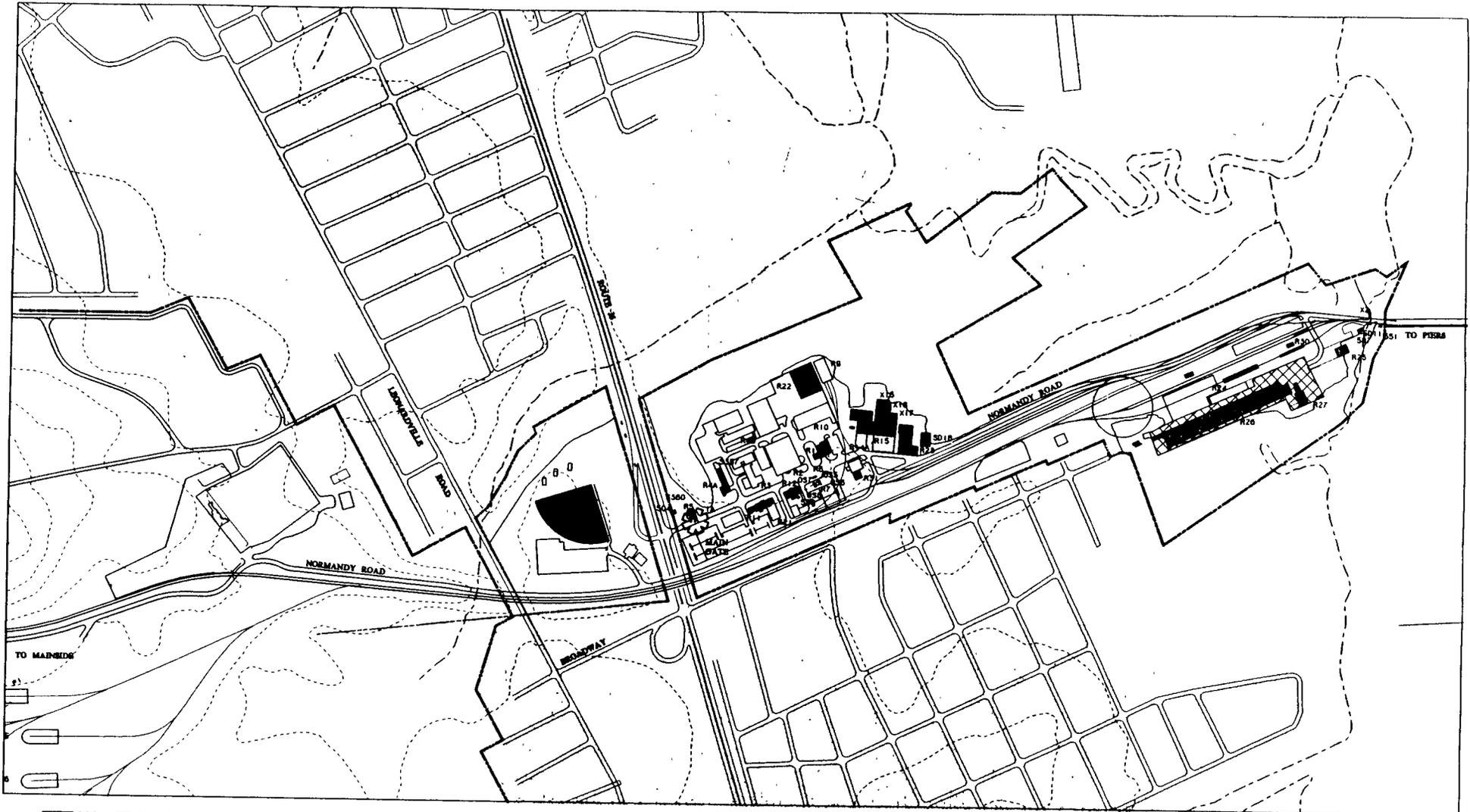
- Construct a two-story BEQ across "Main Street" from Building R-4A (MILCON P-930).
- Construct an addition to the existing BEQ (Building R-11) to accommodate an enlisted dining facility (MILCON P-956).
- Add onto Building R-12 to develop an expanded exchange facility including Building R-21 (MP-19).
- Convert the existing Coast Guard offices in Building R-3 and construct an addition to this building to accommodate expansion of the enlisted mess (MP-27).
- Convert the second floor of Building R-4B to a multi-use theater/library/religious education center (MILCON P-959).
- Construct an addition to the existing police station (Building R-5, MILCON P-960).

4. Recreational zones

- Construct an addition to Building R-15 for an indoor training pool (MILCON P-851).
- Construct a consolidated hobby shop (MP-23) and three recreation pavilions (MP-31) in the ballfield area.

5. Ships' parking zone

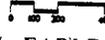
- Construct a parking lot of 694 spaces for homeported ships' personnel (MILCON P-931, P-946).

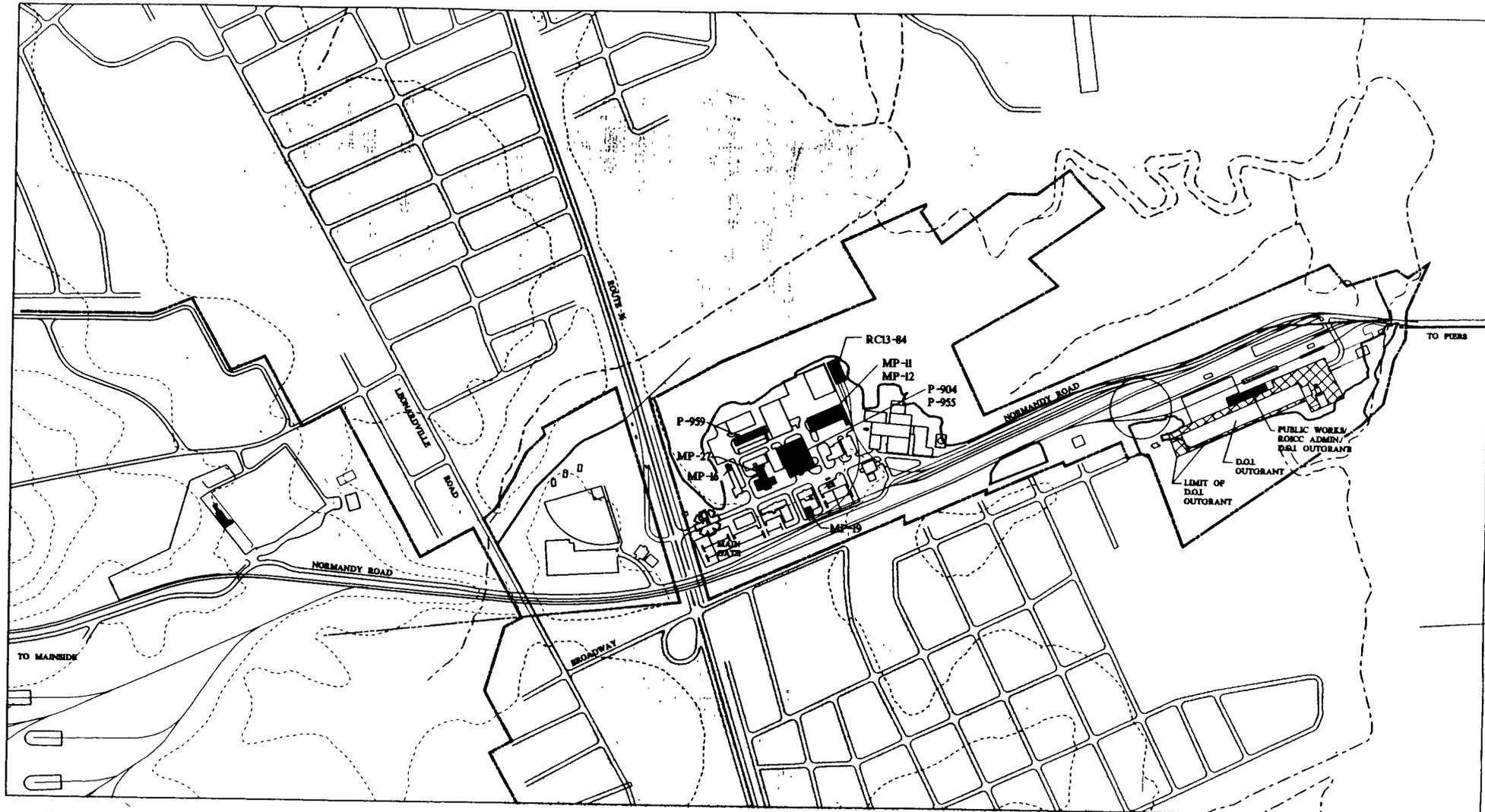


■ NO CHANGE TO EXISTING FACILITY

PROPOSED DEVELOPMENT FIGURE 512
 PLAN: EXISTING TO REMAIN

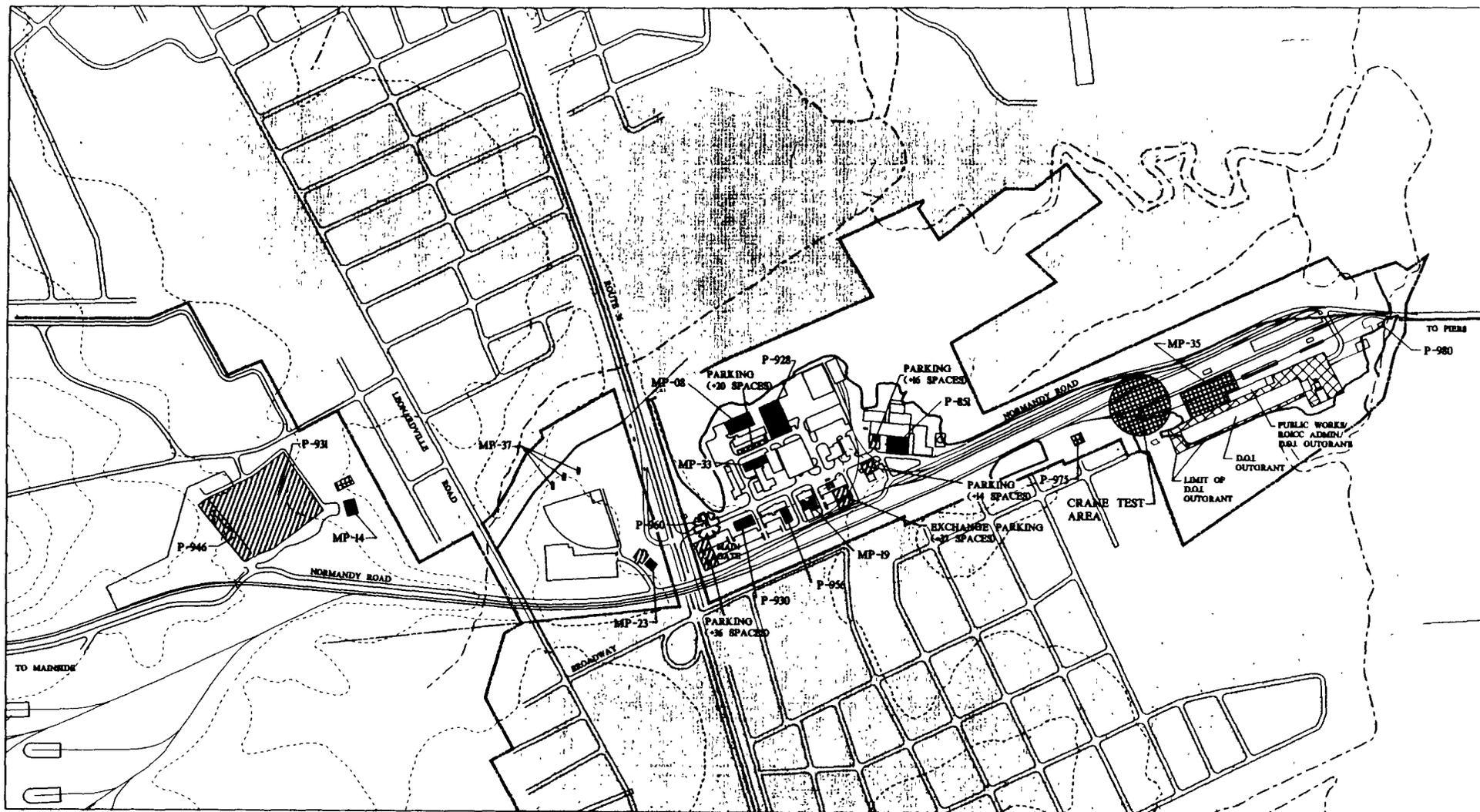
WATERFRONT ADMIN AREA 

MASTER PLAN 
 NAVAL WEAPONS STATION: EARLE



- BUILDING CONVERSION
- FACILITY DEMOLITION
- PROJECT NUMBER

PROPOSED DEVELOPMENT FIGURE 5.13
 PLAN: REHABILITATION
 WATERFRONT ADMIN AREA
 MASTER PLAN
 NAVAL WEAPONS STATION: EARLE



- NEW BUILDING CONSTRUCTION
- ▨ NEW SITE CONSTRUCTION OTHER THAN P.O.V. PARKING
- ▧ NEW P.O.V. PARKING
- ☐ PROJECT NUMBER

PROPOSED DEVELOPMENT FIGURE 514
 PLAN: NEW CONSTRUCTION
 WATERFRONT ADMIN AREA
 MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

5.2.4 PROPOSED DEVELOPMENT PLAN: PERIPHERAL PROJECTS (Mainside Ordnance, Chapel Hill Ordnance, Pier/Trestle Complex)

In order to resolve facility deficiencies, certain planning actions are proposed in Mainside ordnance operations and storage areas, at the Chapel Hill ordnance storage area, and on the pier/trestle complex (Figure 5.15). These planning actions together with MILCON or Master Plan project numbers are listed below.

1. Mainside ordnance areas

- Construct a new explosives truck holding yard in the In-Transit Area between two existing rail barricades (MILCON P-913).
- Construct a new reaction force facility in the limited area (M Group) for Marine Corps guards (MILCON P-970). Also, construct a new gate house/guard post at the entrance to M Group (Special Project C2-85).
- Construct one Type Box D magazine in M Group (MILCON P-909).
- Construct six Type Box D Projectile magazines in F Group to accommodate future homeporting requirements (MILCON P-926 and MILCON P-927) (see Figure 5.16).
- Construct a first floor addition to Building MA3 on Throckmorton Hill, to accommodate expansion of the MOMAG facility (MILCON P-899).
- Construct a Tomahawk IMA/Test Cell facility near the ordnance production area on Throckmorton Hill (MILCON P-910).
- Construct an outdoor small arms firing range next to the EOD burning facility west of the In-Transit area (MILCON P-973).
- Construct an explosives shipping/transfer depot in F Group (MP-05).
- Demolish the existing inadequate ordnance training facility (Building S-179) located west of H Group and build a new facility in the same location (MP-06).
- Construct a new change/relief facility near D and E Groups (MP-09).
- Construct a skeet range near the EOD burning facility (MP-33).
- Expand the existing wetland mitigation site south of F-Group to establish created wetlands that can be used for credit against possible wetland impacts associated with projects proposed in the future (MP-36).

2. Chapel Hill ordnance storage area

- Construct an explosives truck holding yard (MILCON P-945) and scale house (MILCON P-934) on the east side of Normandy Road to replace the existing holding yard on Pier 1.

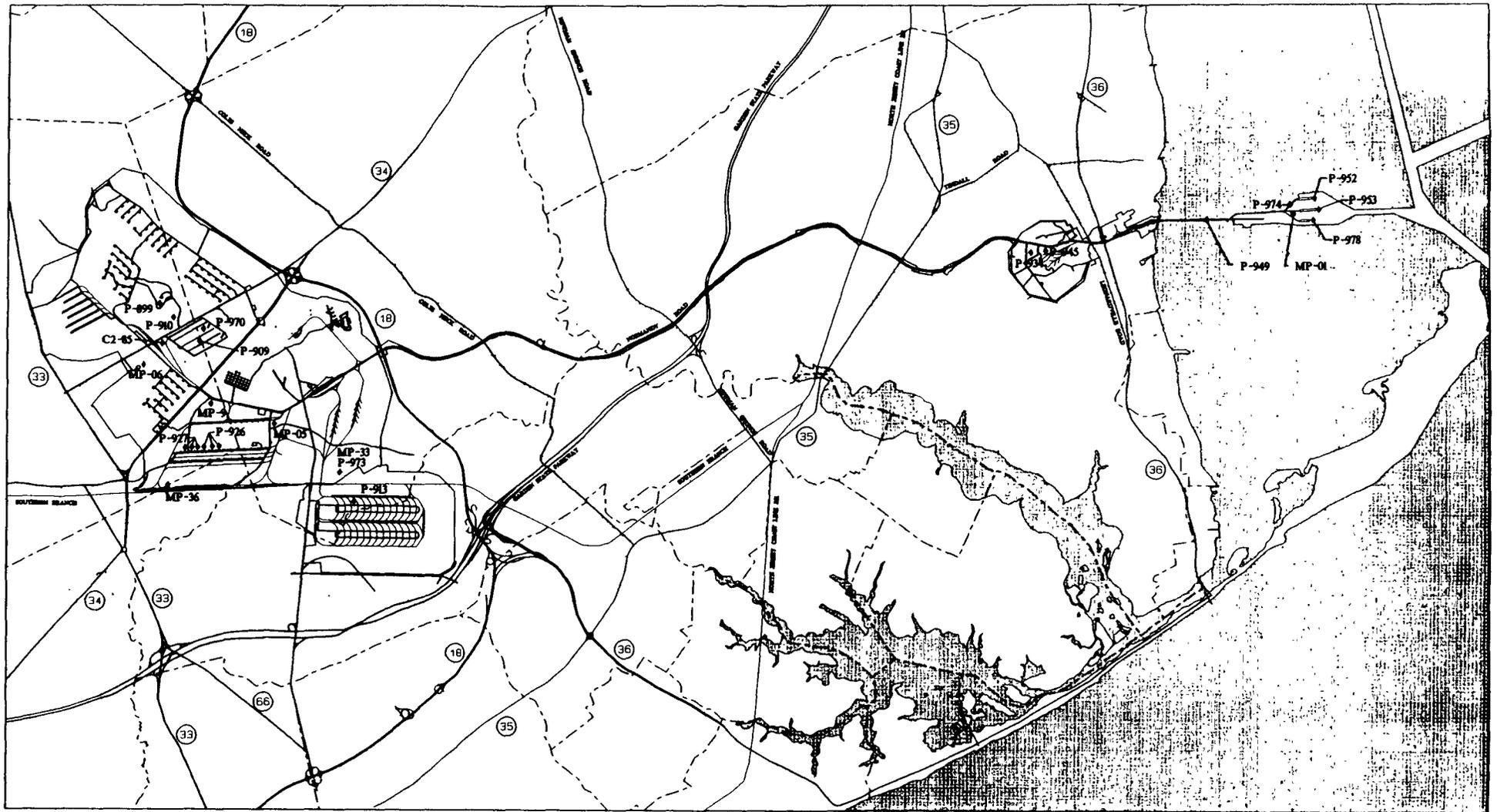
3. Pier/trestle complex

- Replace the approach trestles to the piers (MILCON P-949).
- Construct a 75 foot by 50 foot fuel transfer connection platform with wood pile dolphins next to Trestle 4 to provide a berth for a 100,000 barrel fuel barge (MILCON P-974).
- Extend Pier 4 to provide homeporting berths for two AOE 6 class ships (MILCON P-952). Provide a laundromat, bus shelter, and fire station at the far end of the extended pier as part of this MILCON project.



Main approach trestle to be replaced (P-949)

- Renovate Building R-29 on Pier 4 to include a laundromat and a bus shelter (C25-90).
- Construct a small craft berthing/ready fuel storage facility near Building 3A (MP-01).
- Replace the existing ammunition pier (Pier 3, MILCON P-953).
- Replace Pier 2 to provide for future homeporting and berthing requirements (MILCON P-978).



- P-899 MOMAG Expansion
- P-909 Tomahawk Magazine
- P-910 Tomahawk IMA/Test Facility
- P-913 Explosive Truck Holding Yard
- P-926 3 Projectile Magazines
- P-927 3 Type D Magazines
- P-934 Scale House
- P-945 Explosive Truck Holding Yard

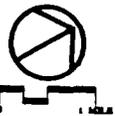
- P-949 Trestle Replacement
- P-952 Pier 4 Extension
- P-953 Pier 3 Replacement
- P-970 Reaction Force Facility
- P-973 Outdoor Pistol Range
- P-974 Fuel Barge Berth
- P-978 Pier 2 Replacement

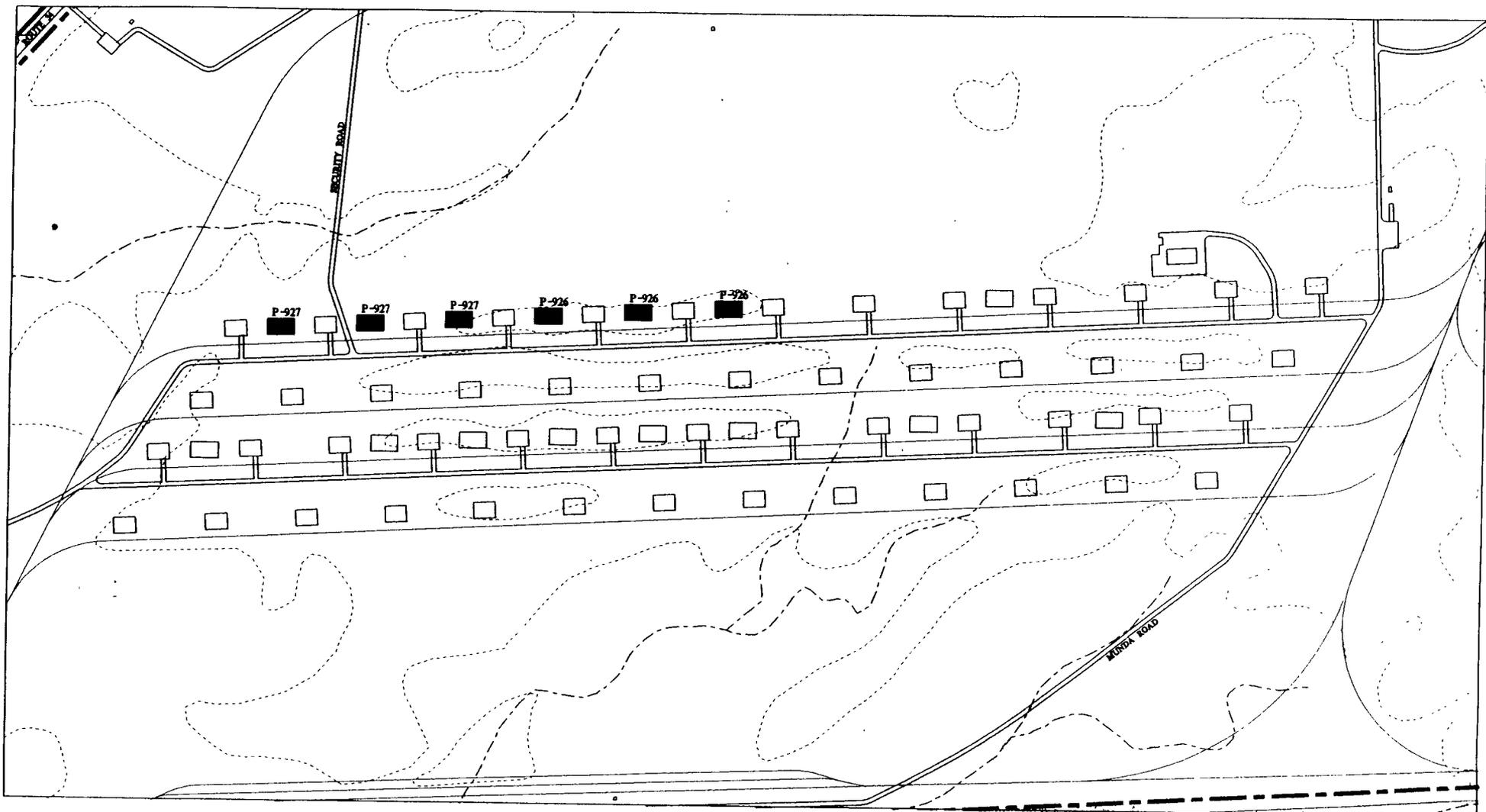
- C2-85 M Group Gate House
- MP-01 Small Craft Berthing/Fuel Storage
- MP-05 Explosive Shipping Transfer Depot
- MP-06 Ordnance Training Facility
- MP-09 Change Relief House
- MP-33 Skeet Range
- MP-36 Wetland Mitigation Site

PROPOSED DEVELOPMENT PLAN FIGURE 515

PERIPHERAL PROJECTS

**MASTER PLAN
NAVAL WEAPONS STATION: EARLE**





NEW BUILDING CONSTRUCTION
 PROJECT NUMBER

PROPOSED DEVELOPMENT FIGURE 516
 PLAN: NEW CONSTRUCTION
 F-GROUP MAGAZINE AREA
 MASTER PLAN
 NAVAL WEAPONS STATION: EARLE

5.3 PROPOSED CIRCULATION AND PARKING

5.3.1 PROPOSED CIRCULATION

At the time this report was prepared, the Military Traffic Management Command (MTMC) had scheduled a comprehensive traffic study to start in late 1991. Therefore, a detailed traffic analysis was not included as part of this Master Plan.

The existing vehicular circulation system at WPNSTA Earle is generally capable of handling projected traffic resulting from construction of proposed Master Plan facilities. Therefore, no major road improvement projects are proposed. Although more persons will be travelling between the Mainside (family housing) and Waterfront (pier/trestle complex) along Normandy Road due to increases in AOE homeporting, the regular shuttle bus service is expected to convey much of the traffic and thus reduce the number of private occupancy vehicles commuting along this route. If the new family housing complex is constructed at the Wayside, shuttle bus service will have to be extended to this area. The proposed construction of a BEQ, dining facility, expanded exchange and other community facilities in the core Waterfront area will help limit the amount of traffic along Normandy Road by creating an essentially self-contained, pedestrian-oriented community.

Improvement of the sewer plant access road connecting Gela and Saipan Roads and repair of the bridge over Hockhockson Creek are recommended, both to maintain and improve access to the plant and provide an alternative route to and from the new family housing complex avoiding the core Mainside Administrative area. MILCON P-976 proposes extension of existing roads in six of the existing magazine groups (G, H, I, J, K, L and M) to meet an ordnance safety requirement for two-way access to these areas.

It is recommended that a pedestrian path be established at the Mainside Administrative area connecting the new exchange and other community facilities south of Esperance Road with the core administrative/community area north of the open space/recreation zone on the north side of the road.

As noted in Section 2.6.5, the existing rail system is in generally adequate condition. Many of the existing boxcars, however, are in poor condition and should be renovated. Upgrading the currently substandard railroad equipment shops at the Mainside (Building C-50) and Waterfront (Building R-9) should facilitate this action. The existing substandard and inadequate rail barricades at the Mainside and Waterfront Chapel Hill area should also be upgraded or demolished and replaced with adequate facilities.

5.3.2 PROPOSED PARKING

A. Mainside

Since existing parking at the Mainside Administrative area is generally sufficient to serve current and projected parking needs, no major new parking lots are recommended. Individual parking lots are proposed to serve facilities such as the chapel/religious education building, exchange, Navy lodge, and family services center.

As noted in Section 4.3.1 A, in recent years new parking at the Mainside has been sited in large parking lots constructed in front of buildings, deviating from the traditional pattern of small lots sited behind or next to buildings. The currently authorized plans for the new exchange would perpetuate this trend by locating parking within 12 feet of Esperance Road, the main entrance road to the Mainside. Because of the authorized status of this project, it would not be feasible to relocate parking behind the building as proposed in two of the concept alternatives prepared prior to October 1990 (see Section 4.3.1 A). In order to maintain an open space buffer along Esperance Road, an alternative parking arrangement was developed for the authorized exchange project which maintains a 64 foot setback between the parking and the roadway while eliminating only four spaces (Figure 5.17). This alternative, which could be implemented without affecting the exchange building design, has the following advantages:

1. An additional 50+ feet of green space is preserved along Esperance Road.
2. Walking distances are minimized by the relocation of parking closer to the building.
3. Considerably less paving is required.

B. Waterfront

Because of the relative scarcity of buildable land at the Waterfront, it is necessary to site several proposed facilities on land currently occupied by formal or informal parking areas. Given that the proposed facilities will require additional parking and the need to provide parking for personnel on homeported ships when the ships are in port, several planning actions are recommended to provide for projected future parking needs. These actions include:

- Construction of a parking lot of 694 spaces in the Chapel Hill area (MILCON P-931, MILCON P-946).

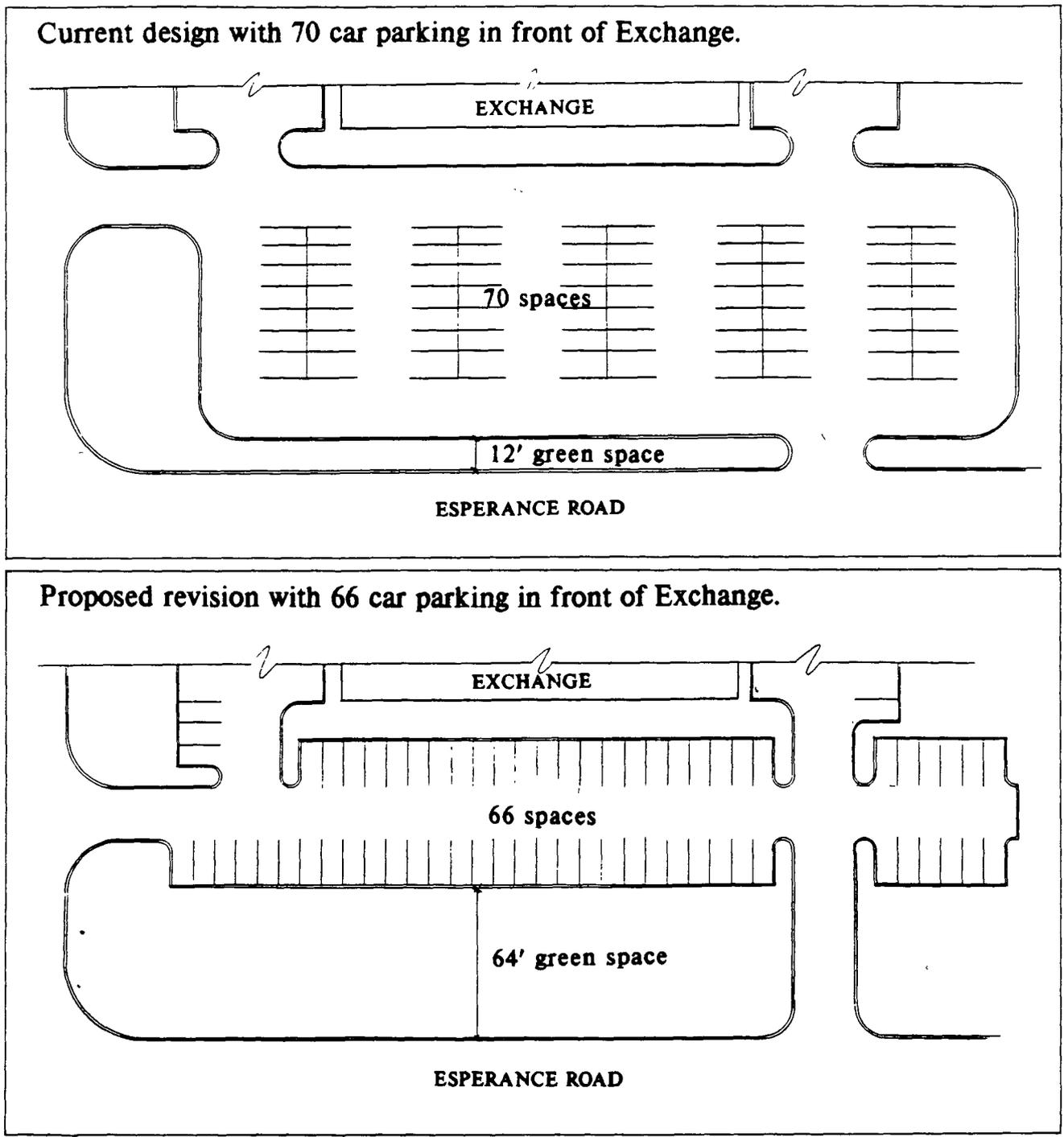


FIGURE 5.17. PARKING LOT FOR NAVY EXCHANGE PROJECT P-846

- Construction of approximately 128 parking spaces in several locations in the core Waterfront Administrative area. These spaces will replace spaces lost as a result of MILCON or Master Plan project construction and provide for additional parking to serve proposed new facilities, resulting in a net gain of approximately 28 spaces.



Site for the new BEQ at the Waterfront

It is recommended that the Chapel Hill lot be dedicated to ships' parking and that parking in the core be limited to persons living, working, or visiting facilities located in this area. The parking lot located adjacent to the ballfield south of State Highway 36, currently used for deployed ships' parking, can be used for overflow parking for either function since a deployed parking lot has recently been constructed at the Mainside.

5.4 PROPOSED UTILITIES

Existing utility systems are generally adequate to serve proposed new and expanded facilities at the Mainside and Waterfront Administrative areas. The electrical substation at the Mainside should be upgraded to service the proposed enlargement of the Test and Evaluation laboratory (MILCON P-977) and other expanded facilities.

The wastewater collection system at the Mainside must be rehabilitated to eliminate excessive infiltration and inflow of rain and ground water which are overloading the system and treatment plant (Special Project CR12-91).

While the Wayside area is not currently served by water and sewer, it appears that connections could be made to public water supply and wastewater collection systems to serve future family housing. Further investigation would be required to verify this issue.

At the Waterfront, a larger water main should be installed on the pier/trestle complex to provide potable water and fire protection for homeported ships. In addition, MILCON P-980 proposes that one of the two existing 3,750 KVA transformers be replaced by a 12,000 KVA transformer to eliminate current power shortages and serve projected power demands resulting from extension of Pier 4 (MILCON P-952).

It is recommended that the existing overhead utility lines along the railroad tracks west of the wave tank be buried to allow relocation and enlargement of the crane testing area to a 340-foot diameter.

APPENDIX A

Appendix A

ENVIRONMENTAL REVIEW

ENVIRONMENTAL REVIEW

PREPARED FOR:

Naval Sea Systems Command Headquarters
Arlington, VA 22022

Naval Weapons Station Earle
Colts Neck, NJ 07722

ADMINISTERED BY:

Northern Division
Naval Facilities Engineering Command
U.S. Naval Base
Philadelphia, PA 19112-5094

PREPARED BY:

Wallace Roberts & Todd
260 South Broad Street
Philadelphia, PA 19102

August 1991

I. INTRODUCTION

The Master Plan for Naval Weapons Station (WPNSTA) Earle, Colts Neck, New Jersey, presents a comprehensive series of recommendations for future land use and facility development at the Station. The primary objectives of the Master Plan are to:

- Provide sufficient facilities to fulfill WPNSTA Earle's expanded 1998 mission;
- Maximize use of existing facilities to meet 1998 requirements;
- Site new or relocated facilities to achieve the best relationship between departments and functions, avoid natural or man-made constraints, and respect established community and functional characteristics;
- Maintain and enhance the quality of life at WPNSTA Earle;
- Site future development to respect neighboring uses and users; and
- Implement master planning principles and objectives with cost effective solutions.

The Proposed Development Plan contained in the Master Plan recommends locations for new or expanded facilities needed to meet projected 1998 facility requirements identified by WPNSTA Earle's Basic Facilities Requirements document.¹ The Proposed Development Plan is the end result of an extensive planning process that took into consideration natural and man-made constraints and other planning factors to ensure that facilities are appropriately sited to meet operational, health, safety, and environmental requirements. A comprehensive inventory and analysis of natural and man-made conditions affecting WPNSTA Earle on a regional, local and site-specific scale was undertaken prior to preparing the plan. In order to assess functional/operational relationships and environmental impacts, a number of options for siting new or expanded facilities were developed, culminating in preparation of three alternative concept plans for each of the major planning areas of concern - the Mainside and Waterfront Administrative areas. Subsequent to presentation of these concepts to Navy representatives, a fourth alternative was developed for the Mainside. Factors considered in assessing alternative locations for individual facilities included potential impacts on environmental resources such as wetlands and floodplain, compatibility with current facilities and existing land use, and operational efficiency, among others. The Proposed Development Plan was formulated based upon evaluation of the alternative facility locations.

In order to fulfill WPNSTA Earle's expanded 1998 mission requirements, a number of new or expanded facilities are proposed. Where possible, these facilities are proposed to be sited in

¹ Wallace, Roberts & Todd, December 1990.

existing buildings in order to minimize new construction. Recommended new construction projects include:

- A new Public Works vehicle compound, vehicle ready fuel storage facility, hazardous waste storage facility, emergency vehicle garage, chapel/religious education building, exchange, Navy Lodge, family services center, BOQ, gymnasium, child development center, and housing community center at the Mainside Administrative area.
- Additions to the existing Explosive Ordnance Disposal (EOD) facility, telephone exchange building, Test and Evaluation laboratory, Supply warehouse, and police station at the Mainside Administrative area.
- Up to 600 new family housing units in the Wayside area.
- A new transit shed, ships' storage facility, Public Works vehicle compound, off-specification fuel facility, covered dunnage storage shed, BEQ, dining facility addition, indoor training pool addition, consolidated hobby shop, and ships' parking lot at the Waterfront Administrative area.
- Additions to the existing exchange and police station at the Waterfront Administrative area.
- An explosives truck holding yard, reaction force facility, seven projectile magazines, addition to the existing MOMAG facility, outdoor small arms firing range, explosives shipping/transfer depot, ordnance training facility, and change/relief facility in Mainside ordnance production and storage areas.
- An explosives truck holding yard and scale house at the Chapel Hill Ordnance storage area.
- Replacement of the existing approach trestles, Pier 2 (berthing pier), and Pier 3 (ammunition pier) and construction of a fueling wharf and small craft berthing/fuel storage facility at the pier/trestle complex.²
- Extension of Pier 4 to provide additional homeporting berths.²

² Environmental effects of trestle replacement are described in Draft Environmental Impact Statement - Trestle Replacement - Naval Weapons Station Earle, Colts Neck, New Jersey (May 1990). Environmental impacts of other proposed projects at the pier/trestle complex will be assessed under separate contract.

II. EXISTING ENVIRONMENT

WPNSTA Earle, located in Monmouth County, New Jersey, consists of two major land areas connected by a 15-mile long road and rail right-of-way. The Mainside area of 10,160 acres is located in the interior of the County in the Townships of Colts Neck, Tinton Falls, Wall, and Howell. The Station's major administrative, research, development, testing and evaluation (RDT&E), ordnance storage and production, and personnel support facilities are located at the Mainside. The Waterfront area of 705 acres is located in Middletown Township on the shoreline of Sandy Hook Bay. A two-mile long pier/trestle complex for homeported and visiting ships and various support facilities such as shops, administrative offices, and recreational facilities are located at the Waterfront.

WPNSTA Earle lies within the Atlantic Coastal Plain Physiographic Province. The majority of land outside of the developed portions of the Station is wooded, consisting of forest communities typical of the Coastal Plain (oaks, oak/pine, mixed hardwoods, and wooded swamps). Major natural constraints to development include the presence of wetlands, stream corridors, and soils with severe development limitations at both the Mainside and Waterfront; scattered occurrences of steep slopes, primarily associated with the Hominy Hills at the Mainside and Chapel Hill at the Waterfront; reported occurrences of approximately 15 threatened or endangered plant and animal species at the Mainside; and the presence of a 100-year floodplain at the Waterfront.

A wetland survey of WPNSTA Earle was conducted in late 1989 by the Soil Conservation Service (SCS) to delineate the general location and type of existing wetlands at the Station. Based on the methods used and the accuracy of aerial photographs, the SCS estimates the mapped wetland locations derived from this survey to be accurate within approximately one acre.

Development in and adjacent to freshwater wetlands is subject to regulation by the New Jersey Department of Environmental Protection under the Freshwater Wetlands Act and associated rules. Development in coastal wetlands is regulated by the Wetlands Act of 1970. In addition, certain types of development at the Waterfront may be subject to consistency review in accordance with New Jersey's Coastal and Resource Development Policies which apply to the coastal zone under the Coastal Area Facility Review Act (CAFRA).

Major man-made constraints to development include explosives safety quantity distance (ESQD) arcs within which development is precluded at the Mainside and Chapel Hill ordnance areas; electromagnetic radiation hazards; and installation restoration sites (potential hazardous waste sites). In addition, prehistoric artifacts have been found at approximately eleven locations at the Mainside. Based upon assessment of cultural and environmental characteristics of the area, thirteen sites at the Mainside and six sites at the Waterfront are considered to possess high potential for the presence of undisturbed prehistoric sites.

III. PROJECT DESCRIPTIONS AND POTENTIAL ENVIRONMENTAL IMPACTS

In accordance with the objective of maximizing use of existing facilities to meet projected 1998 facility requirements, many of the planning actions recommended by the Master Plan involve adaptive reuse of existing buildings and therefore will result in negligible environmental consequences. Similarly, many of the proposed construction projects involve additions to existing buildings or new facilities sited in existing developed areas which will result in minimal environmental impacts. For certain of these projects (construction of a new exchange, gymnasium and BOQ, addition to the existing test and evaluation laboratory at the Mainside), clearing of some of the existing wooded areas will be required. Other consequences associated with new construction projects in developed areas will include short-term, construction related impacts such as increased traffic, noise and dust in the vicinity of the building sites, slight long-term increases in utility use and traffic, and an increase in the amount of impervious surfacing. These impacts are not expected to be significant.

Certain of the proposed planning actions involve construction within currently undeveloped areas that are near wetlands or within the 100-year floodplain. In general, wetland transition areas (50 feet) are retained. These actions include:

- Construction of up to 600 family housing units and support facilities in the Wayside area.
- Construction of a second transit shed and ships' storage shed at the Waterfront.
- Construction of a Public Works organizational vehicle compound at the Waterfront.

Wayside Family Housing - Construction at the Wayside area will require removal of existing woods (primarily mixed oak). As shown in the conceptual development plan contained in Section 5.0 (Proposed Development Plan) of the Master Plan, it is possible to site up to 600 units so as to avoid encroachment on a SCS-delineated wetland and adjacent 50-foot buffer or on severely constrained soils. However, it is possible that additional wetland areas exist that were not delineated by SCS. No steep slope areas, known rare species occurrences, or known cultural or archeological resources are located in the project vicinity.

Since the area proposed for construction falls partially within the ESQD arcs associated with rail barricades within the nearby In-Transit area, abandonment of approximately five barricades will be required to permit construction. Several of the barricades are currently in unusable condition so their removal will not diminish current operations. For operational and safety reasons, the

access road to the proposed development is sited so as to provide a buffer between the family housing units and the ESQD arcs of the existing rail barricades that are to remain.³

Construction of up to 600 family housing units at the Wayside area will result in increased traffic on adjacent roadways. It is likely that vehicles travelling between the Wayside and Mainside Administrative area will utilize State Highways 38, 18, and 34. The local road network in the vicinity of the Wayside site is heavily used by trucks travelling to and from the Monmouth County Reclamation Center and surrounding industrial development. Institution of shuttle bus service serving the new family housing units will help to minimize private occupancy vehicle traffic. Additional study will be required to verify the effects of the proposed project on local traffic.

Construction of family housing at the Wayside will require connections to the public water and sewer systems, which appear to have adequate capacity to handle the proposed development. Children living in the housing development are expected to use the Tinton Falls school system.

Second Transit Shed and Ships' Storage Facility - Construction of a second transit shed is proposed at the Waterfront across from the existing transit shed adjacent to Building R-4B. Construction of a ships' storage facility is proposed next to the second transit shed behind Building R-4B. The proposed sites for these two facilities have been cleared and altered in the past. However, care will have to be taken in siting the facilities to avoid encroachment on the 50-foot buffer associated with an adjacent wetland, which is regulated by the New Jersey Department of Environmental Protection.

Public Works Vehicle Compound - Construction of a Public Works vehicle compound is proposed at the Waterfront west of the wave tank and next to Building R-24. The proposed site has been extensively altered and is occupied by railroad tracks which are not presently utilized. The site is located within the 100-year floodplain. However, no building construction is proposed. Therefore, the proposed project is expected to be consistent with Executive Order 11988 (Floodplain Management).

In general, planning actions proposed in the Master Plan are expected to comply with applicable Federal, State and local land use plans, policies and controls. Proposed facilities have been sited so as to be compatible with adjacent land uses. No significant adverse impacts on wetlands, rare species habitat, known cultural resources, or other sensitive natural or man-made resources are anticipated. Because of the general nature of the SCS wetland survey, additional investigation will be required to verify potential wetland impacts associated with individual projects. Several proposed projects (e.g., the proposed BEQ and pool addition at the Waterfront) are sited in the vicinity of installation restoration sites. The possible hazards posed by these sites are still under

³ The extent of ESQD arcs associated with the rail barricades will be determined by a study currently under way under separate contract. This information will affect the layout of family housing in this area.

investigation. Therefore, the environmental group at Northern Division, Naval Facilities Engineering Command should be consulted prior to undertaking development actions in these areas.

In accordance with NAVFACINST 11010.63B (20 October 1982), the following is a brief summary of potential environmental impacts expected from programmed MILCON projects for FY 1991 through FY 1995.

MILCON Project P-933 (Navy Lodge, FY 91) - This facility will be located next to the proposed exchange (P-846) at the intersection of Esperance and Kula Roads. Care should be taken in siting the parking area so as to avoid encroachment on an intermittent stream in the vicinity of the site.

MILCON Project P-949 (Trestle Replacement, FY 91-93) - Environmental impacts of the trestle replacement project are addressed in Draft Environmental Impact Statement - Trestle Replacement - Naval Weapons Station Earle, Colts Neck, New Jersey (May 1990).

MILCON Project P-846 (Exchange, FY 92) - This project involves construction of a building containing an exchange retail store, cafeteria, and service outlets and a parking area on the south side of Esperance Road east of the main gate. Removal of existing woods and replacement of natural vegetative cover by impervious surfacing will be required. Current plans for the exchange show parking in front of the building within 12 feet of Esperance Road, replacing existing woods and open space. The Master Plan proposes that a larger buffer be maintained between the parking and Esperance Road, thus helping to perpetuate the existing visual character of the Mainside Administrative area.

MILCON Project P-871 (Child Development Center, FY 92) - This facility is proposed in a location which was disturbed during construction of the new family housing area at the Mainside. Therefore, environmental impacts are expected to be minimal.

MILCON Project P-931 (Normandy Road Improvements, FY 92) - Some improvements are currently being made to Normandy Road by special projects to improve safety at public road crossings. MILCON P-931 provides other major intersection improvements and also provides construction of ships' parking lot in the Chapel Hill area. Because the proposed location of the lot is currently used for storage and other functions, environmental impacts are expected to be minimal.

MILCON Project P-909 (Tomahawk Magazine, FY 93) - This project involves construction of a Type Box D magazine in M Group. No significant environmental impacts are anticipated because the area is currently developed with similar facilities.

Project H-185 (Housing Community Center) - This facility is proposed on a cleared area adjacent to the new family housing area at the Mainside. Therefore, environmental impacts are expected to be minimal.

MILCON Project P-904 (Small Boat Repair Shop, FY 94) - This facility is proposed within an existing building (Building R-2 at the Waterfront). Therefore, environmental impacts are expected to be minimal.

MILCON Project P-913 (Explosives Truck Holding Yard, FY 93) - This project involves construction of an 11,000 square yard explosives truck holding facility to accommodate 90 tractor trailer trucks awaiting transshipment. The proposed site is within a developed area between two existing rail barricades. Replacement of existing vegetation with impervious surfacing will be required.

MILCON Project P-952 (Pier 4 Extension, FY 94-95) - The environmental impacts of this project will be addressed under separate contract. Preparation of an Environmental Impact Statement will likely be required.

MILCON Project P-955 (Construction Weight Handling Equipment Shop, FY 94) - This facility is proposed within an existing building (Building R-2 at the Waterfront). Therefore, environmental impacts are expected to be minimal.

MILCON Project P-970 (Reaction Force Building, FY 94) - This facility is proposed on a clear, open area within an existing developed area (M Group). Therefore, environmental impacts are expected to be minimal.

MILCON Project P-974 (Ship Fuel Enhancement System, FY 94) - The environmental impacts of this project will be addressed under separate contract. Preparation of an Environmental Impact Statement will likely be required.

MILCON Project P-975 (Off Specification Fuel Storage, FY 94) - The environmental impacts of this project will be addressed under separate contract. Preparation of an Environmental Impact Statement will likely be required.

MILCON Project P-926 (Three Projectile Magazines, FY 95) - This project involves construction of three Type Box D projectile magazines in F Group. There may be wetland impacts associated with this project. Further investigation is required.

MILCON Project P-948 (Family Housing Recreation Complex, FY 95) - This project is proposed on a cleared area adjacent to the new family housing area at the Mainside. Therefore, environmental impacts are expected to be minimal. Because a portion of the site was formerly used as a rail yard, investigation to confirm the absence of hazardous materials on the site will be required.

APPENDIX B

PROPOSED DEVELOPMENT PROJECTS

Programmed MILCON Projects FY '91-'95

<u>FY</u>	<u>LOC</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
90	MS	740-25	847 ¹	Family Services Center	570
91	MS	740-20	933	Navy Lodge (NAF Project)	1,650
91	WF	860-10	949	Trestle Replacement (Phase I)	20,100
92	MS	740-01 740-04 740-09	846 ²	Exchange (NAF Project)	1,800
92	MS	740-74	871	Child Development Center	1,250
92	MS/ WF	852-10 860-10	931	Normandy Road Improvements	3,650
92	WF	860-10	949A	Trestle Replacement (Phase II)	40,000
93	MS	421-62	909	Tomahawk Magazine (1)	4,000
93	WF	860-10	949B	Trestle Replacement (Phase III)	25,000
93	MS	714-32	H-185	Housing Community Center	1,100
94	WF	213-58	904	Small Boat Repair	950
94	MS	148-25	913	Truck Holding Yard	3,400
94	WF	151-20	952 ³	Pier 4 Extension (Phase I)	40,000
94	WF	218-20	955 ⁴	MHE Service Center	850
94	MS	143-47	970	Reaction Force Facility	2,800
94	WF	152-40	974	Ship Fuel Enhancement System	8,860
94	WF	411-82	975	Off Spec Fuel Storage	3,500 (cont.)

¹ The proposed Family Service Center programmed for FY '90 has not yet begun construction.

² The cost for the exchange (P-846) shown on the Project Data Sheet is based on 14,000 SF of new construction. The Master Plan estimates that 31,230 SF is required to fulfill the total requirement.

³ Cost for P-952 includes the extension of Pier 4, a waterfront operations building (CCN 159-64), a fire station (CCN 730-10), a laundromat (740-09), a bus shelter (CCN 730-66) and the demolition of Building S454.

⁴ Cost for MHE Service Center (P-955) is based on converting 8,175 SF in Building R-2. The BFR for CCN 218-20 is 6,000 SF. The Master Plan recommends converting 4,733 SF in R-2 rather than the total 6,000 SF requirement because some forklift maintenance can be performed on board the homeported ships.

Programmed MILCON Projects FY '91-'95 (cont.)

<u>FY</u>	<u>LOC</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
95	MS	441-10	917	Supply Warehouse	2,300
95	MS	421-52	926	Projectile Magazines (3)	7,600
95	WF	148-25	945	Explosive Truck Holding Yard	1,000
95	MS	750-20	948	Family Housing Rec. Complex	2,550
95	WF	151-20	952A	Pier 4 Extension (Phase II)	20,000
95	MS	831-41	982	Hazardous Waste Storage Facility	600
TOTAL					\$193,530

Programmed MILCON Projects FY '96-'99

<u>FY</u>	<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
96	WF	151-20	952B	Pier 4 Extension (Phase III)	13,500
96	WF	151-10	953	Pier 3 Replacement (Phase I)	20,000
96	WF	722-10	956 ¹	Dining Facility	1,500
97	WF	179-55	851 ²	Indoor Swimming Pool	2,200
97	MS	421-52	927	Projectile Magazines (3)	8,200
97	WF	156-10	928	Transit Shed	3,250
97	WF	721-11 721-12	930 ³	BEQ	2,200
97	WF	852-10	946	Fleet Parking	250
97	MS	143-10 540-10 550-10	947	Emergency Vehicle Garage/ Medical & Dental Clinic	3,490
97	WF	151-10	953A	Pier 3 Replacement (Phase II)	40,000
97	MS	730-83 730-84	957	Chapel/Religious Education	3,000
97	MS	740-25	958 ⁴	Family Services Addition	800 (cont.)
97	WF	740-26 740-56	959	Library & Multi-use Theater	292
98	WF	890-56	934	Scale House	220
98	WF	151-10	953B	Pier 3 Replacement (Phase III)	20,000 (cont.)

¹ The PDS describes the 5,000 SF new dining facility as a free-standing building. The Master Plan recommends a 5,000 SF addition to Building R-11.

² Cost shown is based on 13,700 SF of new construction. The Master Plan estimates that 9,840 SF are needed to fulfill the requirement.

³ Cost shown is based on the construction of 9,000 SF. The Master Plan estimates that 14,596 SF is needed to fulfill this requirement.

⁴ The BFR for CCN 740-25 of 4,280 SF is fully satisfied by P-847. The 2,000 SF addition proposed by P-958 is not justified by the current BFR.

Programmed MILCON Project FY '96-'99 (cont.)

<u>FY</u>	<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
98	MS/ WF	730-20	960	Police Station Expansion (C-1 & R-5))	1,300
99	MS	216-30	899	MOMAG Expansion (MA-3)	2,550
99	WF	151-20	978	Pier 2 Replacement (Phase I) <i>Phase II & III in FY 2000 at cost of \$66,000</i>	20,000
99	MS	143-20	939	EOD Expansion (C-7)	500
TOTAL					\$144,252

Unprogrammed MILCON Projects

<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
WF	411-30	838	Ship Fuel Replenishment System	67,550
MS	721-40	850 ¹	Disciplinary Barracks	950
MS	740-56	906 ²	Mainside Theater (C-29)	720
MS	610-10	908 ³	Public Works Engineering Facility	1,333
MS	212-30	910	Tomahawk IMA/Test Cell Facility	3,900
MS	218-45 610-10	915 ⁴	Alter C-33 for Code 70, Cal Lab, Administration	2,500
MS	844-40	921	Water Tank	1,640
MS	722-11	942	A/C for BEQs (C-4, C-10, C-11, C-12, C-13, R-11)	1,200
MS	740-74	966 ⁵	Child Development Center - Wayside	1,000
MS	740-60	969 ⁶	Expansion of Officers' Club	4,000
MS	179-40	973	Small Arms Range- Outdoor	450
MS	851-10	976	Continuous Roads in Magazine Groups	6,000 (cont.)

¹ Cost shown is based on a new 2,800 SF building. The Master Plan recommends that 2,800 SF in Building C-11 be converted to fulfill this requirement.

² Cost shown is based on a 3,065 SF addition to the existing theater. The Master Plan recommends that 7,442 SF in Building C-29 be renovated to accommodate the theater.

³ Cost shown is based on a new 8,000 SF building. The Master Plan recommends that the PW Engineering Group remain in Building C-29. The PDS site plan locates this new facility on the site the Master Plan has recommended for a new gym.

⁴ Cost shown is based on a 34,390 SF renovation in Building C-33. The Master Plan estimates that a 15,850 SF renovation (10,570 SF for CCN 218-45 and 5,280 SF for CCN 610-10) is required in Building C-33 to fulfill the requirement.

⁵ Cost shown is based on 6,000 SF. The Master Plan estimates that 6,425 SF is needed to fulfill the requirement.

⁶ The cost shown is based on a 12,000 SF addition to Building C-4. The Master Plan recommends relocating other uses currently in C-4 (BOQ, package store) and expanding the Club to occupy all of this building.

Unprogrammed MILCON Projects (cont.)

<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>COST \$(000)</u>
MS	141-60 319-10 319-15	977	Extension for Photo Lab, Test Lab, Storage (C-54)	13,600
WF	812-30	980	Electrical Substation at the Waterfront	2,000
MS	724-11 724-12	981 ¹	BOQ	670
<hr/> TOTAL				\$107,513

¹ Cost shown is based on a 5,675 SF BOQ. The Master Plan estimates that 14,596 SF are needed to fulfill the requirement.

Master Plan Projects

<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>QUANT.</u>	<u>COST \$(000)</u>
WF	124-40 155-20	MP-01	Small Craft Berthing/Fuel Storage	300 FB 10,000 GA	124
MS	124-50	MP-02	Vehicle Ready Fuel Storage Tank	10,000 GA	200
MS	131-40	MP-03	Telephone Exchange Add. to C-2	1,632 SF	550
MS	143-46	MP-04	Marine Armory Relocation to C-8	4,500 SF	410
MS	143-60	MP-05	Explosive Shipping/Transfer Depot (F Group)	6,000 SF	1,200
MS	171-10	MP-06	Ordnance Training Facility	2,250 SF	360
MS	171-10 171-77	MP-07	Central Personnel Training Facility (C-9)	3,435 SF	350
WF	213-77	MP-08	Ships/Spares Storage	12,450 SF	1,900
MS	216-05	MP-09	Change/Relief House	500 SF	80
MS	218-51	MP-10	Battery Recharging Shop (C-50)	10,062 SF	910
WF	218-51	MP-11	Battery Recharging Shop (R-10)	3,080 SF	280
WF	219-10	MP-12	Public Works Shop (R-10)	4,555 SF	640
MS	319-15	MP-13	RDT&E Storage Lab (C-33)	1,370 SF	280
WF	441-35	MP-14	Covered Dunnage Storage Shed	5,890 SF	770
MS	610-10 610-77	MP-15	Building C-3 Renovation	21,649 SF	2,595
WF	610-10	MP-16	Coast Guard/Reserve Admin. Office (R-4A)	1,440 SF	180
MS	610-20	MP-17	Data Processing Center Renovation/Expansion (C-3)	2,915 SF	640
MS	730-85	MP-18	Post Office (C-29)	1,500 SF	230
WF	730-85 740-02 740-09 740-19	MP-19	Exchange Credit Union Complex (R-12, R-21)	4,094 SF 1,014 SF	860 110
MS	740-19	MP-20	Credit Union Expansion (C-29)	1,225 SF	260

(cont.)

Master Plan Projects (cont.)

<u>LOC.</u>	<u>CCN</u>	<u>PROJECT #</u>	<u>PROJECT TITLE</u>	<u>QUANT.</u>	<u>COST \$(000)</u>
MS	740-28 740-40	MP-21	Amusement Center/Bowling Alley Expansion	2,014 SF	310
MS	740-34	MP-22	Thrift Shop Relocation to C-36	1,900 SF	190
WF	740-36 740-38	MP-23	Consolidated Hobby Shop	3,100 SF	700
MS	740-37	MP-24	Special Service Issue/Office (C-36)	1,907 SF	200
MS	740-43 740-37	MP-25	Gymnasium	21,500 SF	4,750
MS	740-55	MP-26	Youth Center (C-49)	6,089 SF	610
WF	740-64	MP-27	Enlisted Mess Expansion (R-3)	1,995 SF 6,764 SF	300 1,700
MS	740-71	MP-28	Package Store (C-36)	1,950 SF	240
MS	740-76	MP-29	Library Expansion (C-29)	3,646 SF	440
MS	740-78 740-89 750-30	MP-30	Installation Pool/Bathhouse/ Recreation Pavilion	2,820 SF	180
WF	740-78	MP-31	Recreation Pavilions	780 SF	80
MS	750-10	MP-32	Playing Courts	3 EA	75
MS	750-52	MP-33	Skeet Range	1 EA	30
MS	852-10	MP-34	Public Works Vehicle Compound	9,060 SY	370
WF	852-10	MP-35	Public Works Vehicle Compound	4,530 SY	190
MS	-	MP-36	Wetlands Mitigation Site	1 EA	To be determined
TOTAL					\$23,294

APPENDIX C

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LIST OF REFERENCE MAPS¹

<u>DWG #</u>	<u>DATE</u>	<u>TITLE</u>
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N3348-31	3-21-90	Mainside & Waterfront Administration Areas
Ecology and Environment, Inc.		
-	2-90	Cultural Resources Assessment
Federal Emergency Management Agency		
Panels 3 & 7	2-15-84	Flood Insurance Rate Maps - Middletown, NJ
Han-Padron Associates		
Drawings 4-11	6-90	NWS Earle Pier/Trestle Study: ESQD Arcs Existing Piers 1,2,3 &4
Monmouth County Planning Board		
-	5-7-90	Monmouth Co. Cross-Acceptance Tier Map
2868-1	1-4-82	Plan of Property for County of Monmouth, Lot 1 Block 1408 (Ferry Study)
-	1-85	Agricultural Lands Map Monmouth County N.J.
-	3-85	Monmouth County Composite Zoning Map
-	11-86	Monmouth County 1989 Official Map and Guide
Naval Facilities Engineering Command (NAVFAC)		
873507	-	General Development Map
873507	9-21-73	General Development Map
873507	7-17-89	General Development Map - Mainside Administration Area
873507	7-17-89	General Development Plan - Mainside Administration Area
873507	--	General Development Plan - Pier Area
2020843	8-15-76	Relocatable Demil Furnace Area Plan Views of Facility Buildings and Pad Area
2022254	4-5-76	Pier & Trestle Utilities Map
2022255	4-5-76	Above Pier Deck Piping Plan Pier 3
2022256	4-5-76	Above Pier Deck Piping Plan Pier 3
2025622	12-1-76	P-803 Recreational Facilities Site Plan
2079071	6-18-84	Transit Shed Site Plan
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2102644	10-15-86	Pier 4 Utilities Map
2102675	10-15-86	Ammunition Pier Utilities Map
2102676	10-15-86	Pier & Trestle Utilities Map
2102677	10-15-86	Pier & Trestle Utilities Map
2102678	10-15-86	Pier 4 Utilities Map
2120793	7-28-89	Oily Waste Treatment Facility

¹ This list consists of maps consulted during the preparation of graphic illustrations for the Master Plan.

<u>DWG #</u>	<u>DATE</u>	<u>TITLE</u>
Naval Facilities Engineering Command (NAVFAC) (cont.)		
2120793	8-4-89	Oily Waste Treatment Facility Site, Floor & Roof Plans
2120794	8-4-89	Oily Waste Treatment Facility Site, Floor & Roof Plans
2127029	9-5-89	Long-Term Parking Facility at Rail Classification Yard Plans & Details
2127132	1-29-90	Sand-Salt Building at Waterfront, Site Location Plans and Sections
2135127	6-22-90	Bus Shelters at Waterfront, Plans and Details

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P-910	-	Project Data Sheet - Tomahawk Test Cell Facility
P-913	-	In-Transit Area Explosive Truck Holding Yard
P-933	10-17-89	Navy Lodge Site Plan Sketch
P-970	-	Project Data Sheet - Reaction Force Facility
P-973	11-1-90	In-Transit Area Proposed Site for Outdoor Range
P-974	10-2-90	Ship Fuel Enhancement Plan
P-980	-	Project Data Sheet - Expanded Electrical Substation at the Waterfront
P-982	-	Project Data Sheet- Hazardous Waste Storage Facility
P-909	-	Tomahawk Magazine/ Limited Area

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3	-	NWS Earle General Location Map: Mainside
SK-2104-F	4-3-81	Special Project P-931 ESQD Arcs from P-Barricade
340-A-598	6-1-53	Area and Development Plan Areas 1 & 2
340-A-599	6-1-53	Utilities: Water Distribution System
340-A-600	6-1-53	
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340-A-622	11-27-53	Area and Development Plan - Areas 1 & 2
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340-A-624	11-27-53	
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340-A-627	6-1-53	Area and Development Plan Areas 1 & 2 -
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Northern Division, Naval Facilities Engineering Command

-	10-87	Natural Resources Management Plan for NWS Earle - Vegetative Cover
-	10-89	Installation Restoration Sites

New Jersey Department of Environmental Protection

581-21xx	-	Species and Wetland Delineation Maps
-	2-88	Rare Species Survey - NWS Earle

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New Jersey Natural Gas Company

D-6632-6	9-86	Main Extension - Family Housing
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New Jersey American Water Company

N517-2152E	-	New Jersey American Water Co. Lakewood Distribution System Maps
N517-2157E	-	New Jersey American Water Co. Lakewood Distribution System Maps
N522-2145E	-	New Jersey American Water Co. Lakewood Distribution System Maps

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ASCS/N 14-84	-	Agricultural Stabilization and Conservation Service: Aerials
1 thru 8	3-90	Soil Conservation Service Preliminary Wetland Classification Maps
-	4-89	Soil Conservation Service, Soil Survey of Monmouth County, N.J.
-	4-89	General Soil Map

U.S. Coast and Geodetic Survey

369-3C #12172	1-71	Coast and Geodetic Survey Navigation Map
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-	1981	7.5 Minute Series Topographic Quads: Asbury Park, Farmingdale, Marlboro, Keyport, Sandy Hook, Long Branch
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5,6,7	10-14-88	NWS Earle Family Housing 300 Units: Grading and Utility Plans
8,9,10,11,12	9-23-88	NWS Earle Family Housing 300 Units: Road and Utility Profiles
-	10-26-90	Weapons Handling Facility - Preliminary Expansion Concept
-	10-2-90	Ship Fuel Enhancement Plan P-974
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7100023-1	9-3-71	Oil & Hazardous Materials System Control Test Basin Site Plan Part II
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7100023-1	9-3-71	Oil & Hazardous Materials System Control Test Basin Laboratory & Shop Building
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180201	10-13-78	Fort Monmouth - Wayside Area General Site Map and Aerials
60478	7-11-84	Real Estate Survey Map
80091	-	Naval Weapons Station Earle - Mainside
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-	11-29-89	Navy Exchange 60% Design Submission
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-	-	Master Shore Station Development Plan Part IV Section 6 Area Development Plan: Utilities, Sanitary Sewer - Mainside
-	-	Master Shore Station Development Plan Part IV Section 6 Area Development Plan: Utilities, Fresh Water Distribution System - Mainside
-	-	Master Shore Station Development Plan Part IV Section 6 Area Development Plan: Utilities, Sanitary Sewer - Waterfront

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Miscellaneous (cont.)		
-	-	Master Shore Station Development Plan Part IV Section 6 Area Development Plan: Utilities, Fresh Water Distribution System - Waterfront
-	11-13-87	Mainside Administration Area & Waterfront: Primary Power Distribution Line Diagrams
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