JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
KEITH W. AHUE
MANABU TAGOMORI
Dan T. Kochi

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

'91 APR -2 P12:10

REF:OCEA:JN

MAR 27 1991 OFC. OF ENVIRON. QUALITY CONT.

FILE NO.: OA-2/28/91-2471
180-Day Exp. Date: 8/27/91
DOCUMENT NO.: 9986E

Mr. Robert Y. Rocheleau
President
Sea Engineering, Inc.
Makai Research Pier
Waimanalo, Hawaii 96795

Dear Mr. Rocheleau:

NOTICE OF ACCEPTANCE AND ENVIRONMENTAL DETERMINATION
Conservation District Use Application
for "The Peninsula" Floating Docks and Boat Ramp
Hawaii Kai, Oahu

This acknowledges the receipt and acceptance for processing Namsay Hawaii Inc. application to develop floating docks and a boat ramp.

According to your information, you propose to;

1. develop approximately 156 to 177 floating boat docks,

2. develop a boat ramp, and

3. do minor dredging and removal of boulders.

After reviewing the application, we find that:

1. The proposed use is a conditional use within the General subzone of the Conservation District according to Administrative Rules, Title 13, Chapter 2, as amended;

2. A public hearing pursuant to Section 183-41, Hawaii Revised Statutes (HRS), as amended, will be required in that the proposed use is of a commercial nature; and

44

1991-04-23-OA-FEA - Floating Docks, The Peninsula at Hawaii Kai

February 1983

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

DEPARTMENT MASTER APPLICATION FORM

RECEIVED
91 FEB 13

(Print or Type)

FOR DLNR USE ONLY
Reviewed by _____
Date _____
Accepted by _____
Date _____
Docket/File No. _____
180-Day Exp. _____
EIS Required _____
PH Required _____
Board Approved _____
Disapproved _____
Well No. _____

I. LANDOWNER/WATER SOURCE OWNER
(If State land, to be filled in by Government Agency in control of property)

Name Bishop Estate

Address 567 S. King Street

Honolulu, HI 96813

Telephone No. (808) 523-6200

SIGNATURE X _____

Date _____

II. APPLICANT (Water Use, omit if applicant is landowner)

Name Nansay Hawaii, Inc.

Address Stangewald Building

119 Merchant St., Suite 500

Honolulu, Hawaii 96813

Telephone No. (808) 599-4774

Interest in Property Lease

AFFIDAVIT ATTACHED

(Indicate interest in property; submit written evidence of this interest)

*SIGNATURE X Roger C. Gault
Roger C. Gault

Date February 12, 1991

III. TYPE OF PERMIT(S) APPLYING FOR

( ) A. State Lands

(x) B. Conservation District Use

( ) C. Withdraw Water From A Ground Water Control Area

( ) D. Supply Water From A Ground Water Control Area

( ) E. Well Drilling/Modification

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

IV. WELL OR LAND PARCEL LOCATION REQUESTED

District East Honolulu

Island Oahu

County City of County of Honolulu

Tax Map Key 3-9-8:16 and 36

Area of Parcel 100,000 sq. ft.
(Indicate in acres or sq. ft.)

Term (if lease) 57 years, begin 9/5/89

AFFIDAVIT OF ROGER C. GAULT

STATE OF HAWAII)
) ss:
CITY AND COUNTY OF HONOLULU)

ROGER C. GAULT, being first duly sworn, states:

1. I am Executive Vice President of Nansay Hawaii, Inc., a Hawaii corporation.

2. Nansay is the Lessee of certain real property located in Hawaii Kai, Oahu, Hawaii identified by Tax Map Key No. 3-9-08-16 and 36 pursuant to a Lease from the Trustees of the Bishop Estate dated September 5, 1989 recorded in the Bureau of Conveyances of the State of Hawaii in Liber 23720, Page 286. The Lease is for a term of fifty-seven (57) years commencing October 1, 1989.

Further, Affiant sayeth naught.

Roger C Gault
ROGER C. GAULT

Subscribed and sworn to before me
this 12th day of February, 1991.

Joyce Y. Nijima
Notary Public, State of Hawaii

My commission expires: 12/4/94

VS

V. Environmental Requirements - ENVIRONMENTAL ASSESSMENT ATTACHED

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, an Environmental assessment of the proposed use must be attached. the Environmental assessment shall include, but not be limited to the following:

(1) Identification of applicant or proposing agency;

(2) Identification of approving agency, if applicable;

(3) Identification of agencies consulted in making assessment;

(4) General description of the action's technical, economic, social, and environmental characteristics;

(5) Summary description of the affected environment, including suitable and adequate location and site maps;

(6) Identification and summary of major impacts and alternatives considered, if any;

(7) Proposed mitigation measures, if any;

(8) Determination;

(9) Findings and reasons supporting determination; and

(10) Agencies to be consulted in the preparation of the EIS, if applicable.

VI. Summary of Proposed Use (what is proposed)

Nansay Hawaii, Inc. proposes to build floating docks along the 3600-foot long perimeter of its "Peninsula" development in Hawaii Kai. The floating docks will provide mooring for up to 177 vessels with the exact number depending upon the length of the boats. The docks will only be available to the residents of the "Peninsula" and they will be for recreational boats only. The floating docks are planned to compliment the on-land development, which emphasizes waterfront living. The Hawaii Kai Marina, which is where this project is located, was developed in the 1960's as a recreational marina and waterfront community. The project is within the State Conservation District, with a subzone rating of "G".

INFORMATION REQUIRED FOR ALL USES - PLEASE SEE ATTACHMENTS AND EXHIBITS

I. Description of Parcel

A. Existing structures/Use. (Attach description or map).

B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewarage).

C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate width, type of paving and ownership).

D. Vegetation. (Describe or provide map showing location and types of vegetation. Indicate if rare native plants are present).

E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and areas where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases).

F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline).

G. Existing covenants, easements, restrictions. (If State lands, indicate present encumbrances.)

H. Historic sites affected. (If applicable, attach map and descriptions).

II. Description: Describe the activity proposed, its purpose and all operations to be conducted. (Use additional sheets as necessary). - SEE ATTACHED

III. Commencement Date: 1991

Completion Date: All work on floating docks will be completed within three years of the date of approval.

IV. TYPE OF USE REQUESTED (Mark where appropriate) (Please refer to Title 13, Chapter 2)

1. Permitted Use (exception occasional use);
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

2. Accessory Use (accessory to a permitted use):
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

3. Occasional Use: Subzone _____.

4. Temporary Variance: Subzone _____.

5. Conditional Use: Subzone G.

ATTACHMENT
INFORMATION REQUIRED FOR ALL USES

I. Description of Parcel

A. Existing structures/Use:

The area proposed for the dock development is presently a waterlot, and is part of the Hawaii Kai Marina. The area was extensively modified in the 1960's during the dredging and filling operations for the Hawaii Kai development. The only use of this area at present is for the passage of boats in the marina. Figure 1 shows the location of the project, Figure 2 shows the onshore development, presently under construction and Figure 3 shows the proposed floating dock complex.

B. Existing utilities:

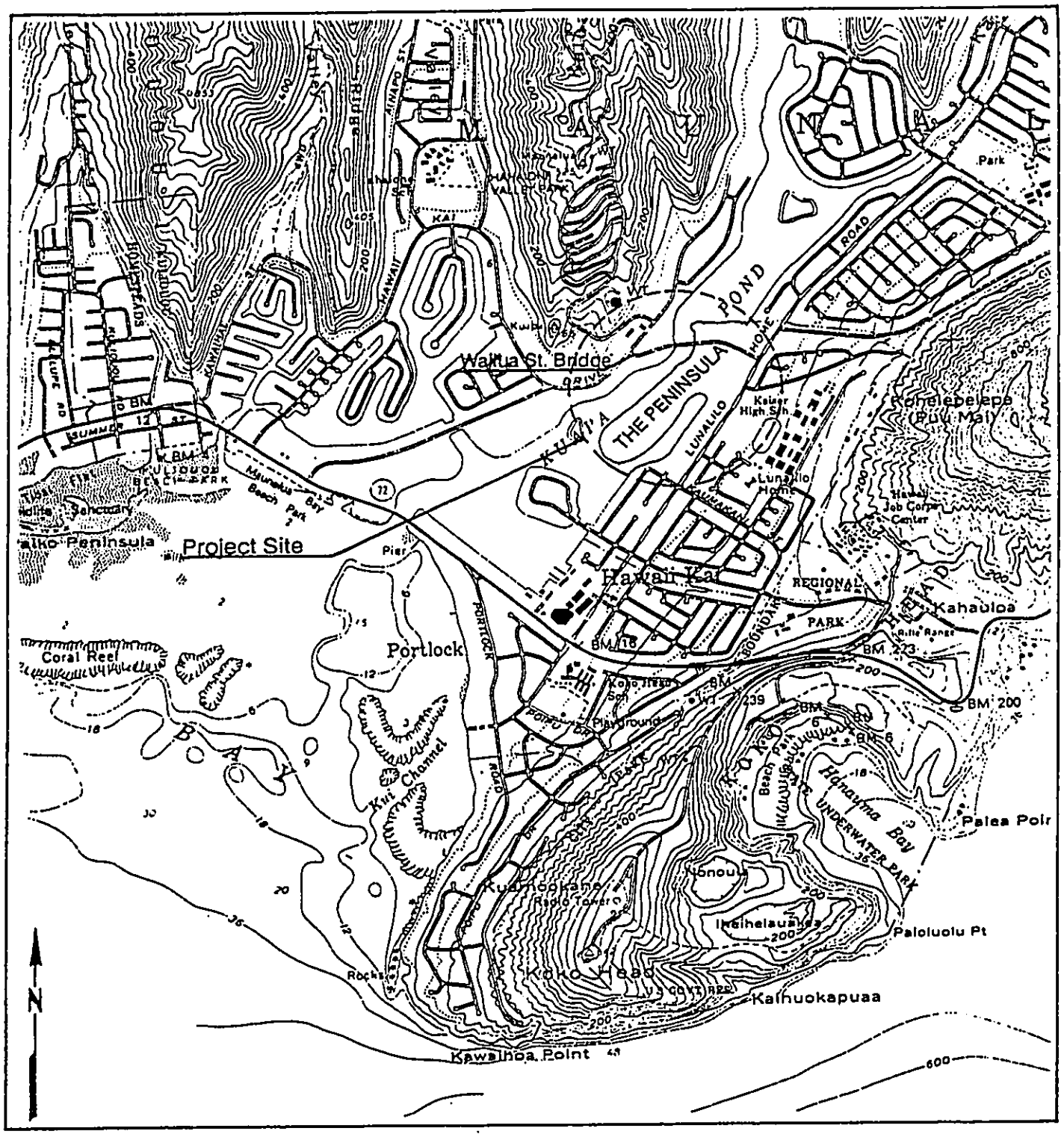
A sewer main traverse the project site and is located approximately 60-feet from the northern most lot. The sewer main exits below the mudline and traverse across Kuapa Pond. The sewer main will not impact the project for which the permit is being submitted. No other utilities are presently located within the location of the proposed floating dock facilities.

C. Existing access:

Access to the adjacent fast land lot is from Wailua Street. Wailua St. is a City and County of Honolulu roadway, 60-feet wide from curb to curb, concrete curb and shoulder, blacktop roadbed and has a concrete sidewalk on the south side of the street. Access to the docks will be via walkways between the buildings as shown in Figure 2.

D. Vegetation:

A site survey conducted in January 1991 indicated a muddy bottom, with few fish or other benthic organisms. The CRM wall around the shoreline provides a suitable substratum for a variety of fouling organisms such as barnacles, oysters, sponges, tube worms and tunicatos. The adjacent fast land had been generally cleared of the previously existing vegetation cover. The remaining vegetation around the project perimeter was typical of dry, lowland areas of Oahu, particularly as found on disturbed, calcareous soils. No unique, threatened, or endangered species of plants were found on the site.

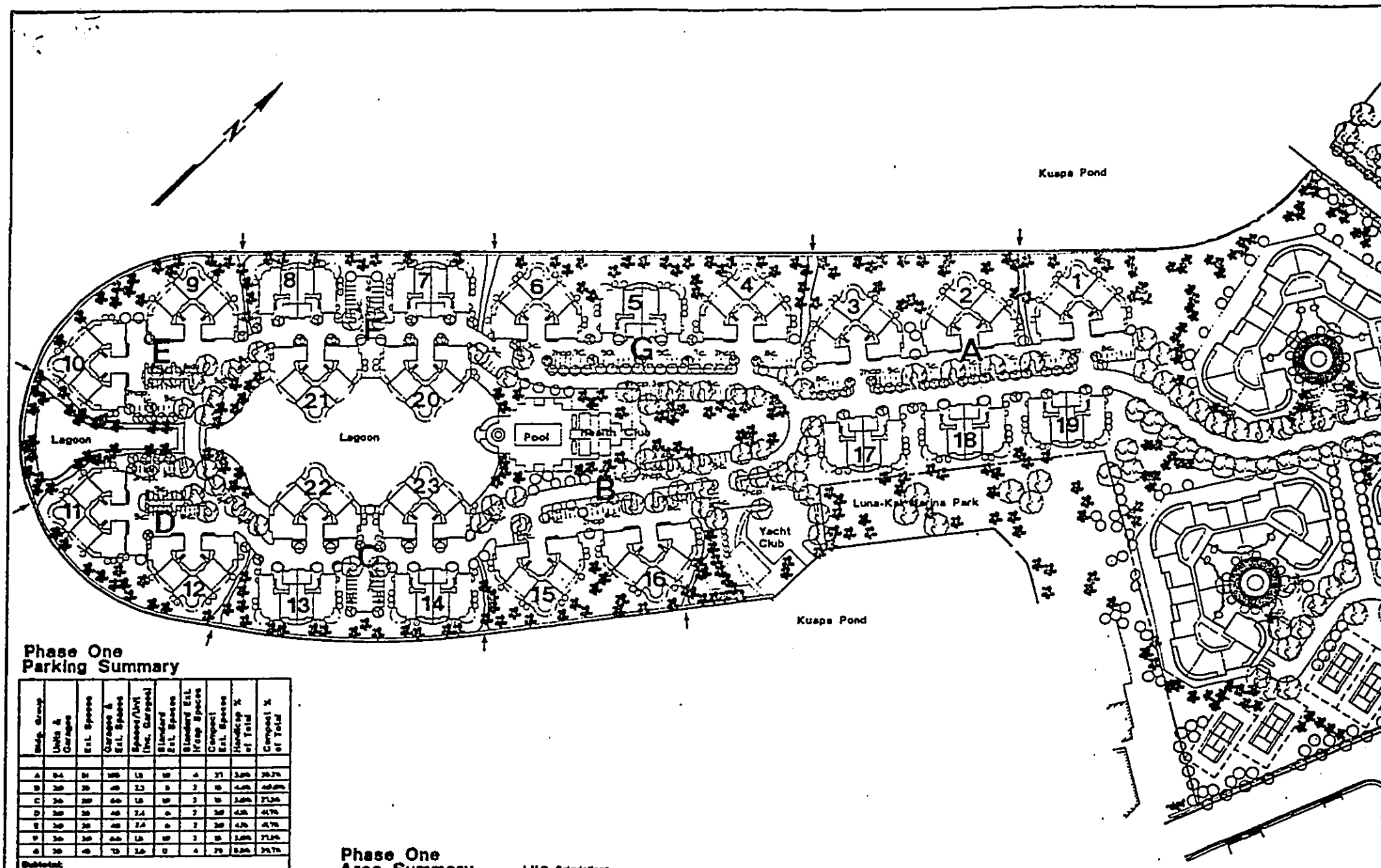


THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

FIGURE 1.
VICINITY MAP

DOCUMENT CAPTURED AS RECEIVED



Phase One
Parking Summary

Bldg. Group	Units & Garages	Est. Spaces	Garages & Est. Spaces	Spaces/Unit Incl. Garages	Standard Est. Spaces	Standard Est. Hcap Spaces	Compact Est. Spaces	Handicap % of Total	Compact % of Total
A	24	31	48	1.5	18	1	11	3.6%	35.5%
B	30	39	60	1.3	23	1	15	2.6%	38.5%
C	30	39	60	1.3	23	1	15	2.6%	38.5%
D	30	36	60	1.2	21	1	14	2.8%	38.9%
E	30	36	60	1.2	21	1	14	2.8%	38.9%
F	30	36	60	1.2	21	1	14	2.8%	38.9%
G	24	31	48	1.3	18	1	11	3.6%	35.5%
Subtotal:									
7	204	277	404	1.3	145	7	94	2.5%	33.9%
Yacht Club:									
			5 Tandem		5	2		28.5%	
Health Club:									
			30		24	4		14.8%	
Site Total:									
			439	1.28	174	13	94	4.9%	31.6%

Note: Parking Space dimensions
Standard: 8'-6" x 17'-0" Typ.
Compact: 7'-6" x 15'-0" Typ.
All spaces are standard unless otherwise indicated.

Phase One
Area Summary

Building I

Building II

Total

L.I.L.O. Calculations

F.A.R. : 0.44

Total Building Floor Area : 874,218 s.f.

F.A.R. : 874,218 / 1,980,344 = 0.44

Building Area Coverage : 361,475

Total Building Ground Area : 847,344 s.f.

Building Area Coverage : 847,344 / 1,980,344 = 42.8%

Approximate Acreage : 45 Acres

Total Units : 204 Units

Density : 4.5 Units per Acre

Standard Parking Stalls : 174

Compact Parking Stalls : 94

Total Parking Stalls : 268

Building Mixed Parking 4% Shared, 2% Covered

1 Tandem Stall in Yacht Club (5 units)

Standard Stall Dimensions : 8'-6" x 17'-0"

Compact Stall Dimensions : 7'-6" x 15'-0"

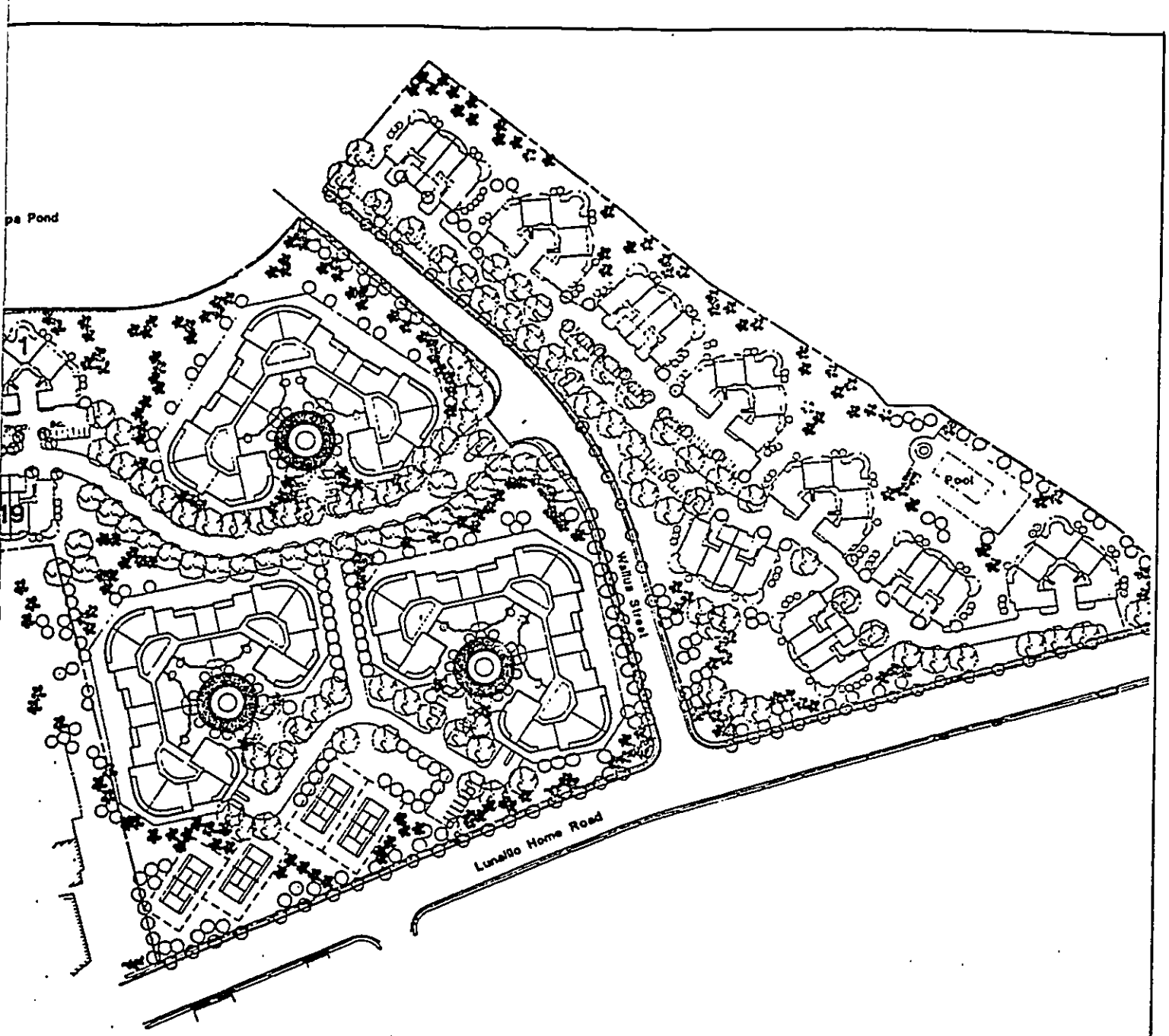
THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

1"=200 scale: 200 0 200 400 feet

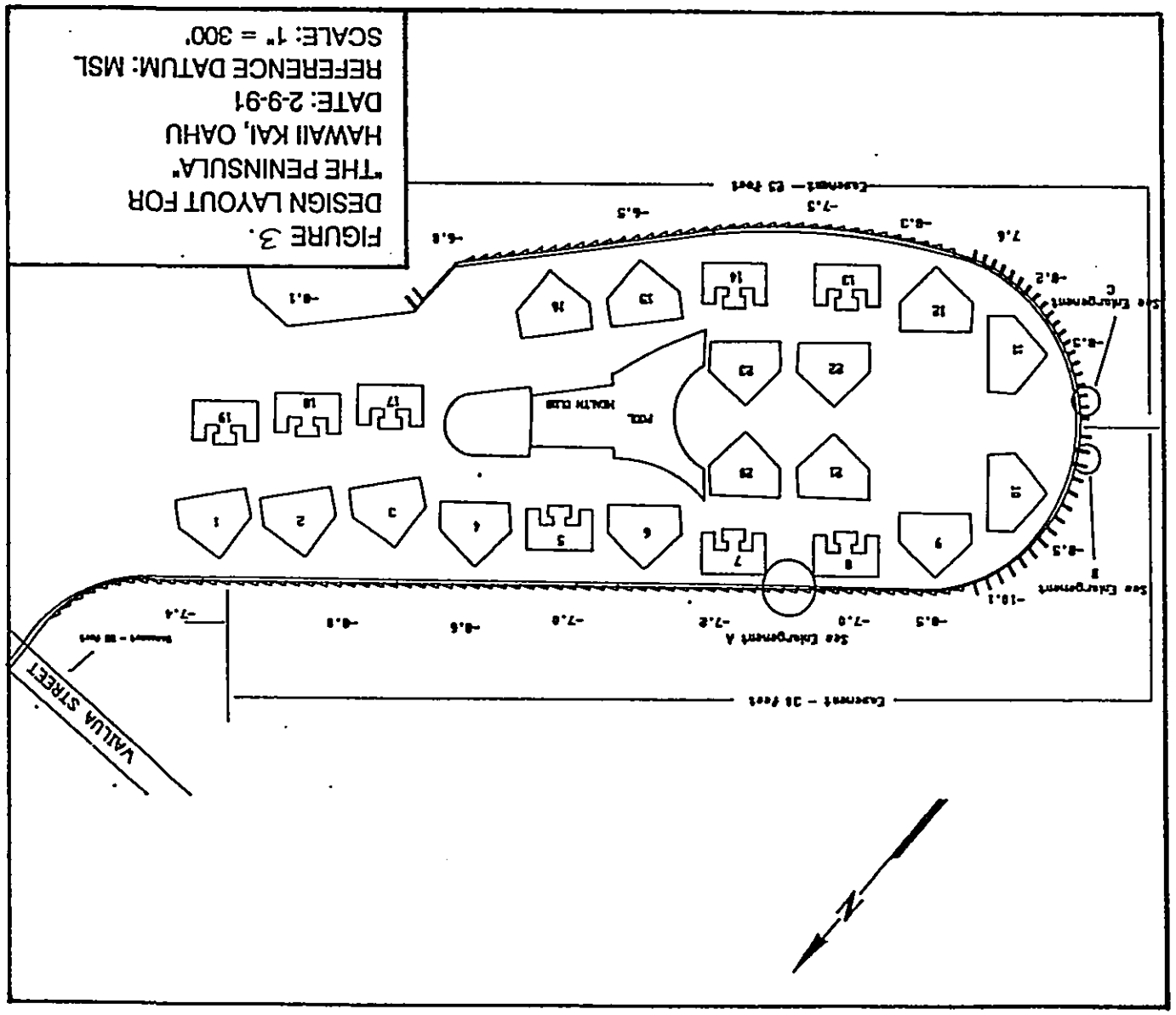
ϟ= ACCESS LOCATIONS

DOCUMENT CAPTURED AS RECEIVED



S LOCATIONS

FIGURE 2.
SITE PLAN



E. Topography:

The adjacent fast land lot has been graded to a more or less uniform elevation of 7 feet above mean sea level, although part of the land towards the north end rises an additional 10 feet. The water depth adjacent to the CRM wall varies from -2 feet to -6 feet with an average of -4 feet MSL. The water depth 60 feet from the CRM wall varies from -6 to -11 feet MSL as can be seen in Figure 3. A typical bottom profile can be seen in Figure 4.

F. Shoreline description:

A vertical seawall surrounds almost all of the "Peninsula". The CRM wall is constructed of basalt boulders and mortar. The wall extends from a few feet below the marina bottom to 3 feet above mean sea level.

G. Existing covenants, easements, restrictions:

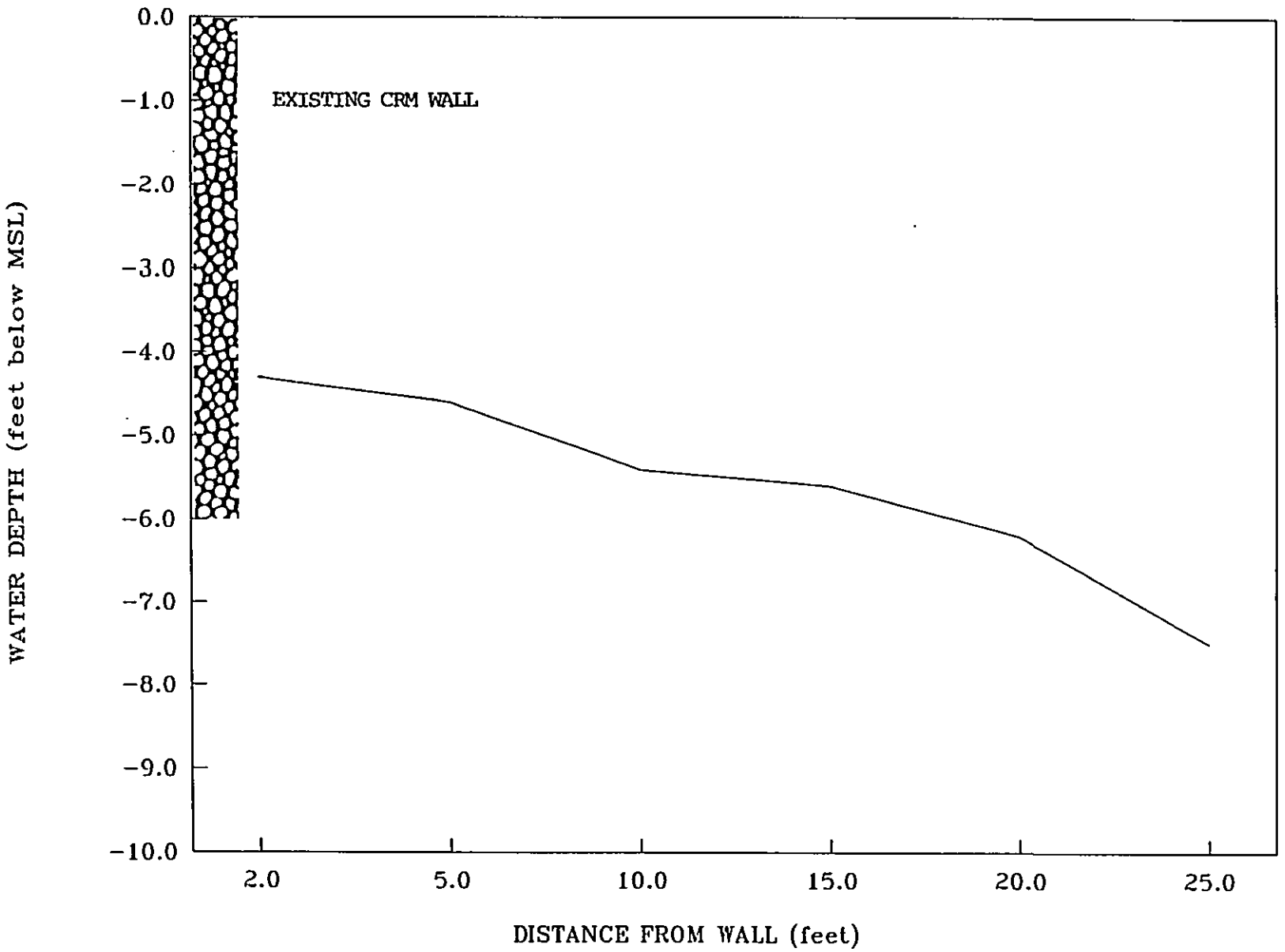
Road, bridge and utility easements exist along the land portion of the Peninsula project. Easement restrictions also exist in the water. Easement limits for Wailua Street bridge, the sewer main as well as restrictions placed upon moored vessels and permanent structures have been established by the Hawaii Kai Marina Association. The mooring restrictions are shown in Figure 3. The sewer main easement will not affect the Phase I development since it is located north of Wailua Street bridge.

H. Historic sites affected:

There are no historic sites in or on the waterlot or the fast land lot.

FIGURE 4.

TYPICAL BOTTOM PROFILE



INFORMATION REQUIRED FOR ALL USES

II. Description

The plan for the dock facilities is shown in Figure 3, along with the easement restrictions imposed upon permanent structures and moored vessels. The existing 3600 foot long shoreline area consists of a vertical seawall constructed of basalt boulders. The wall was constructed in the late 1960's, at the time of the initial development of Hawaii Kai.

A floating catwalk will be placed around almost all of the project perimeter. The only breaks in the catwalk will be at the access gangways and at the boat ramp area. The catwalk will be approximately 18-inches from the seawall, and will be 6-feet wide. The catwalk will be held in place by concrete guide piles driven into the marina bottom. The piles will be located on the outboard edge of the catwalk, and will be approximately 30-feet apart. The pile spacing and penetration into the bottom will be designed to withstand the lateral loads imposed by the design winds and waves.

Triangular finger piers will extend seaward from the catwalk. This design provides ease of docking during the occurrence of the prevailing northeast tradewinds. Also, given the existing 25 and 30 foot mooring easements, it allows for the docking of longer boats than would perpendicular finger piers. Figures 5 and 6 show details of the catwalk and the triangular finger piers. The length and orientation of the finger piers was designed to accommodate boats up to 38 feet long.

The only variable in the design is the spacing of the finger piers along the main catwalk. The longer boats will require a greater distance between fingers, as shown in Figure 6. The system was designed so that the fingers can be added after construction of the catwalk, and can be shifted along the catwalk should the mix of boat lengths change.

The maximum capacity assuming all boats are less than 26 feet long, is 177 vessels. A more realistic assumption is that there will be a relatively even mix of boats in the 18 to 38 foot size range. The capacity would therefore be 156 vessels. The exact number of finger piers will depend upon the demand, but will fall somewhere between the above two numbers.

The floating dock components will be purchased from a mainland manufacturer and assembled on-site. Figure 7 shows a cross-section of the dock. The float and deck are one composite unit, and the assembly involves

ENLARGEMENT A

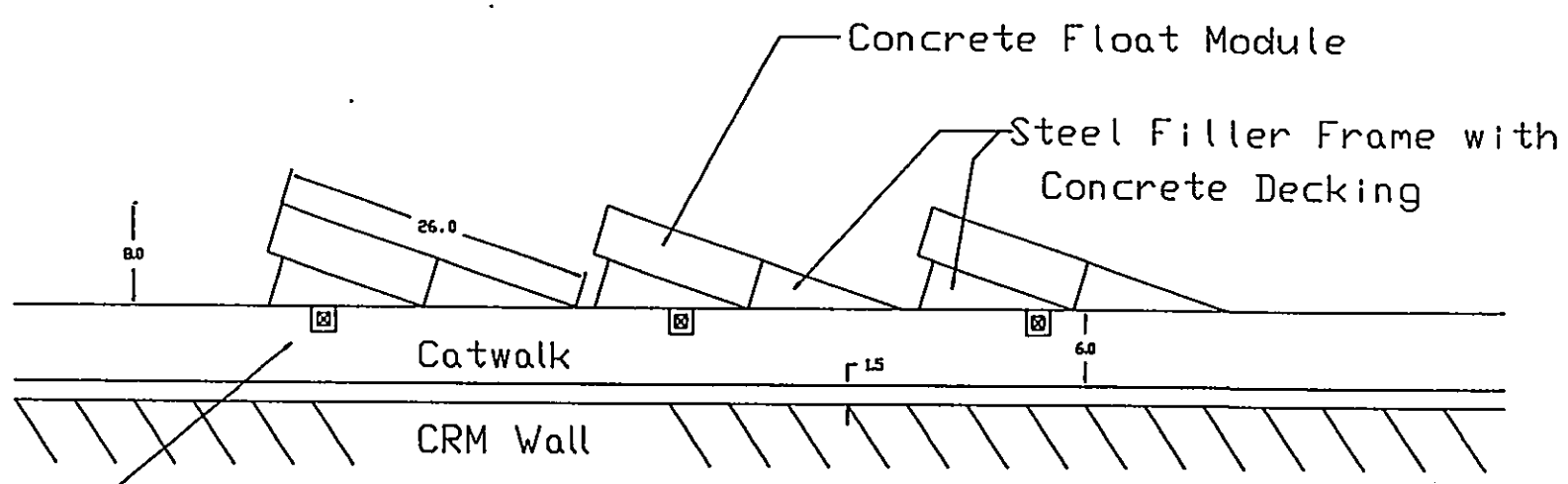


FIGURE 5.
Triangular Piers
SCALE: 1" = 15'

TRIANGULAR FINGER PIERS TO ACCOMODATE
38, 32, AND 26 FOOT BOATS

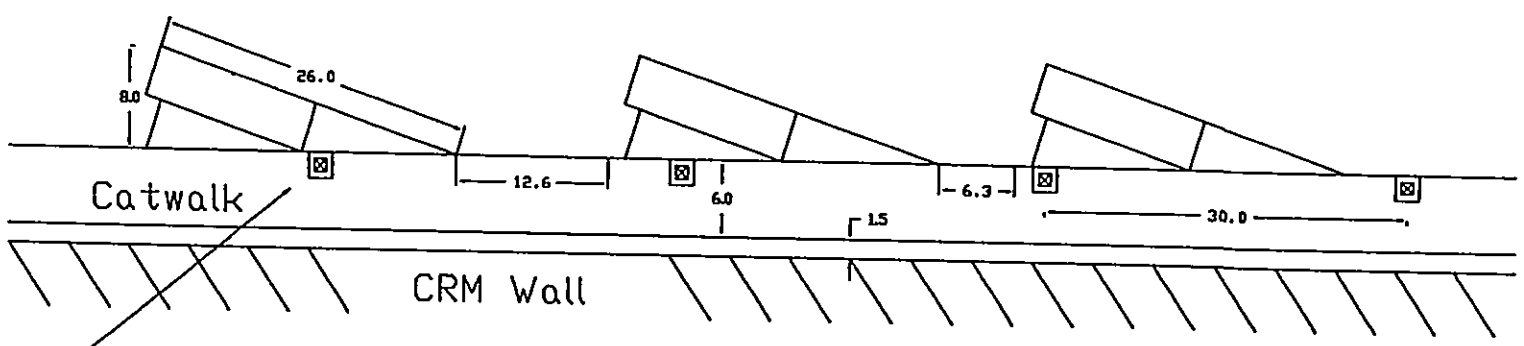
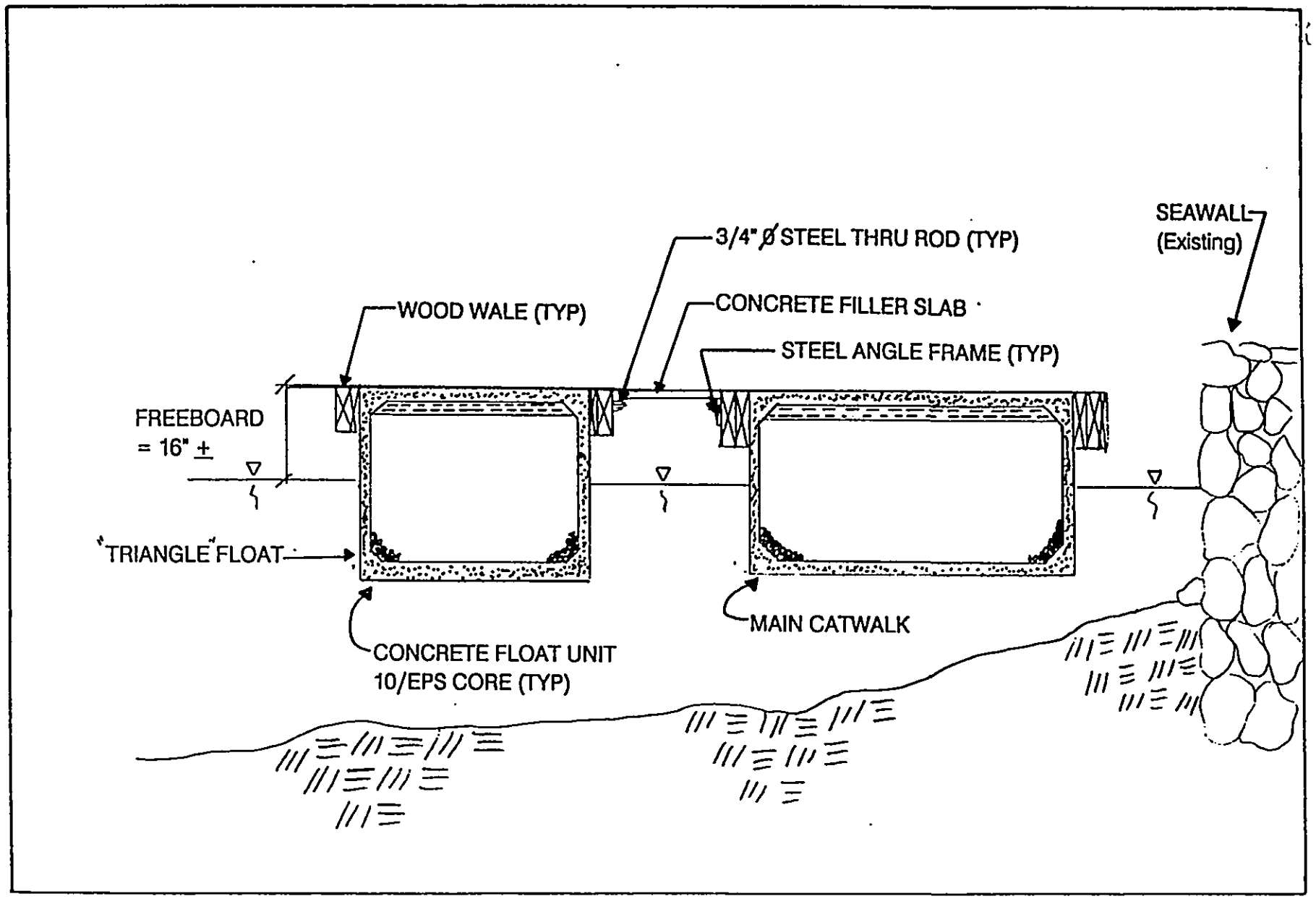


FIGURE 6
Triangular Piers
SCALE: 1"=15'



THE PENINSULA
Hawaii Kai, Oahu
A Project For
Nansay Hawaii, Inc.

SCALE: ½" = 1'-0"

FIGURE 7.
CROSS SECTION OF DOCK

bolting the timber stringers together . The catwalk will be assembled, floated into position, and the guide piles then driven into place. The piles will be driven from a small barge. Installation of the finger piers involves simply floating them into place, through-bolting them, and then placing the triangular deck plates. All work on the floating dock will be completed within three years of the date of approval.

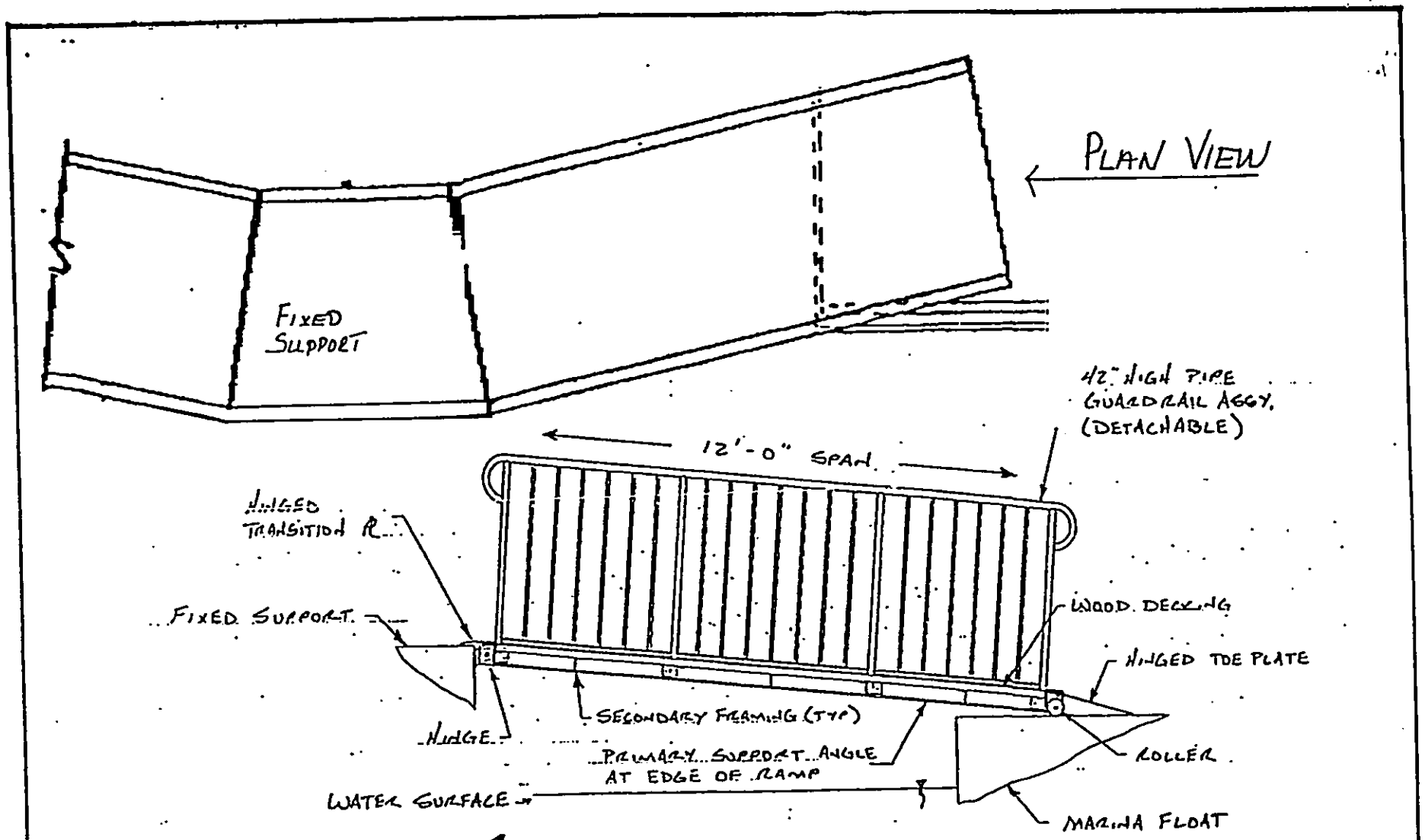
The location of access sites to the docks is based upon the walkway configuration of the on-land development as shown in Figure 2. At each of these points there will be a break in the catwalk, and double gangways from the seawall down to the catwalk. Figure 8 shows a typical gangway configuration.

The design of the docks at the south tip of the peninsula will be slightly different, in that the finger piers will be perpendicular to the catwalk. This limits the boat length, but provides ease of docking into the prevailing wind. The length of the finger piers changes in the middle of the tip to conform with the existing mooring restrictions. Typical finger piers are shown for the 25' and 30' easement areas in Figures 9 and 10 respectively. Nansay Hawaii, Inc. has asked Hawaii Kai Marina Association for an increase of 5 feet in the 25-foot easement limit along all portions of the peninsula except the area adjacent to the Wailua Street Bridge. If the petition is accepted the 17.5-foot-long fingers would be increased five feet in length.

Utilities provided for the dock owners will include electricity and water. Electrical conduits are built into the deck of the catwalk modules, and PVC water lines will run just below the stringers.

The boat ramp will be a standard one lane concrete ramp, with fixed loading piers on each side.

The float modules require a minimum draft of 18-inches. A preliminary survey of the water depths adjacent to the CRM wall indicate a 210 foot long stretch in front of building 8 has a water depth of approximately 2.6 feet mean sea level (MSL) at a distance of 2 feet from the wall. This is below the minimum necessary water depth if one combines the draft of the floats with an extreme low tide of 1.5 feet MSL. This area will require an estimated 200 cubic yards of dredging. In addition, during construction a final check of the water depth along the wall will be made. Final preparation may involve the removal of a few boulders or some localized high spots. Any dredging of this type would be very minor. However, to minimize the impact of the dredging, siltation curtains will be used to enclose the area



CROSS-SECTION

N.T.S.

ALL MATERIAL GALVANIZED STEEL EXCEPT AS NOTED

GEIGER ENGINEERS

110 Prospect Street
Bellingham, WA 98225
Phone: (206) 734-7194
Fax: (206) 734-7399

2 Executive Boulevard Suite 410
Suffern, New York 10901-4164
Phone: (914) 368-3330
Fax: (914) 368-3366

FIGURE 8.
TYPICAL GANGWAY CONFIGURATION

Drawing Title: PROPOSED 12' RAMP	
Job Title: NANSAY PENINSULA MARINA	
Job Number: 40923.00	Date: 2/8/91
By: CGE	Sheet:

ENLARGEMENT C

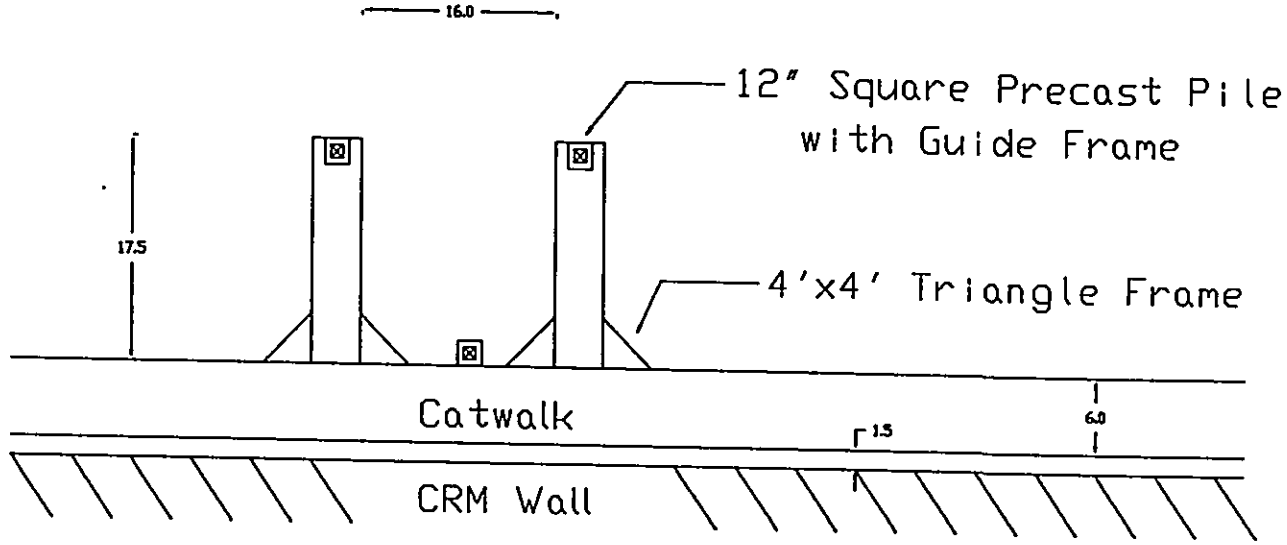


FIGURE 9.

Perpendicular Finger Piers – 25 Foot Easement

SCALE: 1"=15'

ENLARGEMENT B

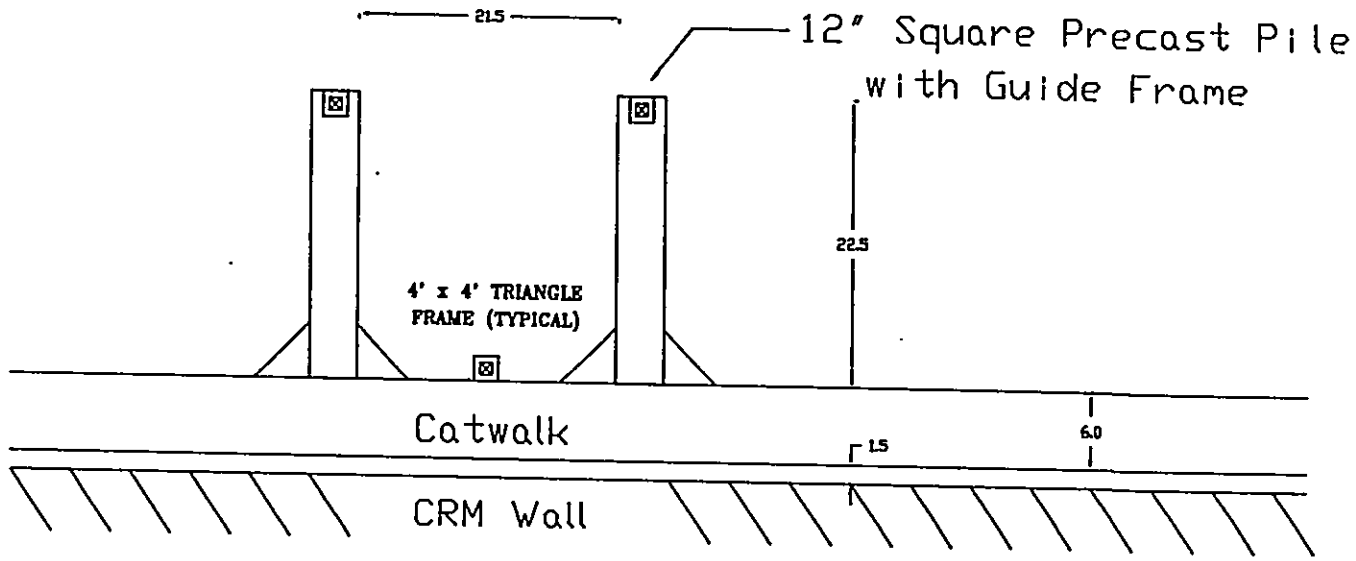


FIGURE 10.

Perpendicular Finger Piers – 30 Foot Easement

SCALE: 1"=15'

being excavated in order to prohibit the dispersion of suspended sediments into Kuapa Pond. Material removed will be disposed of on land in a dewatering area. The usable soil will be used as fill, and any remaining material hauled to an approved landfill. Overflow water from the dewatering area will flow through silt curtains before returning to Kuapa Pond.

The "Peninsula" is presently being developed as a community emphazing waterfront living. The purpose of the floating boat docks is to enhance the recreational opportunities for the residents of the development, in accordance with the central theme of the development.

The docks will be sold only to owners of dwelling units in the Peninsula development. Mooring at the docks will be for recreational vessels only There will be no fueling facilities at the docks. Vessel operations from the docks will be subject to the existing Hawaii Kai Marina regulations.

Area of Proposed Use 100,000 sq. ft.
(Indicate in acres or sq. ft.)

Name & Distance of Nearest Town or Landmark
Wailua Street Traverses project site

Boundary Interpretation (If the area is within 40 feet of the boundary of the Conservation District, include map showing interpretation of the boundary by the State Land Use Commission).

Conservation District Subzone G
County General Plan Designation recreational

V. FILING FEE

1. Enclose $50.00. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

2. If use is commercial, as defined, submit additional public hearing fee of $50.00.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY - SEE ATTACHED

I. Plans: (All plans should include north arrow and graphic scale).

A. Area Plan: Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.

B. Site Plan: Site plan (maps) should include, but not be limited to, dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water area, roads, and utilities.

C. Construction Plan: Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation areas; landscaping, including buffers; roadways, including widths; offstreet parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.

D. Maintenance Plans: For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.

E. Management Plans: For any appropriate use of animal, plant, or mineral resources, management plans are required.

F. Historic or Archaeological Site Plan: Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

II. Subzone Objective: Demonstrate that the intended use is consistent with the objective of the subject Conservation District Subzone (as stated in Title 13, Chapter 2). - PLEASE SEE ATTACHED

ATTACHMENT
INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans:

The following plans have been included to satisfy the "Information Required for Conditional Use Only" in regards to CDUA requirements.

A - Area Plan

B - Site Plan

C - Construction Plan

1) plan view of triangular piers for 26-foot boats;
2) plan view of traingular piers for 38,32 & 26-foot boats;
3) cross-section of typical triangular configuration;
4) plan and cross-section of gangway configuration;
5) perpendicular finger piers - 25-foot easement;
6) perpendicular finger piers - 30-foot easement;

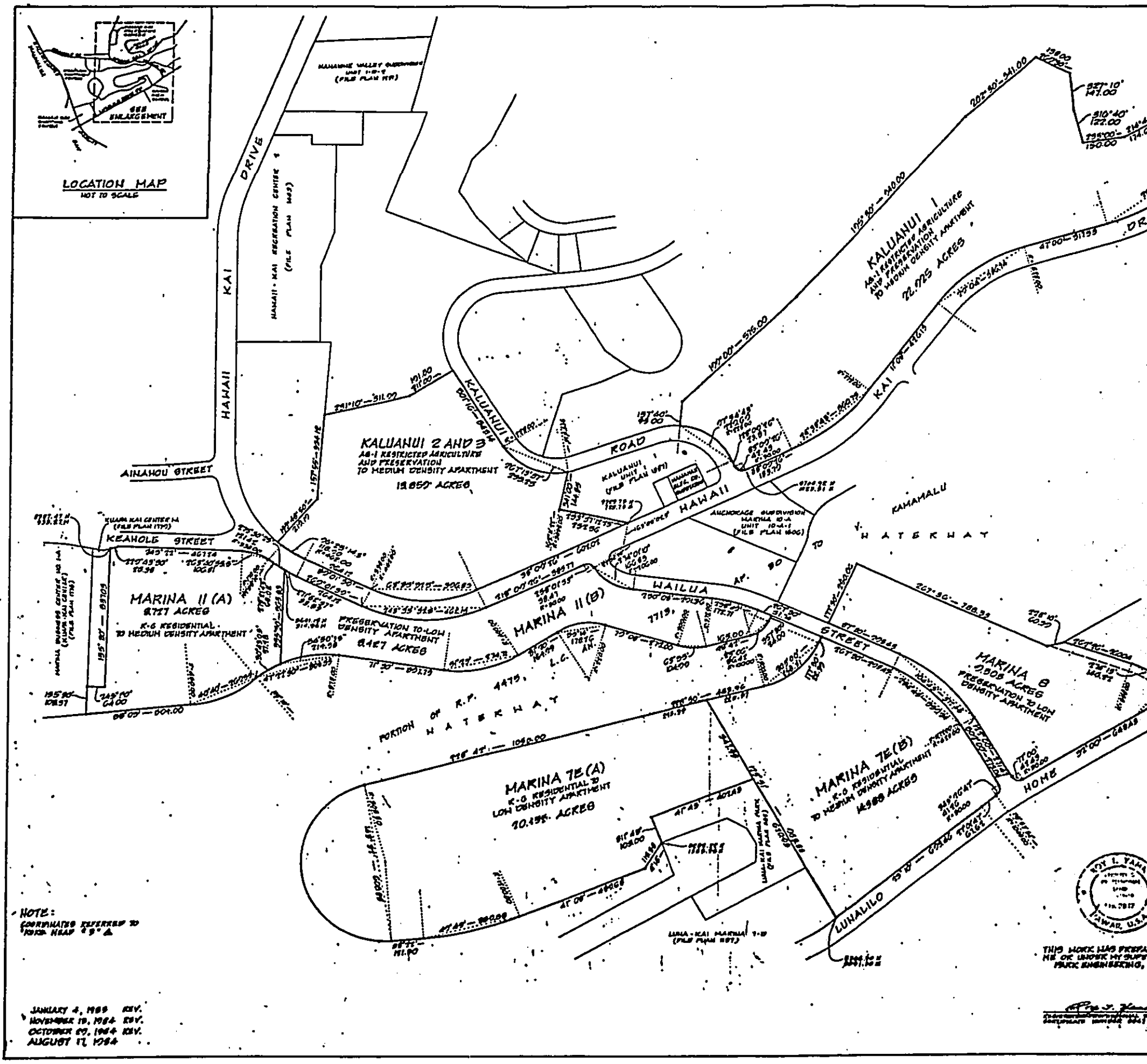
D - Not applicable

E - Not applicable

F - Not applicable

II. Subzone Objective:

The waterlot in which Nansay Hawaii, Inc. proposes to install a marina wall and floating docks is within the conservation district, subzone "G" (general). Permitted uses of subzone "G" areas include "outdoor recreational uses", as indicated in section 13-2-13:b-3 and section 13-2-15:c-1. The application for a Conditional Use Permit is to allow the construction of the proposed facility, the use of which is compatible with the permitted uses within the conservation district subzone.



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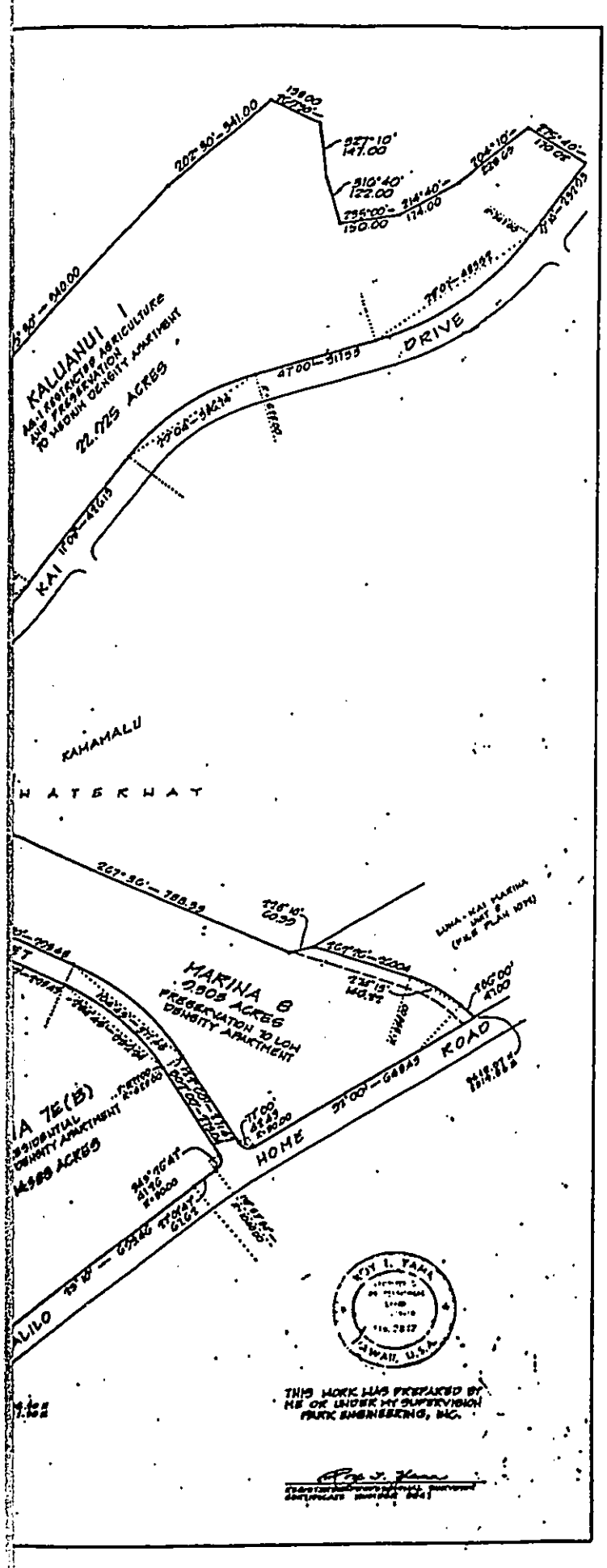


THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

N

1"=200'

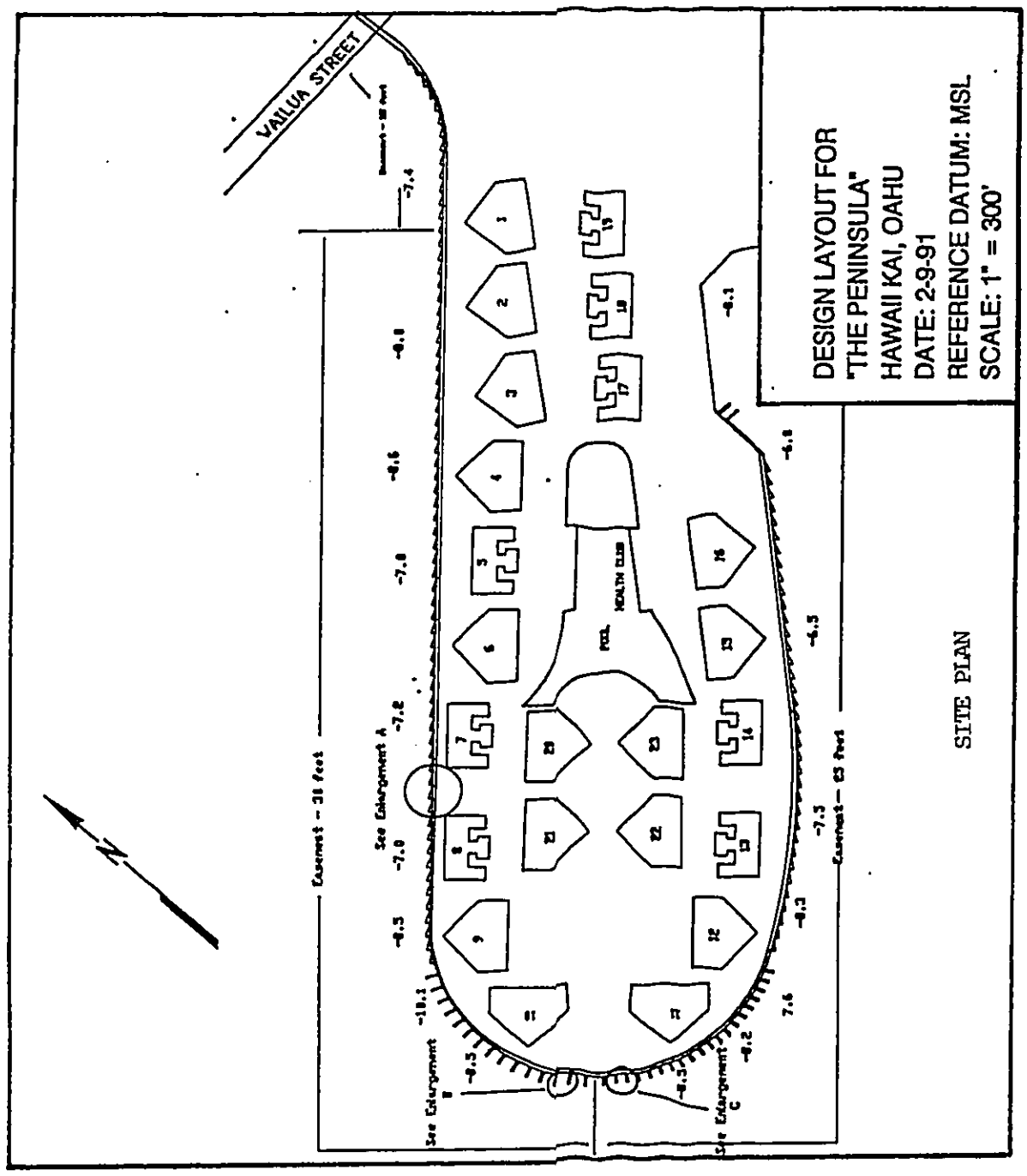
200 0 200 400

scale feet

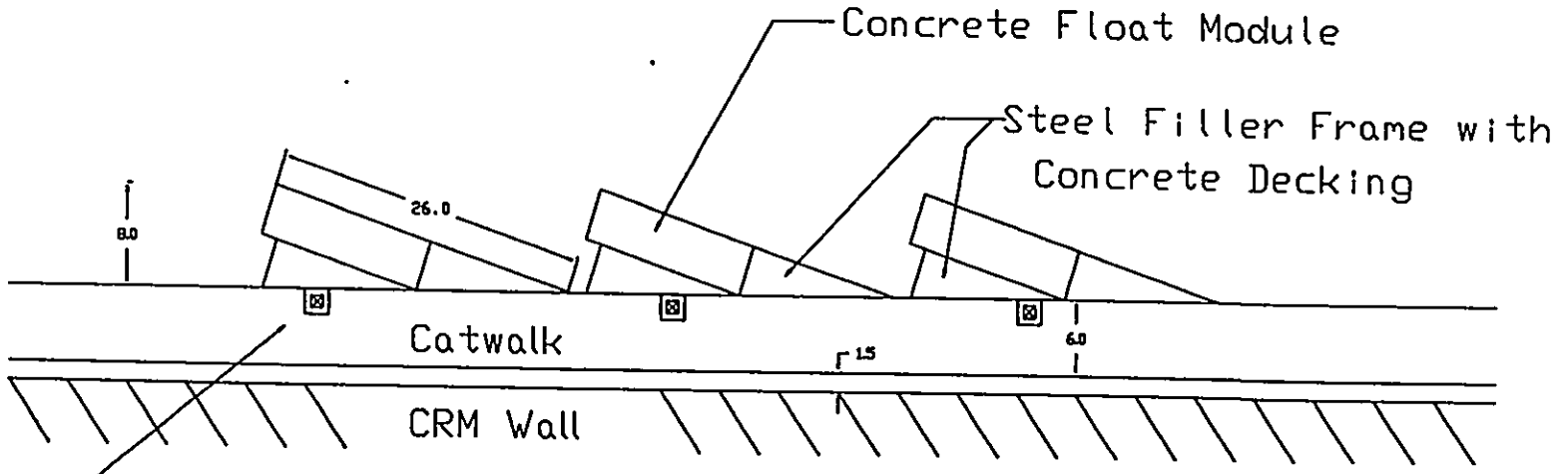
AREA PLAN

PROPOSED REZONING MAP
FROM RESIDENTIAL TO
LOW DENSITY APARTMENT

DOCUMENT CAPTURED AS RECEIVED



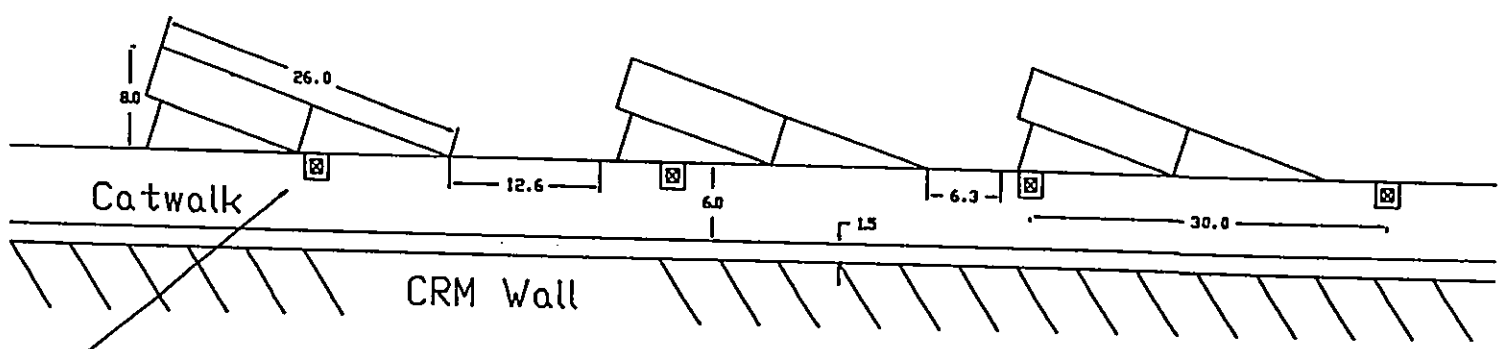
ENLARGEMENT A



CONSTRUCTION PLAN -1

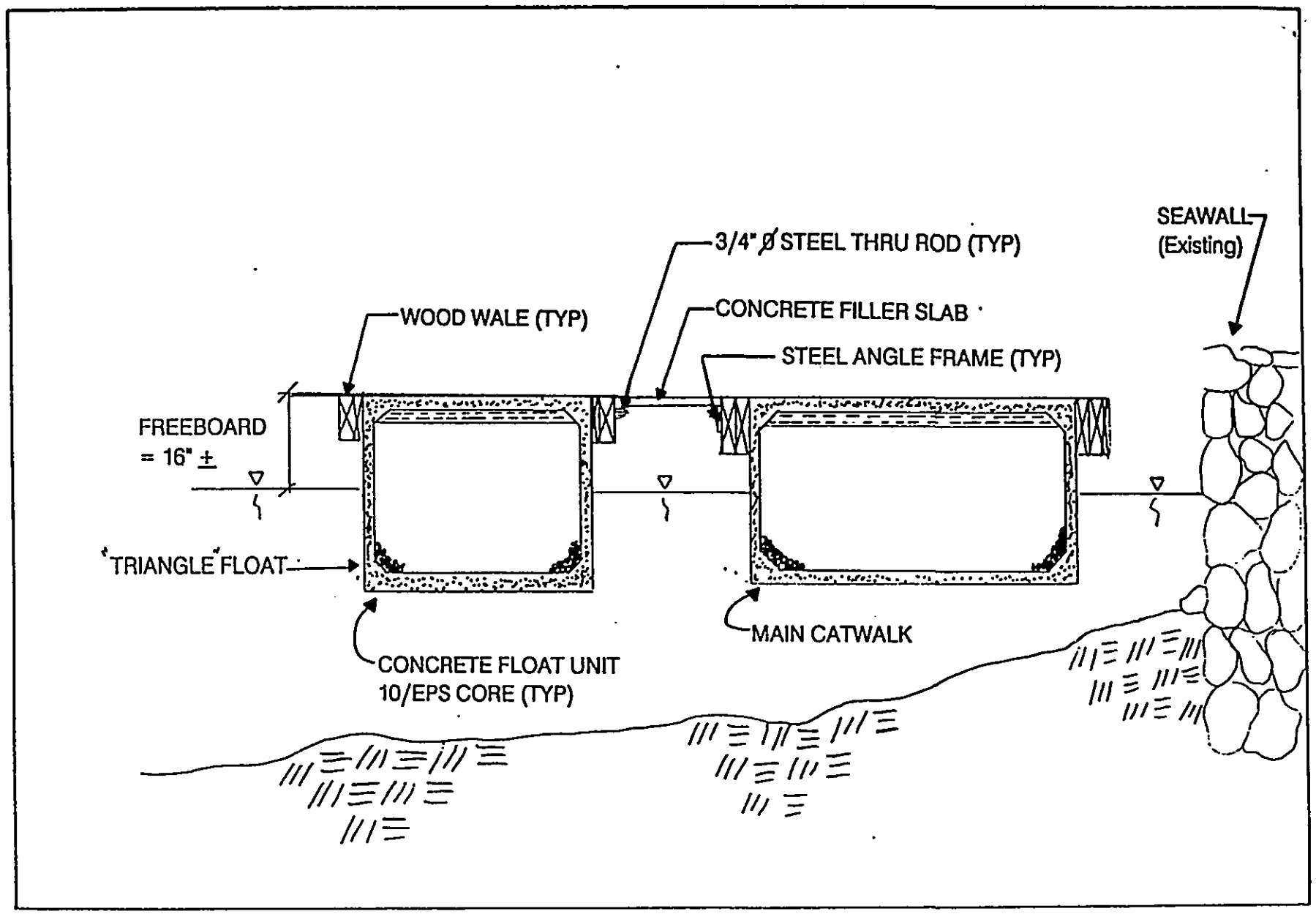
Triangular Piers
SCALE: 1" = 15'

TRIANGULAR FINGER PIERS TO ACCOMODATE 38, 32, AND 26 FOOT BOATS



CONSTRUCTION PLAN -2

Triangular Piers
SCALE: 1"=15'

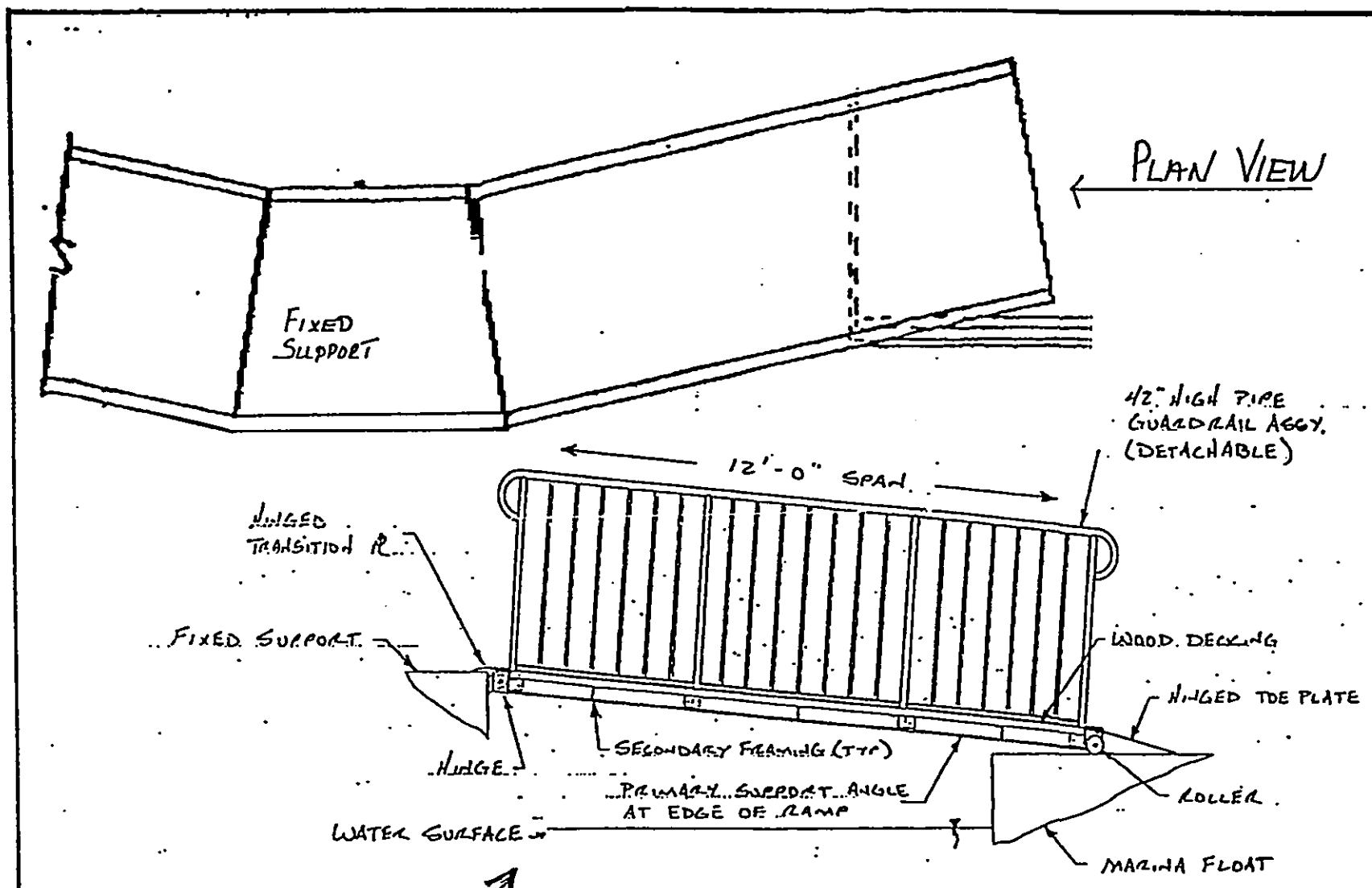


THE PENINSULA
Hawaii Kai, Oahu
A Project For
Nansay Hawaii, Inc.

SCALE: ½" = 1'-0"

CONSTRUCTION PLAN -3

CROSS SECTION OF DOCK



CROSS-SECTION

N.T.S.

ALL MATERIAL GALVANIZED STEEL EXCEPT AS NOTED

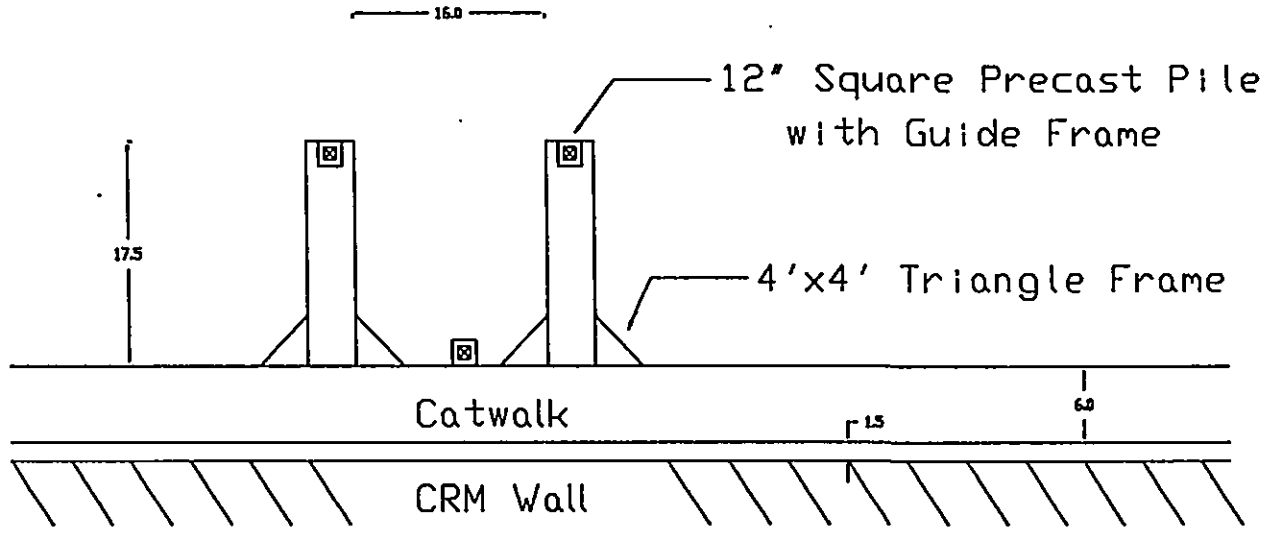
GEIGER ENGINEERS
Geiger Connor Hamilton Lee Engineers P.C. New York Bellingham
110 Prospect Street, Bellingham, WA 98225, Phone: (206) 734-7194, Fax: (206) 734-7399
2 Executive Boulevard Suite 410, Suffern, New York 10901-4164, Phone: (914) 368-3330, Fax: (914) 368-3366

CONSTRUCTION PLAN -4

TYPICAL GANGWAY CONFIGURATION

Drawing Title: PROPOSED 12' RAMP	
Job Title: NANSAY PENINSULA MARINA	
Job Number: 90923-00	Date: 2/8/91
By: CGF	Sheet:

ENLARGEMENT C

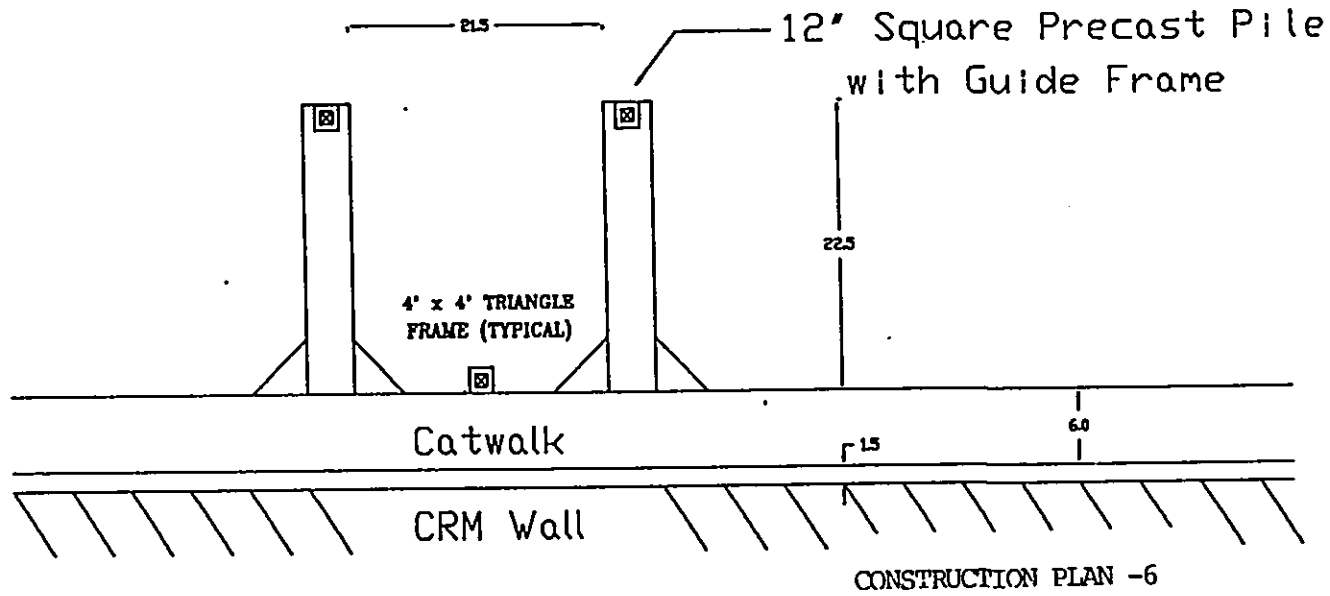


CONSTRUCTION PLAN -5

Perpendicular Finger Piers – 25 Foot Easement

SCALE: 1"=15'

ENLARGEMENT B

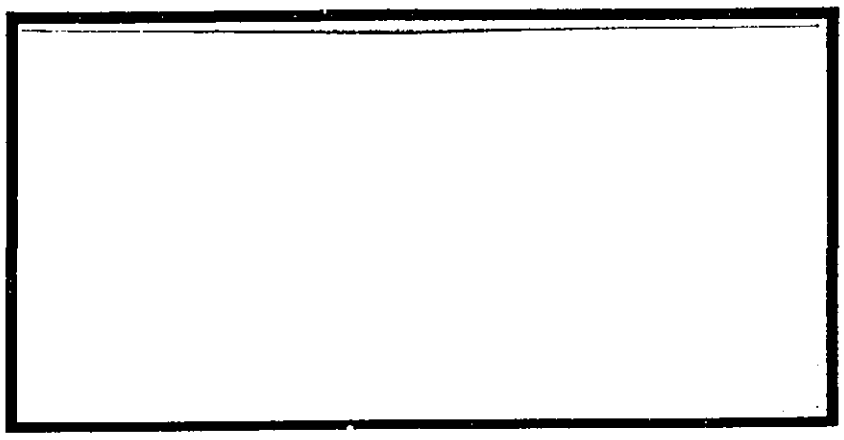


CONSTRUCTION PLAN -6

Perpendicular Finger Piers - 30 Foot Easement

SCALE: 1"=15'

FILE COPY



Sea Engineering, Inc.

ENVIRONMENTAL ASSESSMENT
FOR
INSTALLATION OF FLOATING DOCKS,
THE PENINSULA, HAWAII KAI

Prepared For:
Nansay Hawaii, Inc.
119 Merchant Street
Honolulu, Hawaii

Prepared By:
Sea Engineering, Inc.
Makai Research Pier
Waimanalo, Hawaii

February 1991

TABLE OF CONTENTS

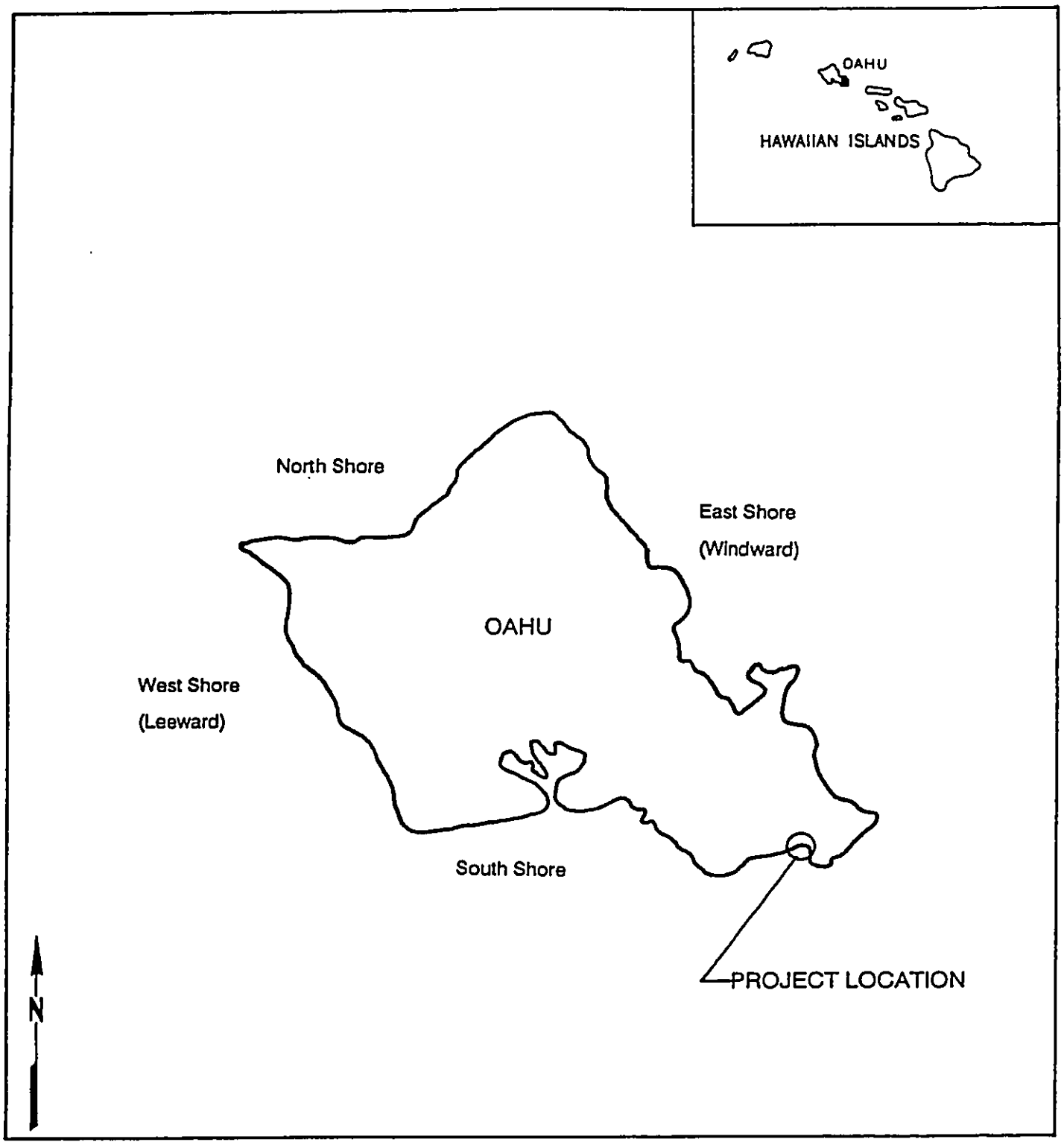
LIST OF FIGURES

I. INTRODUCTION

Nansay Hawaii, Inc. is developing "The Peninsula" in Hawaii Kai, a residential homesite combination of low and mid-rise condominium units. The general location is shown in Figures 1 and 2, and the site plan is shown in Figure 3. A proposed rezoning map from residential to low and medium density apartments for the project site is shown on Figure 4. Construction of the project is divided into two phases. Phase I, located south of Wailua Street, will consist of 23 two story buildings, with a total of 324 dwelling units. Phase II, on the north side of Wailua Street, will consist of 3 buildings, each 6 stories tall, with a total of 108 dwelling units. In addition, "The Peninsula" will have a two story yacht club, a centrally located health club, and other resident amenities.

"The Peninsula" has a frontage of 5,250 feet along the Hawaii Kai Marina, and a central theme of the development is that of a waterfront community. In accordance with that theme, the project includes floating dock facilities along the majority of the project perimeter. A small boat ramp will also be included in the project, for the launching and retrieval of trailer boats belonging to the residents.

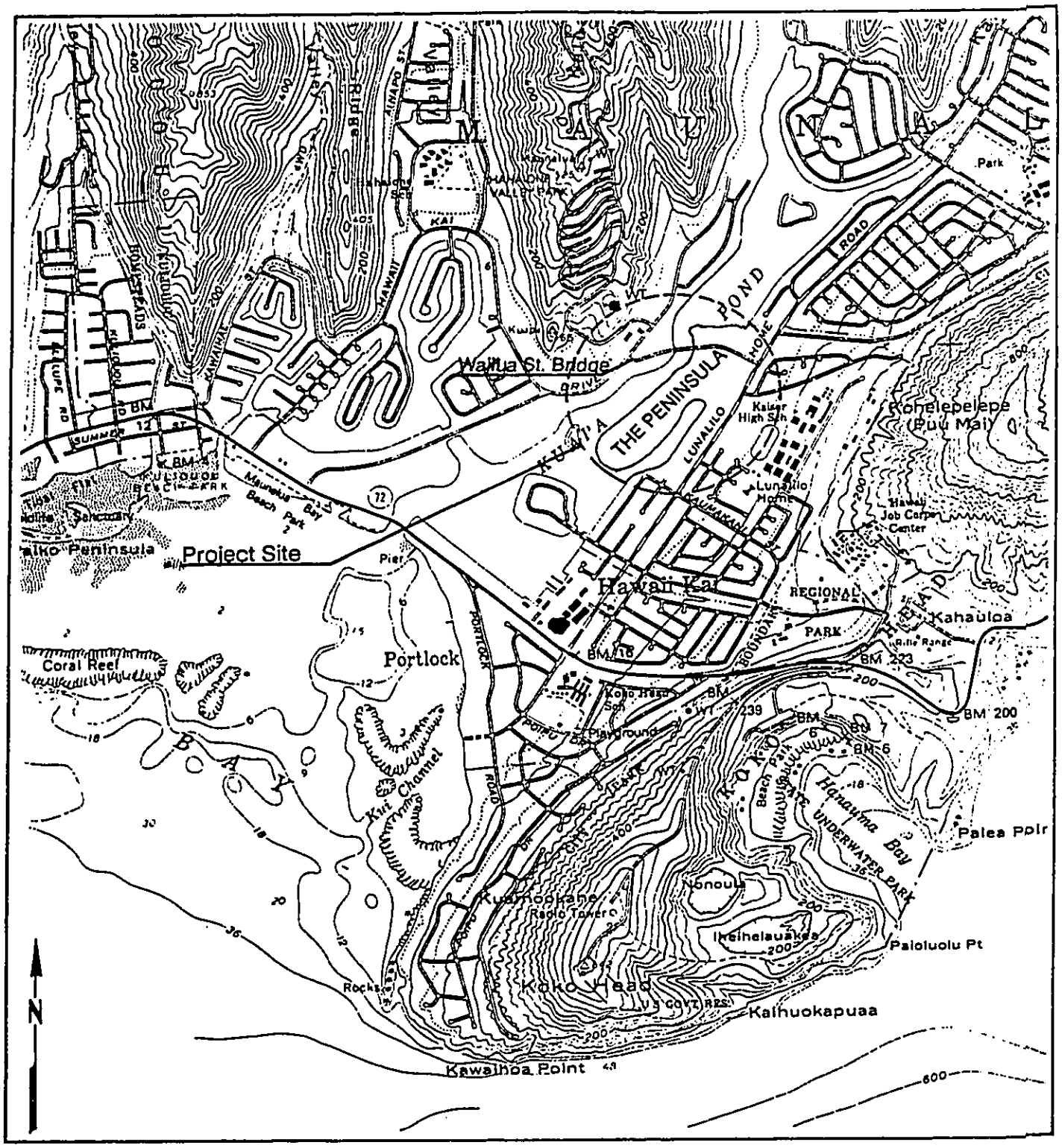
This Environmental Assessment (EA) has been prepared primarily to accompany the Conservation District Use Application (CDUA)) which is being submitted to the Department of Land and Natural Resources, State of Hawaii, pursuant to Title 13, Chapter 2, the rules governing land use within the state conservation districts. This EA will also accompany the application for a Department of the Army permit for work in navigable waters, and will be available to other interested parties and individuals, including, but not limited to, the Hawaii Kai Marina Association and the Hawaii Kai Neighborhood Board. This EA describes the proposed project, the existing environment, the anticipated impacts, and proposed mitigation measures.



THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

FIGURE 1.
PROJECT LOCATION MAP



THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

FIGURE 2.
VICINITY MAP

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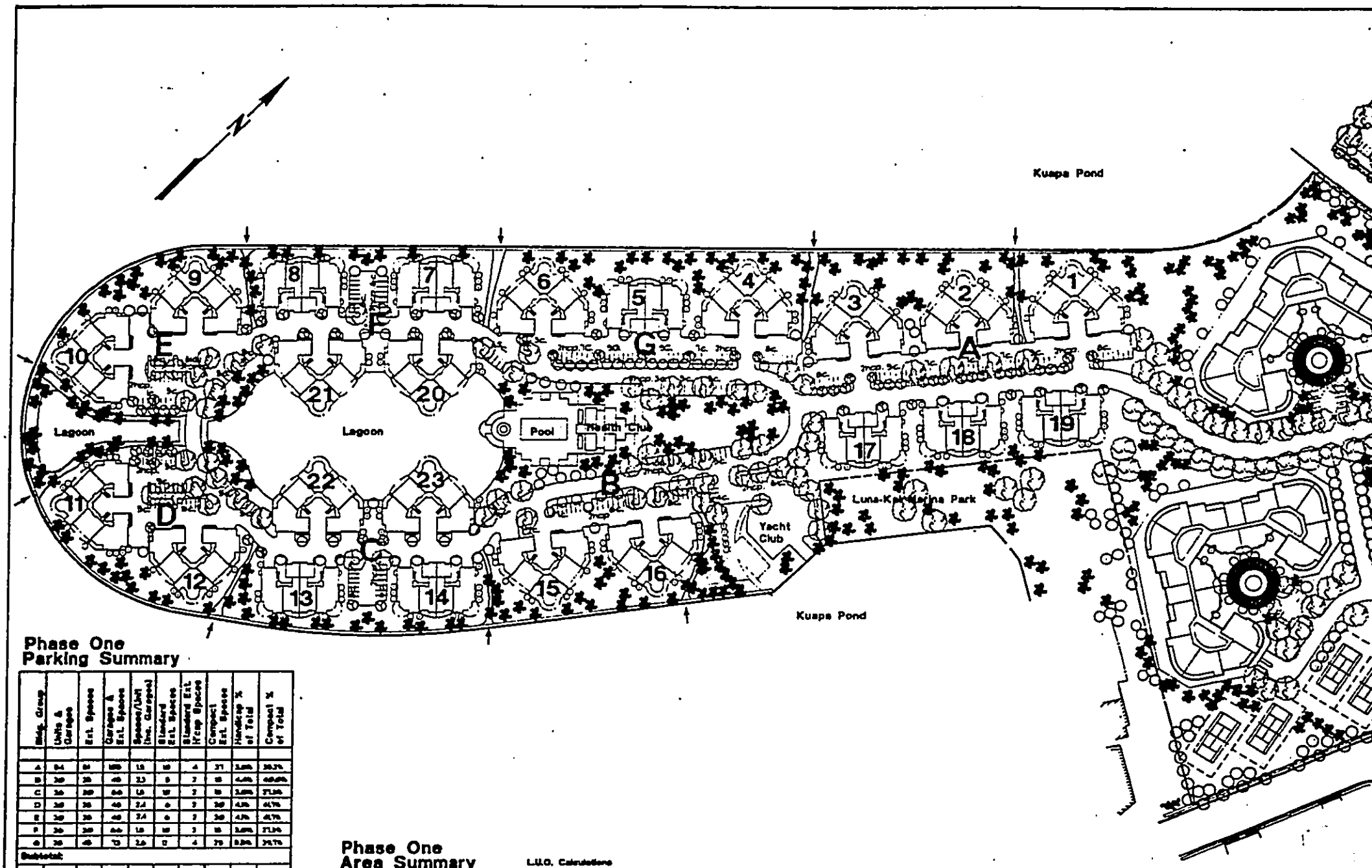


Phase One
Parking Summary

Bldg. Group	Units & Garages	Est. Spaces	Garages & Est. Spaces	Spaces/Unit (Inc. Garages)	Standard Est. Spaces	Standard Est. H'cap Spaces	Compact Est. Spaces	Handicap % of Total	Compact % of Total
A	84	91	168	1.8	16	4	71	5.6%	39.2%
B	39	39	78	2.0	9	2	28	4.5%	46.6%
C	39	39	78	2.0	17	2	19	5.6%	31.8%
D	39	39	78	2.0	9	2	28	4.5%	44.9%
E	39	39	78	2.0	9	2	28	4.5%	44.9%
F	39	39	78	2.0	17	2	19	5.6%	31.8%
G	39	49	78	2.0	17	4	28	8.0%	39.8%
Subtotal:									
7	354	731	484	2.1	96	18	140	4.8%	39.8%
Yacht Club:									
			6 Stall, 4 Trailer	1.0	3			50.0%	
Health Club:			30		34	4		14.3%	
Site Total:			484	2.23	16	34	168	4.9%	32.6%

Typical Parking Spaces dimensions
Standard: 8'-0" x 17'-0" Typ.
Compact: 7'-6" x 17'-0" Typ.
All spaces are standard unless otherwise indicated.

Phase One
Area Summary

Building I
[illegible]
Building II
[illegible]
Total
[illegible]

L.I.U. Calculations
F.A.R. : 0.55
[illegible]
Total Building Ground Area
[illegible]
Approximate Acreage
Total Units
Average
Required Parking Stalls
Required Parking Stalls
Total Parking Stalls
[illegible]

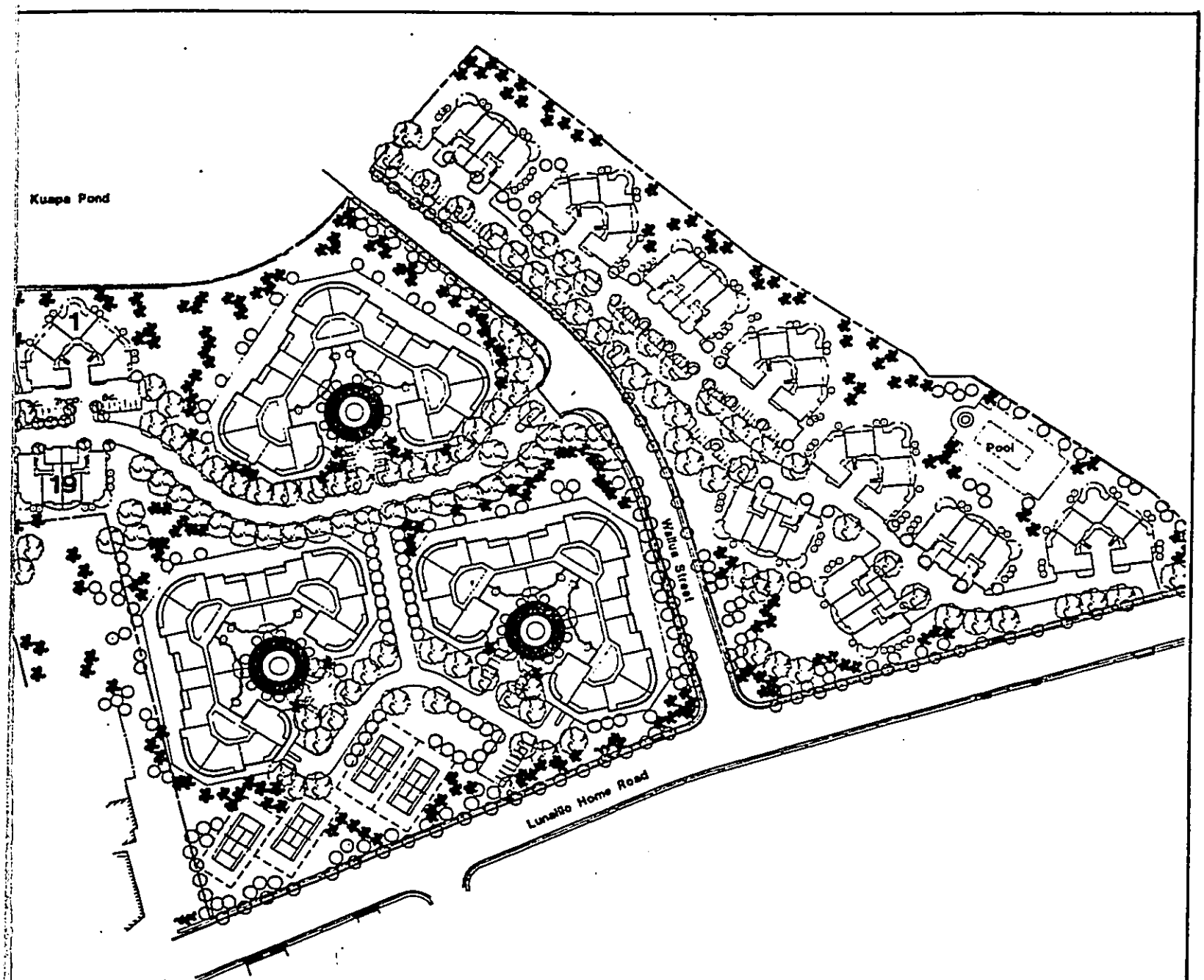
THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

1"=200

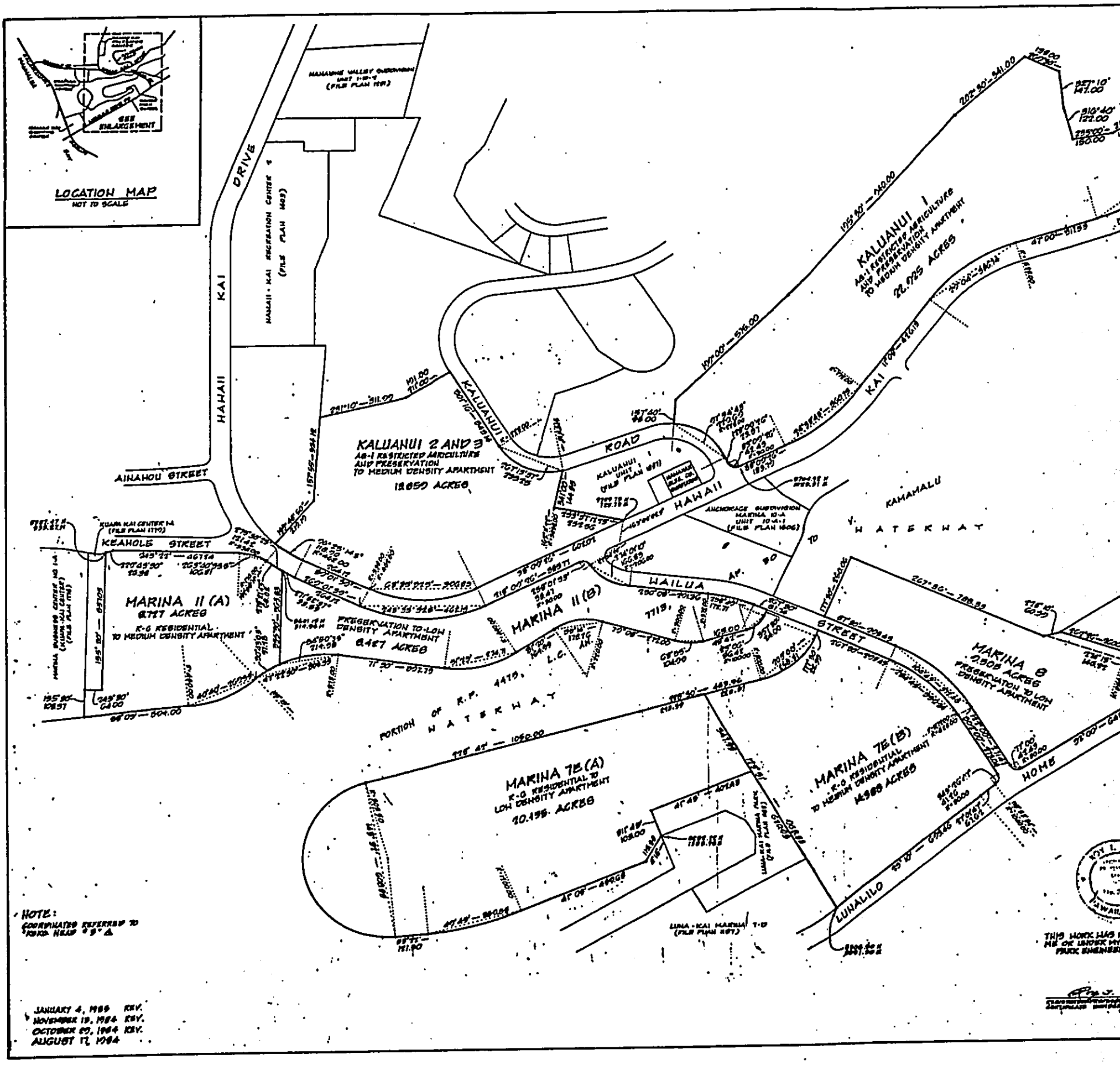
200 0 200 400
scale feet

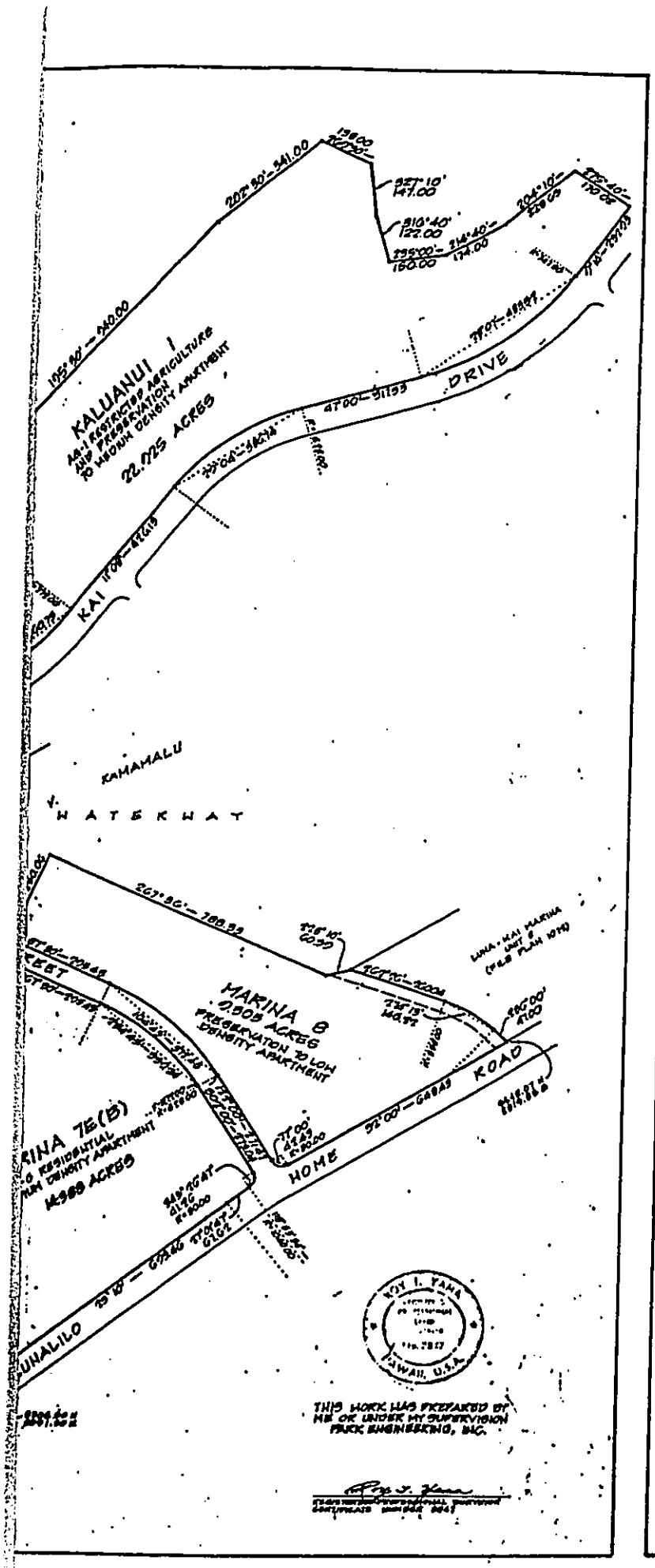
= ACCESS LOCATIONS



ESS LOCATIONS

FIGURE 3.
SITE PLAN





THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

N

1"=200'

200 0 200 400

scale feet

FIGURE 4.
PROPOSED REZONING MAP
FROM RESIDENTIAL TO
LOW DENSITY APARTMENT

II. PROJECT DESCRIPTION

GENERAL OVERVIEW

The floating docks will extend around the perimeter of the development. Dock installation will be completed in two phases, approximately corresponding to the on-land development. At this time, permits are being submitted only for Phase I, which constitutes the bulk of the dock facility. However, in order to provide an accurate portrayal of the overall project, this EA covers both Phase I and Phase II work.

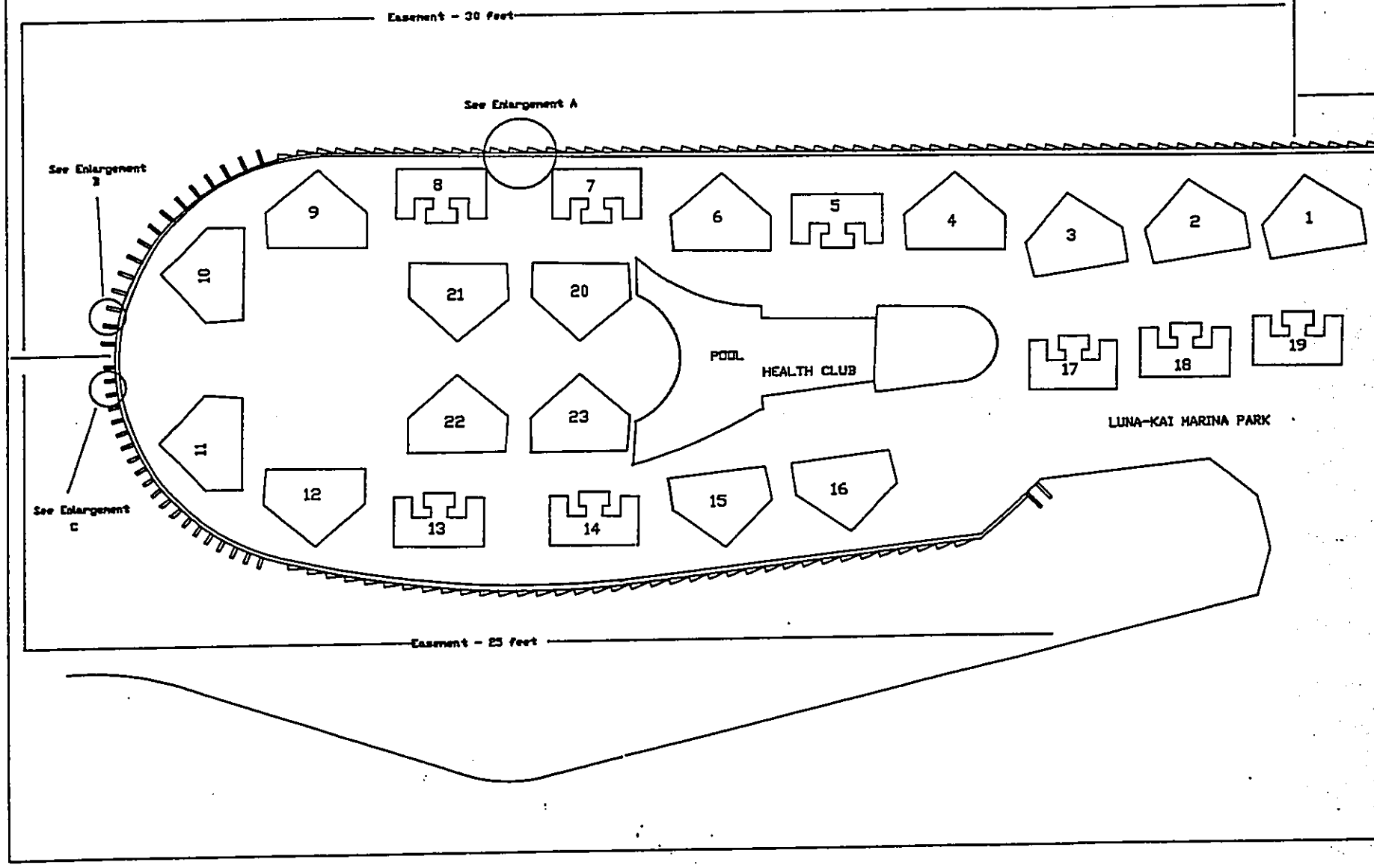
Nansay Hawaii, Inc. intends to sell individual boat slips to interested owners of the units. The eventual implementation of Phase II, and even the complete implementation of Phase I, will depend upon the demand for the dock facilities. Both phases, however, are described in detail below. There are several characteristics common to both phases. All docks, with the exception of two near the boat ramp, will be floating, fixed in place by concrete piles driven into the marina bottom. There will be no fueling or drydock facilities. Dock ownership will be limited to owners of the dwelling units, and only recreational vessel use will be permitted. The two phases are described in more detail below.

PHASE I

The plan for the entire dock facilities is shown in Figure 5, along with the easement restrictions imposed upon permanent structures and moored vessels. The existing 3600 foot long shoreline in the Phase I area consists of a vertical seawall constructed of basalt boulders. The wall was constructed in the late 1960's, at the time of the initial development of Hawaii Kai.

A floating catwalk will be placed around almost all of the project perimeter. The only breaks in the catwalk will be at the access gangways and at the boat ramp area. The catwalk will be approximately 18-inches from the seawall, and will be 6-feet wide. The catwalk will be held in place by concrete guide piles driven into the marina bottom. The piles will be located on the outboard edge of the catwalk, and will be approximately 30-feet apart. The pile spacing and

Phase I


Easement - 30 Feet
See Enlargement A
See Enlargement B
See Enlargement C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
POOL
HEALTH CLUB
LUNA-KAI MARINA PARK
Easement - 25 Feet

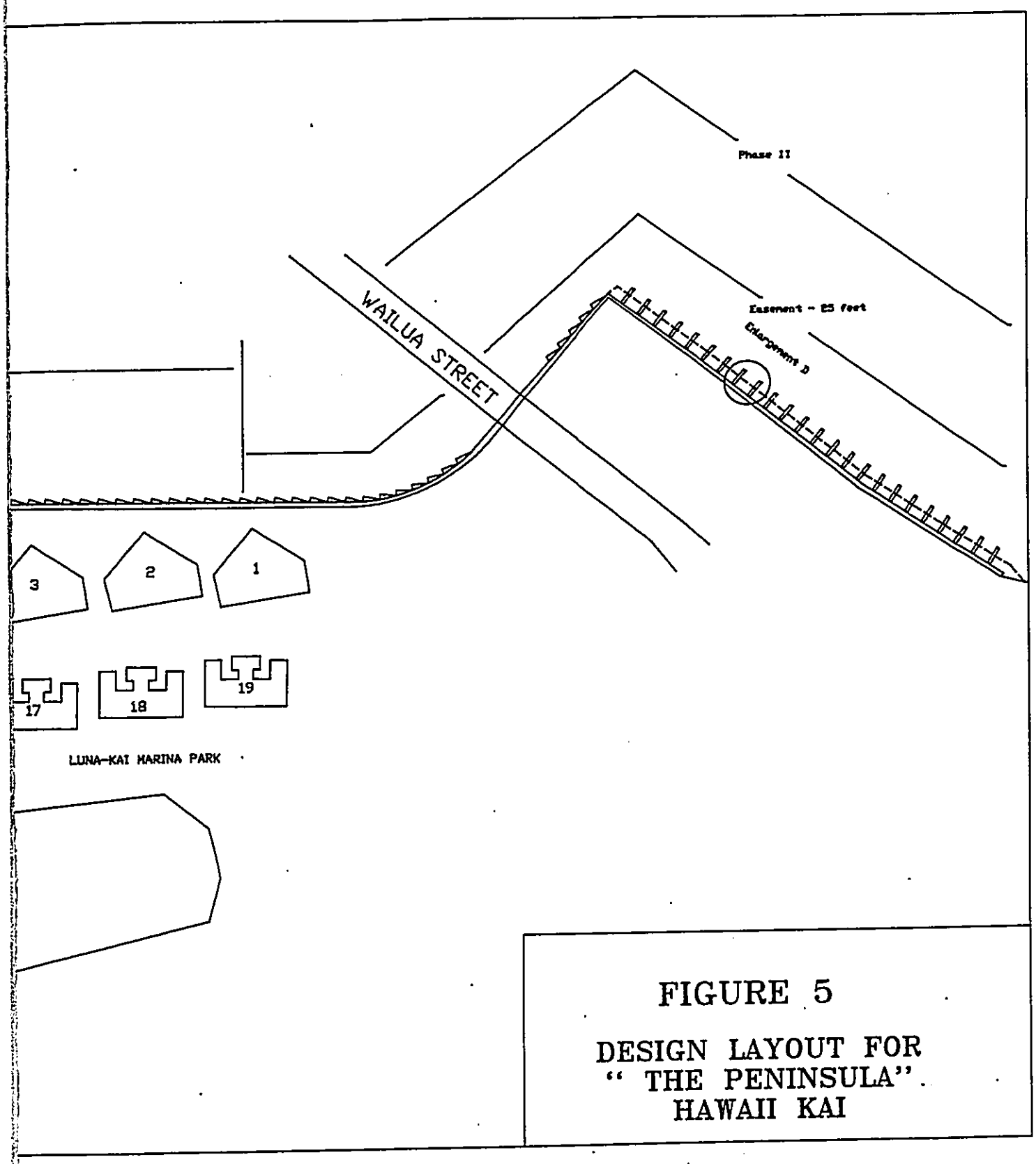


FIGURE 5

DESIGN LAYOUT FOR
" THE PENINSULA".
HAWAII KAI

penetration into the bottom will be designed to withstand the lateral loads imposed by the design winds and waves. The design criteria are discussed in Section III of the EA.

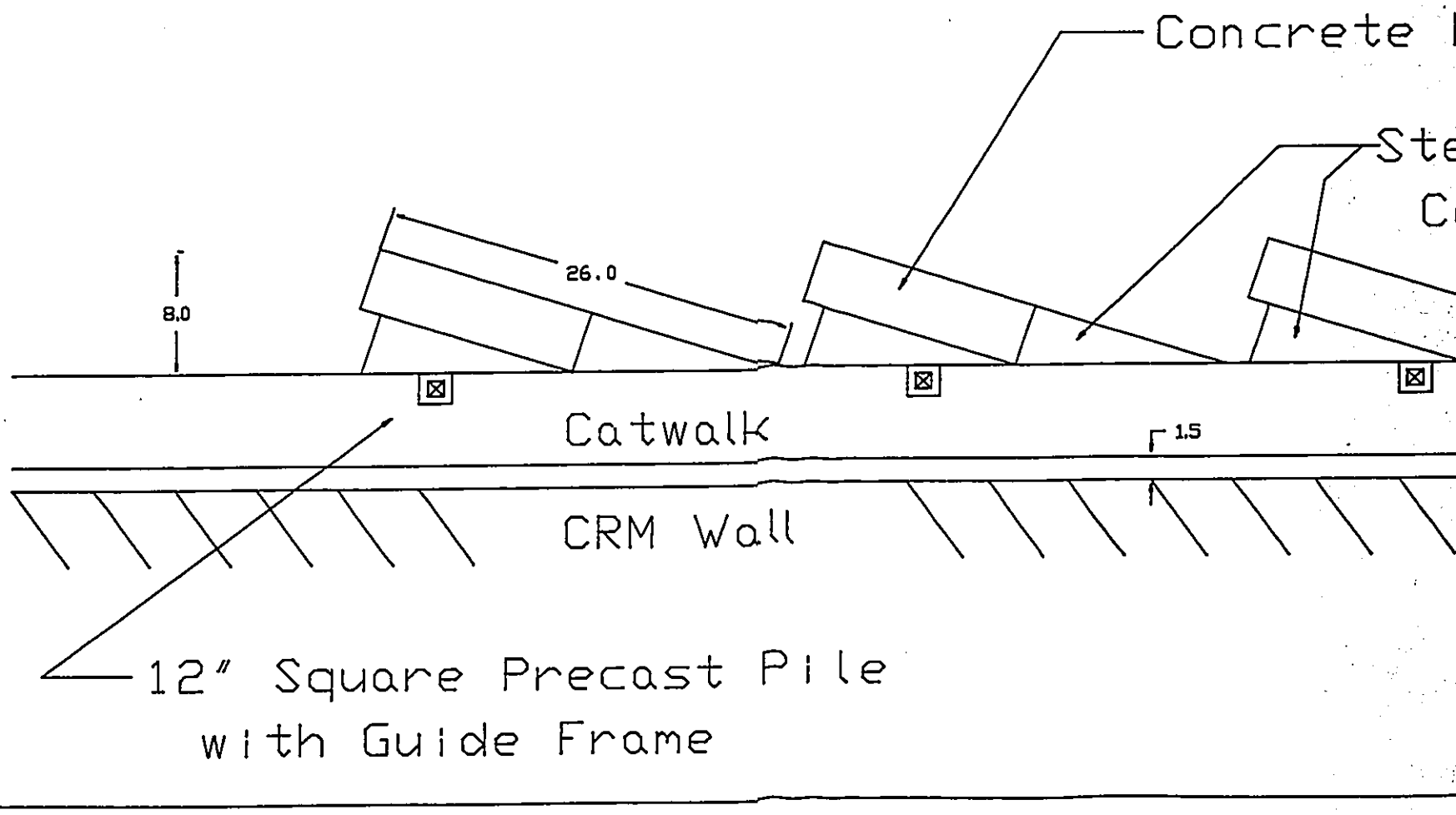
Triangular finger piers will extend seaward from the catwalk. This design provides ease of docking during the occurrence of the prevailing northeast tradewinds. Also, given the existing 25 and 30 foot mooring easements, it allows for the docking of longer boats than would perpendicular finger piers. Figures 6 and 7 show details of the catwalk and the triangular finger piers. The length and orientation of the finger piers was designed to accommodate boats up to 38 feet long.

The only variable in the design is the spacing of the finger piers along the main catwalk. The longer boats will require a greater distance between fingers, as shown in Figure 7. The system was designed so that the fingers can be added after construction of the catwalk, and can be shifted along the catwalk should the mix of boat lengths change.

The maximum capacity of Phase I, assuming all boats are less than 26 feet long, is 177 vessels. A more realistic assumption is that there will be a relatively even mix of boats in the 18 to 38 foot size range. The capacity of Phase I would therefore be 156 vessels. The exact number of finger piers will depend upon the demand, but will fall somewhere between the above two numbers.

The floating dock components will be purchased from a mainland manufacturer and assembled on-site. Figure 8 shows a cross-section of the dock. The float and deck are one composite unit, and the assembly involves bolting the timber stringers together . The catwalk will be assembled, floated into position, and the guide piles then driven into place. The piles will be driven from a small barge. Installation of the finger piers involves simply floating them into place, through-bolting them, and then placing the triangular deck plates. Total on-site construction time should be 3 to 6 months.

ENLARGEMENT A

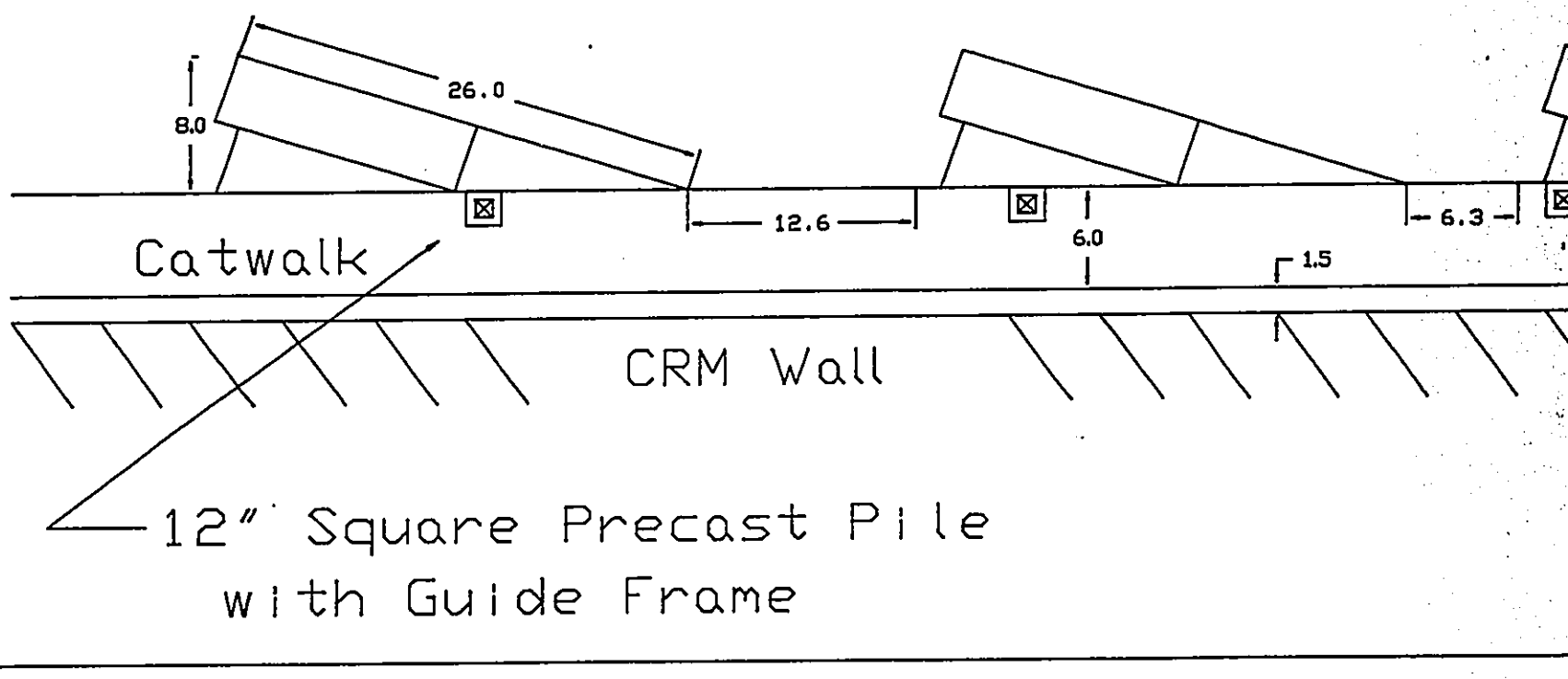


MENT A

Concrete Float Module

FIGURE 6
Triangular Piers
SCALE: 1"=10'

TRIANGULAR FINGER PIERS TO
38, 32, AND 26 FOOT P



PIERS TO ACCOMODATE 6 FOOT BOATS

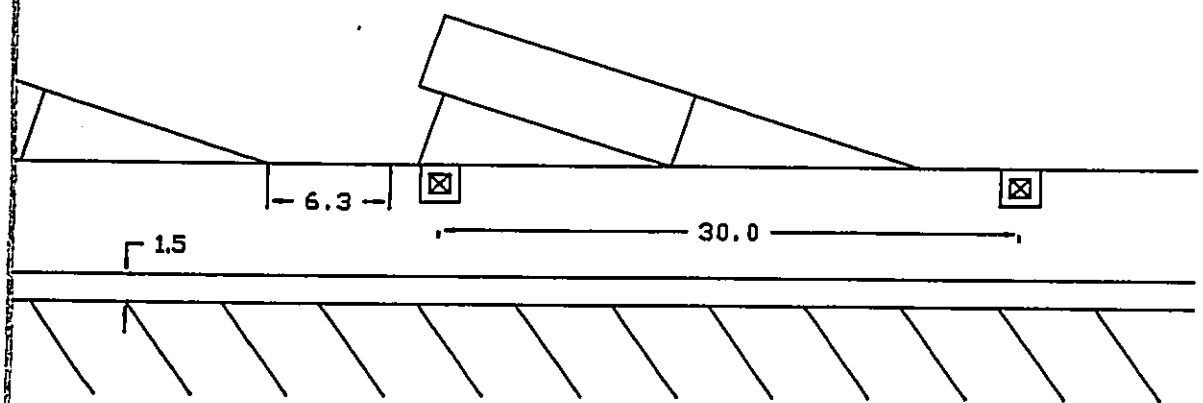
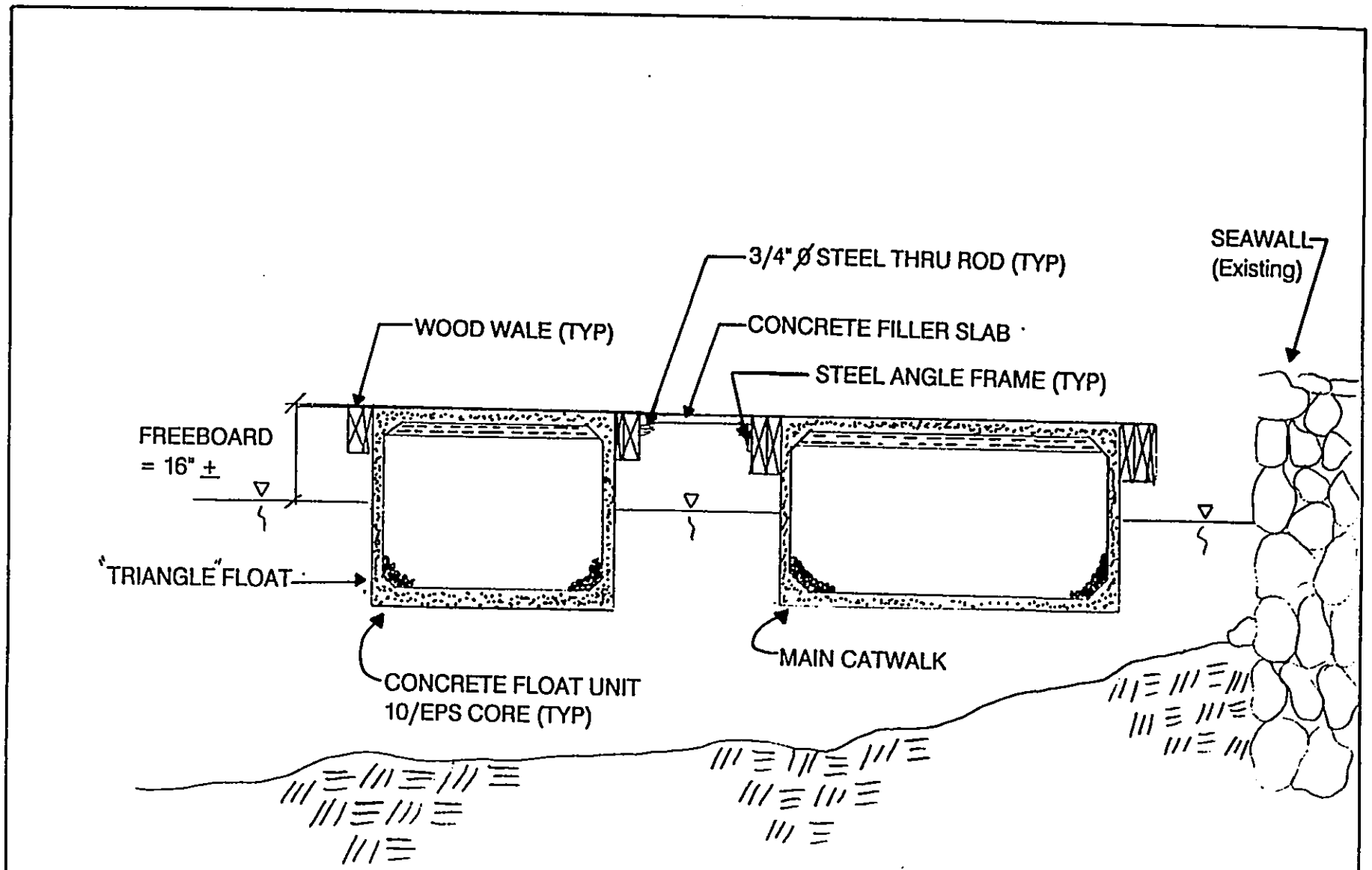


FIGURE 7
Triangular Piers
SCALE: 1"=10'



THE PENINSULA
Hawaii Kai, Oahu
A Project For
Nansay Hawaii, Inc.

SCALE: ½" = 1'-0"

FIGURE 8.
CROSS SECTION OF DOCK

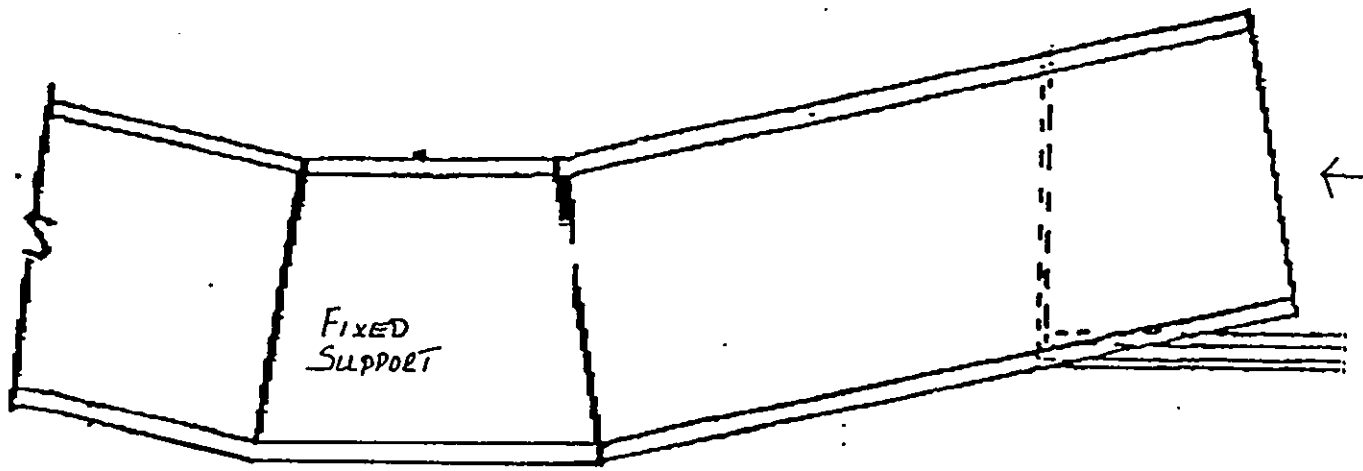
The location of access sites to the docks is based upon the walkway configuration of the on-land development. As shown in Figure 3, Phase I will have 9 access points. At each of these points there will be a break in the catwalk, and double gangways from the seawall down to the catwalk. Figure 9 shows a typical gangway configuration.

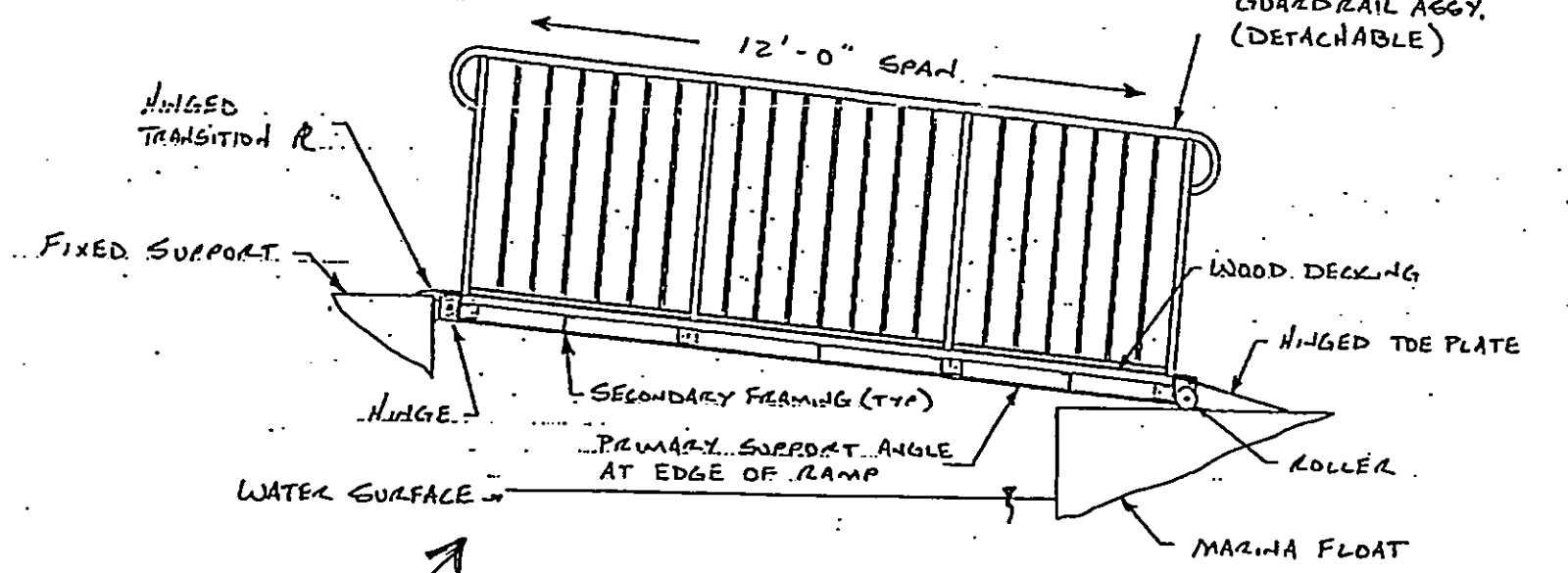
The design of the docks at the south tip of the peninsula will be slightly different, in that the finger piers will be perpendicular to the catwalk. This limits the boat length, but provides ease of docking into the prevailing wind. The length of the finger piers changes in the middle of the tip to conform with the existing mooring restrictions. Typical finger piers are shown for the 25' and 30' easement areas in Figures 10 and 11 respectively. The Hawaii Kai Marina Association has been petitioned for an increase of 5 feet in the 25-foot easement limit along all portions of the peninsula except the area adjacent to the Wailua Street Bridge. If the petition is accepted the 17.5-foot-long fingers would be increased five feet in length.

Utilities provided for the dock owners will include electricity and water. Electrical conduits are built into the deck of the catwalk modules, and PVC water lines will run just below the stringers.

The boat ramp will be a standard one lane concrete ramp, with fixed loading piers on each side.

The float modules require a minimum draft of 18-inches. A preliminary survey of the water depths adjacent to the CRM wall indicate a 210 foot long stretch in front of building 8 has a water depth of approximately 2.6 feet (MSL) at a distance of 2 feet from the wall. This is less than the minimum water depth if one combines the draft of the floats with an extreme low tide of 1.5 feet (MSL). This area will require an estimated 200 cubic yards of dredging. In addition, during construction a final check of the water depth along the wall will be made. Final preparation may involve the removal of a few boulders or some localized high spots. Any dredging of this type would be very minor. However, to minimize the impact of the dredging, siltation curtains will be used to enclose the area being excavated in order to prohibit the dispersion of suspended sediments into Kuapa Pond. Material removed will be disposed of on land in





CROSS-SECTION

N.T.S.

ALL MATERIAL GALVANIZED STEEL EXCEPT AS NOTED

GEIGER ENGINEERS
Geiger Connor Hamilton Lee Engineers P.C. New York Bellingham
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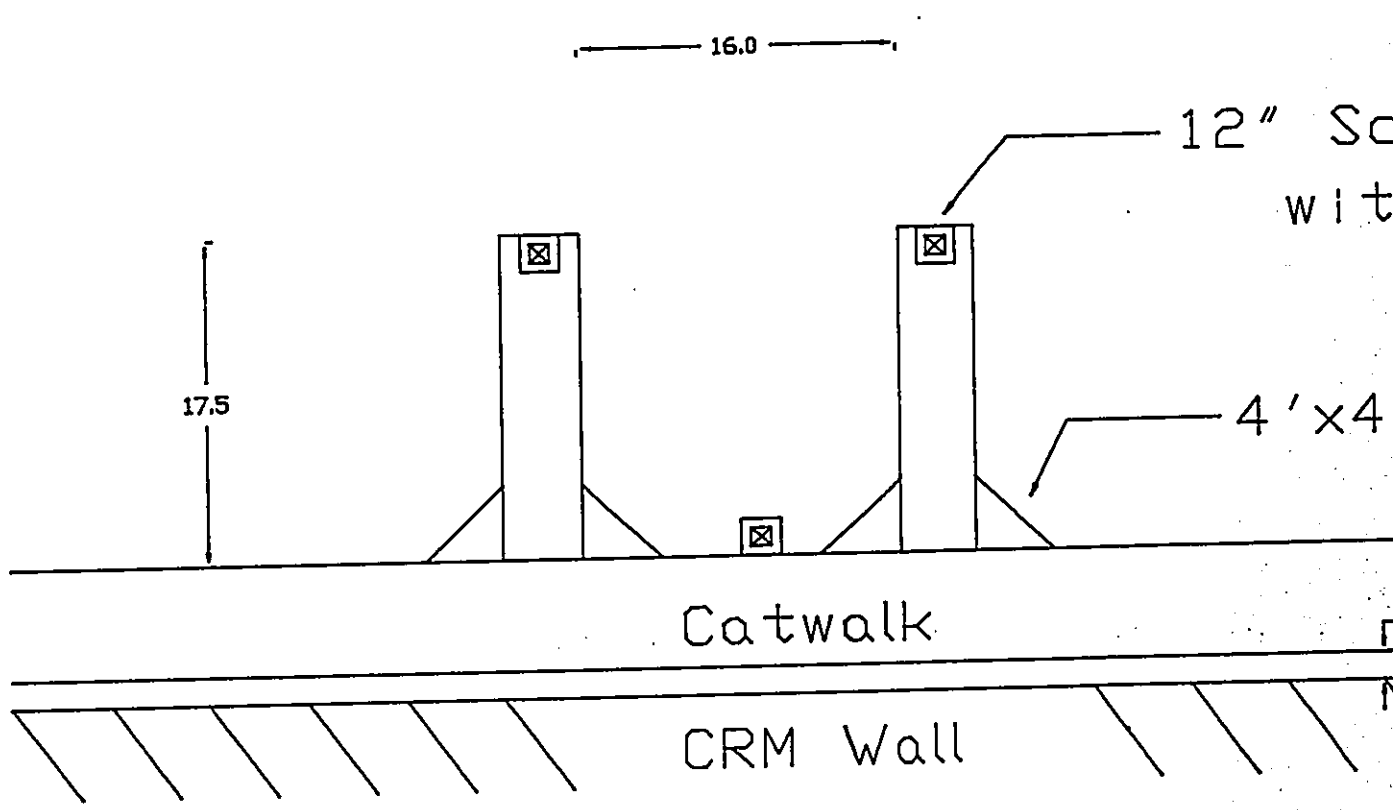
2 Executive Boulevard Suite 410
Suffern, New York 10901-4164
Phone: (914) 368-3330
Fax: (914) 368-3366

FIGURE 9.
TYPICAL GANGWAY CONFIGURATION

Drawing Title: PROPOSED 12' RAMP	
Job Title: NANSAY PENINSULA MARINA	
Job Number: 90823.00	Date: 2/8/91
By: CGF	Sheet:

ENLARGEMENT



FI

Perpendicular Finger F

SCA

EMENT C

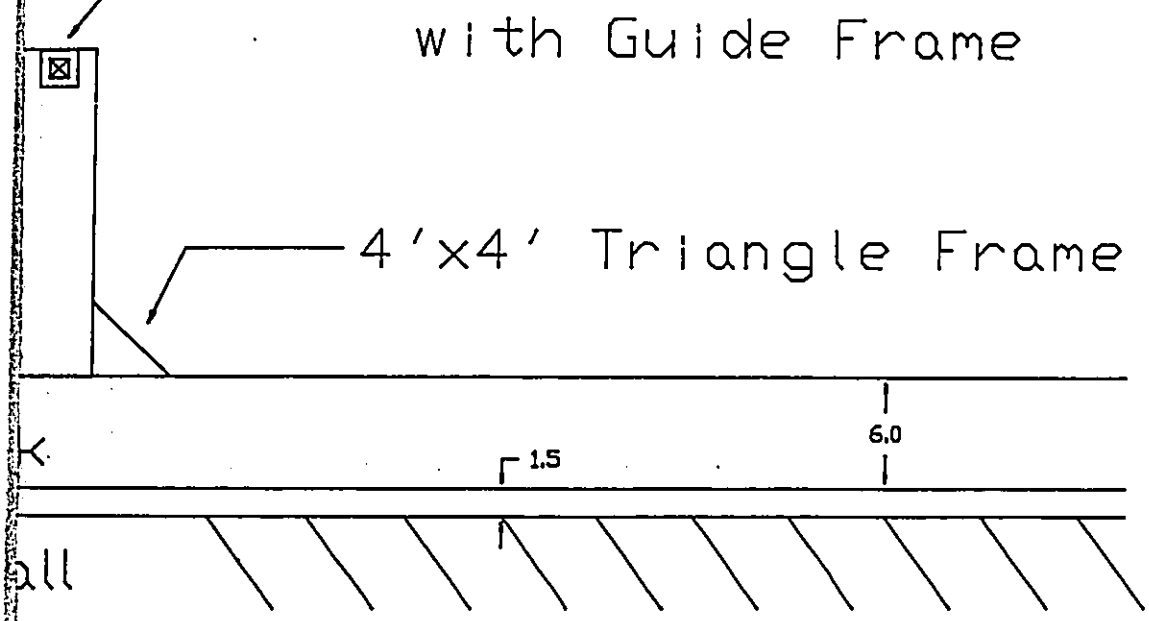
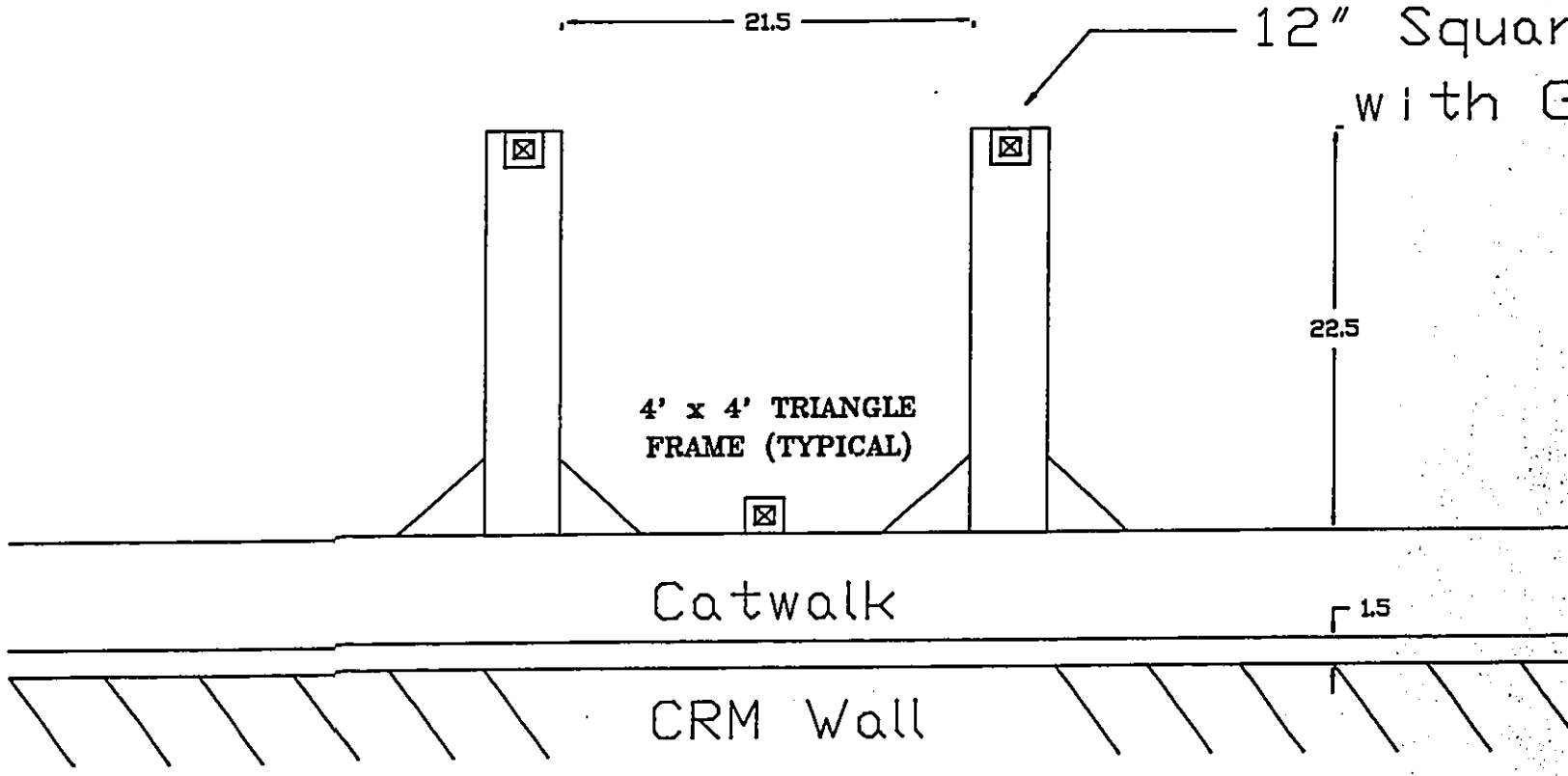


FIGURE 10

icular Finger Piers – 25 Foot Easement

SCALE: 1"=10'

ENLARGEMENT



FIG

Perpendicular Finger P

SCALE

CEMENT B

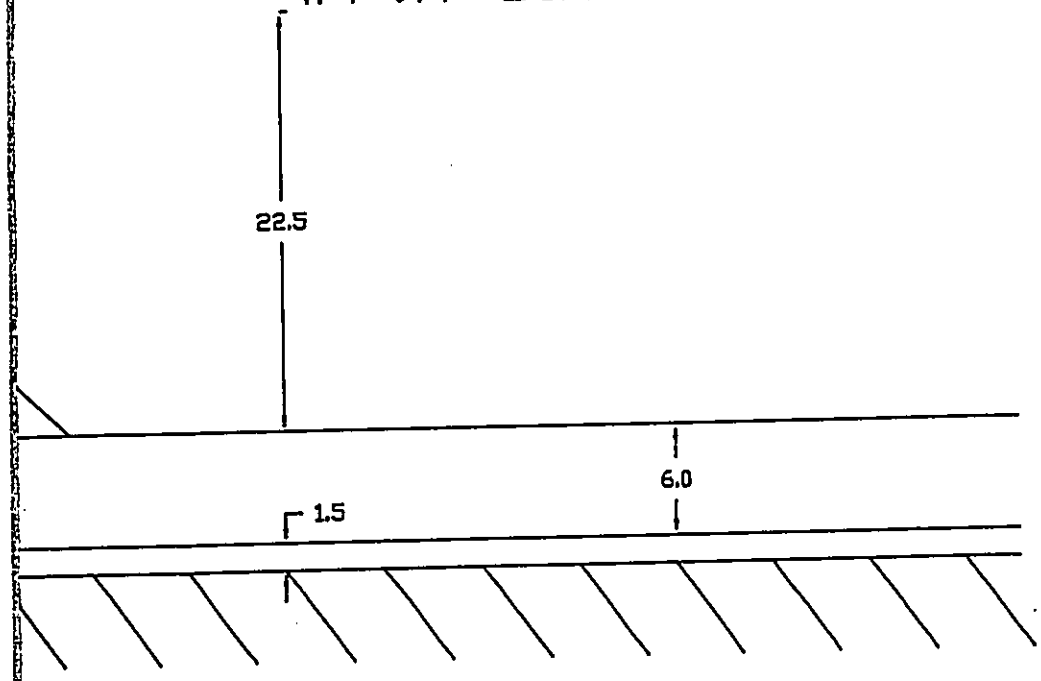


FIGURE 11

icular Finger Piers – 30 Foot Easement

SCALE: 1"=10'

a dewatering area. The usable soil will be used as fill, and any remaining material hauled to an approved landfill.

Estimated costs for Phase I are:

Catwalk and finger piers	$1,400,000.00
Guide piles	200,000.00
Gangways (9 total)	70,000.00
Boat ramp and loading piers	120,000.00
Utilities	125,000.00
Dredging	10,000.00
Total Cost	$1,925,000.00

Other Alternatives Considered:

Both floating and fixed docks were initially considered for this project. Floating docks were selected for the following reasons.

- The floating dock design allows more flexibility in accommodating a mix of boat sizes.
- The project area is frequently windy, and floating docks would allow for easier docking.
- A well designed floating dock system is more aesthetically pleasing. Fixed docks, with their associated fendering, are more obtrusive, particularly at low tide.
- Most boat owners, given the choice, prefer floating docks, since the boats can be moored without consideration for the rise and fall of the boat relative to the dock due to the tide. Most of the docks in Hawaii Kai Marina are floating, with the most notable example being Hawaii Kai Marina.

PHASE II

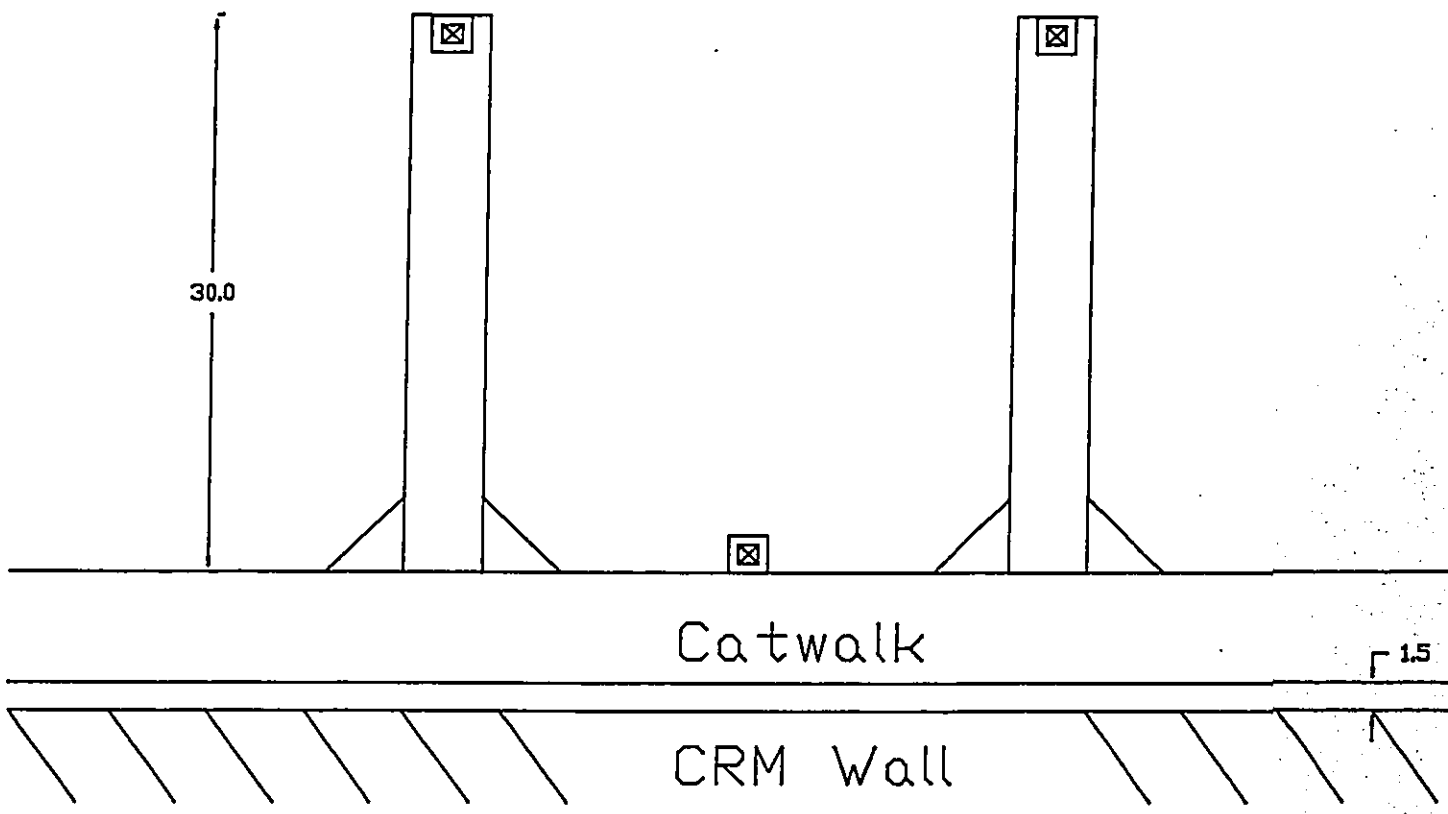
The conceptual plan for Phase II is also shown in Figure 5. The 900 feet of shoreline in this area is earthen fill unprotected against erosion. A seawall, of a design

compatible with the Phase I wall, will be built along the west shoreline, and a sloping rock revetment will be built along the north shoreline. The north side is directly exposed to choppy tradewind generated waves, and a revetment will minimize wave reflection back into the boat mooring area.

The docks will be floating, and the design will be the same as for Phase I. On the west side, the same triangular configuration as Phase I will be utilized. Approximately 5 boats will be berthed on this side. The finger piers on the north side will extend out perpendicularly from the catwalk, as shown in Figure 12. With a triangular configuration on this side, the boats would have to approach and leave the docks broadside to the wind. With perpendicular piers, the approach will be almost directly downwind. This is still not the most desirable situation, but it is better than a broadside approach.

The north side will also require dredging to make the area usable for mooring and to accomodate a maximum boat length of 30 feet within the 25 foot easement. Approximately 12,000 cubic yards of material will have to be dredged, including some material landward of the original lot line. The positioning of the revetment and dock can be seen in the cross-section shown in Figure 13. The estimated construction cost for Phase II is 1.1 million dollars.

ENLARGEMENT



FIGUR

North Side of
Perpendicular Finger Piers

SCALE: 1"

EMENT D

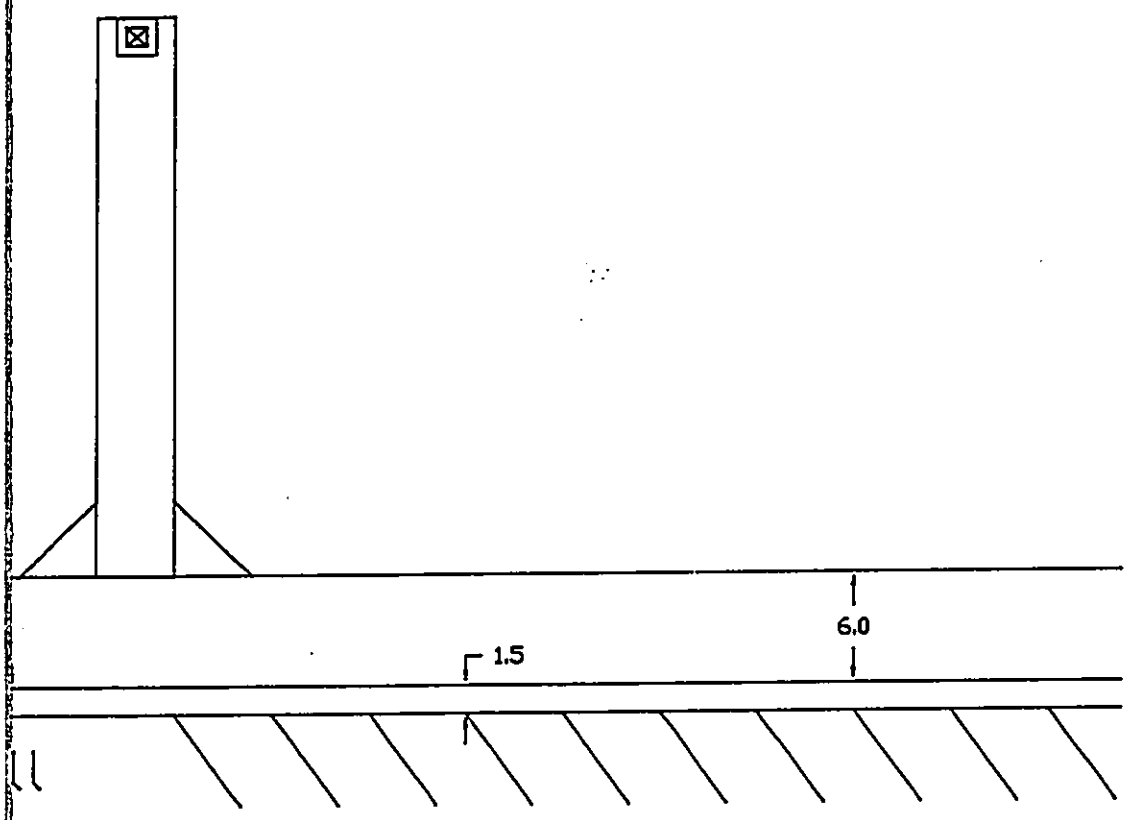
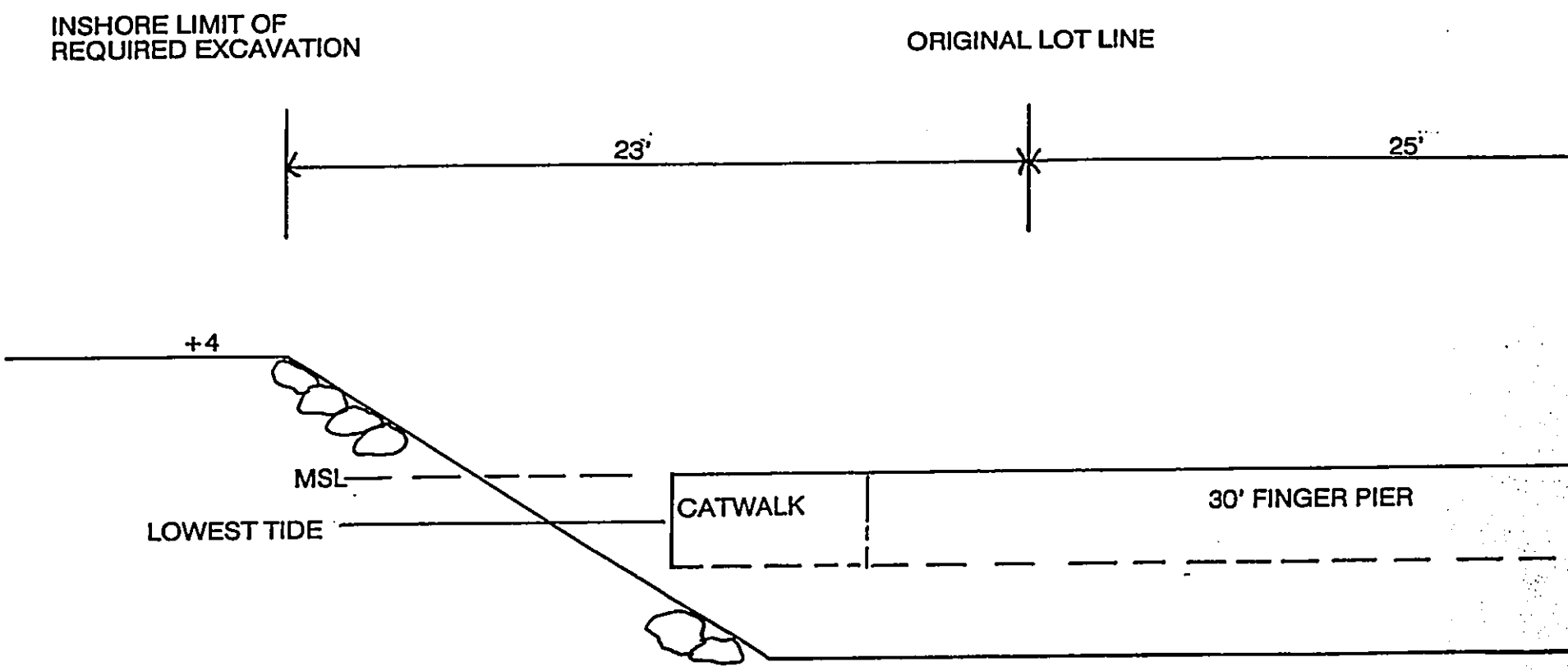


FIGURE 12

North Side of Phase II
lar Finger Piers – 25 Foot Easement

SCALE: 1" = 10'



THE PENINSULA
Hawaii Kai, Oahu

A Project For
Nansay Hawaii, Inc.

SCALE: 1" = 5'

(1V: 1.5H)

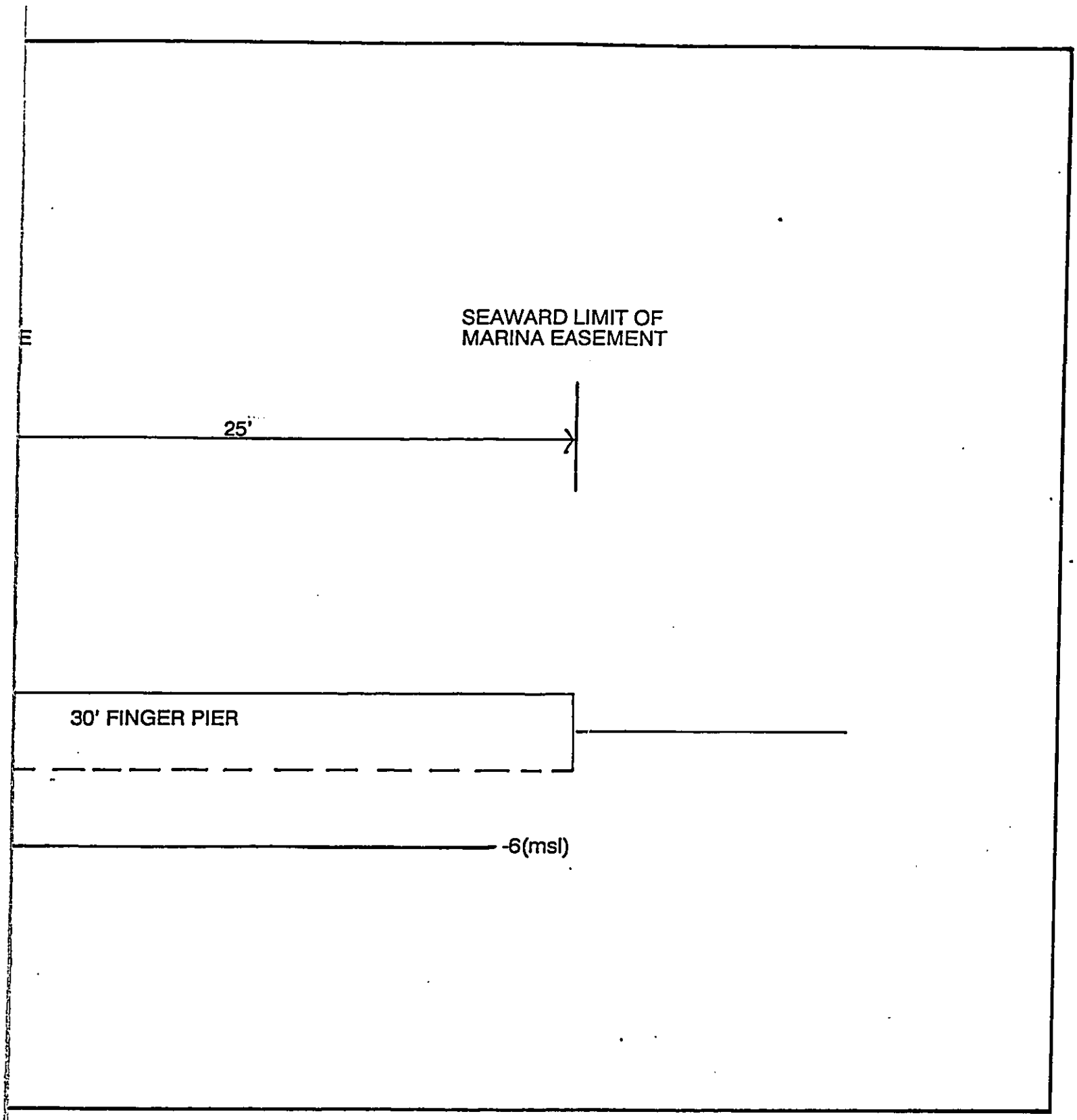


FIGURE 13.
CROSS SECTION OF REVETMENT
AND PERPENDICULAR DOCK LAYOUT
ALONG THE NORTH SIDE OF PHASE II

III. EXISTING PHYSICAL ENVIRONMENT

GENERAL

Kuapa Pond was initially a brackish water fishpond surrounded by marshland, which was developed in the 1960's into a recreational marina and associated residential area. The area of the pond was reduced from 523 acres to 258 acres by filling, and the average water depth of the remaining water areas was increased from 2 feet to 5 to 8 feet. Hawaii Kai Marina presently has about 12 miles of shoreline, most of it consisting of vertical cemented rock walls. The marina is connected to Maunalua Bay through two dredged channels.

The proposed project is located on a man-made peninsula which extends into the marina south of Wailua Street, as shown on Figure 2. Much of the property has been graded to a more or less uniform elevation of seven feet above mean sea level, although part of the land towards the north end rises an additional ten feet. A vertical, basalt rock and concrete masonary (CRM) wall surrounds the entire peninsula. This wall extends from several feet below sea level to an elevation of about +3 feet above sea level. The fill land rises another 4 feet immediately behind the wall. Part of this peninsula was used as a settling pond during the last dredging of the marina in the early 1980's.

The seawall is broken at only two points along the peninsula. At the north end of the inlet opposite the Esplanade condominium, there is a break in the wall where a drainage channel enters the marina. This drainage carries storm run-off from nearby streets, is unlined, and dry most of the time. A second break is found along a 15 to 25 foot section directly south of the Wailua Street bridge on the west side of the peninsula.

The seawall joins a sloped CRM abutment beneath the Wailua Street bridge, then the vertical wall continues north of the bridge another 30 feet. Beyond this point and across the north end of the parcel mauka of Wailua Street, the shoreline is a low sloping "beach" of basalt boulders, gravel, and mud.

TERRESTRIAL ENVIRONMENT

At the time of a field survey in January 1991, much of the parcel had been cleared of the previously extant vegetation cover. Nonetheless, the plants which remain around the perimeter and at the north end would be typical of the vegetation which covered the property prior to grubbing. The flora was dominated by grasses (mostly Chloris inflata and Setaria verticillata), shrubs (Pluchea indica), and small trees such as kiawe (Prosopis pallida), kolu (Acacia farnesiana), ironwood (Casuarina equisetifolia), milo (Thespesia populnea), and sea mulberry (Conocarpus erecta). A scattering of native (indigenous) strand plants such as nena (Heliotropium curassavicum) and 'akulikuli (Sesuvium portulacastrum), along with exotic strand species such as Austrailian saltbush (Atriplex semibaccata) and pickleweed (Batis maritima) are mixed with weedy dryland herbaceous species such as graceful spurge (Euphorbia glomerifera), Japanese tea (Cassia lechenaultiana), Flora's paintbrush (Emilia sonchifolia), sow thistle (Sonchus sp.), popolo (Solanum nigrum), and others. Mangroves (Rhizophora mangle) are found at the mouth of the drainage channel and along that portion of the shore at the north where the sea wall is absent.

The flora overall is typical of dry, lowland areas on Oahu, particularly as found on disturbed, calcareous soils. No unique, threatened, or endangered species of plants were found on the site.

The only shorebirds observed during the brief visit to the site were a single American golden plover (Pluvialis dominica fulva) and three ruddy turnstones (Arenaria interpres). All four birds were seen near the mud flats at the north end of the property (north of Wailua Street). This area is the only part of the project shoreline that would provide suitable habitat for shorebirds.

MARINE ENVIRONMENT

Bathymetry and Bottom Conditions - Prevailing water depths in Hawaii Kai Marina range from 5 to 8 feet. Sedimentation is a chronic problem in some areas of the marina, particularly in the vicinity of storm drains or culverts.

Most of the sedimentation occurs during heavy rainfall; at other times there is little fresh water flow into the marina. Extensive maintenance dredging was completed in the early 1980's, and will probably be required again in the near future.

The project area south of Wailua Street is not affected by any large drainage structures, and the water depths off the seawall quickly drop to the 6 to 8 foot range. Off the unprotected north side, the depth increases gradually. The 6 foot contour is located from 25 to 50 feet offshore.

Marine Biota - A previous study (U.S. Army Corps of Engineers, 1975) reported fouling organisms encrusting the marina walls, piers, and pilings as the most notable features of the Hawaii Kai Marina fauna. Within the inner-most areas, polychaetes (Hydroides sp. and Mercierella enigmata), bryozoans (Bugula neritina), and barnacles (Balanus sp.) were listed as the more conspicuous components. With respect to fishes, the Corps of Engineers report noted that mullet and barracuda were common, and nehu (Stolephorus purpureus) and a "variety of reef fishes" are present.

A site survey was conducted for this project. Water clarity was poor, with visibility under three feet. The CRM wall surrounding the site provides a suitable substratum for a variety of fouling organisms such as barnacles (Balanus sp.), oysters (probably mostly Ostrea hanelyana), sponges, tube worms (Pomatoleios kraussii), and tunicates. The barnacles from a distinct zone high on the wall above the other species, extending from about mean sea level to high tide level. The giant fanworm (Sabellastarte sanctijosephi) was prominant along the east side of the peninsula. Tube worms were especially abundant towards the north along the west side. Individuals of a common shore crab (Metopograpsus thukuhar), are common. This species is characteristic of quiet, somewhat brackish waters.

The nearshore bottom (seawall and boulders at the north end) supports a limited variety of algae. Both Ulva and Cladophora are common beneath the Wailua Street bridge. Ulva and Centroceras were common north of the Wailua Street bridge.

Very few fishes were observed, no doubt in part because of the low clarity of the water, although the sea wall might be expected to attract juvenile and "reef" fishes. At the small inlet formed by the mouth of the drainage channel a goby (possibly Oxyurichthys lonchotus), young aholehole (Kuhlia sandvicensis), and a topminnow (Poecilidae) were common. Only a single sailfin surgeon (Zebrasoma veliferum) and two kupipi (Abudefduf sordidus) were seen elsewhere along the wall.

Oceanographic Conditions - The project site is well inside Hawaii Kai Marina and is sheltered from the direct influence of ocean waves. The waves at the site are basically wind generated within the fetch provided by the marina.

The prevailing tradewinds will affect the day to day vessel operations, primarily approaching and leaving the dock, and the floating pier layout was designed to make these operations as easy as possible.

The design forces will be imposed upon the docks during the infrequent passage of hurricanes. Wind generated wave heights were calculated for typical severe wind conditions (30 to 50 knots), for the model Hawaiian hurricane (60 knots), and for the worst case hurricane (80 knots). The worst case waves will occur along the south peninsula, when hurricane winds approach from the south-southwest. Wave heights at the site would be 2.0 feet during 60 knot winds, and 2.6 feet during 80 knot winds.

The still water level in the marina will also rise during severe storm conditions. The total water level rise is the sum of several factors: the astronomical tide stage, the water level set-up due to waves breaking on the outer fringing reef in Maunalua Bay, and the hurricane storm surge. The total calculated stillwater rise in the marina is 5.5 feet above Mean Sea Level for the model hurricane and 6.5 feet for the worst case hurricane.

Water Quality - Silt from dredging operations, adjacent land development, and a poorly vegetated ridge and upper valley area has long been considered the major water quality problem in Hawaii Kai Marina (Cox and Gordon, 1970). Although several streams enter the area, they flow only intermittently, and most of the sediment is washed into the

marina during periods of heavy rainfall. There is active tidal exchange between the marina and inner Maunalua Bay, and water over the shallow reef flat is frequently turbid. According to the Hawaii Coral Reef Inventory (AECOS, 1979) the waters of Maunalua Bay were turbid even before the dredging of the marina and the disturbance of the surrounding land.

IV. POTENTIAL IMPACTS AND MITIGATION MEASURES

IMPACTS DURING CONSTRUCTION

The construction of the floating dock facility south of Wailua Street (Phase I) should have no significant direct effect upon the marine environment. Minor turbidity will be generated during the driving of the guide piles (approximately 175 piles), the reconstruction of the seawall in the deteriorated area, the grading for the boat ramp, and the removal of boulders or localized high spots near the seawall. The turbidity will be temporary and localized, and should have no permanent effect upon the existing benthic fauna.

The floating dock components will be assembled on land and then floated into place. This aspect of the construction should have no impacts upon the marine environment.

Noise levels will be temporarily increased during the pile driving operations. The piles will be driven from a floating rig, with an estimated production rate of ten piles per day. There will be approximately 20 days of increased noise levels. This can be mitigated, to some extent, by limiting the pile driving operations to regular working days and hours.

The Phase II construction north of Wailua Street, if it does occur, will be similar to Phase I, but the revetment construction and the dredging will generate more turbidity. The area to be dredged will be approximately 750 feet long by 50 to 60 feet wide. Total volume is estimated to be 12,000 cubic yards. The dredging will probably be done by drag-line or clamshell equipment. It is not known whether the equipment will be shore based or on a barge. The shallow near shore area will be dredged to the design depth (approximately -6ft, MSL), and the revetment then constructed along the shoreline. The dredged material will be deposited on land, dried, then transported to an on-land disposal site. The turbidity generated will be minimized by placing silt screens around the working area.

OPERATIONAL IMPACTS

The floating docks will reduce the light reaching the seawall, and may reduce the growth of algae. However, the new structures will provide additional surfaces upon which will grow the same community of attached flora and fauna that now occupies the shoreline. The revetment along the north side should provide an attractive habitat for juvenile fishes.

In some areas of the marina, boating activities contribute to the turbidity by stirring the bottom sediments into suspension. Dredging the project area to an adequate depth should prevent this.

The primary water quality concerns, however, in any area of concentrated power boat operation are the inputs of fuels, oils, and exhaust gases to the water. Proving a direct connection between outboard (or inboard) motor operations and ecological damage in closed bodies of water such as lakes is difficult (English, et al., 1963; Schenk, et al., 1975). Improvements in outboard motor design and use of unleaded fuels have, in recent years, reduced the pollution impacts associated with exhaust and crankcase condensates from these engines. Nonetheless, some degradation of the natural biological systems is expected and generally accepted where boating activities are heavily concentrated, such as around marinas. In the case of Koko Marina, consideration would have to be given to street and highway runoff as potentially significant sources of petroleum hydrocarbons as well.

Fuel spills resulting from accidents at fueling facilities and mechanical failures where large numbers of motorized craft are kept may be responsible for most of the ecological damage in marinas. Certainly such occurrences would provide a more visible manifestation of water quality degradation. The proposed project does not include boat fueling facilities, thus minimizing the opportunity for major spills to occur. Because of the explosion hazard posed by chronic leaks in boat fuel systems, boat owners repair leaks as soon as they are discovered.

The use of certain anti-fouling paints, particularly those containing organo-tins (e.g., tributyl tin) pose a greater risk to the biota in the semienclosed body of water such as

Hawaii Kai Marina than would minor fuel spills. Recent statutes intended to limit the use of organo-tin paints should eventually eliminate this environmental impact.

The impacts on the attached benthos from boating activities are difficult to assess with any certainty. The movement of the boats and mechanical stirring of waters will be generally beneficial to the attached fouling organisms. However, minor spillage of fuel and oils seems certain to pose a chronic threat to the biota. Local die-offs will occur, and the intertidal (that portion of the new an old structures between the low and high tide levels) will possibly become suitable for some forms (such as barnacles). Die-offs in these assemblages must already occur when the marina waters become brackish during winter periods of exceptional rainfall. The impacts of severe rainy periods would be greatest on the shallow subtidal and intertidal fauna and flora where salinity reductions would be greatest.

Thus, while the waters of Hawaii Kai marina tend toward being estuarine in character, the natural value of this estuary was lost many years ago with the infilling of nearly half of the former Kuapa Pond and the urbanization of the valley. The waterway is now an inland marina.

Construction and use impacts of the proposed boat slips on the motile components of the marina's biota (i.e., certain fishes typical of this aquatic environment) are not likely to be significant. These waters are not regarded as important to the life-cycles of any fishes of commercial or ecological value.

The floating docks will have a visual impact, but it may well be a beneficial impact. Given that the on-land development will take place, the docks will "soften" the view toward the site from the adjacent communities. The view will also be consistent with what one would expect in a marina community. Aesthetic considerations were an important factor in deciding upon the type and configuration of the dock system. Floating docks are more aesthetically pleasing than fixed docks, especially at times when the vessels are not moored.

There are also impacts associated with the increased number of boats in the marina and in Maunalua Bay. To get an idea of the existing boat usage, an informal count of boats was

taken on a weekday in November. A normal working day was selected so that most recreational vessels would be at their berths. There are approximately 250 boats presently berthed in the Hawaii Kai Marina. This is a surprisingly low number, given the approximately 2,200 waterfront dwelling units on the marina waterfront. The construction of the Hawaii Kai Yacht Club docks will increase the number of boats by approximately 50.

This project, if both phases are built and fully utilized, will add approximately 225 vessels to the above total. However, in considering the operational impacts, some additional factors need to be considered. In addition to the moored boats, there are approximately 550 trailer boats with Hawaii Kai registration stickers. These boats probably use the offshore waters with about the same frequency as the moored vessels. In addition, there is heavy public use of the Maunalua Bay boat ramps.

Also, the average use of recreational vessels is very low, especially as compared with commercial usage. The commercial jet ski, parasail, water-ski and dive tour boats based in the marina probably account for a high percentage of the boat traffic.

Since the docks will be restricted to recreational use only, the overall impacts will be small. Impacts on Maunalua Bay should be negligible. On any given day it will add some vessels into the mix of those on the bay, but the effect will be small.

There will be additional noise as the boats transit to and from the docks. This will be mitigated by the low speed zones in the narrow areas of the marina, as the slow moving boats make less noise. Lighting on the docks will be subdued and shielded to prevent glare into any homes in the area.

V. DETERMINATION

No Significant Negative Environmental Impacts:

The proposed floating dock project constitutes no significant negative environmental impact. The project is in keeping with the current usage of the Hawaii Kai Marina and will enhance the recreational potential of the marina.

VI. REASONS SUPPORTING DETERMINATION

1) The intended use of the area is in compliance with the permitted uses in a conservation district subzone "G".

2) A benthic survey conducted for this project indicated that the construction impacts will be minimal. The entire Hawaii Kai Marina area was subjected to extensive dredging and filling during the initial construction of the Hawaii Kai residential community, and little remains of the original environment.

   The proposed project will have minor impacts related to construction. The pile driving will cause only very minor, temporary turbidity. Dredging of the high spots will total about only 250 cubic yards and will also cause only temporary turbidity. These impacts are minor, particularly when considered in the context of the past development, maintenance dredging, and runoff during heavy rainfall.

3) The operational impacts will be minor. Increased boat usage within the Hawaii Kai Marina does not present a problem, and has the benefit of increasing the recreational potential of the marina.

   The increased boat usage in Maunalua Bay and on the open ocean will be relatively minor given the present recreational and commercial usage.

VII. LIST OF PERMITS AND APPROVALS

Prior to the construction of the floating docks and the boat ramp, the following State and Federal approvals must be obtained:

Federal: - Department of the Army Permit-
Section 10, Rivers and Harbors Act of 1899

State: - Department of Land and Natural Resources-
Conservation District Use Application

Department of Business and Economic Development-
Coastal Zone Management Area Federal Consistency Review

Note: The site is outside of the Special Management Area Administered by the Department of Land Utilization, City and County of Honolulu (Reference: Special Management Area Map East Honolulu, dated December 2, 1985).

VIII. ORGANIZATIONS, AGENCIES AND PERSONS CONSULTED DURING THE PREPARATION OF THIS ASSESSMENT

1. State of Hawaii, Department of Land and Natural Resources
2. Mr. Art Cahllacombe, City and County of Honolulu, Department of Land Utilization
3. United States Army, Corps of Engineers
4. Hawaii Kai Marina Association
5. Mr. Skip Tracy, Hawaii Kai Marina Manager
6. Mr. Eric Guinther, AECOS, Inc.
7. Geiger Engineers in Seattle Washington- (Marina designers)

IX. REFERENCES

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