HAWAII TECHNOLOGY PARK

Mililani, Oahu, Hawaii

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FINAL

ENVIRONMENTAL IMPACT STATEMENT

November 1985

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HAWAII TECHNOLOGY PARK

Mililani, Oahu, Hawaii

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For submission to:
City & County of Honolulu
Department of Land Utilization

Prepared for:
Oceanic Properties, Inc.

By:
Belt, Collins & Associates

FINAL

ENVIRONMENTAL IMPACT STATEMENT

November 1985

STATE OF HAWAII

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813
PHONE 548-6915

DATE: December 6, 1985

TO: Revised EIS Distribution Checklist

FROM: Director, OEQC ly

SUBJECT: Final EIS for Hawaii Technology Park

_____ AS REQUESTED

x FOR YOUR INFORMATION & FILES

_____ FOR YOUR COMMENTS BY

_____ FOR YOUR FURTHER DISTRIBUTION

_____ FOR YOUR DIRECT RESPONSE

REMARKS:

Please append the attached material to the Hawaii Technology Park EIS which was sent to you on November 21, 1985.

Thank you.

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

December 5, 1985
dgpl2-3.let
85-2107/544-03

Mr. Donald A. Clegg, Chief Planning Officer
Department of General Planning
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:

EIS for the Hawaii Technology Park (HTP)

Yesterday the City & County of Honolulu Department of Land Utilization (DLU) sent us a copy of your November 6, 1985 letter commenting on the Draft Environmental Impact Statement (DEIS) for the proposed Hawaii Technology Park. Because the Final EIS for the proposed project was submitted to the DLU nearly two weeks earlier (on November 20, 1985), your letter was not included in it. Fortunately, DLU is still evaluating the acceptability of the EIS. Hence, your comment regarding the project's compatibility with the Military Air Installation Compatible Use Zone (AICUZ) and Accident Potential Zone (APZ) can still be taken into consideration in the decision-making process. Our response to your concerns is presented below.

During the preparation of the EIS, we worked closely with Army and Air Force representatives to insure that their concerns regarding the project's effects on air operations at Wheeler Air Force Base were identified and discussed, and the attached comment letter of November 22, 1985 from the U.S. Army indicates that we were successful in doing so. The proposed Hawaii Technology Park is outside the airport's clear zone and in an area which our analyses indicate is not subject to significant adverse noise impacts from aircraft (see Chapter IV, Section 8.4.2.2 of the Final EIS).

With respect to your concern regarding the compatibility of industrial land uses in this area with air operations at Wheeler Air Force Base, it is worth noting that the portion of the Schofield Military Reservation that lies immediately adjacent to the Hawaii Technology Park site is also designated for industrial use on the Central Oahu Development Plan. As indicated in the attached letter, the U.S. Army Corps of Engineers expects that industrial uses will be developed there within the foreseeable future. We believe the military's desire to implement these plans will help insure that operations at Wheeler Field do not render the area unsafe for industrial activities or subject it to unacceptably high noise levels.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex: BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

Oceanic Properties, Inc. will maintain contact with the Army during the preparation of the AICUZ study and will do its best to insure that development within the HTP is compatible with the continuing use of Wheeler Air Force Base. The Department of General Planning will be copied with any correspondence on this matter. In the meantime, if you have any further questions, please feel free to call me at 521-5361.

Sincerely

Perry J. White

Perry J. White

cc: Department of Land Utilization
Office of Environmental Quality Control
Oceanic Properties, Inc.

Attachment

RECEIVED
NOV 25 1985
BELT, COLLINS & ASSOCIATES

22 NOV 1985

Directorate of Facilities Engineering

Mr. John P. Whalen
Director of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

This responds to your letter, dated October 15, 1985, requesting comments on the Central Oahu Mililani Hawaii Technology Park (Tax Map Key 9-5-02: Por. 11). The Draft Environmental Impact Statement (EIS) for the Hawaii Technology Park was provided by the Office of Environmental Quality Control, State of Hawaii and has also been reviewed.

The US Army Support Command, Hawaii (USASCH) has previously commented on the proposed development, especially regarding impacts on military activities and operations at Wheeler Air Force Base and East Range, Schofield Barracks. This information has been incorporated into the Draft EIS. The proposed modifications to the H-2 Freeway and Leilehua Golf Course Access Road are being discussed with the traffic consultant for the developer and will also be coordinated with the Department of Transportation, State of Hawaii.

Further, a portion of East Range is planned for development over the next several years as an industrial complex to support the mission requirements of the 25th Infantry Division. The area borders Leilehua Golf Course and the proposed Phase 2 of the Hawaii Technology Park. It is indicated as Industrial on the Central Oahu Development Plan (Figure 111-2, page 3-15 of the Draft EIS). The high technology park development should not adversely impact on operations at the support complex.

If we may be of further assistance, please contact the Environmental Management Office, Directorate of Facilities Engineering at 655-0691/0694.

Thank you for the opportunity to comment on the proposed development.

Sincerely,

Original signed by

DAVID A. MAXON, MAJ, EN
Joseph S. Wasielewski
Colonel, Corps of Engineers
Director of Facilities
Engineering

Copy Furnished:

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

LU 11/85- 5080

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

KK/DGP 10/85-4563

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November 6, 1985

1985 NOV -7 PM 3:49
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII TECHNOLOGY PARK, MILILANI, OAHU
TAX MAP KEY: 9-5-02: POR 11

We have reviewed the subject Draft Environmental Impact Statement (EIS). The final EIS should indicate that the project will be designed or modified to ensure compatibility with the Military Air Installation Compatible Use Zone (AICUZ) and Accident Potential Zone (APZ), being established.

DONALD A. CLEGG
Chief Planning Officer

cc: Mr. Perry J. White, Belt Collins and Associates

BELT, COLLINS
& ASSOCIATES
Engineering · Planning
Landscape Architecture

December 5, 1985
COE12-3.let
85-2108/544-03

Mr. Kisuk Cheung
Chief, Engineering Division
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

EIS for the Hawaii Technology Park

Dear Mr. Cheung:

On December 2, 1985 the Department of Land Utilization transmitted to us a copy of your letter dated October 29, 1985 commenting on the Draft Environmental Impact Statement (DEIS) for the proposed Hawaii Technology Park. Because the Final EIS for the proposed project was submitted to the Department of Land Utilization on November 20, 1985, nearly two weeks earlier, your letter was not included in it. Fortunately, the Department of Land Utilization is still evaluating the acceptability of the EIS. Hence, your comments and our responses to them can still be taken into consideration in the decision-making process.

(1) Need for Department of the Army Permit

Thank you for confirming our understanding that a Department of the Army permit will not be required for the proposed project.

(2) State Dam Inspection Program

The dam which would create the proposed stormwater retention basin is being constructed as part of the Melemanu Woodlands Phase III project, and Oceanic Properties has no direct control over its design and construction. Nevertheless, via a copy of this letter, the developer of the Melemanu project is being advised of the possibility that the structure may be subject to the State's dam inspection program and that input from the agency responsible for this program should be sought early in the design development process.

Thank you for the time that you and your staff spent reviewing the environmental documents for the proposed project.

Sincerely,

Perry J. White

cc: Department of Land Utilization
Office of Environmental Quality Control
Oceanic Properties, Inc.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex: BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

LU 11/85- 4937

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

October 29, 1985

RECEIVED
DEC 2 1985
BELT, COLLINS & ASSOCIATES

1985 NOV -1 PM 1:44
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Mr. John P. Whalen, Director
City and County of Honolulu
Department of Land Utilization
650 S. King St.
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Thank you for the opportunity to review and comment on the draft EIS for the Hawaii Technology Park. The following comments are offered:

a. A Department of the Army permit is not required for the project.

b. The high technology park will not be subject to riverine flooding and is in an area with a Zone C designation. The proposed retention structure may fall under the State of Hawaii dam inspection program, although no specific guidelines for the design and construction have been adopted as yet.

Sincerely,

Joseph P. Cheung
Kisuk Cheung
Chief, Engineering Division

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

December 5, 1985
85-2110

Mr. Jack K. Suwa
Chairman, Board of Agriculture
State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814-2512

Dear Mr. Suwa:

EIS for the Hawaii Technology Park (HTP)

On December 2, 1985, the Department of Land Utilization (DLU) sent us your November 7 memorandum addressed to Mr. John Whalen, commenting on the Draft Environmental Impact Statement (DEIS) for the proposed Hawaii Technology Park. Because we submitted the Final EIS to DLU two weeks earlier (on November 20, 1985), your letter was not included in it. Fortunately, DLU is still evaluating the acceptability of the EIS. Hence, your comments and our responses to them can still be taken into consideration in the decision-making process.

1. Soils and Agricultural Suitability

The Final EIS describes soils on the project site by ALISH classification, Soil Conservation Survey classification, and Land Study Bureau land classification. The information it contains is essentially the same as that contained in your letter.

2. Water Allocation

You have correctly noted that the second phase of the HTP project has not yet received a potable water allotment from the Board of Water Supply. The Board's current policy is to make such commitments only when development is imminent, and Phase 2 does not qualify in this respect. While the developer has no current assurance of obtaining further water allocation, it intends to proceed with development of the first phase of the HTP and apply for an increased allocation at the appropriate time.

3. State's Objectives for High Technology Development

In regard to your comment for the need for more than design and site standards, Oceanic Properties agrees that a multifaceted approach to development increases the likelihood of achieving the State's objectives for high technology development in Hawaii. Towards this end, Oceanic Properties has embarked upon a marketing program designed to appeal to high technology businesses, specifically technology-intensive firms with Pacific Basin interests.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex: BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908-1388

Your point on the management of the HTP as an ongoing entity is well taken. However, to maintain flexibility while ensuring uniform quality and maintenace of the park, the developer is relying on a system of regulations and guidelines overseen by the Hawaii Technology Park Association rather than providing ongoing centralized management. Individual site owners and tenants will be subject to the attached Covenants, Conditions, and Restrictions (C,C, & R's); the Hazardous Materials Storage and Handling Guidelines which are part of the C,C & R's; and monitoring by the HTP Association, of which all tenants will be members.

4. Cumulative Impact of Proposed Ewa and Central Oahu Projects

We agree with you that it is desirable to examine the cumulative impacts of projects on the environment. Where feasible, the HTP EIS has taken other development into account in assessing project impact. For example, in the traffic analysis, to project cumulative effect, traffic due to the adjacent planned Melemanu Woodlands III residences is added to traffic due to natural growth and that due to the HTP.

Most of the other projects mentioned in your letter are in the initial planning stages, with no projected timetable for development. Thus, assessing the effect of these projects is difficult at best. Recent action by the Department of General Planning, as part if its annual Development Plan review, provides clear evidence of this uncertainty with respect to the projects you listed. For example, the department has recommended against development proposed for Waiawa and most of Mililani Town mauka of the Freeway. The other major Central Oahu project for which definite development plans are available-- Melemanu Woodlands III--is assessed in the EIS for the HTP.

Should you have any further comments or questions, please call me at 521-5361.

Sincerely,

Perry J. White

ALM: PJW

Enclosure

cc: Office of Environmental Quality Control
Department of Land Utilization
Oceanic Properties, Inc.

LU 11/85- 5086

GEORGE R. ARIYOSHI
GOVERNOR

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BELT, COLLINS & ASSOCIATES

JACK K. SUWA
CHAIRPERSON, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814-2512

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822-0159

November 7, 1985

1985 NOV -8 AM 8:51
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

MEMORANDUM

To: Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu

Subject: Change of Zone Application (AG-1 to I-1) and
Draft Environmental Impact Statement (EIS)
for Hawaii Technology Park
Oceanic Properties, Inc.
TMK: 9-5-02: Por. 11 Mililani, Oahu
Acres: 120 (Change of Zone Application)
256 (Draft EIS)

The Department of Agriculture has reviewed the subject application and Draft EIS and has the following comments to offer.

Pursuant to your request, this is a combined response to the Draft EIS and Zone Change Application for the first phase of the proposed 256-acre Hawaii Technology Park.

For your information, we are providing the soils descriptions for the subject portion of the Technology Park. The Draft EIS describes the entire 256-acre project site.

The 120-acre portion is classified "Prime" and "Unique" according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

The Soil Conservation Service Soil Survey identifies the soils as: (1) Wahiawa silty clay (WaA) which has slopes of 0 to 3 percent and is used for sugarcane, pineapple and pasture. The soil capability classification is I (few limitations for agricultural uses), and (2) Leilehua silty clay (LeB) which has

slopes of 2 to 6 percent and is used for sugarcane and pineapple. The soil capability classification is IIe (soils with moderate erosion hazard if cultivated and not protected).

The Land Study Bureau Detailed Land Classification for Oahu (December 1972) indicates the Overall Productivity Rating for the subject parcel as B121. By this method of classification, the parcel has good productivity potential for most agricultural uses.

Our concerns largely reflect those expressed in our comments on the EIS Preparation Notice for the subject project (Draft EIS, page A-40).

We have previously noted that the loss of productive agricultural lands resulting from the approval and subsequent construction of the project has been addressed to some degree by the planting of pineapple by Dole Company on lands formerly in sugarcane cultivation.

We understand that the first phase of the development has already received a sufficient water allotment from the Board of Water Supply. However, the second phase does not have an allotment.

According to the Draft EIS, Oceanic Properties is concerned principally with the project's development and implementation of physical design standards and lot layout. Our concern here is that there be a coherent effort to seek out appropriate high-technology firms and manage the project as an ongoing entity. We believe by doing so, there would be an increased likelihood of success and achievement of the State's objectives for high technology development.

The Hawaii Technology Park project is but one of six planned and/or proposed major developments within the Ewa and Central Oahu areas (West Beach/Ewa City Center, Ewa Marina Community, Waikele, Mililani Town expansion, and Waiawa). Any combination of these projects will have major impacts upon the availability and capacities of natural and man-made resources and the direction and magnitude of urbanization. We believe that the required Environmental Impact Statements for these and

other projects in the region should include an analysis of the cumulative impacts of their respective proposals, and that these EIS's should be made available as early as possible in the development approval process.

Thank you for the opportunity to comment.

Jack K. Suwa jy

JACK K. SUWA
Chairman, Board of Agriculture

cc: DPED
OEQC
DGP
Mr. Perry White, Belt Collins & Assoc.

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

December 5, 1985
85-2111

Mr. Susumu Ono, Chairman
Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

EIS for the Hawaii Technology Park (HTP)

On December 2, 1985, the Department of Land Utilization (DLU) sent us your November 1 letter addressed to Mr. John Whalen, commenting on the Draft Environmental Impact Statement (DEIS) for the proposed Hawaii Technology Park. Because we submitted the Final EIS to DLU two weeks earlier (on November 20, 1985), your letter was not included in it. Fortunately, DLU is still evaluating the acceptability of the EIS. Hence, your comments and our responses to them can still be taken into consideration in the decision-making process.

1. Erosion-Sedimentation Control Measures

Oceanic Properties, Inc. shares your concern over the possible adverse effects of sedimentation, and engineers are developing plans to minimize soil loss from the HTP site. Our analysis indicates that the rate of erosion at the project site will be lower under the proposed use than under the former use for pineapple cultivation. This conclusion is stated on page 4-8 of the EIS.

> Once the proposed development is completed, it is likely to significantly decrease the rate of erosion. Land surfaces will be stablilized by roads, buildings, and landscaped areas. Drainage facilities in the system of perimeter roads will intercept runoff which now tends to cascade off the plateau and convey it to the gulch below at several specific locations. Discharge will be controlled by energy dissipating structures and by moderate release rates from the proposed detention basin.

The detention basin is now under design (see Item 2., below).

2. On-site Drainage System and Retention Ponds

Each occupant of the HTP will be responsible for the design and construction of its own on-site drain. Since specific future occupants cannot currently be identified, details on specific drainage systems are also unknown. However, stormwater discharges require National Pollution Discharge Elimination System permits and park occupants must demonstrate that proposed drainage systems will provide adequate protection before building permits are issued. These control measures are discussed on pages 4-7 and 4-62 of the DEIS.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex: BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923. Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089. Telephone 908-1388

The developers of the adjacent Melemanu Woodlands III residential project have assumed responsibility for the design and construction of a proposed stormwater detention basin to handle overflow. The 3.4-million cubic-foot detention basin, which is currently under design, will benefit both the HTP and the Melemanu Woodlands projects. It is described on pages 4-6 and 4-7 of the DEIS and in the EIS prepared for the Melemanu Woodlands Phase III project.

3. Regulation of High Technology Businesses at the HTP

Oceanic Properties, Inc. has launched a marketing program designed to appeal to technology-intensive businesses with Pacific Basin interests. The park will not be targeting users of large quantities of potentially hazardous materials, such as wafer and silicon "chip" manufacturers. Moreover, the Hazardous Waste Storage and Handling Guidelines developed by Oceanic Properties, which will govern the activities of all park occupants, prohibit businesses that require on-site storage of large amounts of chemicals from locating to the park. For more detail, please refer to the draft Guidelines in Appendix B of the EIS.

4. DLNR Permits for Groundwater Withdrawal

The DEIS recognizes that the project is within the Pearl Harbor Groundwater Control Area and that, should Phase 2 of the HTP project necessitate withdrawal of additional groundwater, a permit will be required from the Department of Land and Natural Resources. At present, it appears that adequate water will be available for this purpose.

If you have any questions, please call me at 521-5361.

Sincerely,

Perry J. White

ALM: PJW

cc: ✓Office of Environmental Quality Control
Department of Land Utilization
Oceanic Properties, Inc.

LU 11/85- 4968

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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BELT, COLLINS & ASSOCIATES

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

NOV 0 1 1985

Your: 85/Z-20(BN)

1985 NOV -4 AM 10:48
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Honorable John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 So. King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

We appreciate the opportunity to comment on the zoning change to accommodate the Mililani industrial park and the draft environmental impact statement (EIS) prepared for the project.

The project site, an irregularly sloped parcel comprised of gently undulating plateau land, abuts Waikakalaua Gulch along its southern boundary. The EIS should address erosion-sedimentation control measures to minimize impact on Waikakalaua Stream and the other adjacent areas.

It should discuss design of the on-site drainage system and retention ponds. It should include safety measures to prevent hazardous raw materials and by-products from entering and contaminating the ground water or Waikakalaua gulch. The EIS should also discuss in more detail what high technological projects will not be permitted due to their hazardous nature, and how these will be regulated. Waikakalaua gulch empties into Pearl Harbor which provides habitat for many endangered wildlife species.

Further, as the project is located in the Pearl Harbor Ground Water Control Area (PHGWCA), permits from this department are required if the plans for the project call for the development of ground water within the PHGWCA. It should be further noted that the present sustainable yield within the PHGWCA is 225 mgd (million gallons per day), and the present withdrawal of ground water from the PHGWCA is 202.5 mgd. Any further withdrawals of ground water from the PHGWCA requires the necessary permits from this department.

Sincerely,

SUSUMU ONO
Chairperson

TABLE OF CONTENTS

		Page
Chapter I - Summary		
1.0	Purpose of the Document	1-1
2.0	Proposed Governmental Action	1-1
3.0	Project Description	1-1
4.0	Purpose and Need for the Proposed Action	1-2
5.0	Beneficial Effects	1-2
6.0	Adverse Impacts	1-2
7.0	Issues to be Resolved	1-3
Chapter II - Project Description		
1.0	Background	2-1
2.0	Description of the Site	2-1
2.1	Location	2-1
2.2	Topography and Drainage Pattern	2-4
2.3	Existing Land Use	2-4
3.0	Need for the Proposed Project	2-4
3.1	Types of Users Expected	2-4
3.2	User Requirements	2-5
3.3	Availability of Sites Appropriate for High Technology Development	2-6
4.0	Description of the Proposed Action	2-11
4.1	Introduction	2-11
4.1.1	Governmental Action Requested	2-11
4.1.2	Development Objectives	2-11
4.2	Description of Proposed Land Use Plan	2-11
4.2.1	Proposed Land Uses	2-11
4.2.1.1	Campus Industrial	2-11
4.2.1.2	Business Commercial	2-11
4.2.1.3	Recreation	2-15
4.2.2	Overall Project Layout, Circulation, and Open Space	2-15
4.2.3	Individual Site Design	2-15

TABLE OF CONTENTS
(Continued)

		Page
4.2.3.1	Landscaped Open Space	2-17
4.2.3.2	Roads and Parking Areas	2-17
4.2.3.3	Building Height	2-17
4.2.3.4	Building Coverage	2-17
4.2.3.5	Setbacks	2-17
4.2.3.6	Individual Site Size	2-19
4.2.3.7	Grading	2-19
4.2.4	Phasing	2-19
4.3	Infrastructure	2-20
4.3.1	Roadways	2-20
4.3.1.1	On-Site	2-20
4.3.1.2	Off-Site Roadways	2-20
4.3.2	Water Supply	2-23
4.3.3	Solid and Liquid Waste Collection and Disposal	2-23
4.3.3.1	Wastewater Collection and Treatment	2-23
4.3.3.2	Solid Waste	2-25
4.3.3.3	Hazardous Wastes	2-25
4.3.4	Electrical Power and Telecommunications Service	2-26
4.3.4.1	Electrical Power	2-26
4.3.4.2	Telephone, Cable TV, and Street Lighting	2-26
4.3.5	Storm Drainage	2-27

Chapter III – Relationship of the Proposed Action to Land Use Plans, Policies, and Controls for the Affected Area

1.0	**Policy Plans**	3-1
1.1	General Plan for the City and County of Honolulu	3-1
1.1.1	Economic Activity	3-1
1.1.2	Natural Environment	3-3
1.1.3	Physical Development and Urban Design	3-4
1.2	Coastal Zone Management Program	3-5
1.3	The Hawaii State Plan	3-5

TABLE OF CONTENTS
(Continued)

		Page
1.4	State Functional Plans	3-10
1.4.1	State Agriculture Functional Plan	3-10
1.4.2	State Conservation Lands Functional Plan	3-10
1.4.3	State Education Functional Plan	3-11
1.4.4	State Higher Education Functional Plan	3-11
1.4.5	State Energy Functional Plan	3-11
1.4.6	State Health Functional Plan	3-11
1.4.7	State Historic Preservation Functional Plan	3-12
1.4.8	State Housing Functional Plan	3-12
1.4.9	State Recreation Functional Plan	3-12
1.4.10	State Tourism Functional Plan	3-12
1.4.11	State Transportation Functional Plan	3-12
1.4.12	State Water Resources Development Functional Plan	3-12
2.0	**Land Use Plans**	3-13
2.1	State Land Use Law	3-13
2.2	Central Oahu Development Plan	3-13
2.3	Zoning and Subdivision Ordinances	3-19
3.0	**Social Impact Management System (SIMS)**	3-19

Chapter IV - Probable Impacts

1.0	**Topographic Changes**	4-1
2.0	**Soils Impacts**	4-1
2.1	Description of Existing Soils	4-1
2.1.1	Land Study Bureau	4-1
2.1.2	Soil Conservation Service	4-3
2.2	Effect on Productive Agricultural Use	4-3
2.2.1	Historical Use	4-3
2.2.2	Current Use	4-4
2.2.3	Relocation of Pineapple Cultivation	4-4
2.2.4	Effect on Agricultural Lands of Importance to the State of Hawaii (ALISH)	4-4

TABLE OF CONTENTS
(Continued)

		Page
2.3	Suitability of Soils for Urban Use	4-4
3.0	**Hydrologic Impacts**	4-6
3.1	Storm Runoff Rates and Volumes	4-6
3.1.1	Changes in Drainage Pattern	4-6
3.1.2	Changes in Surface Runoff Rates	4-6
3.1.3	Adequacy of Proposed On-Site Drainage System	4-7
3.1.4	Effects on the Waikakalaua Runoff Hydrograph Downstream	4-7
3.2	Water Quality Effects	4-7
3.2.1	Surface Waters: Soil Erosion and Sediment Load	4-7
3.2.2	Groundwater	4-8
4.0	**Physical Hazards**	4-8
4.1	Seismicity and Vulcanism	4-8
4.2	Aircraft Operations	4-9
4.3	Military Training Activities	4-11
5.0	**Biological Impacts**	4-12
5.1	Changes in Terrestrial Vegetation	4-12
5.2	Changes in Terrestrial Fauna	4-13
5.3	Effects on Aquatic Resources	4-13
6.0	**Transportation Impacts**	4-14
6.1	Existing Transportation Facilities	4-14
6.1.1	Streets and Highways	4-14
6.1.2	Public Transit	4-14
6.1.3	Airports and Harbors	4-16
6.2	Existing Vehicular Traffic Volumes and Service Levels	4-16
6.3	Projected Traffic Volumes Without the Hawaii Technology Park	4-16
6.4	Project-Related Vehicular Traffic	4-20
6.5	With-Project Traffic Volumes	4-20
6.6	Forecast Service Levels	4-20
6.7	Impacts on Public Transit, Airports, and Harbors	4-25
7.0	**Air Quality Impacts**	4-27
7.1	Introduction	4-27
7.2	Air Quality Standards	4-27

TABLE OF CONTENTS
(Continued)

		Page
7.3	Existing Air Ouality	4-29
7.4	Climate and Meteorology	4-34
7.4.1	Temperature	4-34
7.4.2	Surface Winds	4-34
7.5	Microscale Analysis	4-34
7.5.1	Emission Factors	4-34
7.5.2	Mobile Source Activity	4-34
7.5.2.1	Methodology	4-34
7.5.2.2	Results	4-38
7.6	Conclusion and Suggested Mitigative Measures	4-41
8.0	**Noise Impacts**	4-41
8.1	Introduction	4-41
8.2	Noise Descriptors and Their Relationship to Land Use Compatibility	4-41
8.3	Existing Noise Levels	4-44
8.3.1	Non-Traffic Noise	4-44
8.3.2	Traffic Noise	4-44
8.4	Expected Noise Impacts	4-46
8.4.1	Forecast Noise Levels	4-46
8.4.2	Significance of Project-Related Changes in Noise Levels/Exposure	4-46
8.4.2.1	Traffic Noise	4-46
8.4.2.2	Aircraft Noise	4-49
8.4.2.3	Military Weapons (Simulator) Firings	4-49
8.4.3	Potential Mitigation Measures	4-49
9.0	**Visual Impacts**	4-50
9.1	Appearance and Design Controls	4-50
9.2	Views of Site from Adjoining Properties	4-50
9.3	Views from Adjoining Highways	4-50
10.0	**Archaeological and Historical Impacts**	4-51
10.1	Existing Features	4-51
10.2	Probable Impacts and Mitigation Measures	4-52
11.0	**Economic Effects of the Project**	4-52
11.1	Direct Effect of Project on Employment	4-52

TABLE OF CONTENTS
(Continued)

		Page
11.1.1	Construction Period Employment	4-53
11.1.1.1	Employment Related to Infrastructure Construction	4-53
11.1.1.2	Employment Related to Construction of Individual Parcels	4-54
11.1.2	Operational Period Employment	4-55
11.2	Indirect Effect of Project on Population and Housing Requirements	4-57
11.2.1	Population Supported by Project-Related Employment	4-57
11.2.1.1	Population Associated with Direct Employment	4-57
11.2.1.2	Population Associated with Indirect and Induced Employment	4-57
11.2.2	Expected Residence of Employees	4-58
11.3	Effect on State Product and Income	4-59
11.3.1	Annual Output	4-59
11.3.2	Income to Households	4-59
11.4	Revenue Cost Analysis	4-60
12.0	**Direct Effects on Public Utilities and Services**	4-60
12.1	Water Supply	4-60
12.2	Wastewater Collection, Treatment, and Disposal	4-61
12.2.1	Expansion of Facilities	4-61
12.2.2	Connection of Industrial Users	4-61
12.2.2.1	Restrictions on Use of Hazardous Materials by Park Occupants	4-62
12.2.2.2	Industrial Wastewater Discharge Certificate	4-62
12.2.2.3	Federal Regulations	4-62
12.2.3	Collection System	4-62
12.2.4	Treatment and Disposal	4-62
12.3	Solid Waste Collection and Disposal	4-63
12.3.1	Solid Waste Generation, Storage, and Collection	4-63
12.3.2	Solid Waste Disposal	4-64
12.4	Electrical Power and Telecommunications	4-64

TABLE OF CONTENTS
(Continued)

Page

Chapter V - Alternatives

1.0 Introduction 5-1
2.0 Alternative Agricultural Use. 5-1
3.0 Alternate Urban Uses. 5-2
4.0 Alternate Layouts/Reduced Development 5-3
5.0 Alternative Development Timetables 5-3
6.0 No-Project 5-4

Chapter VI - List of Necessary Approvals and Unresolved Issues

1.0 List of Necessary Approvals 6-1
2.0 Unresolved Issues 6-2

Chapter VII - Consulted Parties and Individuals Participating in the Preparation of the DEIS

1.0 Consulted Parties 7-1
2.0 List of Preparers of the EIS 7-2

Chapter VIII - References 8-1

Appendices

LIST OF FIGURES

		Page
	Chapter II	
II-1	Location of Proposed Project	2-2
II-2	Project Site and Vicinity	2-3
II-3	Location of Existing and Proposed Industrial Parks	2-7
II-4	Schematic Site Plan	2-13
II-5	Streetscape Concept	2-16
II-6	Typical Site Layouts Consistent with Design Guidelines	2-18
II-7	Proposed Off-Site Roadway Improvements	2-21
II-8	Proposed Laneage: Phase I and Full Development	2-22
II-9	Proposed Water Master Plan	2-24
II-10	Storm Drainage	2-28
	Chapter III	
III-1	State Land Use District Boundaries	3-14
III-2	Central Oahu Development Plan	3-15
	Chapter IV	
IV-1	Land Study Bureau Soil Types	4-2
IV-2	Soil Conservation Service Soil Types	4-2
IV-3	Location of Pineapple Replacement Fields	4-5
IV-4	Military Activities (and Noise Sampling Locations)	4-10
IV-5	Existing Road Access and Traffic Volumes	4-15
IV-6	Future Traffic Without the Hawaii Technology Park	4-19
IV-7	Future Traffic Volumes: Phase I and Full Development	4-24
IV-8	Annual Windrose - Wheeler Air Force Base	4-35
IV-9	Worst Case 1-Hour CO Concentrations: AM Peak Hour: Kamehameha Highway and Golf Course Road	4-39
IV-10	Worst Case 1-Hour CO Concentrations: AM Peak Hour: Wikao Street and Golf Course Road	4-40

LIST OF TABLES

		Page
	Chapter II	
II-1	Inventory of Existing Vacant Industrially-Zoned Vacant Land	2-8
II-2	Marketability Evaluation Matrix	2-10
II-3	Development Objectives -- Hawaii Technology Park	2-12
II-4	Land Use in the Proposed Hawaii Technology Park by Use, Development Parcel, and Phase	2-14
	Chapter IV	
IV-1	Existing Traffic Conditions	4-17
IV-2	Trip Generation by the Melemanu Woodlands Project	4-18
IV-3	Trip Generation by the Proposed Hawaii Technology Park	4-21
IV-4	Projected Trip Distribution: Melemanu Woodlands and Hawaii Technology Park	4-22
IV-5	Traffic Generation Factors: Hawaii Technology Park	4-23
IV-6	Forecast Peak-Hour Levels of Service With and Without the Hawaii Technology Park	4-26
IV-7	Existing Ambient Air Quality Standards	4-28
IV-8	Air Monitoring Data, Kalihi Kai, Oahu: 1983	4-30
IV-9	Air Monitoring Data, Pearl City, Oahu: 1983	4-31
IV-10	Air Monitoring Data, Department of Health in Downtown Honolulu: 1983	4-32
IV-11	State of Hawaii Department of Health Carbon Monoxide Study: 1976-77	4-33
IV-12	0650 Windrose - Wheeler AFB, Hawaii: 1975	4-36
IV-13	1650 Windrose - Wheeler AFB, Hawaii: 1975	4-37
IV-14	Exterior Noise Exposure Classification: Residential Uses	4-43
IV-15	Summary of Maximum Recorded Sound Levels	4-45
IV-16	Project-Related Changes in Traffic Noise Levels	4-47
IV-17	Existing and Future Distances to 60 Ldn, 65 Ldn, and 70 Ldn Noise Contours	4-48
IV-18	Preliminary Estimate of Infrastructure Costs, Hawaii Technology Park ($000)	4-54
IV-19	Average Annual Construction Employment	4-55
IV-20	Operational Period Employment at Full Operation (Phases I & II), Hawaii Technology Park	4-56
IV-21	Additions to Gross State Product - Hawaii Technology Park	4-59
IV-22	Income to Households - Hawaii Technology Park	4-60

CHAPTER I

SUMMARY

1.0 PURPOSE OF THE DOCUMENT

This draft environmental impact statement has been prepared to accompany a rezoning request submitted to the City and County of Honolulu, Department of Land Utilization. It has been prepared and processed in compliance with the requirements of Chapter 343, Hawaii Revised Statutes, and the regulations adopted pursuant thereto.

2.0 PROPOSED GOVERNMENTAL ACTION

Oceanic Properties, Inc., a subsidiary of Castle & Cooke, Inc., has asked that approximately 120 acres of land adjacent to Waikakalaua Gulch in Central Oahu that is owned by the parent company be rezoned from Agriculture (AG-1) to Industrial (I-1). The area constitutes the first of two phases of the proposed 256-acre Hawaii Technology Park (HTP). The State Land Use Commission has recently redesignated the entire HTP site from Agricultural to Urban, and the City Council has approved a Development Plan (DP) amendment which changed the DP designation of the Phase 1 area from Agriculture to Industrial.

3.0 PROJECT DESCRIPTION

Oceanic Properties proposes to create a new industrial subdivision aimed specifically at firms involved in advanced technology areas such as electronics, instruments, telecommunications, bio-technology, and renewable energy sectors. Principal activities are expected to include research and development, manufacturing and assembly, and ancillary warehousing and administrative functions. Acreages that would be devoted to each major land use category are as follows:

Land Use	Phase 1	Phase 2	Total
Campus Industrial	75	115	190
Business Commercial	16	0	16
Recreation/Education	6	0	6
Roadways	16	12	28
Open Space/Common Areas	6	10	16

Access to the Hawaii Technology Park site will be via Kamehameha Highway or the H-2 Freeway and Golf Course Road. The internal circulation system is based on a main spine road with a series of secondary loops.

Oceanic Properties, Inc. would act only as the project's master developer, installing the roadways, utility lines, and other essential infrastructure, establishing overall design controls for the project, and then selling the parcels in fee to the ultimate users. The design and construction of structures on individual building sites will be the responsibility of the buyers.

Structures within the project would be relatively low. The Development Plan amendment granted for the Phase 1 portion of the project sets 40 feet as the maximum building height there. The proposed covenants stipulate 45 feet as a maximum. Maximum building coverage of lots is set at 30 percent, and the maximum "floor area ratio" (FAR) at 0.4. A minimum lot size of 4 acres is required, and setbacks in excess of City and County requirements are called for in the design plan.

4.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The State's High Technology Development Plan stresses the lack of suitable space as an obstacle to the development of high technology industries in Hawaii. The proposed project would correct this deficiency. The site's location is considered desirable enough to attract high technology firms to Hawaii. Most business activity in the field is labor intensive, and thus directly meets the need for additional employment opportunities in the state. It would also serve to broaden Hawaii's economic base, thus giving the State alternatives to tourism, military spending, and agriculture.

5.0 BENEFICIAL EFFECTS

The proposed project would broaden the revenue base of State and County governments and provide a range of new business opportunities. SRI International estimates that high technology and support firms locating in the development would employ up to 14,000 persons; this level of direct employment was projected to generate more than 10,000 additional jobs in other sectors of the economy. The increased demand for workers would tend to decrease unemployment; at the same time, the number of different types of job opportunities would also be increased.

6.0 ADVERSE IMPACTS

Because of the large number of jobs that might be created by industrial development within the Hawaii Technology Park, traffic volumes on roadways serving the site would be greatly increased by the proposed project. Roadway improvements already committed to by the developer would ease congestion greatly, and might even prevent it if the actual level of employment is less than the maximum projected by SRI International. If development does reach the maximum densities observed in mainland developments, then, under "worst-case" meteorological conditions, the State's ambient air quality standards for carbon monoxide might be exceeded in the immediate vicinity of the intersections of Golf Course Road with Wikao Street and Kamehameha Highway.

Like firms in virtually all industries, high technology businesses sometimes work with substances that are damaging if they escape uncontrolled into the environment. Special covenants and restrictions would be placed on occupants of the project that would greatly restrict the on-site storage of hazardous materials and generation of hazardous waste. Moreover, there are stringent Federal, State, and County controls on the handling of potentially hazardous substances that are designed to insure that such potential contaminants do not escape into the environment. While there is every reason to believe that these controls would provide a more than adequate level of protection, there is always a remote possibility that chemicals or other substances used by industrial firms could be spilled and reach the water table. In this respect, the proposed undertaking carries with it a marginally higher risk than would comparable development over caprock, but it is believed that the difference is extremely small.

7.0 ISSUES TO BE RESOLVED

Oceanic Properties will act only as the master developer of the Hawaii Technology Park. Industrial and commercial users will purchase the lots and design and construct facilities suited to their own specific needs. Detailed information concerning the design and operation of the industrial facilities that would be constructed within the HTP will not be available until this has occurred, i.e., until after subdivision is completed and infrastructure improvements are under construction or in place. It is expected that issues related to these parcel-specific matters will be dealt with on a site-by-site, facility-by-facility basis when purchasers of the lots approach the Hawaii Technology Park Design Committee and Federal, State, and County permitting agencies for approval to construct and operate specific improvements.

As discussed in Chapter VI, Section 2.0, preliminary plans are available for storm drainage, water supply, wastewater treatment and disposal, and off-site roadway improvements. Discussions to date indicate that there are no environmental issues which cannot be resolved, but agreements remain tentative at this time. They will be finalized as planning and engineering for the proposed project continues.

CHAPTER II

PROJECT DESCRIPTION

1.0 BACKGROUND

Oceanic Properties, Inc., a wholly owned subsidiary of Castle & Cooke, Inc., has requested that approximately 256 acres of agriculturally zoned land (Ag-1) in Central Oahu be rezoned to industrial (I-1). The State Land Use Commission recently redesignated this same area from "Agricultural" to "Urban", and the area that would be developed during Phase 1 has been designated "Industrial" on the Central Oahu Development Plan. If the current rezoning request is granted, Oceanic Properties, Inc. proposes to develop an industrial park aimed at high technology businesses on the site. The name of the proposed project is the "Hawaii Technology Park".

Oceanic Properties is the parent company of Mililani Town, Inc. developer of nearby Mililani Town, a master planned community with a current population of approximately 25,000 people. Other notable projects with which the company is, or has been, involved include:

- The Financial Plaza of the Pacific, the first office condominium developed in the United States;
- Queen Emma Gardens, an extremely successful moderate income rental housing project near downtown Honolulu; and
- Sea Ranch, an award-winning residential project in northern California.

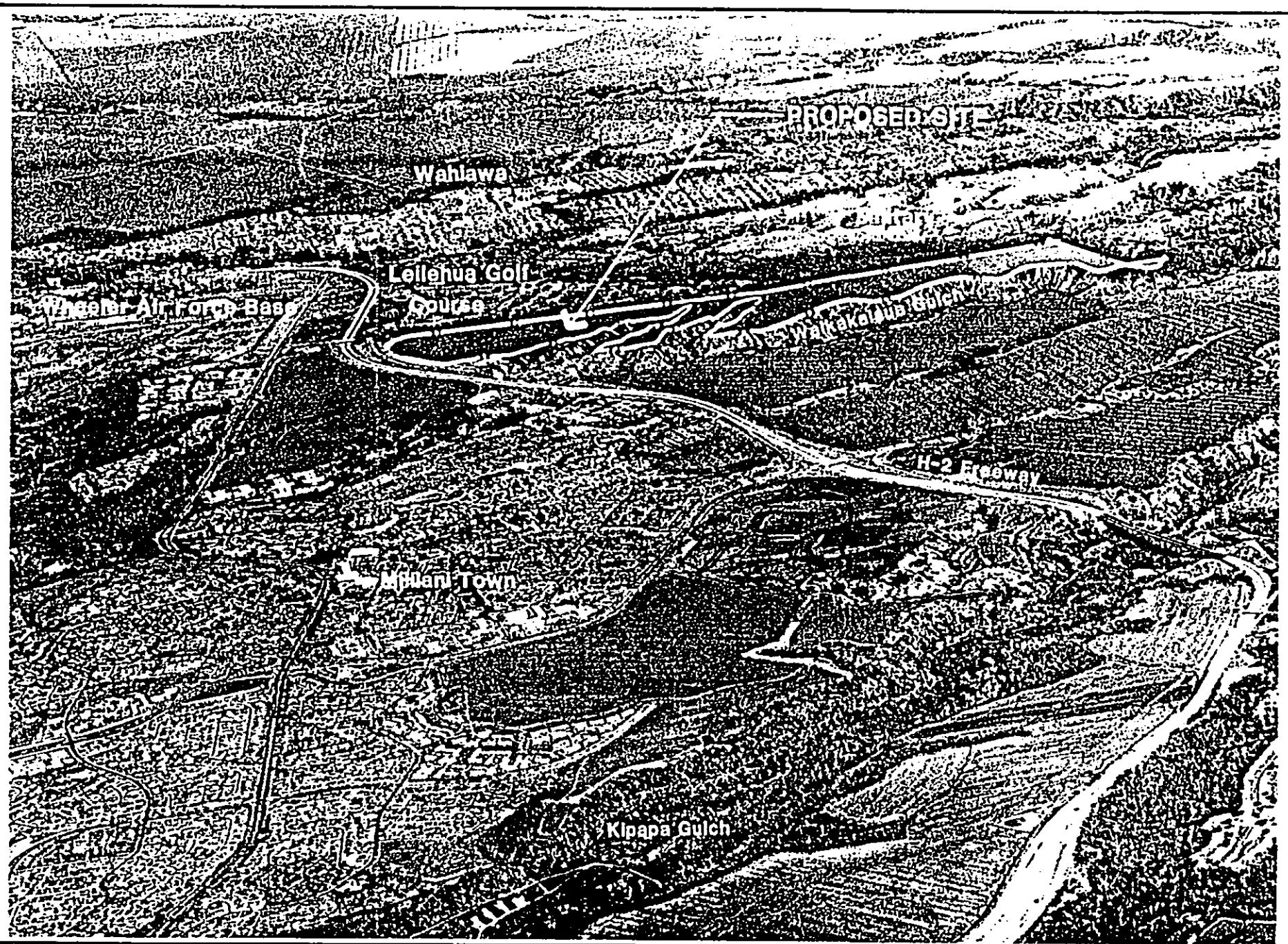
As master developer of the proposed high technology park, Oceanic Properties, Inc. will bear the cost of all necessary infrastructure improvement but it will not be involved in the design or construction of industrial structures or individual parcels. Oceanic Properties also intends to participate in and actively support state legislation, university educational programs, relevant research interests, and industry efforts intended to make Hawaii an attractive location for high technology firms.

The remainder of this chapter is divided into four parts. Section 2.0 describes the site's location, topography and drainage pattern, and land use. Section 3.0 discusses the objectives and intended market of the project. Section 4.0 presents a general description of the proposed improvements, including a conceptual site layout. Finally, Section 5.0 describes the site grading and infrastructure improvements that would be undertaken as part of the project.

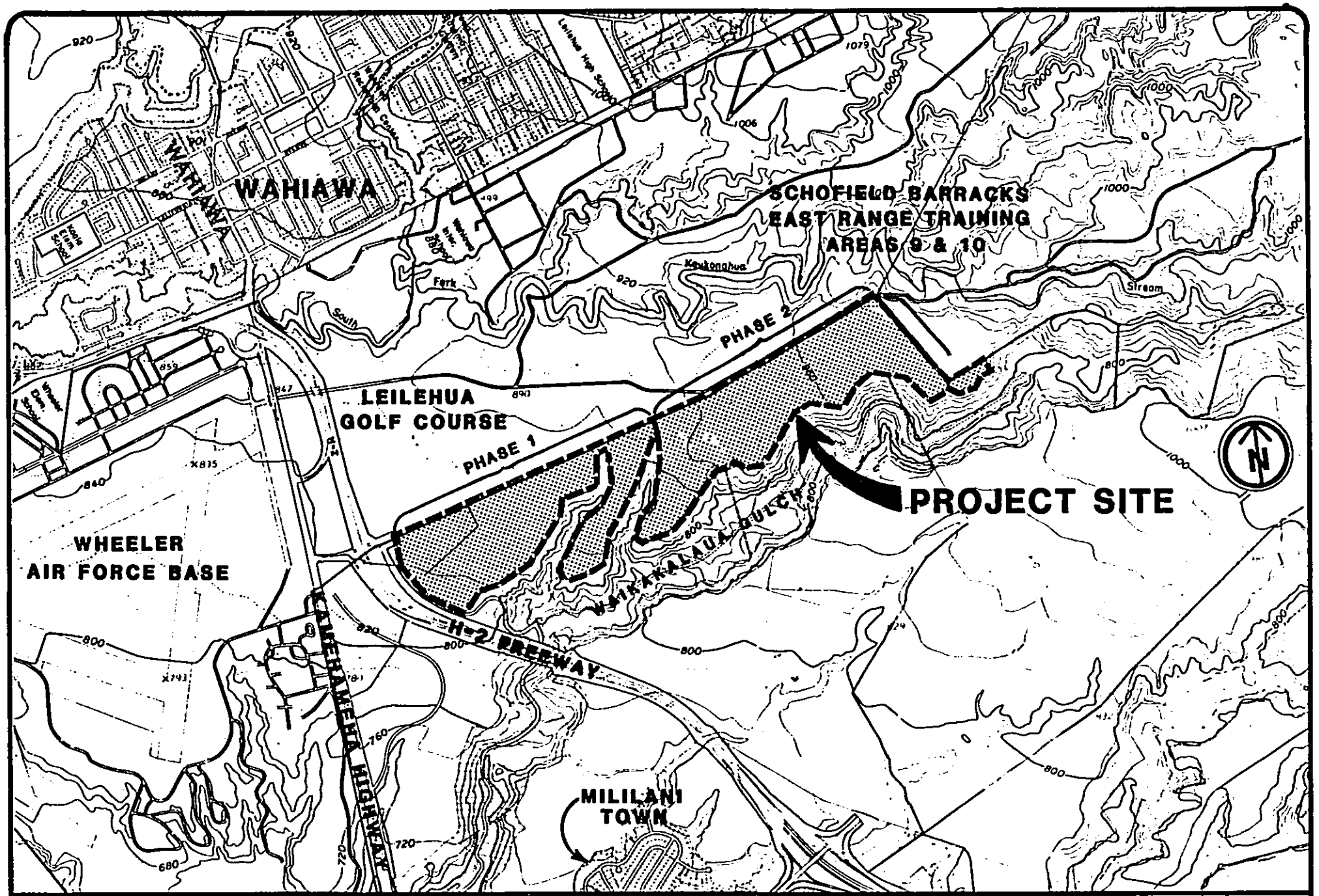
2.0 DESCRIPTION OF THE SITE

2.1 LOCATION

The site proposed for the project is located to the east of the H-2 Freeway, just south of Waikakalaua Gulch (see Figure II-1). As shown on Figure II-2, it is bordered by the H-2 Freeway and Wikao Street on the West; by Leilehua Golf Course and Schofield Barracks East Range Training Areas 9 and 10 to the north and east; and by Waikakalaua Gulch to the south. It constitutes a portion of parcel (TMK) 9-5-02:11.



NOT TO SCALE	LOCATION OF PROPOSED PROJECT	HAWAII TECHNOLOGY PARK	FIG. II-1



0 1000 2000 4000'
SCALE: 1"=2000'

PROJECT SITE AND VICINITY

HAWAII TECHNOLOGY PARK

FIG. II-2

The H-2 Freeway and Kamehameha Highway provide road access to the site via Wikao Street and Golf Course Road. The entrance to the proposed Hawaii Technology Park (HTP) is approximately one road-mile south of Wahiawa town; it is 16 road-miles northwest of the Honolulu International Airport, and about 20 freeway miles from downtown Honolulu and Honolulu Harbor.

2.2 TOPOGRAPHY AND DRAINAGE PATTERN

As shown by Figure II-2, the site consists of an elongated area bordering Waikakalaua Gulch. Along its east-west axis, it is nearly two miles long, while its maximum width is only 1,900 feet. Tributaries of Waikakalaua Gulch have cut deep ravines into the site at two points, reducing the usable width of the property to a little more than 100 feet at those points, and dividing it into three distinct sub-areas.

The overall slope averages a gentle 2 percent. The steepest portion of the site lies in a narrow band just east of the boundary between the Phase I and Phase 2 areas; even there, the slope is less than ten percent. Runoff from the site flows into Waikakalaua Gulch, and thence into Pearl Harbor.

2.3 EXISTING LAND USE

Pineapple was cultivated on most of the site for many years without benefit of irrigation. However, as part of its efforts to increase yields, the Dole Company (the subsidiary responsible for Castle & Cooke's pineapple operations) is in the process of shifting all of its activities to irrigated acreage. As a result, pineapple cultivation on the site has been terminated, and it now lies fallow.

3.0 NEED FOR THE PROPOSED PROJECT

3.1 TYPES OF USERS EXPECTED

As indicated above, the proposed project is designed to attract businesses in "high technology" and related industries. "High technology" is a term applied to a broad set of activities that are (i) new or on the cutting edge of their field; (ii) rapidly evolving; and (iii) of a highly complex or esoteric nature. Such activities range from the production of large scale integrated circuits to aerospace research and development. High Technology businesses are involved in such things as the development and manufacture of computers and office machines, communications equipment, semiconductors, and other electronic components, as well as biotechnology and optics. The technology is called "high" not only because it is the most advanced, but also because it changes rapidly in comparison with other industrial technologies.

The proposed project is the outgrowth of market studies conducted for Oceanic Properties, Inc. by SRI International (November 1982; January 1983; and March, 1983). These studies concluded that:

> Most, if not all, of the occupants of the Hawaii Technology Park are expected to be engaged in small to medium-sized business operations, including manufacturers as well as other environmentally compatible service and support organizations. Many of the manufacturers are expected to be involved primarily in product fabrication and assembly, research and development, testing, distribution, marketing, and corporate administration.

The high technology industries identified as the most likely occupants of the proposed development include manufacturers of specialized electronics products, advanced telecommunications devices, and specialty instruments and sensors (SRI International, November 1982:4).

3.2 USER REQUIREMENTS

Most high technology industry is labor-intensive. Hence, the average number of employees per acre is significantly greater than that in most "low-tech" industrial areas. High-technology firms typically seek a clean, high-amenity environment. They look for and expect design safeguards that will insure that their facilities remain attractive and productive, and they shun locations that are visually unattractive or are adversely affected by truck traffic frequently associated with heavy industry.

SRI International's market study (January 1983) identified a number of characteristics that appear to make an area attractive to high technology firms. They include:

- An overall size of 200 to 500 gross acres.
- A commute time of 30 minutes or less by automobile from major communities having affordable housing for semi-skilled workers.
- Good public transit service.
- An automobile commute time of 30 to 45 minutes for managerial and professional employees (home-to-work).
- Driving times to nearest major airport of no more than 30 to 45 minutes.
- Automobile travel time of no more than 15 to 30 minutes to essential business support services.
- Location in quiet, attractive environment that provides adequate privacy to the business tenants of the industrial park, attractive vistas, and strict architectural and on-site development controls.
- Location that provides visibility and favorable identity from freeways, major arterial streets, and other major exterior vantage points.
- Convenience commercial facilities such as eating places, banks, auto service stations, travel agencies, stationery stores, printers, photographic outlets, etc. within a five-minute drive of the site.
- Adequate protection against fire and criminal activity.
- Good vehicular traffic flow.

In addition to these site location requirements, high technology firms are also heavily influenced by the following, more general factors, when making their locational decisions:

- Availability of a willing, productive, semi-skilled labor pool.

- Presence of strong educational programs in relevant fields in local colleges and universities; these are viewed as good sources of future labor supply and professional advice.

- Existence of good climate and a high quality physical and social environment for workers.

- Presence of a tax structure which encourages innovation, growth, and profitability and does not place potential users at a disadvantage with respect to firms located in other jurisdictions.

- A history of rapid processing of applications for development permits; in particular, firms avoid areas whose permit processes make it impractical to bring new facilities quickly on-line.

- Competitive costs prices for land and construction work.

- Availability of a range of parcel sizes, with the majority of the lots having 1 to 5 acres.

3.3 AVAILABILITY OF SITES APPROPRIATE FOR HIGH TECHNOLOGY DEVELOPMENT

The Hawaii High Technology Development Plan prepared by the State of Hawaii Department of Planning and Economic Development (September 1, 1981:21-22) concluded:

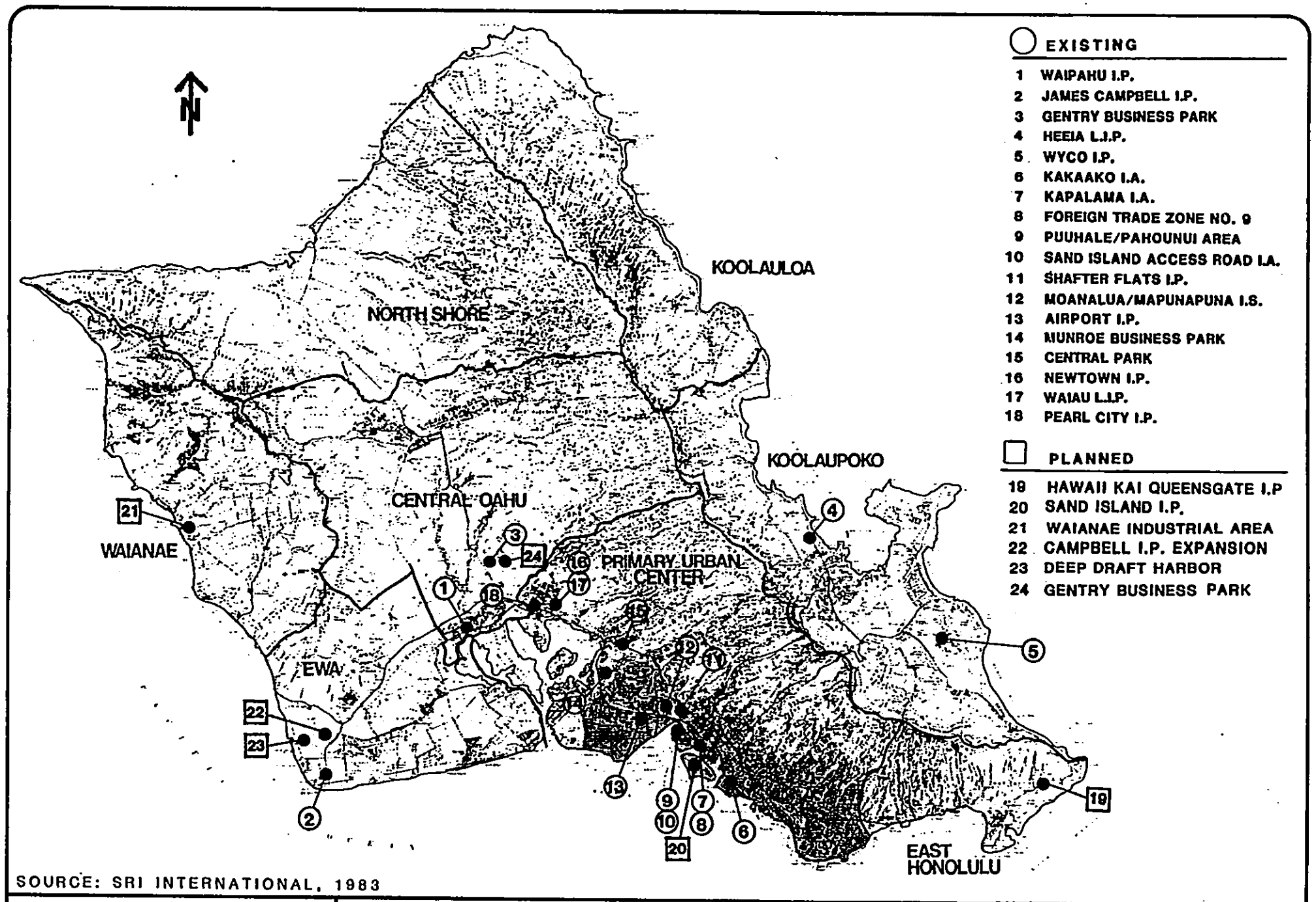
> The lack of suitable industrial space in the State of Hawaii is a major impediment to Hawaii's efforts to broaden and diversify its economy by developing an electronics/high technology industry. Efforts to seek the relocation of mainland and foreign high technology firms to Hawaii and to stimulate the growth of Hawaii's home-grown technology-based industry will not bear fruit until suitable locations for these types of firms can be found....One possible site is along the H-2 Freeway mauka of Mililani Town and north of Waiawa ridge on what is now pineapple land.

The Hawaii High Technology Plan goes on to recommend that the State:

> Provide for the rezoning of land for high technology industry in at least two areas on Oahu for the establishment of a High Technology Industrial Park. Such rezoning from agricultural use to high technology use should be in a minimum increment of 300 acres per area with surrounding land available for expansion. (Department of Planning & Economic Development, September 1981:39)

In assessing opportunities for development of a high technology park on Castle & Cooke land, consultants to Oceanic Properties assembled and evaluated information concerning total acreage, vacant useable acreage, and land tenure for 24 major existing and proposed industrial parks on Oahu. The locations of the facilities studied are shown in Figure II-3, and the data collected is summarized in Table II-1. In reviewing the data, it became apparent that:

- None of the existing areas had the 200 to 300 acres of vacant industrially zoned land that SRI International considers necessary to attract a community of high technology occupants.



SOURCE: SRI INTERNATIONAL, 1983

0 1 2 3 4 5 10
SCALE: 1" : 5 MILES

LOCATION OF EXISTING AND PROPOSED INDUSTRIAL PARKS

HAWAII TECHNOLGY PARK

FIG. II-3

Table II-1

Inventory of Existing Vacant Industrially-Zoned Land

No.	Name of Industrial Park	Total Area (acres)	Vacant Area (acres)	Tenure
A. ALREADY-DEVELOPED AREAS				
1	Waipahu Industrial Park	106	0	Leasehold
2	James Campbell Industrial Park	1,314	100	Fee/Leasehold
3	Gentry Business Park	120	80	Fee/Leasehold
4	Heeia Light Industrial Park	25	0	Leasehold
5	Wyco Industrial Park	12	0	Leasehold
6	Kaka'ako Industrial Area	42	0	Leasehold
7	Kapalama Industrial Area	43	0	Leasehold
8	Foreign Trade Zone No. 9	44	--	Leasehold
9	Pu'uhale/Pahounui Area (maritime)	60	0	Leasehold
10	Sand Island Access Road	9	0	Leasehold
11	Shafter Flat Industrial Park	19	0	Leasehold
12	Moanalua/Mapunapuna Industrial Sub.	87	0	Leasehold
13	Airport Industrial Park	133	4	Leasehold
14	Munroe Business Park	35	0	Leasehold
15	Central Park	32.7	0	Leasehold
16	Newtown Industrial Park	18.5	0	Leasehold
17	Waiau Light Industrial Park	33	0	Leasehold
18	Pearl City Industrial Park	108	3	Fee/Lease
B. UNDEVELOPED INDUSTRIAL LAND				
19	Hawaii Kai-Queensgate Ind. Park	17.4	17.4	Leasehold
20	Sand Island Industrial Park	60	60	Leasehold
21	Waianae Industrial Area	10	10	Leasehold
22	Campbell Industrial Park Expansion	322	322	Leasehold
23	Deep Draft Harbor (State)	240	240	Leasehold
24	Gentry Business Park (Proposed)	45	45	Fee/Lease

Note: All "Undeveloped Industrial Land" shown has State "Urban" designation and, with the exception of Gentry Business Park, is designated "Industrial" on the Development Plans.

Source: State of Hawaii Department of Planning and Economic Development (1980), Industrial Parks and Areas in Hawaii; updated by Phillips, Brandt, Reddick & Associates (March 1983).

- The existing areas with the largest amount of vacant industrially designated (on the Development Plans) land are Campbell Industrial Park and Gentry Business Park; however, even these have far less than the minimum acreage desirable. Moreover, neither satisfies the site location and expansion area requirements of high technology firms or offers the site amenities and "campus-style" surroundings considered essential for a successful high technology park development.

- The only areas where relatively large amounts of additional industrial land are planned are in West Oahu at Campbell Industrial Park and the Deep Draft Harbor complex. The former is aimed principally at relatively large users and has a definite heavy industry orientation; the latter is intended primarily as support for the harbor. In view of this, neither is considered an appropriate setting for a high technology park.

In the judgement of SRI International, the four strongest candidate sites for a high technology park development on Oahu are central Oahu (as represented by the site proposed for the Hawaii Technology Park), a parcel adjacent to the existing Gentry Business Park, Campbell's undeveloped site at Barbers Point, and a State-owned parcel on Sand Island. Table II-2 compares these four sites with respect to 12 criteria commonly used by technology firms when selecting specific sites for new production facilities. Note that these criteria are applied after managers have already determined that they wish to locate a new production facility within the particular metropolitan area.

The average scores for the four sites were as follows:

- Hawaii Technology Park -- good to excellent.
- Gentry Business Park -- good.
- Barbers Point (Campbell) -- almost fair
- Sand Island -- almost fair.

The Hawaii Technology Park site did not have any "unacceptable" ratings on the 12 site selection criteria. Barbers Point was rated "unacceptable" with respect to quality of surrounding development, attractiveness of views, and distance to commercial outlets. Sand Island was rated "unacceptable" in four separate categories, site size, distance to freeway, attractiveness of views, and quality of surrounding development. The "unacceptable" ratings for Barbers Point and Sand Island indicate that while both locations may be perfectly acceptable for other types of light and heavy industry, neither is particularly suitable for high technology firms. Gentry's Business Park in Waipio rates better with respect to its attractiveness to high technology firms, but it is far too small to accommodate a major high technology complex, access improvements are required, and it does not have the desired external visibility and appearance. The SRI International study concluded that, when all factors are considered, the site proposed by Oceanic Properties for its Hawaii Technology Park meets the greatest number of site selection criteria.

Oceanic proposes to develop a campus-like light industrial park that will include the open space amenities and design controls necessary to attract high technology firms. The availability of developed sites will allow businesses to move into new quarters within 12 to 18 months of the date they make their decision to relocate. SRI International (March 1983) concluded that the availabilty of development sites within a generously sized (200-250 acres) industrial park having an aesthetically pleasing environment, generous open space, and sound design controls is essential if the State is to succeed in its efforts to expand the high technology sector of its economy.

Table II-2

Marketability Evaluation Matrix

Site Selection Criteria	Acceptability Rating by Location			
	Hawaii Hi-Tech Park	Barbers Point (Campbell)	Gentry Indust. Park	Sand Isl. State of Hawaii
Sufficient Land Available?	A	A	U	U
Reasonable Commuting for Production Workers?	A	A	A	A
Reasonable Commuting Time for Managers & Professionals?	A	A	A	A
Convenient to Airport?	A	A	A	A
Good Access to Business Services?	A	A	A	A
Immediate Accessibility to Freeway	A	A	U	U
Presence of High Quality Surrounding Development	A	U	A	U
Attractiveness of Interior and Exterior Views from Site	A	U	A	U
Visibility and Image of Site From Exterior	A	A	n.a.	n.a.
Distance to Convenience Shops, Dining, & Personal Services	A	U	A	A
Public Safety	A	A	A	A
Traffic Congestion	A	A	A	A

Key To Notations: A = Acceptable Rating
U = Unacceptable Rating
n.a. = no assessment available

Source: Phillips, Brandt, Reddick & Associates (1983) after SRI International

4.0 DESCRIPTION OF THE PROPOSED ACTION

4.1 INTRODUCTION

4.1.1 Governmental Action Requested

On February 6, 1985, Oceanic Properties, Inc. submitted an application to the City and County of Honolulu Department of Land Utilization requesting rezoning of the Phase I portion of the proposed Hawaii Technology Park site from its existing AG-1 designation (Restricted Agricultural) to I-1 (Light Industrial). On March 5, 1985 the Department notified the applicant and the Office of Environmental Quality Control (OEQC) that, because the proposal involves a City and County Development Plan amendment, an environmental impact statement would be required pursuant to Chapter 343, Hawaii Revised Statutes. An environmental impact statement preparation notice (EISPN) was published in the OEQC Bulletin on March 8, 1985.

4.1.2 Development Objectives

Oceanic Properties, Inc.'s Master Plan for the Hawaii Technology Park notes that the project's desirability as a location for high-technology users depends in part upon the developer's ability to create a distinctive environment which sets its project apart from all other industrial areas on the island. Towards this end, it established a set of thirteen development objectives which covered a wide range of market, aesthetic, and community values. These objectives, which are summarized in Table II-3, constitute a goal towards which the project's physical development plan (see Figure II-4) and unique design controls are aimed.

4.2 DESCRIPTION OF PROPOSED LAND USE PLAN

4.2.1 Proposed Land Uses

The approximate acreages of the uses shown on the conceptual land use plan for the proposed Hawaii Technology Park are shown in Table II-4. The different land uses are described briefly below.

4.2.1.1 Campus Industrial

As previously indicated, the land uses permitted within the "campus industrial" areas of the Hawaii Technology Park will be limited to those which involve high-technology operations or closely related activities. Firms involved in electronics, instruments, telecommunications, bio-technology, and renewable energy sectors will be emphasized, with principal activities including manufacturing and assembly, research and development, marketing and training, and ancillary warehousing and administrative functions.

4.2.1.2 Business Commercial

Approximately 16 acres of land along the western boundary of the project are planned for commercial uses. It is expected that this area will contain such things as conference facilities, convenience retail outlets, restaurants, professional offices, and businesses serving the needs of the park's primary occupants. According to the master plan for the Hawaii Technology Park:

Table II-3

Development Objectives -- Hawaii Technology Park

(1) Integrate the project into the local land use fabric in a way which complements and enhances neighboring uses, respects significant landforms, and minimizes environmental impacts.

(2) Design facilities which incorporate state-of-the-art quality while also reflecting the unique character of the islands.

(3) Promote use of public transit by providing convenient bus turnouts and shelters and by providing a pedestrian system with connections to building masses.

(4) Create a unique, high image development which presents a strong aesthetic statement and maintains an open, park-like character.

(5) Enhance visual interest by taking advantage of opportunities to open the park to exterior views and by minimizing the influence of visually detrimental elements.

(6) Design orderly vehicular and pedestrian circulation systems to provide safe, efficient access to individual lots and public facilities, while also including special design features to highlight the project's aesthetic qualities.

(7) Create a continuous and integrated open space and streetscape design to provide a visually attractive and functionally unifying system and to help create a "campus" atmosphere.

(8) Develop a landscape plan which reinforces overall Park identity, establishes visual order, creates spatial effects and interest, compliments the building architecture, provides screening, and mitigates negative micro-climatic influences.

(9) Create a high quality development which provides for the functional and aesthetic needs of image-conscious firms.

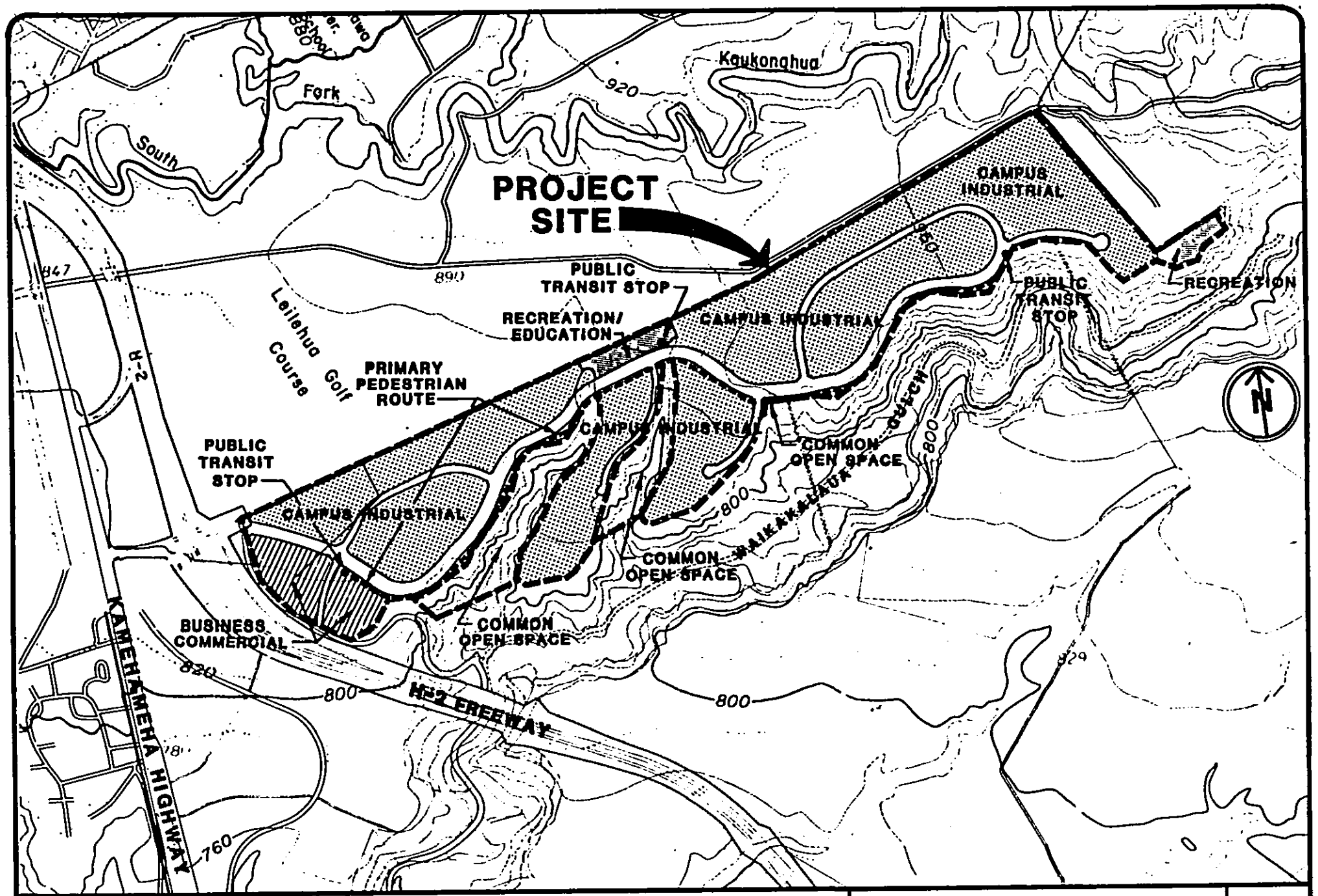
(10) Provide a variety of parcel sizes and facility configurations in order to satisfy the varied operational requirements of high-technology firms.

(11) Incorporate sufficient flexibility in the lot pattern and facility design to permit response to the changing space requirements of dynamic growth companies and to remain adaptable in the face of changing market conditions.

(12) Include a support commercial complex within the project to provide for the business needs and personal convenience and enjoyment of the project's users and their employees.

(13) Provide an amenity package which responds to the needs and interests of the park's users, and which will be well integrated with the open space and circulation systems.

Source: George S. Nolte and Associates, 1985:7.



0 600 1200 2400'
SCALE: 1":1200'

SCHEMATIC SITE PLAN

HAWAII TECHNOLOGY PARK

FIG. II-4

Table II-4

Land Use In the Proposed Hawaii Technology Park
by Use, Development Parcel, and Phase

LAND USE	SITE	Approximate Acreage (by Phase) I	II	TOTAL
Campus Industrial:	(c)	34	--	--
	(d)	20	--	--
	(f)	21	--	--
	(g)	--	72	--
	(h)	--	16	--
	(i)	--	27	--
	Subtotal =	75	115	190
Business Commercial:	(a)	9	--	--
	(b)	7	--	--
	Subtotal =	16	0	16
Recreation/Education:	(e)	6	--	6
Roadways:	108' R.O.W.	12	4	16
	60' R.O.W.	4	8	12
	Subtotal =	16	12	28
Open Space/Common Area:		6	10	16
	TOTAL ACREAGE =	113	127	256

Source: Compiled by Belt, Collins & Associates from information contained in Phillips, Brandt, Reddick & Associates, May 16, 1983, and 1985; personal communications from Paul Lo for roadway area.

The complex will be focused on a central plaza which will unify and enhance the attractiveness of the complex and create a center of activity. The high visibility of this commercial area allows it to contribute to a distinctive entry statement and presents the opportunity to enhance the architectural tone and character of the Hawaii Technology Park.

4.2.1.3 Recreation

A six-acre area has been reserved in the central part of the development for a private recreation facility. As explained below, it is intended as an integral part of the public open space system, but will be privately developed and operated as a commercial venture. No detailed plans have been prepared at this time, but a range of indoor and outdoor activities are possible at the center, including tennis, handball, and racquetball courts, a swimming pool, and gym.

4.2.2 Overall Project Layout, Circulation, and Open Space

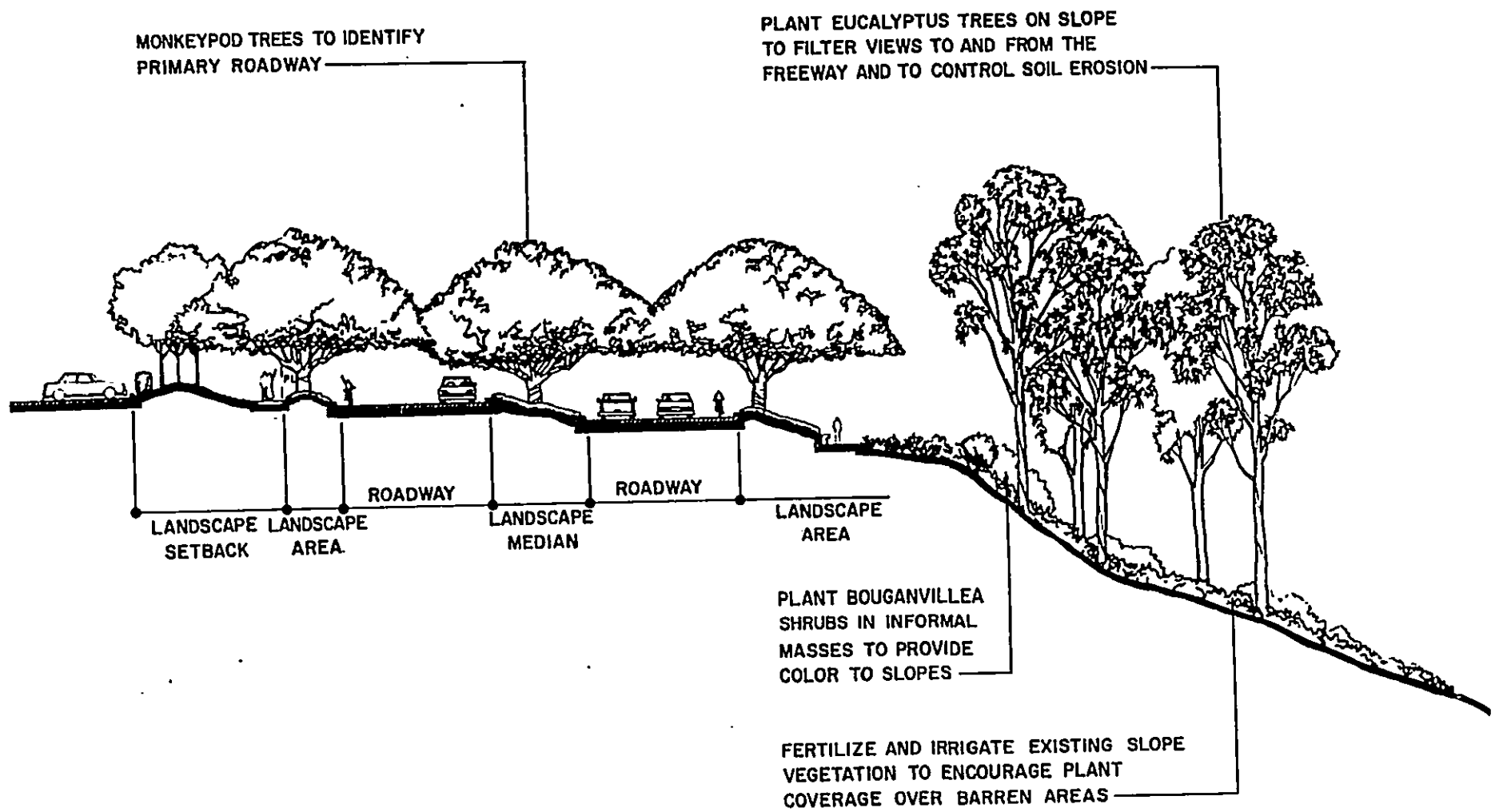
A grand boulevard incorporating vehicular and pedestrian routes, as well as open space amenities, will serve as the functional and visual "backbone" of the project (see Figure II-4). The planting scheme along this corridor, which runs along the rim of Waikakalaua Gulch, includes rows of canopy trees along both sides of the street and within the wide median strip; it is designed to heighten visual interest by framing important views and by providing a variety of views and spaces. The bluff-edge pedestrian pathway will also be a focus of recreational activity with the proposed construction of an exercise PAR course, lookouts, picnic and passive recreational areas, and other amenities. The wide, landscaped front-yard setback areas on the parcels fronting the roadway are designed to further reinforce the feeling of abundant natural open space. This streetscape concept is illustrated in Figure II-5.

The plan includes several secondary roadways consisting of loop streets and cul-de-sacs which branch off of the arterial spine. The pavement on these roadways will be considerably narrower than that of the main roadway, but the rights-of-way will also contain street trees with wide landscaped areas on either side. In addition, special landscape treatment will be provided at entries to individual user sites, transit stops, intersections, cul-de-sacs, and activity areas.

No final subdivision plan has been prepared as yet, but it is expected that it will generally follow the layout shown on Figure II-4. Most sites will be at least four acres in size; this is considered the smallest planning unit that can insure a campus-like environment with generous amounts of open space and appropriate relationships between adjoining structures. The needs of some users for smaller facility sites can be met within these planning units so long as the project's overall design guidelines are adhered to. It is expected that ten acres will be the largest standard site size, but bigger parcels could be created to meet the special needs of large users.

4.2.3 Individual Site Design

As previously noted, Oceanic Properties is acting only as the master developer for this project. Design and construction of structures on individual building sites will be undertaken by others. Because of this, no parcel-specific development plans are available at this time. However, to insure that the desired campus-like effect is maintained within the private areas as well as within the circulation and open space systems, Oceanic Properties has established a set of design standards that will govern the form of the proposed development. These standards, which provide useful insights



SOURCE: GEORGE S. NOLTE & ASSOC./PHILLIPS BRANDT REDDICK, HAWAII TECHNOLOGY PARK MASTER PLAN, 1985

NOT TO SCALE	STREETSCAPE CONCEPT	HAWAII TECHNOLOGY PARK	FIG. II-5

into the fundamental character of the project, are summarized below. The approximate areal relationships between landscaping, vehicular circulation and parking, and building coverage are depicted in Figure II-6.

4.2.3.1 Landscaped Open Space

A minimum of 30 percent of the area of each site will be landscaped open space. Generally, this open space will be located in perimeter setback areas, courtyards, parking islands, and building perimeters.

4.2.3.2 Roads and Parking Areas

Technology-related industries are typically employment-intensive. The master plan for the proposed project stipulates that on each lot, land for a minimum of one space per 300 square feet of permissable floor area (based on the FAR limitation discussed below) will be set aside. If this exceeds the amount required by the County for the proposed use, the site developer has the option of either constructing the larger amount of parking or planting the excess with ground cover and holding it in reserve in case additional parking is needed by subsequent occupants. It is expected that approximately 350 to 400 square feet of site area will be required for each parking space provided; this includes surface area required for loading, maneuvering, site access, and internal circulation. Taken together, these requirements mean that 30 to 40 percent of the ground area of each site will probably be given over to vehicular parking and circulation.

4.2.3.3 Building Height

The covenants proposed by the developer limit structures within the Hawaii Technology Park to a maximum height of three stories or 45 feet as measured to the roof plate, except that structures on sites larger than ten acres may be permitted to extend higher at the discretion of the Design Committee of the Board of the Hawaii Technology Park Association. At the present time, provisions of the Central Oahu Development Plan amendment granted for Phase I of the HTP set 40 feet as the maximum allowable building height, making it even more restrictive than the covenants. Based on experience on the mainland, it is expected that most sites will have only one- and two-story structures.

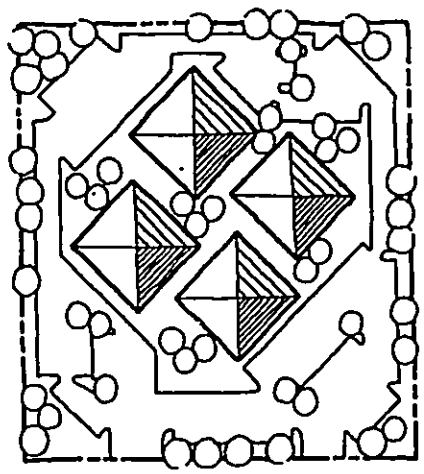
4.2.3.4 Building Coverage

Building coverage will be limited to 30 percent of the gross site area by the developer's design controls. The same controls limit multi-story buildings to a maximum gross floor area ratio (FAR) of 0.4 (i.e., no more than 0.4 square feet of building area for each square foot of property). This FAR achieves essentially the same effect as the 30 percent limit for single-story buildings.

4.2.3.5 Setbacks

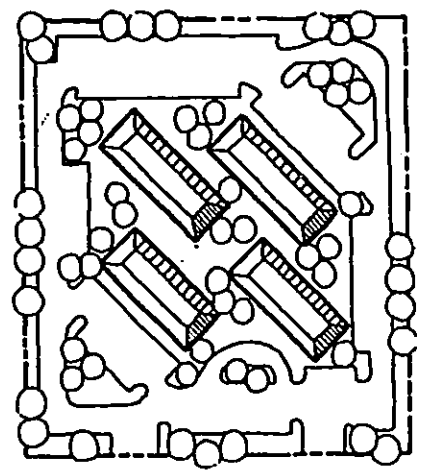
According to Oceanic Properties' proposed comprehensive Covenants, Conditions, and Restrictions (C.C. & R.'s) for the Hawaii Technology Park, required setbacks will be as follows:

- Building setback from lot boundaries which abut the primary roadway -- two feet for each one foot of building height (with a 30-foot minimum).



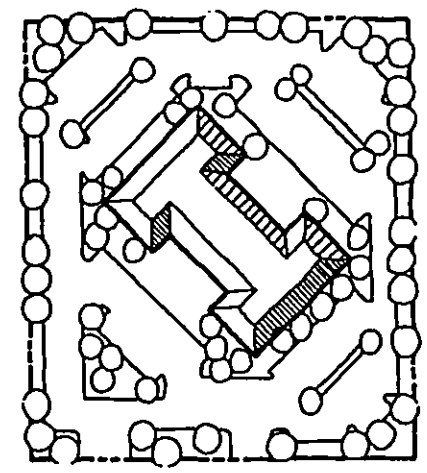
ONE STORY CLUSTER:

LANDSCAPING	30%
BUILDING COVERAGE	30%
PARKING	40%
FLOOR AREA RATIO	30%



TWO STORY CLUSTER:

LANDSCAPING	40%
BUILDING COVERAGE	17.6%
PARKING	42.4%
FLOOR AREA RATIO	35.2%



THREE STORY CLUSTER:

LANDSCAPING	35%
BUILDING COVERAGE	13%
PARKING	52%
FLOOR AREA RATIO	39%

SOURCE: GEORGE S. NOLTE & ASSOC./PHILLIPS BRANDT REDDICK, HAWAII TECHNOLOGY PARK MASTER PLAN, 1985

NOT TO SCALE	TYPICAL SITE LAYOUTS CONSISTENT WITH DESIGN GUIDELINES	HAWAII TECHNOLOGY PARK	FIG. II-6

- Building setback from lot boundaries which abut secondary streets and/or the freeway -- one-and-one-half feet for each foot of building height, with a minimum of 30 feet.

- Building setback from all other lot boundaries -- 20 feet.

- Off-street parking and circulation areas -- except in the Support Commercial area, off-street parking and circulation areas will be set back a minimum of 30 feet from lot boundaries which abut either the primary roadway or secondary streets; within support commercial areas the required front yard setback will be 10 feet from the property line. The required setback from other property lines is five feet.

4.2.3.6 Individual Site Size

As previously noted, the minimum site planning unit size is 4 acres. This is based on the requirements of a typical 200-employee high-tech facility and results from application of the general site-planning standards described above. To accommodate users with fewer than 200 employees (which are expected to constitute the bulk of the park's occupants, at least during its early years), the basic 4-acre planning site could eventually be split into smaller parcels (not less than 1 acre in size) or divided into condominium ownership. However, such subdivision will be allowed only if it can be demonstrated to the satisfaction of the Design Committee of the Board of the Hawaii Technology Park Association that it would be consistent with established design guidelines.

4.2.3.7 Grading

The master plan for the Hawaii Technology Park calls for grading to be kept to a minimum. As an alternative to terraced building sites with abrupt grade changes between sites, facilities would be clustered and designed to step down with the gently sloping terrain. Slope stability within the few areas having steeper grades can be maintained with appropriate landscaping; hence, no structural or artificial stabilization is expected. At this time it has not been decided whether the main spine road will be carried across the head of the two small gulches on bridges or on fill, with culverts provided to carry storm runoff beneath the street.

4.2.4 Phasing

Oceanic Properties, Inc. proposes to develop the Hawaii Technology Park in two phases. The location of the dividing line between phases one and two is shown on Figure II-2, and their approximate acreages are shown in Table II-4.

Based on a cautious set of assumptions (i.e., assumptions which would tend to lead to an underestimation of demand), SRI International estimated that 150 to 175 acres of land at the Hawaii Technology Park could be absorbed by technology firms over the next 10 to 15 years. Other compatible and supporting uses could absorb an additional 75 to 100 acres for a total of 225 to 275 acres, or approximately 20 acres per year. This estimate incorporates the assumption that Oceanic Properties will face competition from at least one other business park which is designed to meet the special needs of technology firms on Oahu.

At an absorption rate of 20 acres per year, the first phase of the project would be largely filled within five years; the second phase, and portions of the first phase not sold during the previous time period, would be absorbed over the following six to seven years. Assuming that construction is begun in 1987, the project would be completely sold before the end of the century. Experience with other industrial parks in Hawaii indicates that firms will construct facilities as soon as possible after purchasing their sites. Hence, it is expected that construction would be essentially complete shortly thereafter.

4.3 INFRASTRUCTURE

4.3.1 Roadways

4.3.1.1 On-Site

The overall layout of the project's on-site roadway system is described in Section 4.2.2. The primary access road would be located within a 108-foot wide right-of-way; the rights-of-way for secondary roads would be 60 feet wide.

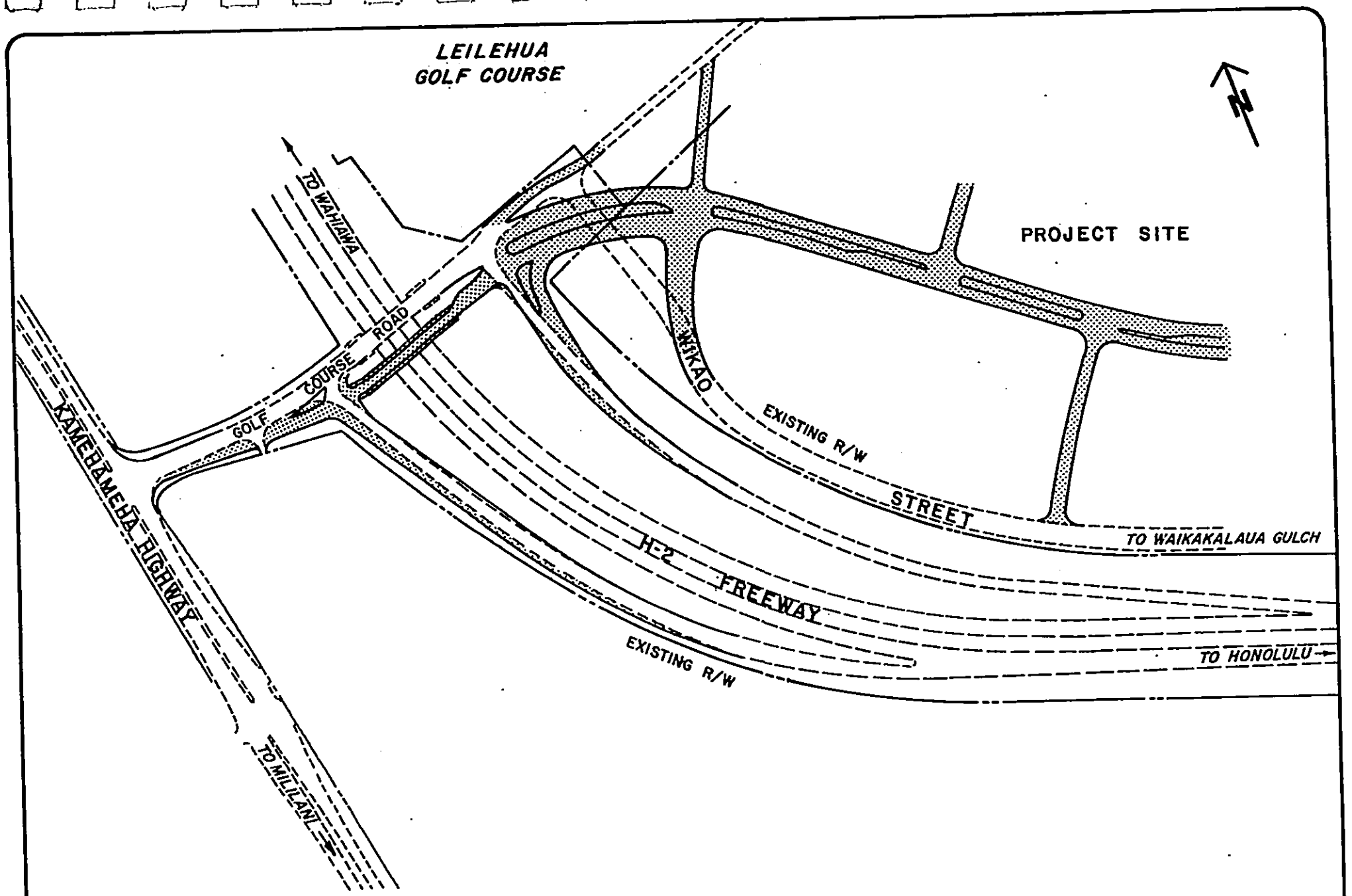
4.3.1.2 Off-Site Roadways

In addition to these on-site facilities, improvements to off-site roadways will also be made (Figure II-7). Those that would be undertaken to accommodate the Phase 1 portion of the project include the following:

- Strengthening of the roadway shoulders along Golf Course Road and restriping to provide a typical three-lane section;
- Minor realignment of the off-ramp from H-2, realignment of Golf Course Road to tie directly into the Hawaii Technology Park, and new connections to Wikao Street and to serve the Leilehua Golf Course;
- Widening of the off-ramp from H-2 to two lanes at approximately year five of the project to accommodate the increasing ramp volumes; and
- Installation of traffic signals on Golf Course Road, when warranted, at its intersections with Kamehameha Highway, the H-2 on-ramp, the H-2 off-ramp, and Wikao Street.
- Realignment of Golf Course Road;

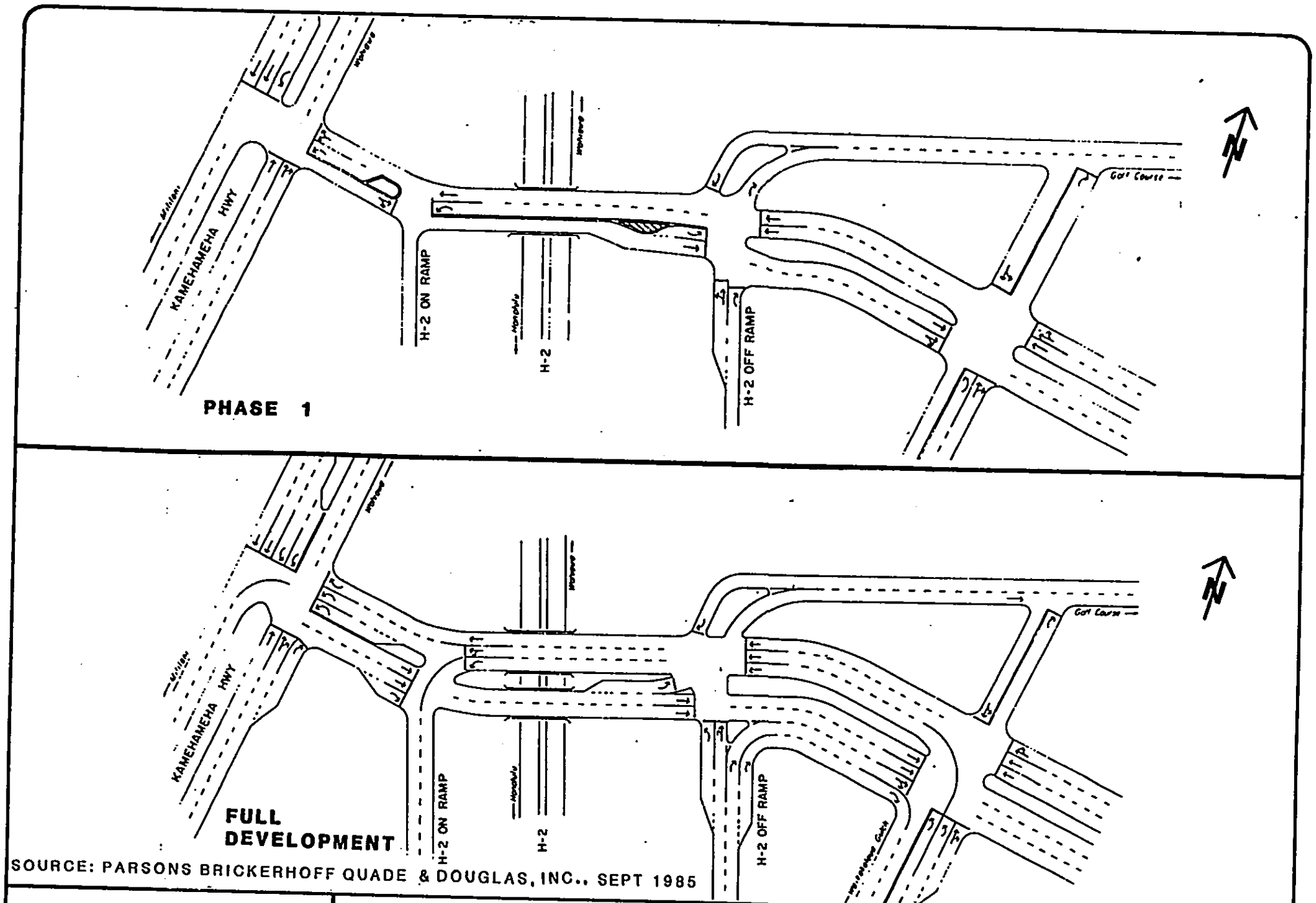
The studies conducted to date suggest that the following additional improvements will be needed to accommodate traffic generated by the second phase of development at the Hawaii Technology Park (Figure II-8):

- Construction of a second bridge over the H-2 Freeway;
- Widening of the approaches to the Kamehameha Highway and access road intersections; and
- Provision of a second lane on the on-ramp toward Honolulu.



SOURCE: PARSONS BRICKERHOFF QUADE & DOUGLAS , INC., SEPTEMBER, 1985

NOT TO SCALE	PROPOSED OFF-SITE ROADWAY IMPROVEMENTS	HAWAII TECHNOLOGY PARK	FIG. II-7



SOURCE: PARSONS BRICKERHOFF QUADE & DOUGLAS, INC., SEPT 1985

NOT TO SCALE	PROPOSED LANEAGE: PHASE 1 & FULL DEVELOPMENT	HAWAII TECHNOLOGY PARK	FIG. II-8

The improvements described above will be necessary when main-shift employment within Hawaii Technology Park reaches 5,000. This is approximately 35 percent of SRI International's high estimate of total on-site employment; assuming a relatively constant absorption rate, start of construction at the beginning of 1987, and a two-year lag between the start of site development and industrial facilities coming on-line, it would be reached in the mid-1990s.

4.3.2 Water Supply

EDP Hawaii, Inc. (February 1983:11) estimates that the average daily consumption on developed land within the Hawaii Technology Park will be 4,000 gallons per acre. This amounts to approximately 0.85 million gallons per day for the project's 212 developed acres. Historically, the proposed Hawaii Technology Park site has been used for cultivation of pineapple without irrigation; consequently, no on-site water supply is currently available.

Wells in the Honolulu Board of Water Supply's existing Wahiawa system will serve as the source of water for the HTP. A new 24-inch water main would be constructed along Kamehameha Highway from the existing 36-inch line on Wilikina Street in Wahiawa to Golf Course Road. At this point, a 20-inch line would be extended eastward across the H-2 Freeway and into the Hawaii Technology Park site. On-site, the line is expected to follow the alignment of the project's primary access road, terminating at a new 1.5 million gallon (MG) reservoir (spillway elevation of approximately 1,000 feet) to be constructed at the extreme eastern end of the HTP site. This reservoir would serve the portion of the HTP below elevation 885 feet (i.e., all of Phase I plus a small part of Phase II).

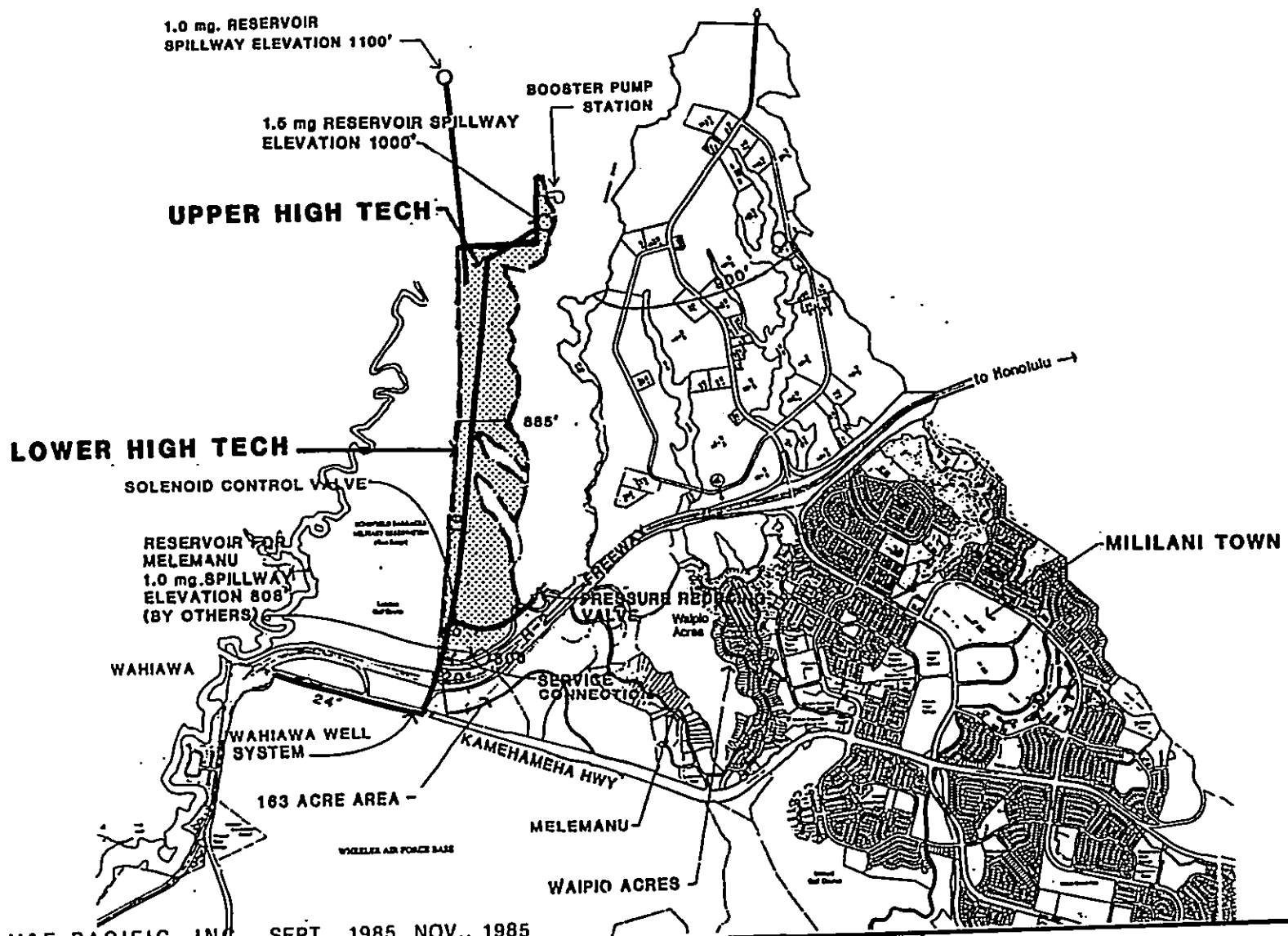
Service to units in Melemanu Woodlands Phase III would be provided as shown in Figure II-9; pressure reducing valves will be installed as necessary. A service connection and new 1.0 MG reservoir would be provided for Melemanu Units I and II. The existing 12-inch transmission main along Kamehameha Highway would be maintained.

A booster pump station consisting of a 950 gallon per minute pump plus one standby unit would be constructed adjacent to the 1,000-foot reservoir. This pump station would lift water via a new 20-inch transmission main from the 1,000-foot reservoir to a second reservoir located at an elevation of approximately 1,100 feet. The higher reservoir would serve the portion of the HTP site lying above an elevation of 885 feet via an extension of the 1,100-foot reservoir supply line. The construction of the upper reservoir and transmission line require acquisition of rights to Federal land in the Schofield Barracks Military Reservation. Discussions concerning this matter are ongoing, and it appears that a satisfactory agreement can be reached.

4.3.3 Solid and Liquid Waste Collection and Disposal

4.3.3.1 Wastewater Collection and Treatment

For design purposes, EDP Hawaii, Inc. (February 1983) estimates that the commercial and industrial users of the proposed project will generate an average of 3,200 gallons of wastewater per acre per day. This amounts to approximately 0.68 million gallons per day from the 212 acres that would be developed when the project is completed. Current plans call for this to be transmitted to the City & County of Honolulu's Mililani Wastewater Treatment Plant approximately three miles south of the HTP site. It will either be treated at that facility and used for irrigation of nearby agricultural fields or allowed to flow on to the City's Honouliuli Wastewater



SOURCE: M&E PACIFIC, INC., SEPT., 1985, NOV., 1985

NOT TO SCALE	PROPOSED WATER MASTER PLAN	HAWAII TECHNOLOGY PARK	FIG. II-9

Treatment Plant for treatment and disposal through the facility's ocean outfall. The City and County Department of Public Works (July 1, 1985) has indicated that the increased wastewater flow can be accommodated at their facilities.

Wastewater would flow by gravity from the Hawaii Technology Park to the existing Waipio pump station. The pump station would be modified to accommodate the flows generated by HTP and Melemanu Woodlands. For the most part, the existing sewer lines along Kamehameha Highway between the Waipio Pump Station have the capacity to handle the increased flows, but relief sewers may be needed in certain sections. These may be in the form of either supplemental lines designed only to handle the overflow or as entirely new pipes with sufficient capacity to handle all flows.

The vast majority of the liquid discharges generated by occupants of the Hawaii Technology Park are expected to consist of normal domestic wastewater. However, because of the industrial nature of expected uses, an industrial wastewater discharge certificate must be obtained from the City and County. This can only be done on a site-by-site basis when specific uses and discharges are known.

4.3.3.2 Solid Waste

The type and volume of solid waste that would be generated at the proposed Hawaii Technology Park is so heavily dependent on the specific types of users it attracts that no accurate estimate of solid waste generation is available at this time. Collection would be carried out by private collection companies under contract to individual businesses; disposal of most solid wastes is expected to be at private and City and County landfills and/or the City's proposed resource recovery facility at Campbell Industrial Park. Existing laws and regulations specifically exclude disposal of significant amounts of hazardous wastes at these facilities. Hence, industrial users at the Hawaii Technology Park who do generate such wastes would have to arrange for their disposal at licensed hazardous waste disposal sites. At the present time, no such sites are located in Hawaii.

4.3.3.3 Hazardous Wastes

Due to the industrial nature of the Hawaii Technology Park, potential adverse effects of liquid and solid discharges from occupants of the development are a significant public concern. To increase the level of environmental protection provided above that required by City, State, and Federal regulations, Oceanic Properties has prepared draft guidelines governing the storage, use, and disposal of potentially hazardous materials (see Appendix B). The intent of these guidelines is to minimize environmental risks from the proposed development by providing private controls in addition to those already imposed by Federal, State, and local laws and regulations.

The guidelines stipulate that owners and occupants who propose to engage in operations or processes typically requiring onsite storage of significant quantities of hazardous materials will not be permitted to locate at the Hawaii Technology Park. "Significant" is defined as amounts that would necessitate underground storage to comply with local laws. The controlled materials encompass a wide range of substances including any and all those which are:

- listed by the Environmental Protection Agency in 40 CFR, Part 302 or by the U.S. Department of Transportation in 49 CFR 172.101;

- classified by the U.S. Fire Protection Association as either a flammable liquid or a Class II combustible liquid; and

- listed as hazardous or extremely hazardous by the State of Hawaii.

At each facility, the quantities of hazardous materials allowed on-site at any one time would be limited to volumes which would not require storage in underground tanks. Towards this end, each owner or occupant of the park who proposes to engage in the handling and storage of hazardous materials is required to submit a hazardous materials management plan for the proposed activity; the plan must satisfactorily demonstrate that the materials will be safely stored and handled. The plans must be approved by the design committee of the Hawaii Technology Park Association and its qualified independent hazardous materials consultant. The review carried out by the hazardous materials consultant will be closely coordinated with appropriate government agencies to insure that satisfactory control is maintained over potentially hazardous industrial wastes.

4.3.4 Electrical Power and Telecommunications Service

4.3.4.1 Electrical Power

Two electrical transmission lines currently cross the site. The existing 12 KV line would serve the initial needs of the proposed project. This would delay the need for construction of a new substation until experience provides an accurate measure of the load which the project is likely to impose on the system at ultimate development. The existing 46 KV line has adequate capacity to meet the needs of the project at full development (Syntech, Ltd., May 1983).

If electrical use by occupants of the Hawaii Technology Park are at the high end of the possible demand range, peak power demand could reach 30 MVA. At the present time, the Hawaiian Electric Company envisions constructing a 30 MVA substation adjacent to the westernmost of the two power lines that cross the site; it would be located near the edge of Waikakalaua Gulch. Initially, the substation would be outfitted with only a single 10 MVA transformer. Additional transformers would be added as HTP's power needs grow. A second 46 KV feeder could be extended to the substation to provide additional protection against power outages, but it is not expected that this degree of reliability will be necessary.

Several switching vaults scattered throughout the project site will be fed from the substation by 12 KV distribution lines. With the exception of the substation, switching vaults, and the existing 46 KV lines, the entire system will be underground. A network of ducts and handholes will facilitate cable installation. Each tenant lot would be provided with a pad-mounted metal-enclosed transformer which will step the 12 KV service to either 480Y/277 volts, 3-phase or 208Y/120 volts, 3-phase, in accordance with the facilities' needs.

4.3.4.2 Telephone, Cable TV, and Street Lighting

Syntech, Ltd.'s May 1983 study concluded that to provide adequate telephone service for the proposed project, the Hawaiian Telephone Company will need to install new ducts along Kamehameha Highway from its Mililani Central Office to Waikalani Drive. This work would be carried out by the Hawaiian Telephone Company. Cable television service can be obtained by extending an existing line along Kamehameha Highway. However, the industrial users expected to occupy the site typically have

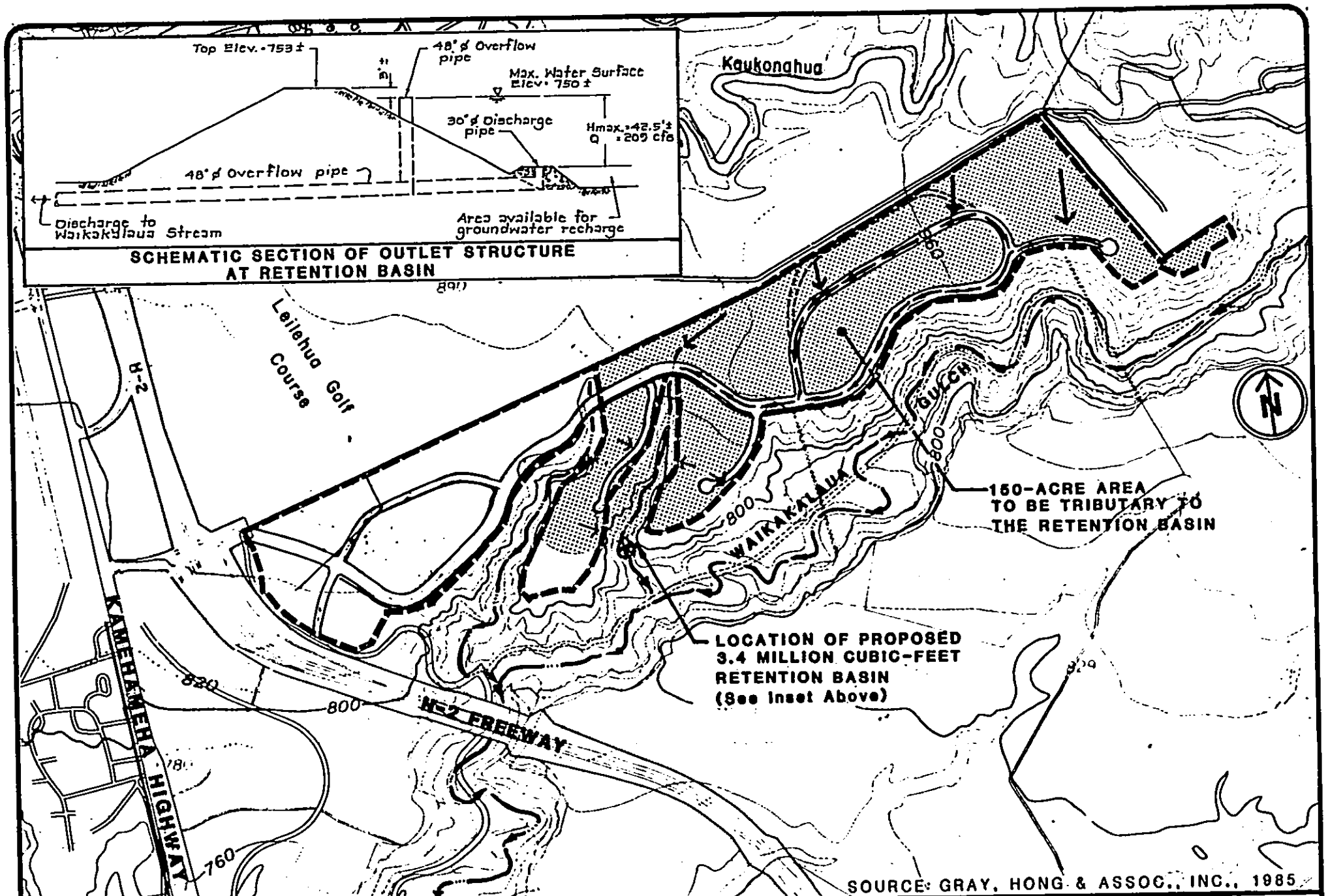
little need for this type of service, and it would be installed only if special needs arise. Street lighting within the HTP would be provided by high pressure sodium lamps mounted on 30-foot steel poles with bracket arms in accordance with City and County requirements.

4.3.5 Storm Drainage

On-site drainage improvements within the project site will consist of cutoff ditches and pipe systems designed according to the current drainage standards of the City and County of Honolulu. A clear passage will be maintained across the head of the two gullies which intersect the main road of the project, either by constructing drainage culverts or bridging the gullies. This will allow runoff originating off-site from above the roadway to pass freely beneath it.

Current plans call for the project's on-site storm drainage system to discharge into Waikakalaua Gulch (see Figure II-10). Energy dissipating structures would be used where concentrated stormwater discharges occur off the edge of the plateau. Phase III of the Melemanu Woodlands project is proposed immediately adjacent to Waikakalaua Stream below the Hawaii Technology Park site. If no special measures were to be taken, it is estimated that development on the HTP site would increase runoff into Waikakalaua Stream by almost 380 cfs.

To avoid flooding of existing and proposed streamside structures, it is proposed that portions of the streambed be channelized, and that a 3.4 million cubic foot capacity detention basin be constructed at the mouth of the westernmost gulch crossing the HTP site. This retention basin would intercept runoff from the Hawaii Technology Park site and meter it out into Waikakalaua Stream at a rate which would insure that the increased runoff expected to result from urbanization of the HTP and Melemanu Woodlands Phase III sites would not increase peak streamflow in Waikakalaua Stream above its existing level. The location of this retention basin and a schematic cross-section of the earthen dam and overflow pipes that would be used are shown in Figure II-10.



SOURCE: GRAY, HONG & ASSOC., INC., 1985

0 600 1200 2400'
SCALE: 1" = 1200'

STORM DRAINAGE

HAWAII TECHNOLOGY PARK

FIG. II-10

CHAPTER III

RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

1.0 POLICY PLANS

Public policy plans at the County and State levels contain statements of objectives and outline policies related to the desired direction and pace of development in their respective jurisdictions. Priorities are set for the use of resources and for fulfilling the needs of different interest groups. The extent to which the proposed project is consistent with these policy plans is the subject of this section of the EIS. Addressed in turn are the General Plan for the City and County of Honolulu, the Coastal Zone Management Plan, the Hawaii State Plan, and the State Functional Plans.

1.1 GENERAL PLAN FOR THE CITY AND COUNTY OF HONOLULU

The General Plan for the City and County of Honolulu, first adopted in 1977, was revised by the City Council in December, 1982. The plan is a statement of long-range social, economic, environmental, and design objectives and policies. It provides a set of broad guidelines that can be used in developing plans, programs, and legislation.

Many of the objectives and policies in the General Plan are not relevant to the proposed development of a high technology industrial park and are, therefore, omitted in this discussion. Those which are relevant are listed below, along with discussions of the extent to which the project is consistent with the stated objectives and policies.

1.1.1 Economic Activity

Objective A: To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living.

Policy 1: Encourage the growth and diversification of Oahu's economic base.

Discussion: The development of the Hawaii Technology Park (HTP) could lead to the creation of as many as 27,000 new jobs statewide, including on-site jobs and indirectly induced jobs. The employment profile of the high technology industry in general shows that about a quarter of the jobs within the industry are filled by technical, professional and management personnel.

Hawaii's economy has traditionally been based on a few dominant industries. As these industries mature and face increased competition, diversification of the Hawaiian economy is becoming all the more urgent. The development of the proposed industrial park will allow the location of high technology businesses to a site specifically designed to accommodate their special needs.

Policy 2: Encourage the development of small businesses and larger industries which will contribute to the economic and social well-being of Oahu residents.

Discussion: The Hawaii Technology Park's target market is the small to medium sized firm, which Oceanic Properties feels can profitably compete with others of similar size offering the same products and services elsewhere. The types of businesses expected to locate at the Hawaii Technology Park can draw on an available pool of local labor; this includes persons who are suited for employment by virture of their training or experience, as well those who are trainable for specific company needs. The creation of a variety of employment opportunities, both directly and indirectly, will contribute to the economic and social well-being of many Hawaii residents.

Policy 3: Encourage the development in appropriate locations on Oahu of trade, communications, and other industries of a nonpolluting nature.

Discussion: The proposed Hawaii Technology Park is an appropriate site for a sizeable light industrial area. It is near growing residential communities and is accessible to major roadways; at the same time, it is buffered from residential areas by the Leilehua Golf Course, the East Range training areas of the Schofield Military Reservation, and open land, and is not in an area of prohibitively high land prices. The markets targeted by Oceanic Properties are typically nonpolluting, and include telecommunications, communications devices, specialty instruments and sensors, software development, and biotechnology.

Policy 4: Encourage the development of local, national, and world markets for the products of Oahu-based industries.

Discussion: The products and services to be provided by businesses expected to occupy the Hawaii Technology Park are suitable for local as well as mainland and overseas consumption. Oceanic Properties intends to focus on attracting an internationally known high technology company to the Park, to serve as a catalyst for the location of smaller firms. It will position the Hawaii Technology Park as a middle-ground for conducting high tech business between East and West.

Objective C: To maintain the viability of agriculture on Oahu.

Policy 4: Provide sufficient agricultural land in Ewa, Central Oahu, and the North Shore to encourage the continuation of sugar and pineapple as viable industries.

Policy 6: Encourage the more intensive use of productive agricultural land.

Discussion: The development of the Hawaii Technology Park will result in the removal of 142 acres of land from agricultural use, out of about 74,700 acres of land in agricultural use on the island of Oahu in 1982 (Hawaii, State of, Department of Planning and Economic Development, 1984:220). The 74,400 acres in actual use represents less than 60 percent of the 125,932 acres of available farm land. In of itself, the 142-acre reduction in agricultural land will not jeopardize the viability of agriculture on Oahu. The recent trend, moreover, is toward a decrease in lands in agricultural use on Oahu. In 1979, there were 75,096 acres in agricultural use on the island (DPED, 1981 Data Book:157), and in 1981 74,744 acres (DPED 1983 Data Book:186), a decrease of 352 acres. From 1981 to 1982, there was a decrease of 344 acres and the decline has accelerated in recent years. Further, the trend in diversified agriculture is toward agricultural production that is labor-intensive rather than land-intensive, as in the hot house production of flowers and vegetables.

There appears to be sufficient agricultural acreage in the areas mentioned in Policy 4 to ensure the continuation of sugar and pineapple as viable industries, given the current and projected markets for these products and the competition worldwide. In fact, it is limited market demand rather than limited acreage that currently determines the level of agricultural production on this island.

The Hawaii Technology Park site is no longer used for the production of pineapple. Formerly consisting of unirrigated fields, the subject site was used for the production of pineapple for the canned market. On Oahu, Dole Pineapple now produces pineapple for the fresh fruit market only, and the lands which were formerly suitable for growing fruit for the canned fruit market are no longer optimal for the production of fruit for the fresh market. In fulfillment of a State land reclassification condition, the Dole Company has transferred cultivation to to a more suitable alternative site; it has replanted about 168 acres of former Oahu Sugar Company acreage in the Waiawa area to pineapple.

Objective E: To prevent the occurence of large-scale unemployment.

Policy 1: Encourage the training and employment of present residents for currently available and future jobs.

Discussion: The development of the Hawaii Techology Park will result in the creation of thousands of new jobs which will be filled in part by the unemployed, including those whose employment has terminated due to cutbacks in certain industries. It is expected that the businesses that will establish themselves in the park will hire some graduates who might otherwise have gone out of state to seek satisfactory employment opportunities. High technology businesses, due to their relative newness and lack of potential employees with specific experience, will probably offer training for many of the positions created. High technology industries are projected to be growth industries and thus will be the source of jobs for the long term.

Objective G: To bring about orderly economic growth on Oahu.

Policy 2: Permit the moderate growth of business centers in the urban-fringe areas.

Discussion: The development of a planned high technology park that will facilitate the grouping of similar businesses will contribute to the orderly growth of a new industry. The site of the proposed Hawaii Technology Park is in an urban fringe area, appropriately situated to provide employment to residents of nearby communities such as Mililani, Wahiawa, Pearl City, and others.

1.1.2 Natural Environment

Objective A: To protect and preserve the natural environment of Oahu.

Discussion: Having been used for pineapple cultivation, the subject site is no longer in its natural state. Construction of the proposed project will not substantially alter the existing terrain, which is relatively flat and will require little grading. Also, the heavily landscaped campus setting of the park will enhance its visual appeal.

1.1.3 Physical Development and Urban Design

Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.

Discussion: Market studies prepared for Oceanic Properties, Inc. and the State Department of Planning and Economic Development show that there is a current need for a light industrial park catering to high technology businesses. The proposed Hawaii Technology Park site is appropriately situated near residential communities that are expected to provide many of the workers at the Park.

Policy 2: Coordinate the location and timing of new development with the availability of adequate water supply, sewage treatment, drainage, transportation, and public safety facilities.

Policy 3: Phase the construction of new developments so that they do not require more regional supporting services than are available.

Discussion: On- and off-site infrastructure needed to support the HTP will be installed by the developer; such provision will thus not be a burden on the public sector. An allocation of potable water has already been made for Phase I of the project, and, as in the past, the developer will work with the appropriate government agencies in developing new sources of water.

Policy 7: Locate new industries and new commercial areas so that they will be well related to their markets and suppliers, and to residential areas and transportation facilities.

Discussion: In general, for the types of high technology businesses expected to be attracted to the Hawaii Technology Park, proximity to suppliers and markets is not crucial to effective operation, although reasonable proximity to the airport is important. These firms include those engaged in telecommunications, the fabrication of communication devices, specialty instruments and sensors, as well as software development and biotechnology. Finished products will be high value-added products for which shipping costs are small portions of overall cost. The HTP site is bordered by the H-2 Freeway and is close to the other major highway serving the area, Kamehameha Highway. Nearby residential communities are zoned to allow future development. Many of the residents in these communities now commute to work in Honolulu; the Hawaii Technology Park will provide a closer alternative.

Policy 9: Exclude from residential areas, uses which are major sources of noise and air pollution.

Discussion: Tenants of the Hawaii Technology Park are not expected to be major sources of noise and air pollution. It is expected that buildings will be enclosed and air conditioned, minimizing noise. Air pollution and any other types of pollution will be controlled by adherence to Federal and local regulations as well as to the Park's Conditions, Covenants, and Restrictions.

Objective D: To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.

Policy 4: Require the consideration of urban-design principles in all development projects.

Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

Policy 7: Promote public and private programs to beautify the urban and rural environments.

Discussion: The Hawaii Technology Park will be the setting for the development of attractive facilities in an award winning master planned campus environment characterized by low-rise structures, generous landscaped setback areas, and a high percentage of open space. Development guidelines and standards will ensure that facilities constructed on individual parcels are compatible with the overall character of the park. The heavily landscaped, master planned high technology park is appropriate for the area and is compatible with surrounding master planned residential communities.

1.2 COASTAL ZONE MANAGEMENT PROGRAM

The Hawaii Coastal Zone Management Act (Act 188, SLH 1977), which became Chapter 205A, Hawaii Revised Statutes, established State policies for any action affecting the coastal zone. The proposed project is not within the coastal zone; therefore, the Coastal Zone Management Program is not addressed in this report.

1.3 THE HAWAII STATE PLAN

The Hawaii State Plan (Hawaii, State of, Department of Planning and Economic Development, 1978) consists of a series of broad goals, objectives, and policies which are to act as guidelines governing the growth and development of the State. In general, the proposed action is consistent with the overall intent of the State Plan. Discussed in this section are the specific objectives, policies, and priority actions contained in Part I and Part III of the State Plan which are most directly related to the proposed project.

PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES

State Goals

(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfullment of the needs and expectations of Hawaii's present and future generations.

(2) A desired physical environment characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

(3) Physical, social, and economic well-being for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring and of participation in community life.

Discussion: The development of the Hawaii Technology Park will provide an attractive environment to which high technology businesses can locate. The growth of the high technology industry will help diversify the State's economy, which is currently based on a few large industries: tourism, government services, sugar, and pineapple. The low-rise, heavily landscaped campus environment planned for the Hawaii Technology Park will minimize its impact on the existing physical environment. In relation to other alternative industries, high technology enterprises are typically clean and

nonpolluting. The physical, social and economic well-being of Hawaii residents will be enhanced by the employment opportunties at the Hawaii Technology Park.

Objective and Policies for Population

(4)(b) POLICY: Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.

Discussion: At a time when employment opportunities are decreasing in agriculture, which has historically been one of the dominant sectors of Hawaii's economy, the proposed project will provide alternate opportunities in an emerging industry with growth potential. The Hawaii Technology Park will be located on Oahu, where the majority of the State's population resides. Ultimately, the development of the industrial park is expected to result in the creation of as many as 27,000 additional jobs statewide, including direct on-site employment and indirect employment.

Objectives and Policies for the Economy - In General

(1)(a) OBJECTIVE: Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people.

(2)(a) OBJECTIVE: A growing and diversified economic base that is not overly dependent on a few industries.

(4)(b) OBJECTIVE: Expand existing markets and penetrate new markets for Hawaii's products and services.

Discussion: High technology industries provide diversified employment opportunities in manufacturing and professional and technical services, as well as auxilliary employment in the commercial, light industrial, and support services segments of the economy. Employment will result in increased income from an industry with projected long-term growth potential.

The high technology industry provides an alternative to the traditionally dominant industries in Hawaii. Its growth is based on the increasing number of new applications of emerging technologies that are being harnessed by profitable high technology businesses.

(6)(b) POLICY: Strive to achieve a sustained level of construction activity responsive to, and consistent with, state growth objectives.

Discussion: The Hawaii Technology Park is planned to be developed in two phases over the remainder of the century. The construction of on-site and off-site infrastructure and of improvements on individual lots will provide a sustained level of construction employment.

(14)(b) POLICY: Encourage businesses that have favorable financial multiplier effects within Hawaii's economy.

Discussion: The multiplier effect of the high technology industry is favorable compared to that of other industries. For every direct job generated, an estimated 1.8 jobs would be indirectly generated. The $50-million in salaries generated would result in about $65-million in additional revenue to the economy.

Objectives and Policies for the Economy - Potential Growth Activities

(a) OBJECTIVE: Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawaii's economic base.

(7)(b) POLICY: Promote Hawaii's geographic, environmental, and technological advantages to attract new economic activities into the State.

Discussion: The Hawaii Technology Park and the businesses located therein will help expand and diversify the State's economy. Their output, both products and services, will be aimed at both the local market and the export market.

High technology manufacturing industries generally produce relatively light weight, high value items. Thus shipment costs are not expected to be a limiting cost factor in most companies' decision to locate to Hawaii. The attractive natural environment and living conditions in Hawaii and the available supply of labor are factors in favor of attracting new industry. The availability of a light industrial site at the Hawaii Technology Park large enough to provide a clustering of high technology facilities for manufacturing, research and development, provides an attractive incentive for companies seeking to relocate or to expand their facilities.

Objectives and Policies for the Physical Environment - Land-Based, Shoreline, and Marine Resources

(3)(b) POLICY: Take into account the physical attributes of areas when planning and designing activities and facilities.

Discussion: Land within the boundaries of the light industrial park had in the past been used for pineapple cultivation. The land has been untended since it was withdrawn from pineapple production following Dole's decision to produce fruit for the fresh, rather than canned, fruit market; fresh fruit is best grown with drip irrigation on lower elevation fields. Because of its characteristics, the land is not as suitable for the cultivation of fruit to be shipped fresh as it was for the cultivation of fruit for canning. The use of the land for a light industrial park is an economically viable one for the developer.

The facilities planned for the Hawaii Technology Park exploit the natural advantages of the site, with mimimal grading expected to be required. Extensive planned landscaping will allow the park to blend into the physical surroundings.

Objectives and Policies for Facility Systems - Solid and Liquid Wastes

(1)(a) OBJECTIVE: Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.

(1)(b) POLICY: Encourage the adequate development of sewer systems that complement planned growth.

Discussion: All relevant Federal, State, and County regulations will be adhered to by users of the Hawaii Technology Park.

Objectives and Policies for Facility Systems - Water

(1)(b) POLICY: Relate growth activities to existing and potential water supply.

(3)(b) POLICY: Reclaim and encourage the productive use of runoff water and waste water discharges.

Discussion: The first phase of the Hawaii Technology Park development has received an allocation of potable water from the Honolulu Board of Water Supply, and other fresh water sources are being developed in conjunction with water development for Mililani. Water is available from the Pearl Harbor Ground Water Basin. The existing Mililani wastewater treatment plant has sufficient capacity to recycle wastewater from the park for potential irrigation purposes if this is deemed appropriate.

Objectives and Policies for Facility Systems - Energy/Utilities

(7)(b) POLICY: Facilitate the development and use of improved communications technology.

Discussion: Market segments targeted by SRI for the Hawaii Technology Park include telecommunications and the assembly of communication devices. Oceanic Properties is discussing with GTE and AT&T the implementation of the most modern communications infrastructure for the park.

PART III. PRIORITY DIRECTIONS

Economic Implementing Actions

(1)(a) PRIORITY ACTION: Stimulate the economy to provide needed jobs for Hawaii's people without stimulating unnecessary in-migration.

Discussion: Typically, high technology industry businesses locate where there is an available supply of labor. Hawaii has such a supply and SRI estimates that more than 90 percent of the total work force for the proposed project would be drawn from the existing resident labor pool.

(2)(a) PRIORITY ACTION: Support business expansion and development to achieve a stable and diversified economy.

(4)(a) PRIORITY ACTION: Assist in the development and commercialization of technological advances.

Discussion: New high technology applications continue to be developed, thus contributing to the long-term growth potential of this segment of the economy. The planned Hawaii Technology Park is large enough to absorb the projected demand for space within an environment specifically designed to meet the needs of high technology businesses. By providing the framework for the location of high technology firms, Oceanic Properties is contributing to the development and commercialization of technological advances.

(5)(a) PRIORITY ACTION: Assist local producers in competing with mainland producers.

(7)(a) PRIORITY ACTION: Promote Hawaii as an attractive market for investment activities that benefit Hawaii's people.

Discussion: In addition to providing a setting for the establishment of high technology businesses, Oceanic Properties will be actively involved in advertising, promoting and marketing the Hawaii Technology Park subject to obtaining zoning and subdivision approvals. Oceanic Properties is currently establishing marketing channels that are international in scope. These are directed toward U.S. companies doing business in or expanding into the Pacific Basin and Asian companies entering North American markets.

To counteract Hawaii's image as a resort destination rather than a work place, Oceanic Properties' marketing program will emphasize advantages of the State that are often overlooked: these include the availability of a high quality and competitively priced work force and the ability to attract world class research and design staff who are the key to a successful high technology company.

Oceanic Properties is directly assisting Hawaii's largest and most successful high technology company, Intelect, Inc., by providing first class facilities for its operations until the Hawaii Technology Park is zoned and developed. At that time, Oceanic and Castle & Cooke will donate land to Intelect for its permanent headquarters.

(e) PRIORITY ACTION: Develop economic activities to encourage the development of industries which promise long-term growth potentials and which have the following characteristics:

(1)(e) An industry that can take advantage of Hawaii's unique location and available manpower resources.

(2)(e) A clean industry that would have minimal effects on Hawaii's environment.

(3)(e) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs.

(4)(e) An industry that would provide reasonable income and steady employment.

Discussion: Still in its initial development stage, the high technology industry is projected to increase its importance in the overall economy and to provide increasing numbers of jobs both in Hawaii and elsewhere. Hawaii enjoys a unique position in the Pacific, serving as a bridge between the mainland U.S. and Asia, and has available a competitive work force. In mainland locations, high technology firms cooperate with local educational and training institutions to provide appropriate training for potential employees. Should such a need arise locally, similar cooperation is anticipated. The high technology industry is still at the beginning of its growth curve and can be expected to provide steady employment for Hawaii residents at competititve wages. In particular, the industry will provide jobs for the University of Hawaii's highly regarded engineering graduates who currently have few local employment opportunities.

High technology businesses are mostly non-polluting, will have minimal effect on the physical environment, and are not expected to adversely affect the well-being of the population.

Population Growth and Distribution Implementing Actions

(2)(a) PRIORITY ACTION: Encourage hiring of Hawaii's people by firms doing business in the State.

Discussion: More than 90 percent of the labor force for the Hawaii Technology Park is expected to be hired locally, according to SRI estimates.

(2)(b) PRIORITY ACTION: Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographical area.

(6)(c) PRIORITY ACTION: Encourage the location of new industrial development to existing and planned urban areas.

Discussion: The site of the proposed Hawaii Technology Park is near existing and proposed residential areas, but it is buffered from them by permanent open space, including Leilehua Golf Course, the East Range of Schofield barracks, and the steep sides of Waikakalaua Gulch.

(7)(c) PRIORITY ACTION: Seek participation from the private sector for the cost of building infrastructure, utilities, and open spaces.

Discussion: The cost of constructing infrastructure for the Hawaii Technology Park and providing hook-ups to off-site utilities will be borne solely by the developer.

1.4 STATE FUNCTIONAL PLANS

State functional plans are intended to provide more detail to the Hawaii State Plan in 12 specific areas of concern: agriculture, conservation lands, education, higher education, energy, health, historic preservation, housing, recreation, tourism, transportation, and water resources development. Ten of the plans were adopted in 1984, and the remaining two, agriculture and education, in 1985. All are meant to serve as guidelines only and are not to be interpreted as law or statutory mandate.

The relationship of the proposed Hawaii Technology Park to each of the 12 State functional plans is discussed below.

1.4.1 State Agriculture Functional Plan

An objective of this plan is to achieve the productive agricultural use of lands most suitable and needed for agriculture. The subject site has until recently been used for pineapple cultivation. However, the area proposed for the first phase of the HTP was reclassified from the Agricultural district to the Urban district by the State Land Use Commission in 1984, and Oceanic Properties has recently received a Development Plan amendment that redesignated the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural to Industrial. Moreover, Dole Company has replaced the 142 unirrigated acres on which pineapple was previously cultivated by replanting about 168 irrigated acres of former Oahu Sugar Company land in the Waiawa area with pineapple.

1.4.2 State Conservation Lands Functional Plan

There are no policies or implementing actions in the State Conservation Lands Functional Plan (Hawaii, State of, Department of Land and Natural Resources, June 1984) that are of direct relevance to the Hawaii Technology Park project.

1.4.3 State Education Functional Plan

This functional plan (Hawaii, State of, Department of Education, November 1984) presents priority implementing actions for education. All of the actions are to be undertaken by the Department of Education and are therefore not applicable to the proposed project.

1.4.4 State Higher Education Functional Plan

The policies and implementing actions in the State Higher Education Functional Plan (Hawaii, State of, University of Hawaii, June 1984) are directed toward the public and private sectors of the postsecondary education community. Inasmuch as the local universities are expected to provide a number of graduates who will be employed by businesses at the Hawaii Technology Park, those policies and implementing actions concerned with the advancement of education in fields related to high technology industries are relevant to the proposed project.

One policy calls for providing professional and job-related training which responds to the needs of, and opportunities within, the State of Hawaii (Policy A(2)). Up to 27,000 additional jobs are projected ultimately to be created as a result of development of the park. Many of these jobs will require specialized education or training that the Higher Education Plan encourages for development within the State of Hawaii higher education system.

Specifically, implementing actions include strengthening and expanding opportunities for education and training in high technology, marine sciences, international business, and computer technology and applications; and promoting high technology research in the State and the Pacific and Asian Basin. Advancement in such fields would provide educational opportunities locally for potential employees of the Hawaii Technology Park.

1.4.5 State Energy Functional Plan

The State Energy Functional Plan (Hawaii, State of, Department of Planning and Economic Development, June 1984) has as an objective the promotion of energy-efficient design. This relates to both land use planning and to specific building design and equipment selection decisions.

There are currently no available detailed building designs for the proposed high technology industrial park. However, all plans for individual parcels will be required to meet City and County of Honolulu energy conservation regulations. It is worth noting that the average temperature at the Hawaii Technology Park site is somewhat lower than that of most alternative sites on Oahu. Over the long term, this will lead to substantially lower air conditioning energy usage.

1.4.6 State Health Functional Plan

The State Health Functional Plan (Hawaii, State of, Department of Health, June 1984) "focuses primarily on public health programs under the jurisdiction of the State Health Department." Several of the implementing actions relate to operating Department of Health (DOH) permit/approval programs to which the proposed project is subject. These include the following: 1) operating the environmental impact statement process, 2) reviewing private wastewater treatment systems, 3) administering permit programs for discharges to the air, all surface and groundwater, and for treatment and

disposal of solid wastes, 4) developing and maintaining a State program for the management of the generation, transport, treatment and disposal of all toxic and hazardous materials, in cooperation with the U.S. Environmental Protection Agency, and 5) reviewing plans for air conditioning and mechanical ventilation systems for buildings that are used by the public. These topics are discussed in terms of the proposed project in various sections of the EIS. The implementing actions also express other areas of concern to DOH, such as the reuse of treated effluent, and noise, which are covered in Chapter IV of the EIS as well.

1.4.7 State Historic Preservation Functional Plan

Essentially all of the policies and implementing actions in the State Historic Preservation Functional Plan (Hawaii, State of, Department of Land and Natural Resources, June 1984) are directed toward State agencies, DLNR in particular. They are not applicable to the development of the proposed high technology industrial park.

1.4.8 State Housing Functional Plan

This State functional plan summarizes the results of the Hawaii Housing Authority study (Hawaii, State of, Department of Social Services and Housing, June 1984) "to formulate a comprehensive plan for the development, operation, and management of housing within the State." Most of the policies and implementing actions apply to the public sector and are not relevant to the proposed project, which does not include housing. It is recognized, however, that some workers employed at the Hawaii Technology Park will require housing. This issue is addressed in Section 11.2.2 of Chapter IV in the EIS.

1.4.9 State Recreation Functional Plan

The State Recreation Functional Plan (Hawaii, State of, Department of Land and Natural Resources, June 1984) contains objectives, policies, and implementing actions oriented toward improving existing and future public recreation opportunities. They are not applicable to the proposed industrial park development.

1.4.10 State Tourism Functional Plan

There are no policies or implementing actions in this functional plan (Hawaii, State of, Department of Planning and Economic Development, June 1984) that are of relevance to the proposed project.

1.4.11 State Transportation Functional Plan

None of the policies or implementing actions in this functional plan (Hawaii, State of, Department of Transportation, July 1984) address specific planned industrial parks such as the one proposed. The overall objective of the plan is to provide efficient, safe, and convenient movement of people and goods. Section 6.0 in Chapter IV of this EIS discusses the impacts of the proposed high technology industrial park on transportation facilities, including mitigation measures and long-term highway needs in the region.

1.4.12 State Water Resources Development Functional Plan

The State Water Resources Development Functional Plan (Hawaii, State of, Department of Land and Natural Resources, June 1984) primarily affects State

operations although it also involves some actions of the private sector. It states that private industry coordination is needed to help achieve water resources objectives. Similar to the other State functional plans, it does not mandate private sector actions.

The plan presents general objectives and policies that could be considered relevant to the proposed project. These include the promotion of sound aquifer management practices such as monitoring water quality, the management of surface drainage areas and groundwater aquifers to prevent contamination of sources of water supply, and the assurance of adequate municipal water supplies for planned urban growth. Water related issues are discussed in Chapter IV of this EIS.

2.0 LAND USE PLANS

2.1 STATE LAND USE LAW

All lands in the State of Hawaii have been placed in one of four land use districts (Urban, Agricultural, Conservation, or Rural) by the State Land Use Commission (SLUC). State Land Use District Boundary Reviews are undertaken by the SLUC to update its Land Use District Maps. Lands in Phase I of the Hawaii Technology Park project were reclassified from the Agricultural district to the Urban district in 1984 by the SLUC (see Figure III-1), with the provision that upon substantial development of Phase I, Phase II will also be automatically reclassified from the Agricultural to the Urban district. According to Part III, Land Use Regulations of the SLUC Rules of Practice and Procedure and District Regulations, permissible uses within the Urban district are "any and all uses permitted by the Counties, either by ordinance or regulations...subject to any conditions imposed by the Commission pursuant to provisions of Section 205-4 HRS."

2.2 CENTRAL OAHU DEVELOPMENT PLAN

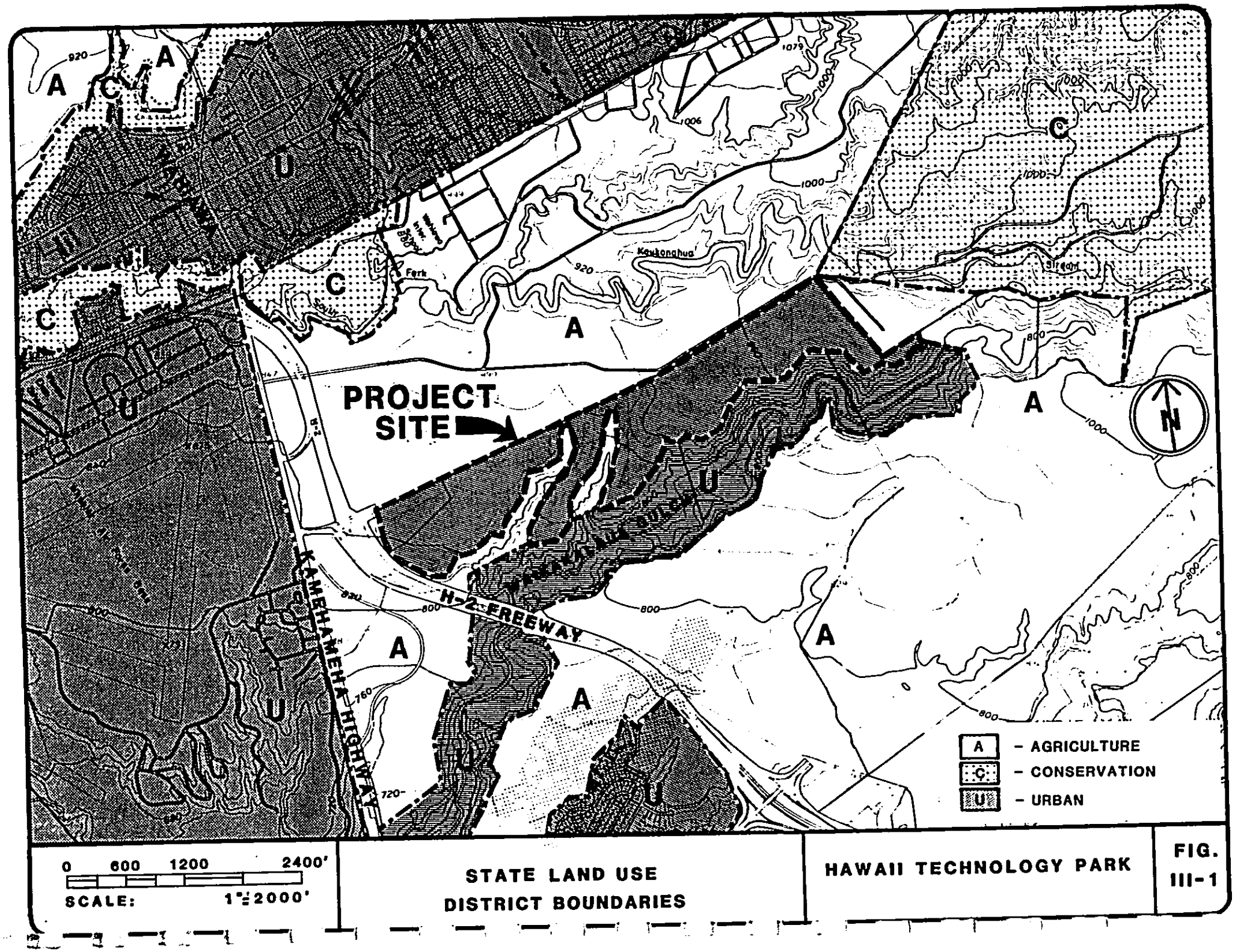
The Hawaii Technology Park is within the boundaries of the Central Oahu Development Plan which was approved by the County in May 1983, Ordinance No. 83-7. The Development Plan Land Use Map for Central Oahu was amended on May 29, 1985 to redesignate the Phase I portion of the project from Agricultural to Industrial. This amendment was found to be consistent with the policies and provisions of the Development Plan and with the objectives and policies of the General Plan. The section of the development plan map showing current land use designations in and around the site is reproduced in Figure III-2.

The extent to which the proposed project is consistent with the relevant portions of the Central Oahu Development Plan is detailed below.

PART I: COMMON PROVISIONS

Section 3. Land Use Categories

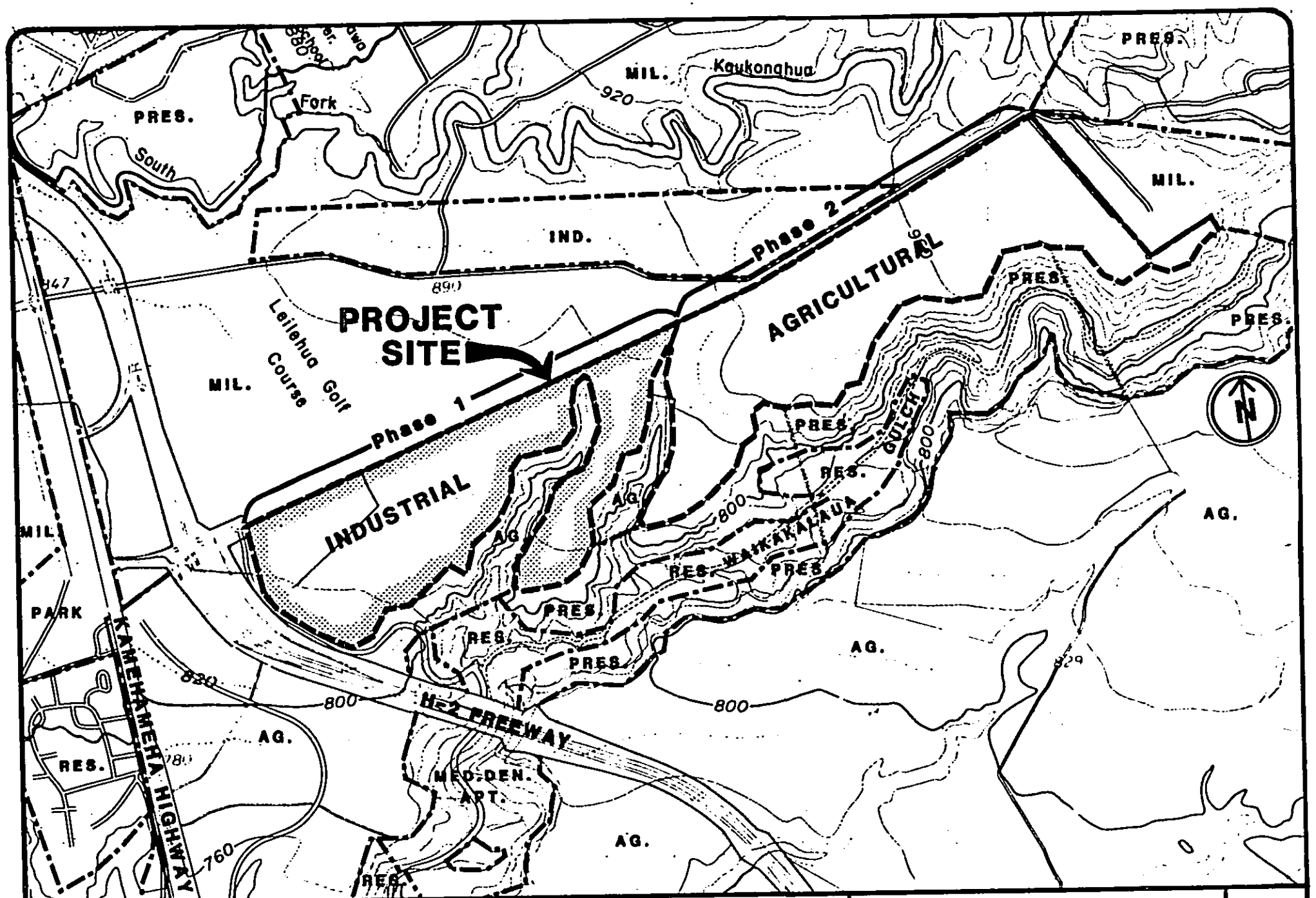
Item 6. INDUSTRIAL: Except as otherwise specified in Part II of this development plan, industrial areas are principally for processing, construction, manufacturing, transportation, wholesaling, storage and similar economic activities. Accessory or supporting activities that directly enhance the viability of the principal activities may also be permitted.



STATE LAND USE DISTRICT BOUNDARIES

HAWAII TECHNOLOGY PARK

FIG. III-1



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CENTRAL OAHU DEVELOPMENT PLAN

HAWAII TECHNOLOGY PARK

FIG. III-2

Discussion: In accordance with the Development Plan amendment, at least two-thirds of the Hawaii Technology Park will be occupied by high technology businesses and the remaining parcels may be used for commercial and other high technology support services. SRI recommends that the park be marketed toward such businesses as manufacturers of communication devices and specialty instruments and sensors, for example. Related economic activities include software development and biotechnology segments of the high technology industry. Commercial, light industrial and other support facilities are also expected to locate in the park.

Section 4. General Urban Design Principles and Controls

Item 1. PUBLIC VIEWS: Public views shall be protected by appropriate building heights, setbacks, design and siting controls established in the CZC...No development shall be permitted that will block important public views... Whenever possible, overhead utility wires and poles that significantly obstruct public views shall be relocated or placed underground.

Discussion: A comprehensive set of development guidelines and standards will ensure consistency and quality of development in both common areas and individual parcels in the park. Extensive landscaping throughout the site and the low-rise character of development will help to blend the park into its surroundings, which consist of agricultural land, a golf course, and sparsely used military lands. All utilities will be placed underground. Public views of the site and across the site will thus not be obstructed and most likely enhanced. The design standards imposed by Oceanic Properties and set forth in the draft Conditions, Covenants, and Restrictions for the Park are generally more stringent that those in the CZC.

Section 10. Social Impact of Development

Item 2. SOCIAL IMPACT FACTORS: In evaluating any proposed development, the objectives relating to the distribution of social benefits shall be considered. The following factors shall be examined as they pertain to such objectives:

a. Demographic: Whether the development will:

(1) Increase or decrease the residential population.
(2) Increase or decrease the visitor population.
(3) Change the character or culture of the neighborhood.

Discussion: SRI projects that a total of as many as 14,000 jobs will be created on-site and that over 90 percent of the labor force will be drawn from the existing local populace. The remaining in-migrating workers and their families will contribute to an increase in the residential population. The project will not affect the visitor population. The character of the neighborhood is evolving from agricultural to urban, and the campus environment of the high technology park will be compatible with this changing character.

b. Economic: Whether the development will affect:

(1) The rate and pattern of economic growth and development.
(2) The diversity of employment.
(3) The availability of jobs.
(4) The principal economic activities on Oahu.

Discussion: The development of the Hawaii Technology Park will have a positive effect on all of the above. It will allow much needed diversification of the Hawaiian economy and provide a source for a substantial number of jobs in many categories. For more detail, see Chapter IV, Section 11.0 of this EIS.

c. Housing: Whether the development will affect:

(1) The availability of housing affordable to residents of various income levels.
(2) Speculation on land and housing.
(3) Property values of existing homes.

Discussion: Since the majority of potential employees will be drawn from the existing local labor supply and will already have homes within commuting distance of the park, the establishment of a high techology park is not expected to have a significant adverse impact on the availability of affordable housing. In fact, by increasing disposable income, it will tend to have a beneficial effect on the ability of households to secure adequate housing. Compared to the market for housing islandwide, the number of additional units required by in-migrants who will be employed at the park will be very small. Therefore, there is little probability that the proposed project will have an effect on land and housing speculation or on the property values of existing homes.

d. Public Service: Whether the development will affect:

(1) Medical facilities.
(2) Educational facilities.
(3) Recreational facilities.
(4) Transportation facilities.
(5) Police and fire protection.
(6) Public utilities facilities.

Discussion: Employees of firms locating at the proposed high technology park and the businesses themselves will use these facilities and services. Police and fire protection will be required by the park and the developer will provide hookups to public utilities. Indirectly, in-migrants and their families will generate increased demand for services provided by the above facilities. See Chapter IV, Section 11.0 of this EIS for further details.

e. Physical Environment: Whether the development will affect:

(1) The natural environment.
(2) Existing natural monuments, landmarks, and scenic views.
(3) Open space.
(4) The aesthetic quality of the area.

Discussion: Until recently, the subject site was used for pineapple cultivation and currently contains untended pineapple plants and is generally overgrown with weeds. Because of this historical agricultural use, it is unlikely that there would be undiscovered natural monuments or landmarks at the site. An open space character will be maintained in the campus environment of the high technology park through the use of extensive landscaping, a maximum 30 percent building coverage ratio, and the construction of low-density, low-rise buildings. The removal of the untended pineapple plants, to be replaced by maintained vegetation, will enhance the aesthetic quality of the area. For further details on impacts to the natural environment, see Chapter IV of this EIS.

Section 11. Social Impact Management System

Item: To enable residents of an area who will be affected by a proposed development project to systematically examine the expected social impact of that development and, in cooperation with a project proponent, to identify alternative ways of managing or mitigating any expected negative social impacts, there shall be established a social impact management system applicable to...a change in zoning for the purpose of changing the zoning classification of specific property.

Discussion: Oceanic Properties is seeking rezoning of the Hawaii Technology Park site from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). Thus, the Social Impact Management System (SIMS) is applicable to the proposed development.

Section 12: Certificate of Compliance with the Social Impact Factors

Item: All project proponents who apply for approval of any of the actions listed in Section 11 shall include, as part of their application, a certification that the social impact factors listed in Section 10 have been given careful consideration, and shall report the conclusions of such consideration. Such certification shall be completed in accordance with the procedures and requirements of the adopted social impact management system.

Discussion: The social impact factors listed in Section 10 have been fully addressed in various sections of this Environmental Impact Statement.

PART II: DEVELOPMENT PLAN SPECIAL PROVISIONS FOR CENTRAL OAHU

Section 14. Area Description

Item: In 1980 the population of Central Oahu was 100,640 residents and constituted 13.2% of the island's total population. The general plan identifies Central Oahu as part of the "urban-fringe." Relevant general plan policies are to "relieve developmental pressures" and limit growth in the urban-fringe and rural areas to a level which essentially maintains their 1980 proportion of the islandwide population.

Discussion: The "Distribution of Residential Population" table of the General Plan for the City and County of Honolulu was revised in 1982. In the revised table, Central Oahu is projected to account for 12.8 to 14.2 percent of total island population, or 117,400 to 130,300 persons. It is anticipated that the demand for new housing in Central Oahu as a result of development of the Hawaii Technology Park will not significantly increase the district's population, thereby allowing the planned range of population to be met. SRI estimates that more than 90 percent of workers at the park will be established residents, most of whom will not require new housing. Some of these persons will undoubtedly move to the Central Oahu area to be closer to their workplace, and some of the remaining 10 percent of workers who will be in-migrants will also locate to the Central Oahu area. SRI estimates that the development of the proposed project may accelerate population growth in Central Oahu to some extent.

Item: Although increased development of lands for residential use is projected for the area..., the major contribution Central Oahu makes toward sustaining the State's agricultural industry dictates that the present level of agricultural activity in the district be substantially maintained.

Discussion: The project site was the location of unirrigated pineapple fields cultivated for fruit to be used in canned pineapple. Due to their soil characteristics and the lack of irrigation, these same fields are not suitable for growing fruit for the fresh fruit market (the only fruit now being grown by Dole Company on Oahu). If the Hawaii Technology Park were not developed, the site would ultimately be scheduled for withdrawal as Dole is forced by economics to farm only lower elevation irrigable lands (due to pesticide application that requires drip irrigation). Further, 168 alternate acres of pineapple have been planted in Central Oahu on former Oahu Sugar Company land. The proposed project thus will not have a negative effect on the maintenance of the present level of agricultural activity in Central Oahu.

Section 15. Urban Design Principles and Controls for Central Oahu

Item: Specific urban design considerations: open space, public views, height controls, and density controls.

Discussion: The Hawaii Technology Park is designed to be a low-density development characterized by open space design. Most of the structures will be one-and two-story buildings within the general height limit established in the Development Plan for industrial area buildings. Required landscaping will reinforce the natural character of the site and enhance views both to and from the site. Consistency of development in common areas and on individual parcels will be assured through the adherence to the "Protective Covenants, Conditions and Restrictions for Hawaii Technology Park," a comprehensive set of development guidelines and standards for all owners and occupants. Oceanic Properties has a long history of constructing and managing environmentally sensitive planned development projects controlled by such guidelines, and it is expected that the same principles can be successfully applied to the high technology park project.

2.3 ZONING AND SUBDIVISION ORDINANCES

The subject property is currently zoned Agricultural (AG-1 Restricted Agricultural Zoning District). Oceanic Properties is requesting a change of zone for the Phase I lands to Industrial (I-1 Light Industrial Zoning District). This EIS is being prepared in support of the request. If the rezoning request is granted, Oceanic Properties will proceed with development of the Hawaii Technology Park in conformance with the Subdivision Rules and Regulations of the Department of Land Utilization, City and County of Honolulu.

3.0 SOCIAL IMPACT MANAGEMENT SYSTEM (SIMS)

See Section 10.0 above for a discussion on the project's relationship to the Social Impact Management System.

CHAPTER IV

PROBABLE IMPACTS

1.0 TOPOGRAPHIC CHANGES

Located high above Waikakalaua Gulch, the plateau portion of the project site is relatively flat. Most slopes are between 2 and 5 percent, but slopes in a few areas reach 5 to 10 percent. The two small gulches which cross the site have steep sides, with slopes in excess of 30 percent in many areas.

Lots will be developed only on the plateau; the gulch areas will remain in their natural state. Grading will be kept to a minimum, and clustered buildings will follow the natural slope of the terrain. Landscaping will provide slope stability within the few areas having steeper grades, and no structural or artificial stabilization is expected. Small bridges may be used to carry the main entrance road across the head of the two gulches; alternately, the road may be placed on fill, with culverts carrying stormwater runoff beneath it.

Retention of existing vegetation in areas sloping into the gulches and in the gulches themselves, as well as the introduction of appropriate landscaping into the slightly graded areas, will control erosion. Moreover, the retention basin proposed at the lower end of the easternmost gulch will allow for redeposition of a substantial amount of the soil which is carried off the plateau.

2.0 SOILS IMPACTS

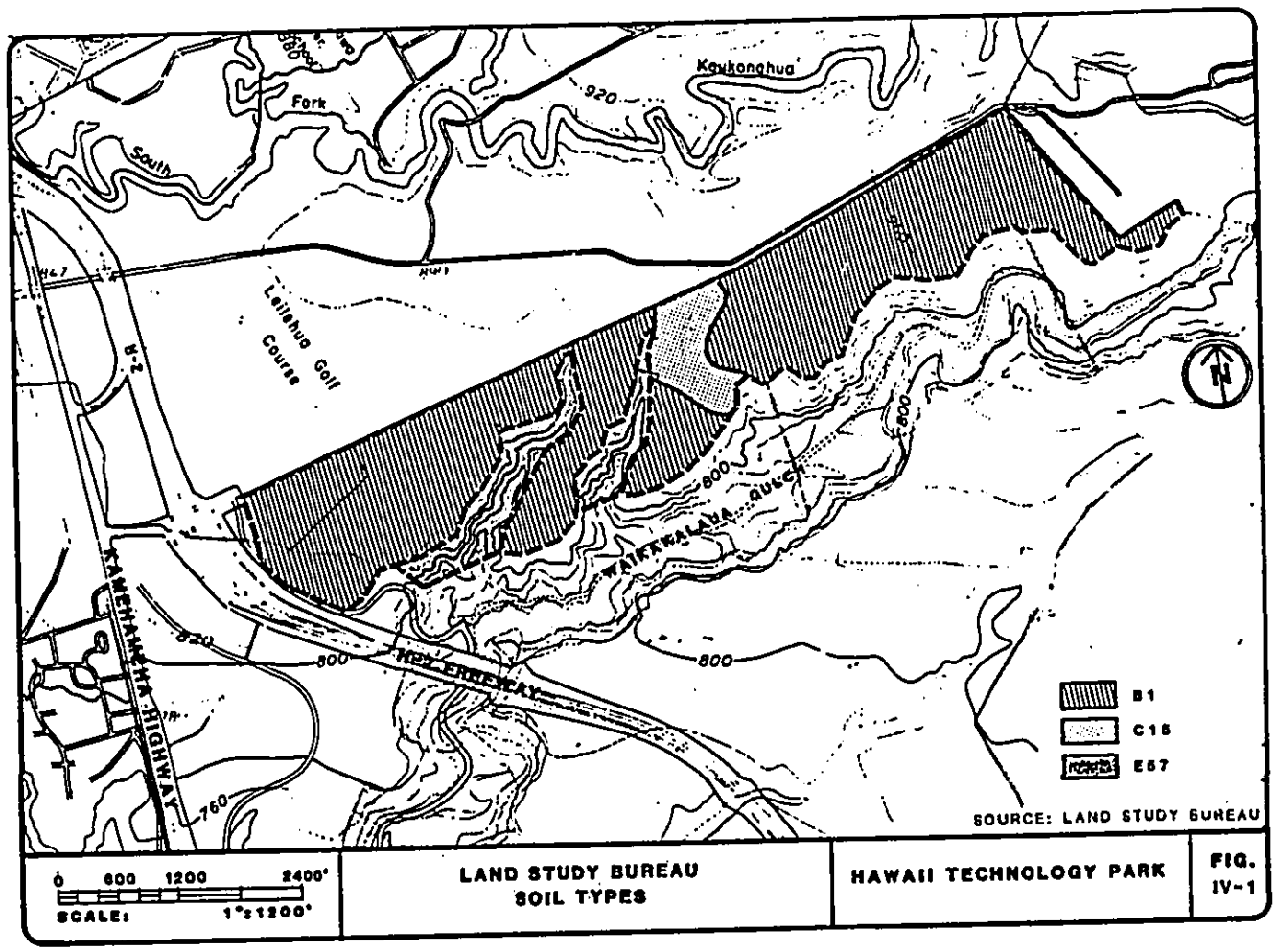
2.1 DESCRIPTION OF EXISTING SOILS

2.1.1 Land Study Bureau

The University of Hawaii Land Study Bureau (1963) has classified all lands on the island as to their value for various agricultural activities. The study first identified soil types within specific areas, which were then further evaluated as to environmental and physiographic factors such as precipitation, availability of irrigation water, slope, and stoniness. Areas were then assigned a master productivity rating that characterized their overall agricultural potential:

A - Very Good
B - Good
C - Fair
D - Poor
E - Very Poor

Soils on the plateau are classified good and fair, with soils in the gulch areas classified very poor. See Figure IV-1 for the location of types of lands and the following table for a description of land classifications at the site.



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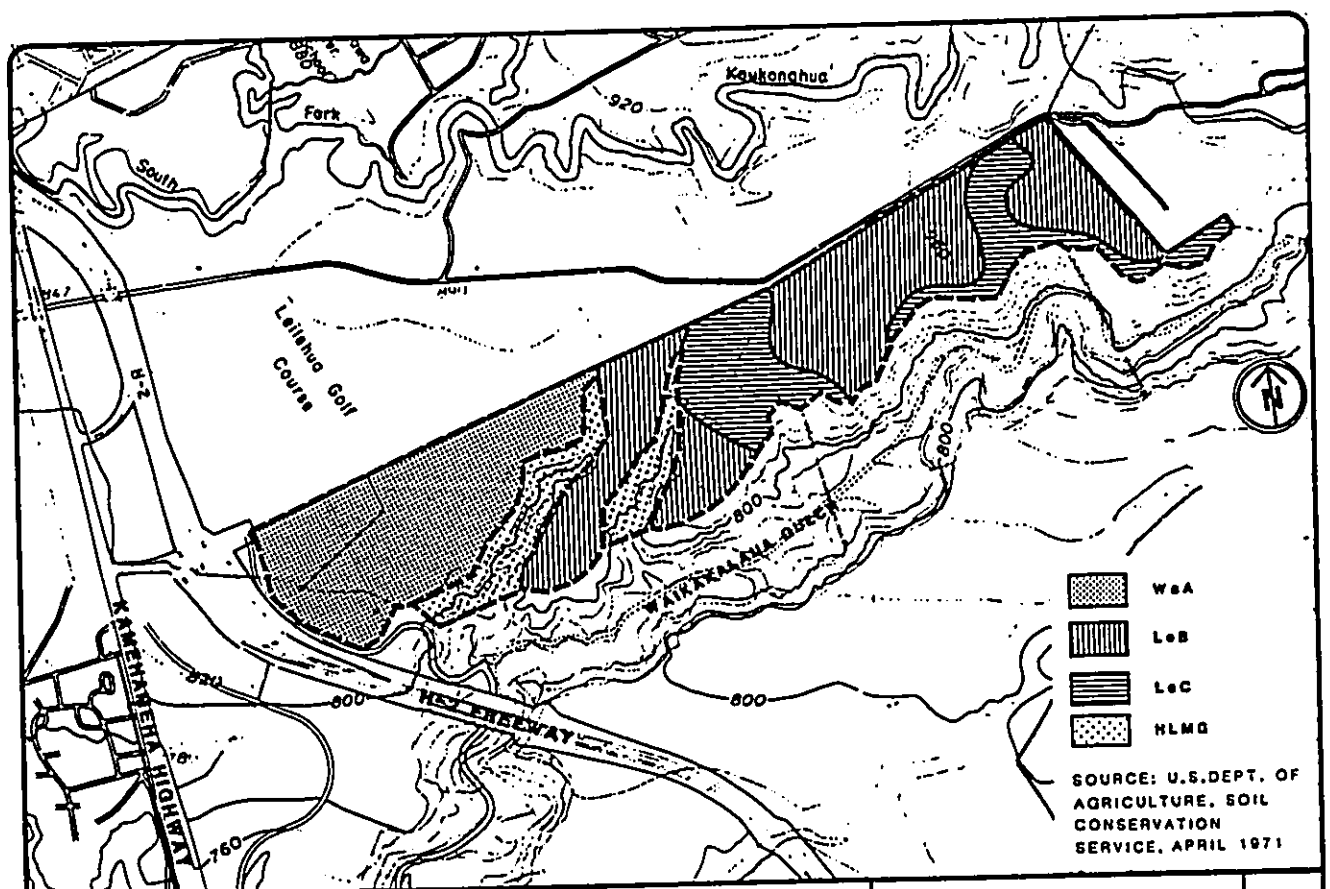
LAND STUDY BUREAU
SOIL TYPES

HAWAII TECHNOLOGY PARK

FIG. IV-1



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SOIL CONSERVATION SERVICE
SOIL TYPES

HAWAII TECHNOLOGY PARK

FIG. IV-2

Detailed Land Classification
Hawaii Technology Park

B1 Land with good overall agricultural suitability. Includes non-stony, deep, well-drained, fine-textured lands having reddish-brown to dark red surface soil and red subsoil. Slopes range from 0 to 10 percent. (Phase 1 and Phase 2 lands)

C15 Land with fair to marginal agricultural suitability. Includes non-stony, deep, well-drained, moderately fine to fine-textured lands having reddish-brown to dark red surface soil and red subsoils. Slopes range from 11 to 20 percent. (Phase 2 lands)

E57 Land with very poor agricultural stability. Includes stony or rocky, shallow, well-drained, medium to fine-textured lands having variable surface and subsoil colors. Slopes range from 36 to 80 percent. (Gulch areas)

2.1.2 Soil Conservation Service

The U.S. Department of Agriculture Soil Conservation Service (August 1972) has identified the soils in the Phase 1 portion of the site as belonging to the "Wahiawa Silty Clay Series"; those in the Phase 2 portion belong to the "Leilehua Silty Clay Series" (see Figure IV-2). All are appropriate for pineapple cultivation.

Wahiawa Silty Clay, 0-3 Percent Slope (WaA). The surface area is dusky red silty clay about 12 inches thick, and the subsoil a dark reddish-brown silty clay about 48 inches thick. Permeability is moderately rapid, runoff slow, and erosion hazard slight. The capability classification is I if irrigated (soils with few limitations that restrict their use) and IIc if unirrigated (soils that have moderate limitations because of climate).

Leilehua Silty Clay, 2-6 Percent Slope (LeB). The surface layer is dark reddish-brown silty clay about 12 inches thick, and contains concentrations of heavy minerals. The subsoil is silty clay and clay about 36 inches thick, and the substratum a clay mixed with weathered gravel. Throughout, the soil is extremely acid. Permeability is moderately rapid, runoff slow, and erosion hazard slight. The capability classification is IIe, irrigated or unirrigated (soils subject to moderate erosion if cultivated and not protected).

Leilehua Silty Clay, 6-12 Percent Slope (LeC). Also in the Leilehua Series of well-drained soils, this soil is similar to LeB, with greater slope. Runoff is medium and erosion hazard moderate. Workability is slightly difficult due to the slope. The capability classification is IIIe, irrigated or unirrigated (soils subject to severe erosion if cultivated and not protected).

2.2 EFFECT ON PRODUCTIVE AGRICULTURAL USE

2.2.1 Historical Use

For many years the subject site was used for the cultivation of pineapple without irrigation. This use ceased some time ago when the Dole Company shifted its production to other Central Oahu fields.

2.2.2 Current Use

The lands are now fallow and contain the remains of pineapple plants.

2.2.3 Relocation of Pineapple Cultivation

The Dole Company has relocated the pineapple fields that were located at the subject site when pineapple was grown for canned fruit. Dole has replanted about 162 acres in the Waiawa area that were withdrawn from sugar cultivation by Oahu Sugar Company (see Figure IV-3). This area is more suitable than the subject site for growing pineapple for the fresh market, which necessitates the availability of fruit year-round. The replacement area, unlike the subject site, has installed drip irrigation. The subject site is not considered "prime" for pineapple by Dole since it cannot be economically irrigated, is at a higher elevation with fields that are subject to harvesting and planting delays due to rain and lower overall yields due to more cloud cover and less sun and lower temperatures (Castle & Cooke, 1984). The ban of EDB requires that drip irrigation be used for application of EPA-approved nematocides.

2.2.4 Effect on Agricultural Lands of Importance to the State of Hawaii (ALISH)

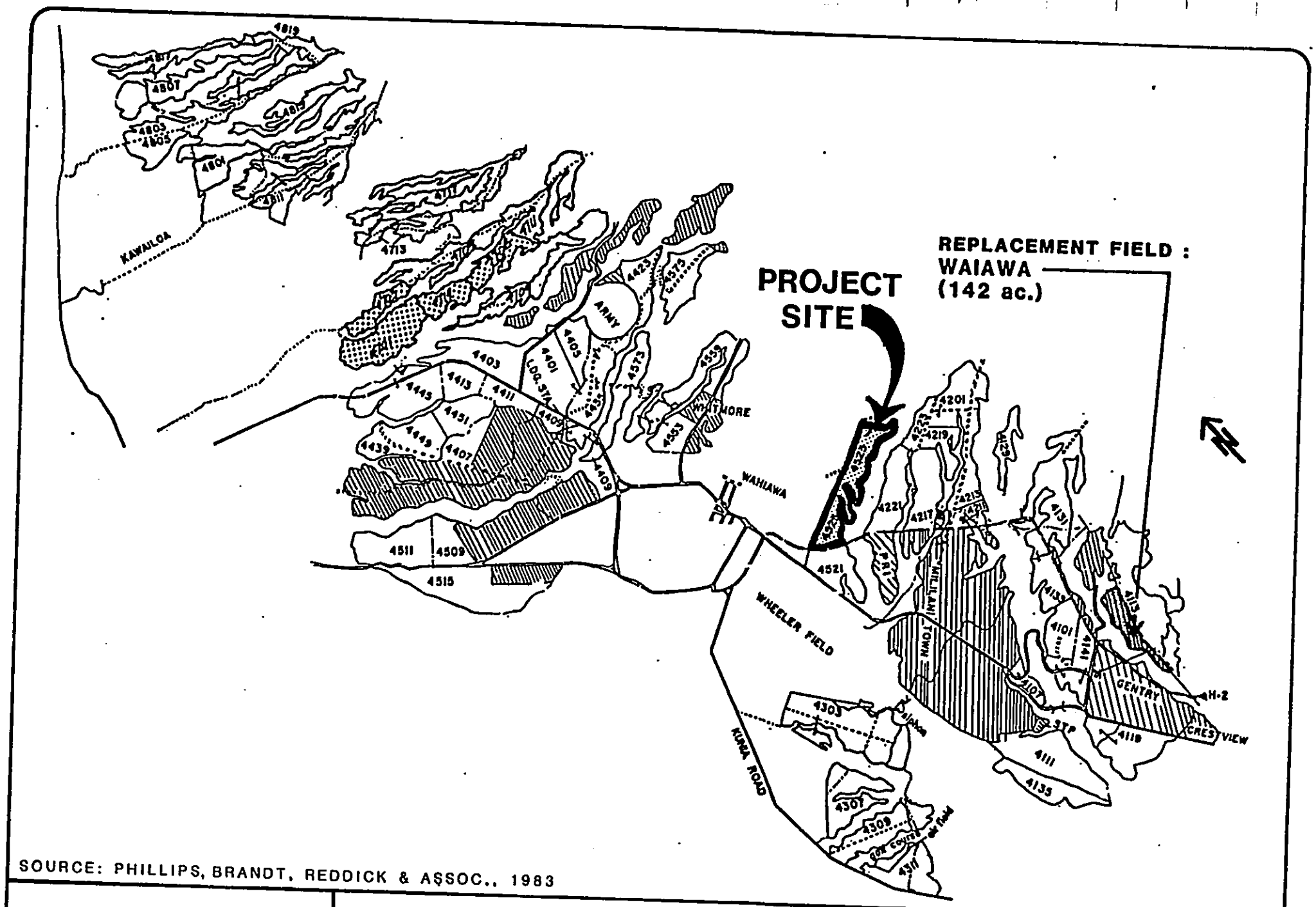
Approximately two-thirds of the Hawaii Technology Park site (the area east of the two smaller gulches) has been designated by the Board of Agriculture as "prime" agricultural land. Prime agricultural land is defined as: "Land which has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming practices" (Hawaii, State of, Department of Agriculture, 1977). The remainder of the parcel has been defined as "unique" agricultural land, i.e., "land that has the special combination of soil quality, location, growing season, moisture supply, and is used to produce sustained high quality and or high yields of a specific crop when treated and managed according to modern farming practices". These designations were established by the Board of Agriculture only as guidelines to indicate where agricultural land of varying qualities was located. In this vein, they have no force or effect of law.

When the ALISH study was conducted in 1977, the then-existing pineapple cultivation on the site led the Department of Agriculture to designate the area closest to the H-1 Freeway as being of agricultural importance despite the physical limitations of the soils and the absence of irrigation facilities. The current needs in the pineapple market were not taken into account.

As discussed in Section 2.2.3 above, continued pineapple cultivation on the site is not considered feasible because of its elevation and lack of irrigation. Without irrigation, it is impractical to use the fields for the production of high quality pineapple demanded by the fresh fruit market at which all of Dole's Oahu production is now aimed.

2.3 SUITABILITY OF SOILS FOR URBAN USE

The soils on the Hawaii Technology Park site are suitable for urban use in all respects: they are gently sloping, well-drained, and non-stony, and there is only a slight erosion hazard. The United States Department of Agriculture's Soil Conservation Service (August 1972) indicates that the soils impose no significant engineering constraints.



SOURCE: PHILLIPS, BRANDT, REDDICK & ASSOC., 1983

NOT TO SCALE	LOCATION OF PINEAPPLE REPLACEMENT FIELDS	HAWAII TECHNOLOGY PARK	FIG. IV-3

3.0 HYDROLOGIC IMPACTS

3.1 STORM RUNOFF RATES AND VOLUMES

3.1.1 Changes in Drainage Pattern

Most of the Hawaii Technology Park (HTP) site's approximately 250 buildable acres consists of relatively flat (2 to 4 percent slope) land between 825 and 1,000 feet in elevation. Two small (10- to 15-acre) unnamed gulches cut prominently into the plateau; they are tributary to Waiakakalaua Gulch, which runs along the southern boundary of the site. The two minor gulches drain approximately 100 acres, or 40 percent of the site's total area. The remaining 150 acres drain directly into Waikakalaua Gulch all along the site's southern boundary. There is no significant natural concentration of stormwater runoff other than in the two minor gulches.

The proposed drainage system on the plateau consists of cut-off ditches and pipe conduits which will collect runoff for concentrated discharge at several as yet unspecified locations. Virtually all of the buildable area will discharge into these collection works. To convey collected runoff to the natural drainageways below the plateau without discharging at excessive velocities and causing erosion, it will be necessary to construct energy dissipating structures and/or concrete chutes with baffle piers.

3.1.2 Changes in Surface Runoff Rates

Gray, Hong & Associates, Inc. has prepared a preliminary drainage report (June 1985) which addresses changes in rates of runoff due to development of the HTP site and Melemanu Woodlands Phase III, a residential project in Waikakalaua Gulch directly below the HTP site. The report also discusses the proposed abandonment of the detention basin constructed for Phase II of Melemanu Woodlands. Gray, Hong's calculations show that a significant increase in peak discharge rates in Waikakalaua Gulch could occur, a situation which, if uncorrected, would increase the risk to flood-prone areas downstream. For the 50-year storm event, changes in peak rates of runoff were computed by the Rational Method as follows:

		50-Year Peak Rates of Runoff (Cubic Ft. per Sec.)		
Development	Area (Acres)	Prior to Development	After Development	Increase Due to Development
Melemanu Phase II	52	219	288	69
Melemanu Phase III	56	241	313	72
Hawaii Technology Park	212	636	1,018	382
TOTAL	320	1,096	1,619	523

To avoid increasing peak runoff rates downstream, a 3.4 million cubic-foot detention basin would be created by constructing an earthen dam across one of the two minor gulches wich cut into the HTP site (refer back to Figure II-10. This basin would receive runoff from 150 acres of the HTP development which have a 50-year peak runoff rate (as computed by Gray, Hong) of 725 cubic feet per second (CFS). Through storage retention and controlled release, peak discharge from the detention basin

would be 202 CFS. This reduction of 523 CFS of the peak flow would offset computed increases of peak runoff rates attributed to development of Phases II and III of Melemanu Woodlands and the HTP site.

3.1.3 Adequacy of Proposed On-Site Drainage System

Since the design of the on-site drainage system has not been completed, comments must be limited to the regulatory constraints and approvals which will ensure an adequate on-site system. Cut-off ditches, swales, and pipe conduits which will be installed to collect and convey stormwater runoff must conform to the Department of Public Works' Storm Drainage Standard. Design computations must be submitted for review and approval by that agency. Since the standards are generally conservative, their correct application will result in an adequate system.

Conveyance of runoff from the buildable plateau to the drainage gulches below will involve drops in elevation of up to 150 feet. Energy dissipating structures will be required to limit velocities and minimize erosion. The design of these structures are typically based on extensive model and field testing done by the U.S. Department of the Interior, Bureau of Reclamation. Such structures have been used successfully at Mililani Town and at other locations in Central Oahu.

3.1.4 Effects on the Waikakalaua Runoff Hydrograph Downstream

The land use change from pineapple cultivation to light industrial will cause a higher proportion of rainfall to appear as surface runoff. The collection and conveyance system also causes the runoff to concentrate more rapidly, thus producing higher peak discharges. Since existing development along Waikakalaua Gulch downstream of the HTP site has been identified as flood prone, higher peak rates are a concern. The 27-year record of a U.S. Geological Survey crest stage gage located just below Kamehameha Highway (Gage No. 2127) suggests that the 50-year peak flow under existing conditions is about 5500 CFS. Calculations by Gray, Hong show that development of the HTP site and two phases of Melemanu Woodlands could add about 520 CFS to this peak, an increase of about 10 percent.

A stormwater retention basin which would release water at a lesser, controlled rate is a valid and acceptable means of offsetting the effects of development on runoff. Calculations by Gray, Hong & Associates (1985) for the basin's volume and outlet works capacity were based on approximate methods and are subject to refinement. The proposed 3.4-million cubic-foot volume for the basin would be equivalent to 6.2 inches of runoff from its 150 tributary acres. When the volume of coincident release from the basin is also considered, the total runoff would be equivalent to 8.3 inches. For the capacity of the retention basin to be exceeded, rainfall of 10 to 12 inches over a two- to three-hour period would be required. This is an event of significantly greater severity than once in 50 years.

3.2 WATER QUALITY EFFECTS

3.2.1 Surface Waters: Soil Erosion and Sediment Load

Pineapple was formerly cultivated on the HTP site and it still grows there. Erosion primarily occurs from dirt roads and from the periphery of the plateau. The latter is the result of sheet runoff cascading to the gulch below. Once the proposed development is completed, it is likely to significantly decrease the rate of erosion. Land surfaces will be stabilized by roads, buildings, and landscaped areas. Drainage

facilities in the system of perimeter roads will intercept runoff which now tends to cascade off the plateau and convey it to the gulch below at several specific locations. Discharge will be controlled by energy dissipating structures and by moderate release rates from the proposed detention basin.

During construction and prior to completion of the drainage system, erosion will be higher. However, construction techniques are subject to the City and County Grading Ordinance and must conform to an approved erosion control plan for the project. These measures are intended to limit the risk of erosion during construction.

3.2.2 Groundwater

The HTP site may lie over both the Schofield High Level and the Pearl Harbor basal aquifers. The exact location of geologic features which separate these two extensive resources is unknown, but portions of it are thought to be in the vicinity of the HTP site. Due to this location, the potential for groundwater contamination is a concern. Three potential sources of contamination need to be considered: rainfall, either by direct infiltration or by percolation of collected stormwater runoff; spills of stored hazardous materials and/or wastes; and wastewater.

Hydrologic calculations show that during most rainfall occurrences at this site, capacities of soil moisture retention and subsequent evapotranspiration exceed the amount of rainfall which infiltrates into the soil mantle. However, the detention basin will retain runoff for several hours following heavy rains; deep percolation is likely to occur at these times. The quality of retained stormwater runoff is likely to be similar to runoff from other development in Central Oahu and in Wahiawa. From this perspective, development of the HTP site would not be a departure from an established pattern. Absorption and chemical alteration which occurs in the soil mantle provides the basic protection for the groundwater resource.

Storage of only small quantities of hazardous materials within the HTP project will be permitted. Restrictive codes and covenants will regulate storage and use of these materials. These codes and covenants will minimize the possibility of spilled hazardous materials percolating to groundwater bodies below. This issue is discussed further in Section 4.3.3 of Chapter II.

The effects of wastewater collection, treatment, and disposal are discussed in section 12.2 and need only brief mention here. The permit system for industrial waste discharge into the sanitary sewer system, the City and County requirement for pre-treatment of any hazardous material, and the proper construction of sewer lines will all reduce the risk of wastewater contamination of groundwater resources.

4.0 PHYSICAL HAZARDS

4.1 SEISMICITY AND VULCANISM

A seismic risk map for the Hawaiian Islands was compiled by the U.S. Coast and Geodetic Survey in 1949. Furumoto, et al. speculate that the U.S.C. & G.S. team that established the risk zones probably based their classification on the great April 2, 1868 earthquake centered in Ka'u on the Big Island. All of Oahu was placed in Zone 1, the next-to-lowest risk category, and the current edition of the Uniform Building Code retains that classification. Zone 1 areas are those where distant earthquakes may cause damage to structures with fundamental periods greater than 1.0 second; this corresponds to intensities V and VI of the Modified Mercali Intensity Scale of 1931

(International Conference of Building Officials, May 1985). These intensities are defined as follows:

V Felt by nearly all, many awakened; some fragile objects broken, and unstable objects overturned; a little cracked plaster; trees and poles notably disturbed; pendulum clocks may stop; some damage to stone walls.

VI Felt by all; many run outdoors; slight damage; heavy furniture moved; some fallen plaster; some water tanks damaged; extensive damage to poorly built stone walls.

Structures built within the Hawaii Technology Park would be designed to meet zone 1 standards and are, therefore, unlikely to experience significant earthquake damage.

The last major eruptive phases of the Koolau and Waianae volcanoes are believed to have ended well over 1 million years ago. While it appears that some of the vents in the Honolulu volcanic series are substantially younger than this, the closest of these is miles from the project site, and even it has been dormant for at least tens of thousands of years. Hence, no danger from this source is expected.

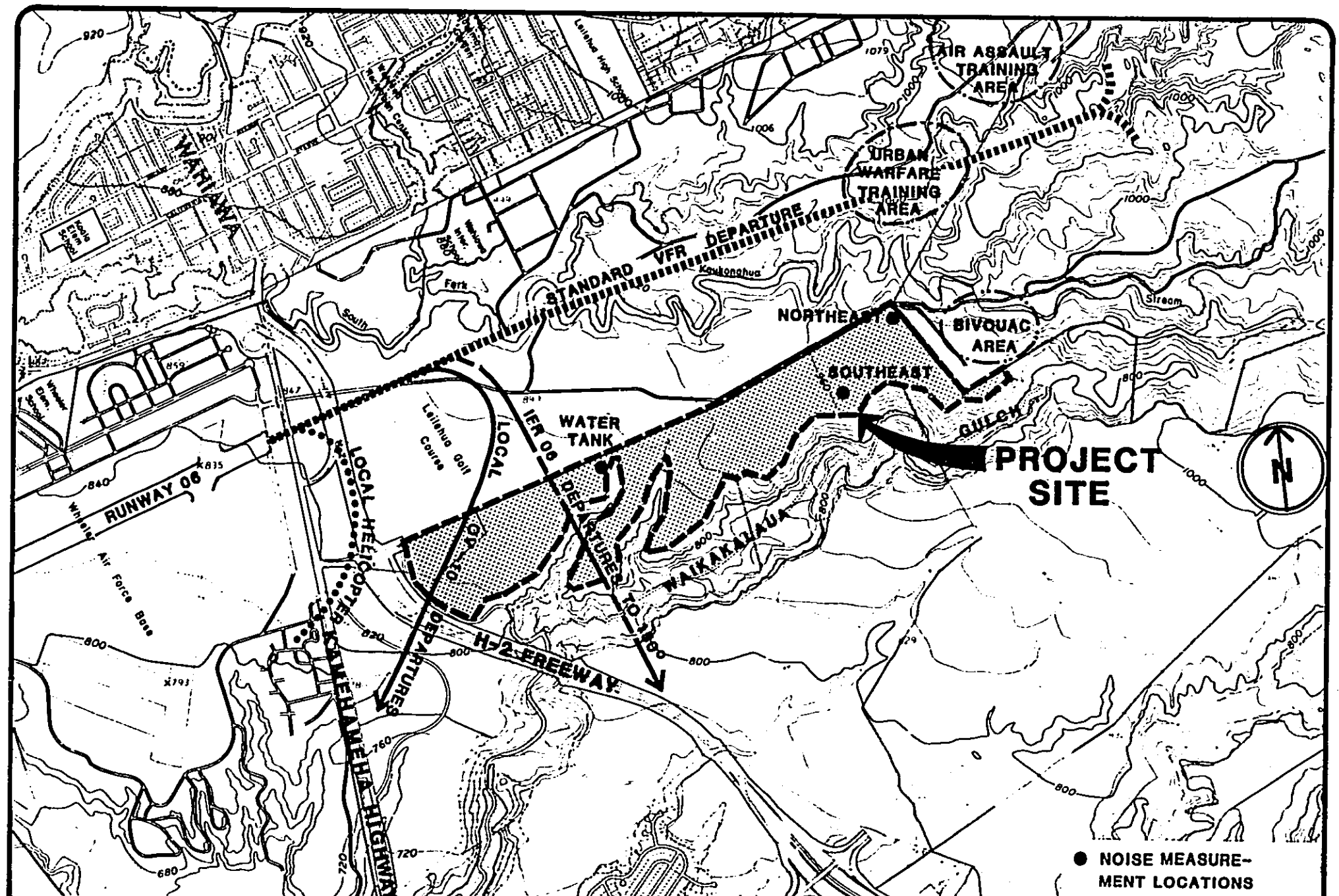
4.2 AIRCRAFT OPERATIONS

At its closest point, the proposed Hawaii Technology Park is only a few thousand feet from the end of Runway 06 at Wheeler Air Force Base (AFB). As indicated by the following tabulation, the number of flight operations at Wheeler AFB has been relatively constant over the past three years:

Year	Number of Operations
1983	95,875
1984	88,832
1985 (Jan.-Jul.)	47,391

The base is used primarily by rotary-wing aircraft attached to the U.S. Army's 25th Division, but Air Force and Army fixed-wing aircraft such as OV-10s and C-130s also use the field. The typical flight paths followed by aircraft departing Runway 06 are shown in Figure IV-4. An environmental noise assessment of Wheeler Air Force Base operations was conducted during the period 4 November through 15 December 1982 by the U.S. Army Environmental Hygiene Agency (February 1984), but no air installation compatible use zone (AICUZ) study has been completed. The department of the Army has indicated that it expects to commence work on an AICUZ for the airfield shortly. The study will include a detailed assessment of possible accident hazards.

Currently, Wheeler AFB is classified as a Class A airport. As a consequence, not more than 10 percent of its operations can be by aircraft with a gross takeoff weight exceeding 12,500 pounds. However, the Air Force has indicated that redesignation of the facility to Class B is a possibility in the future and noted that the Air Force/Army memorandum of agreement which allows Army use of the facility stipulates that the Army may not take actions which would preclude the Air Force from upgrading the facility to Class B. The Air Force has indicated its opposition to any development which would unnecessarily constrain future military use of the facility.



0 1000 2000 4000'
SCALE: 1":2000'

MILITARY ACTIVITIES (AND NOISE SAMPLING LOCATIONS)

HAWAII TECHNOLOGY PARK

FIG. IV-4

The proposed Hawaii Technology Park lies outside the clear zones required for either Class A or Class B operations. Air Force and Army flight officers have acknowledged that the industrial and commercial structures which would be constructed on the site would not constitute a hazard to air operations so long as those at the western end of the project do not exceed 50 feet in height. The 40-foot height limit imposed by the Central Oahu Development Plan and the 45-foot height limit established in the proposed design guidelines for HTP would insure that this limit is respected. However, military representatives have expressed concerns that the project lies beneath the routes followed by some departing aircraft and is, therefore, at some risk.

The Air Force reports that there are an average of four "emergencies" per week related to aircraft operations at Wheeler AFB. In recent years, the vast majority of these have been for OV-10 aircraft. Most of the emergencies have had to do with hung ordinance (weapons which did not release when intended) on the OV-10s flown by the 22nd Tactical Air Support Squadron (TASS) and would, therefore, be of little concern on Runway 06, since it is used almost exclusively for takeoffs. Of greater concern is the possibility of engine failure or other emergency on takeoff which might require the jettisoning of stores. According to the Director of Army Aviation at Wheeler AFB (Cole, 4 September 1985), there is no history of any ordinance having been jettisoned in the area that would be occupied by the HTP, but the commander of the 22nd TASS (which currently averages 12 operations per day) has indicated that it is located in a possible jettison area.

Construction of the proposed Hawaii Technology Park as planned will increase the amount of development on lands surrounding Wheeler AFB. No accident potential zone analysis has been conducted for the base, but the HTP site appears to lie outside the standard APZ areas. The proposed project lies well outside the clear zones that would be required for operation as either a Class A (the existing designation) or Class B airport. Despite compliance with all standards, the presence of industrial development southeast of Runway 06 will probably impose a minor constraint on flight operations which does not currently exist.

4.3 MILITARY TRAINING ACTIVITIES

The Army's East Range Training Areas Nos. 9 and 10 are situated adjacent to the mauka end of the HTP site. They are used for a variety of training activities, including urban warfare, offensive and defensive tactics, and chemical warfare techniques. All of these training missions are noise-intensive, utilizing blanks, grenade simulators, and artillery simulators. According to the Army, a key technique employed in the training is stealthy approaches followed by the application of overwhelming (i.e., noisy) firepower. CS gas and smoke generating devices are employed to give realism to the training. Representatives of the 25th Division have indicated that the conversion of the 25th to a "light infantry division" will increase the level of training activity above current levels.

Noise complaints from residents of Wahiawa have apparently forced the Army to avoid noisy activities on the northern sides of the two training areas, particularly at night. Its representatives have expressed concern that the proposed development on the Hawaii Technology Park site will lead to the extension of restrictions to other parts of the training areas as well. The noise impact analysis conducted as part of this study (see Section 8 of this chapter) concluded that noise from the Army's training activities would not exceed existing standards for industrial areas. This would appear to preclude any legal action against the Army by HTP occupants. Political action and complaints are possible, but the fact that the proposed development is an industrial

and commercial one, rather than residential, drastically reduces the likelihood of this occurring.

To illustrate this point, it is worth noting that none of the 107 noise complaints received concerning aircraft operations at Wheeler AFB between January 1983 and August 1985 were from industrial or commercial tenants, and this same absence of complaints from occupants of industrial and commercial structures is evident at Honolulu International Airport and Barbers Point Naval Air Station as well. Despite the circumstantial evidence presented above, there is a remote possibility that development of the Phase 2 portion of the Hawaii Technology Park will bring civilian occupants of the project into such close proximity with noise from the Army's training activities that complaints may result.

At present, it appears that the question of potential noise sensitivity discussed above is the only one that is of significant concern to the military.

5.0 BIOLOGICAL IMPACTS

5.1 CHANGES IN TERRESTRIAL VEGETATION

The portion of the site atop the plateau, i.e., more than 90 percent of the total, was under pineapple cultivation for many years. This use ceased only recently, and wild pineapple plants still constitute the vast majority of the plants that are present there. Now that field maintenance has ceased, a few aggressive exotic species are beginning to invade the abandoned fields, and scattered young strawberry guava (Psidium cattleianum and P. cattleianum f. lucidum), guava (Psidium guajava), and Christmas berry (Schinus terebinth-folius) are present, particularly along the field edges closest to Waikakalaua Gulch. Within the gulches themselves, strawberry guava, guava, Christmas berry, molasses grass (Melinus minutiflora), ti (Cordyline terminanlus L. Kunth.), kukui (Aleurites molucana), Java plum (Eugenia cumini), lantana (Lantana camara), and numerous other forbs and grasses are present.

Current plans call for phased development of the project site. It is expected that the roads, utility lines, and street trees and other roadside landscape vegetation will be installed at the beginning of construction on each phase. To accomplish this, the existing vegetation would be removed from within the road rights-of-way, the alignments graded, and improved roadways with underground utility lines constructed. Because of the gentle slopes which now exist, it is not expected that mass grading of the individual development sites will be required in most areas. Hence, the existing low vegetation would remain until purchasers of the lots have developed specific designs for their buildings and are ready to begin their construction.

The landscape concept calls for the road rights-of-way and open areas to be heavily landscaped. The eucalyptus trees which line the northern border of the site will be retained. Vegetation within the gulches will be left in its natural state except where earth must be moved to create the stormwater retention basin that is proposed within Waikakalaua Gulch. Moreover, the lot coverage limitations incorporated in the proposed covenants and restrictions for the Hawaii Technology Park will insure that generous amounts of landscaped open space are retained within individual development parcels. In this respect, it should be noted that an effort is being made to retain an open, park-like atmosphere.

5.2 CHANGES IN TERRESTRIAL FAUNA

The fauna on the plateau portions of the site consists of exotic species, including finches, thrushes, mongooses, rodents, and small reptiles. All were introduced to Hawaii by man, and all are distributed widely throughout the island chain. During an avifaunal survey of Waikakalaua Gulch, Dr. Andrew J. Berger (May 1985) found no endemic birds, and concluded that no suitable habitat for any of Hawaii's endangered waterbirds exists in the area. He observed no Pueo, or Hawaiian Owl (Asio flammeus sandwichensis), but noted that it may occur in the general region. Neither did Dr. Berger encounter any of the indigenous (native) species found in Hawaii (although the latter is not conclusive evidence that such birds do not occasionally use the site, since Dr. Berger's survey was conducted in May, when many of the migratory birds have already left Hawaii for breeding grounds in the arctic).

All of the birds observed in Waikakalaua Gulch by Dr. Berger were introduced species. Those positively identified include: spotted or laced-neck dove (Streptopelia c. chinensis), barred dove or zebra dove (Geopelia striata), barn owl (Tyto alba pratincola), red-vented bulbul (Pycnonotus cafer), shama (Copsychus malabaricus), Japanese bush warbler (Cettia diphone cantans), white-eyes and silver-eyes (Zosterops j. japonicus), common Indian myna (Acridotheres tristis), ricebird or nutmeg mannikin (Lonchura punctulata), house sparrow (Passer domesticus), red-crested cardinal (Pasoaria coronata), cardinal (Cardinalis cardinalis), and house finch (Carpodacus mexicanus frontalis).

Except for grading needed to construct the proposed stormwater runoff retention basin, no disturbance to the gulch areas will be required for the HTP. Hence, the existing habitat will remain largely unchanged. Proposed landscaping within the developed portions of the HTP may actually increase certain types of avian habitat there. Given the wide distribution of the species that are present, their adaptability to urban conditions, and the fact that the gulch areas will remain in their natural state, no significant adverse effect on terrestrial fauna is expected as a result of the HTP.

5.3 EFFECTS ON AQUATIC RESOURCES

There are no perennial streams on the project site. Water flows in the two small gulches only during periods of relatively intense rainfall; soon after the end of a rainstorm, the gulches return to their normal dry state. Streamflow in Waikakalaua Stream itself also varies greatly in response to rainfall; between rainfall events, it is estimated at less than one cubic foot per second.

Waikakalaua Stream meanders across the floor of the gulch and is characterized by slow-moving pools and short riffle areas. The substrate ranges from thick silt deposits to infrequent cobble and boulder reaches. Old automobiles and other trash litter the bed of the stream. Stream biota identified by Archer (June 1985) were limited to Shortfin molly (Poecilia mexicana), guppy (Poecilia reticulata), green swordtail (Xiphophorus helleri), crayfish (Procambarus clarkii), and the bufo toad (Bufo marinus). All species were found in relatively small numbers, all are common throughout Hawaiian streams, and all are introduced species. Using criteria developed for Windward Oahu streams Waikakalaua has been classified as a low quality stream (Archer, 1984 and June 1985).

Plans for the Melemanu Woodlands Phase III development immediately below the HTP call for portions of the stream passing through the Phase III area to be channelized; this, together with the proposed retention basin will alter the flow regime of the

stream slightly. However, total runoff (and, therefore, streamflow) would be increased only slightly, and peak discharge would remain virtually unchanged downstream of the Melemanu Woodlands project. A slight, temporary increase in sediment load in Waikakalaua Stream could occur if intense rainfall occurs during construction of the proposed retention basin. The probability of this could be decreased by limiting construction to the drier months of the year. Following completion of the retention basin, the volume of sediment entering Waikakalaua Stream from the project site is expected to be lower than at present.

6.0 TRANSPORTATION IMPACTS

6.1 EXISTING TRANSPORTATION FACILITIES

6.1.1 Streets and Highways

As previously noted, the proposed project site is located east of the H-2 Freeway near the Leilehua Interchange. Vehicular access is from Kamehameha Highway and the H-2 Freeway via Golf Course Road and Wikao Street. The Leilehua Interchange on H-2 is a half-diamond interchange with ramps to and from H-2 in a southerly (Honolulu) direction; the ramps terminate at Golf Course Road. The configuration of this roadway network is shown in Figure IV-5.

Wikao Street has a curb-to-curb width of 54 feet within a 70-foot wide right-of-way. It provides access from H-2 and Kamehameha Highway to the Melemanu Woodlands project in Waikakalaua Gulch. Striping on Wikao Street is limited to a center line dividing opposing traffic. Northbound traffic is controlled by a stop sign at Wikao Street's intersection with Golf Course Road.

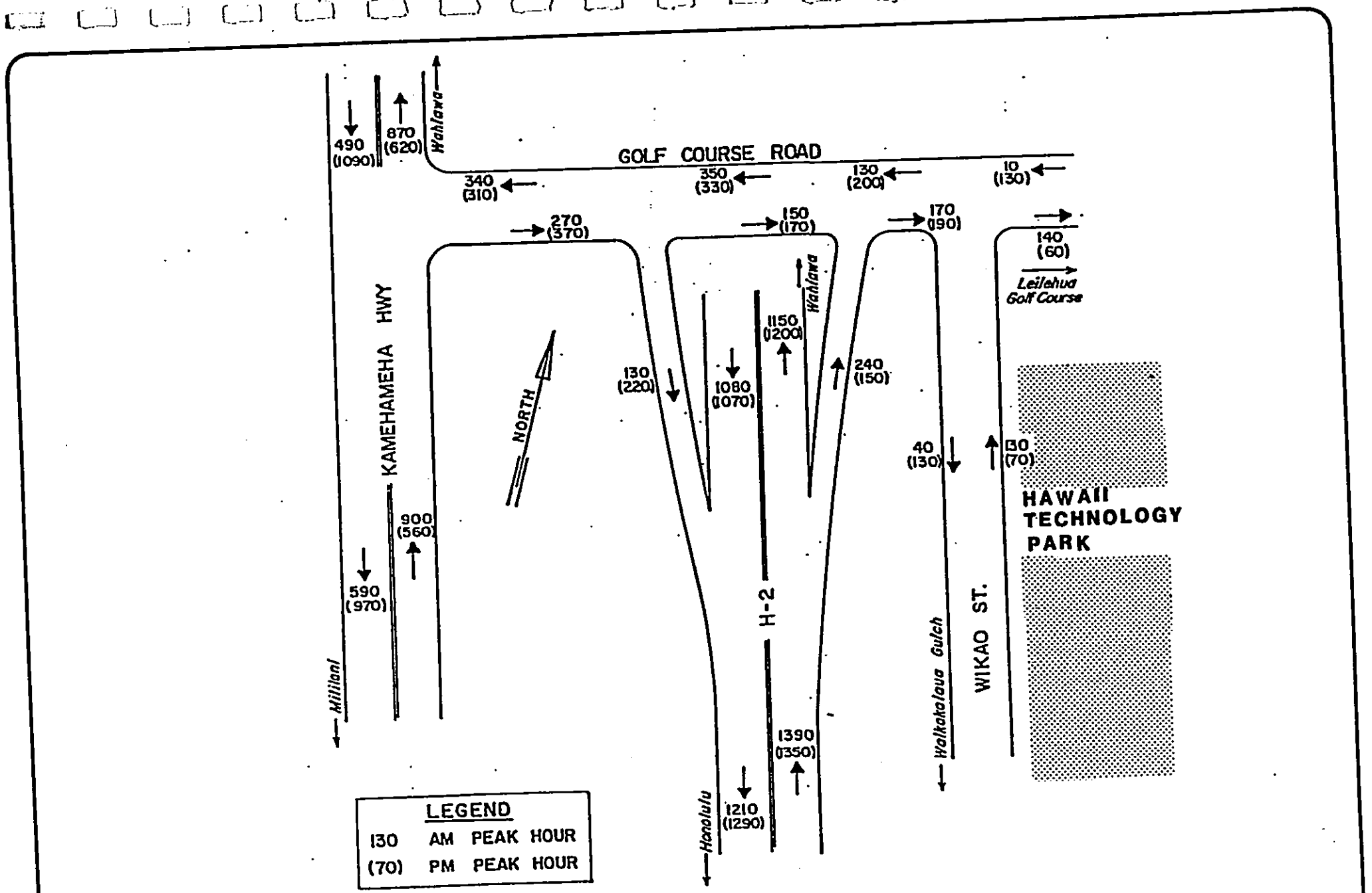
Golf Course Road is a two-lane roadway linking Leilehua Golf Course with Wikao Street, the H-2 Freeway, and Kamehameha Highway. It is located within the State Department of Transportation's wide right-of-way for the H-2 Freeway; pavement width is 24 feet, with a painted centerline dividing this into two 12-foot lanes. There is an 8-foot wide shoulder on either side of the pavement. The bridge which carries the road over the H-2 Freeway is 40 feet wide.

Single-lane ramps connect Golf Course Road to the H-2 Freeway, which contains two traffic lanes in either direction at this point. The ramps are separated from the Freeway itself by a wide median. Lanes are 12 feet wide, and shoulder widths are 4 and 10 feet, left and right.

Golf Course Road continues west past H-2 to meet Kamehameha Highway at a T-intersection. Westbound traffic on Golf Course Road is controlled by a stop sign at its intersection with Kamehameha Highway. Kamehameha Highway is a four-lane divided highway with two 12-foot wide lanes in each direction; shoulders are minimal at this point, with obstructions as close as two feet to the edge of the pavement in places. South of Golf Course Road, grades on Kamehameha Highway range from level to five percent.

6.1.2 Public Transit

At the present time, there is no public transit service to the project site. The nearest route served by the municipally operated system is along Kamehameha Highway. The City and County of Honolulu Department of Transportation Services has indicated that it would expand service to include the project site at such time as ridership and equipment availability permits.



SOURCE: PARSONS BRICKERHOFF QUADE & DOUGLAS, INC., SEPTEMBER 1985

NOT TO SCALE	EXISTING ROAD ACCESS & TRAFFIC VOLUMES	HAWAII TECHNOLOGY PARK	FIG. IV-5

6.1.3 Airports and Harbors

Honolulu International Airport is one of the busiest airports in the country. In 1983, approximately 10 million overseas passengers passed through it; in addition, it serviced another 7 million interisland passengers and approximately 150,000 tons of air freight (Hawaii, Department of Planning & Economic Development, 1984:553 & 555). Very frequent service is provided to and from the mainland, Australia, and the central and eastern Pacific and Asia.

Honolulu Harbor, with its heavily containerized facilities, handles the bulk of the approximately 8 million tons of surface cargo that flows in and out of the island each year. Adequate facilities are available there to accommodate existing freight volumes, and these are being supplemented by new cargo handling and storage facilities in the nearly completed deep draft harbor at Barbers Point.

6.2 EXISTING VEHICULAR TRAFFIC VOLUMES AND SERVICE LEVELS

Existing traffic on Wikao Road and Golf Course Road is very light. For this reason, no vehicle counts were taken on them as part of this study. Instead, the existing traffic volumes shown in Figure IV-5 have been estimated using average traffic generation rates and appropriate parameters.

The State Department of Transportation periodically collects traffic data on the H-2 Freeway and Kamehameha Highway. Traffic volumes on the ramps of the Leilehua Interchange of H-2 and turning volumes at intersections have been estimated by Parsons Brinckerhoff Quade & Douglas, Inc. (April 1983) as part of a study conducted specifically for the Hawaii Technology Park. Data from both sources was used in preparing Figure IV-5 and Table IV-1.

6.3 PROJECTED TRAFFIC VOLUMES WITHOUT THE HAWAII TECHNOLOGY PARK

Traffic generated by the Hawaii Technology Park would share roadway capacity with vehicles moving to and from Melemanu Woodlands Phases II and III. This development is located in Waikakalaua Gulch, and vehicle access to it is along Wikao Street and Golf Course Road. Only the 288 units in Phase II have been completed thus far, but an additional 1,122 units are proposed for Phase III (Gray, Hong & Associates, Inc., 1985: 44). It is expected that these additional units will be constructed and occupied over the next 7 years, putting it in the same time frame as the Hawaii Technology Park Development.

Parsons Brinkerhoff Quade and Douglas, Inc. (September 1985) estimated that altogether the 1,410 units in Melemanu Phases II and III would generate an average of 8,600 vehicle-trips per day. The derivation of this figure, together with estimates of the peak-hour volumes which would result, are presented in Table IV-2.

Estimates of the origin and destination of trips generated by Phases II and III of the Melemanu Woodlands development were used together with the trip generation rates in Table IV-2 to arrive at the estimated "without project" traffic volumes shown in Figure IV-6. When these projected traffic volumes were compared with estimates of roadway and intersection capacities, it was found that the existing unsignalized intersection of Golf Course Road and Kamehameha Highway would be unable to accommodate the projected westbound left turn demand in the afternoon (PM) peak hour. If no improvements are made, the morning (AM) peak-hour demand was forecast to result in service level E conditions, or near-capacity, at the intersection of Golf Course Road with Wikao Street.

Table IV-1

Existing Traffic Conditions

Location	Capacity (in vph)	Critical Volume	V/C	Level of Service
H-2 Freeway at Waikakalaua Brdg.	SB=3,450 NB=3,450	1,281(pm) 1,393(am)	0.37 0.40	B B
Kamehameha Hwy. at Wheeler AFB	SB=1,780 NB=1,780	1,093(pm) 888(am)	0.61 0.50	C C
Kamehameha Hwy. at Waikalani Drive	SB=2,500 NB=1,830	973(pm) 900(am)	0.39 0.49	C C

Notes:

1. Abbreviations used:

   V/C = volume/capacity ratio
   vph = vehicles per hour
   am = morning peak hour (6:45 to 7:45 am)
   pm = evening peak hour (4:00 to 5:00 pm)
   SB = southbound (i.e., toward Honolulu)
   NB = northbound (i.e., toward Wahiawa)

2. Highway levels of service as defined by the Highway Capacity Manual:

   A and B = Free Flow
   C = stable flow with some constraints
   D = stable flow with congestion
   E = capacity condition, forced flow
   F = capacity exceeded

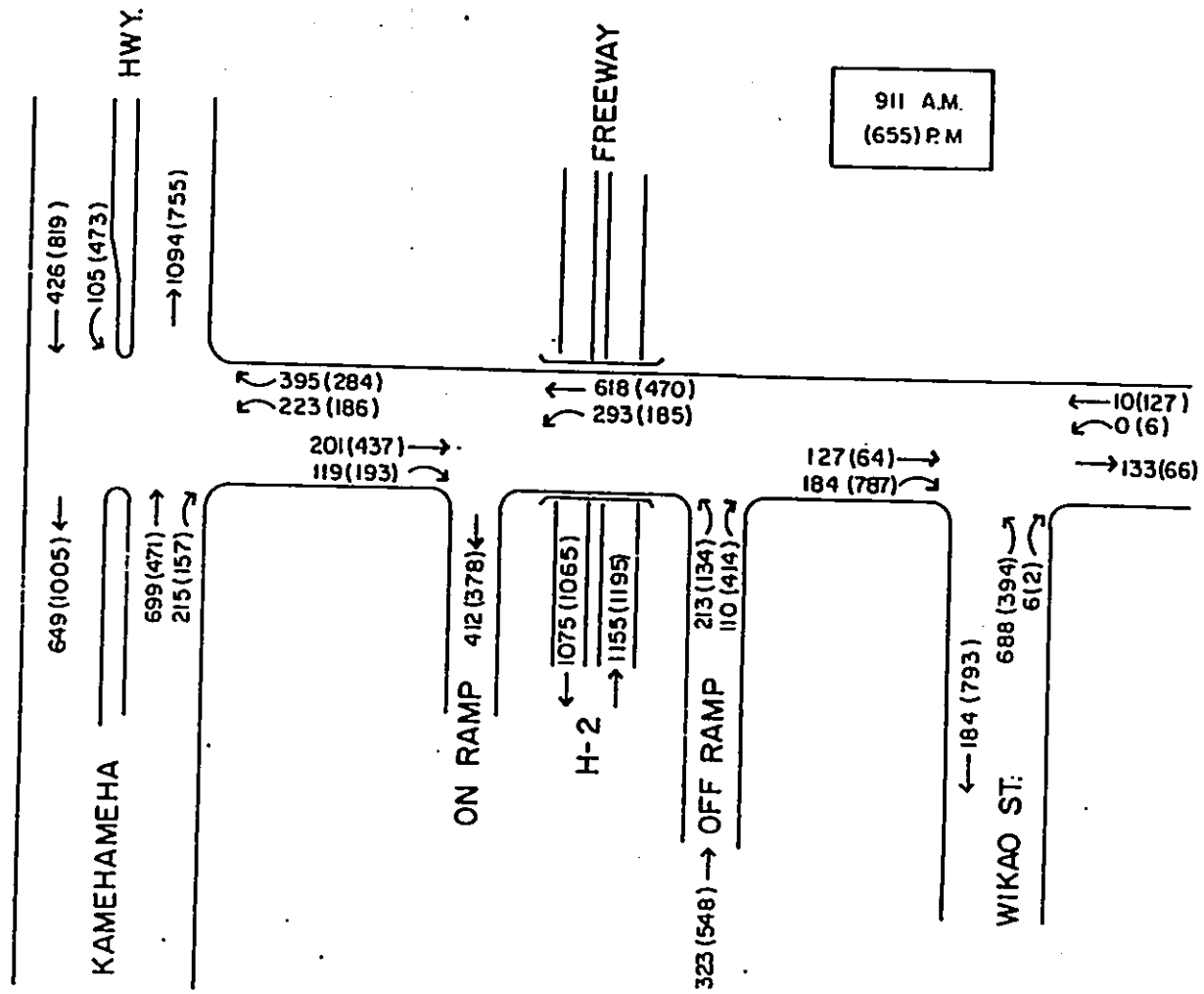
Source: Parsons Brinckerhoff Quade and Douglas, Inc., April 1983.

Table IV-2

Trip Generation by the Melemanu Woodlands Project

Time Period	Vehicle-Trips Per Dwelling Unit	Vehicle-Trips Generated
Average Weekday	6.1	8,600
AM Peak Hour:		
Attractions	0.1	141
Productions	0.4	564
PM Peak Hour:		
Attractions	0.47	663
Productions	0.23	324

Source: Institute of Transportation Engineers, 1983, as reported in Parsons Brinckerhoff Ouade and Douglas, September 1985.



SOURCE: PARSONS BRICKERHOFF QUADE & DOUGLAS, INC., SEPTEMBER 1985

NOT TO SCALE	FUTURE TRAFFIC WITHOUT THE HAWAII TECHNOLOGY PARK	HAWAII TECHNOLOGY PARK	FIG. IV-6

6.4 PROJECT-RELATED VEHICULAR TRAFFIC

Estimates of the amount of traffic that would be generated by the proposed Hawaii Technology Park are presented in Table IV-3. The estimates are based on employment projections by SRI International (1983) and per-worker trip rates developed through a simulation of future use patterns. The traffic generation rates take into consideration three different components of the overall project traffic:

- main-shift workers travelling to and from the employment site;
- second or third shift employees travelling to or from work, and
- other traffic generated by the proposed use, including deliveries, service vehicles, customers, and visitors.

The main shift employee trip component, which is by far the largest, was developed after studying nine different possible cases, reflecting three levels of staggered shift starting and ending times and three mode choice distributions which would be affected by traffic constraints. The three levels were identified as "unconstrained", "moderately constrained", and "extremely constrained." In all cases, employee travel was assumed to occur over periods of three hours in the morning and 3.5 hours in the afternoon. Following this screening analysis, two cases were selected as most appropriate for evaluating the proposed Hawaii Technology Park project; the moderate case (B2) was judged to be most probable, while the extreme case (C3) represented traffic generation at the lower end of the possible range. For second and third shifts, employment was estimated at 35 percent and 15 percent of the main shift, respectively, and a separate mode choice distribution was used. The latter provision reflects the decreased availability and use of public transit during these off-hours. The assumptions and factors used in the analysis are summarized in Tables IV-4 and IV-5.

6.5 WITH-PROJECT TRAFFIC VOLUMES

The expected "with-project" traffic volumes are shown in Figure IV-7 for the Phase I and Full Development conditions. The intermediate year main-shift employment levels are based on expected absorption (sales) rates. The proportion of total traffic generated by second and third shift employment in these years would be less than at full development because second and third shift activity is expected to be lower in the early years of development than it will following build-out. The assignments assume the construction of the roadway improvements discussed in Section 6.5 below and the diversion of some traffic to Kamehameha Highway from its preferred route on H-2.

As shown in Table IV-5, an attempt to accommodate the "with-project" traffic volumes shown in Figure IV-7 on the existing roadway network would result in extremely poor service levels. Because of this, a phased program of roadway improvements would be undertaken as part of this project as described in Chapter II, Section 4.3.1. The service levels that would be provided by these improvements are discussed in Section 6.6, below.

6.6 FORECAST SERVICE LEVELS

The levels of service that would exist on roadways impacted by the proposed project are shown in Table IV-5. With Phase 1 Development of the Hawaii Technology Park and accompanying interim improvements, intersections along Golf Course Road

Table IV-3

Trip Generation By The Proposed Hawaii Technology Park

	Year 7	Year 11	Year 16 (Full Development)
Main Shift Employment	4,400	7,950	9,540
AM Peak-Hour Vehicle-Trips:			
Inbound	1,540	2,780	3,340 (3,150)
Outbound	350	640	1,050
PM Peak-Hour Vehicle-Trips:			
Inbound	620	1,060	1,720
Outbound	1,630	2,440	3,530 (3,340)

Source: Parsons Brinckerhoff Quade and Douglas, April 1983:6.

Table IV-4

Projected Trip Distribution:
Melemanu Woodlands and Hawaii Technology Park

	Trip Distribution as Percent of Total			
	H-2 Frwy.	Kamehameha Highway		
	Southbd.	Southbd.	Northbd.	Total
Melemanu Woodlands II & III:				
Attractions	60	10	30	100
Productions	50	10	40	100
Hawaii Technology Park:				
Desire	83	7	10	100
Phase 1 Completed-- All Cases	83	7	10	100
Ultimate Project:				
AM Attractions	56	34	10	100
AM Productions	83	7	10	100
PM Attractions	83	7	10	100
PM Productions	51	39	10	100
Hawaii Technology Park:				
Phase 1 Completed:				
AM Attractions	79	6	9	94
AM Productions	70	5	0	75
PM Attractions	67	5	4	76
PM Productions	54	34	9	97
Ultimate Project:				
AM Attractions	68	19	10	97
AM Productions	79	6	7	92
PM Attractions	77	6	8	91
PM Productions	65	24	9	98

Sources: Parsons Brinckerhoff Quade & Douglas, September 1985, after Gray, Hong & Associates, Inc. (1985) and Parsons Brinckerhoff Quade & Douglas, April 1983.

Table IV-5

Traffic Generation Factors: Hawaii Technology Park

Case		Main Shift B2	Main Shift C3	Second & Third Shifts
Shift Staggering		Moderate	Extreme	Moderate
Mode Choice Constraint		Moderate	Extreme	Moderate
Peak Hour Volume / Peak Period Volume =	A.M.	0.45	0.40	0.45
	P.M.	0.45	0.40	0.35
Percent Using Bus		6.0	9.0	0.0
Average Auto Occupancy (persons per vehicle)		1.3	1.5	1.2

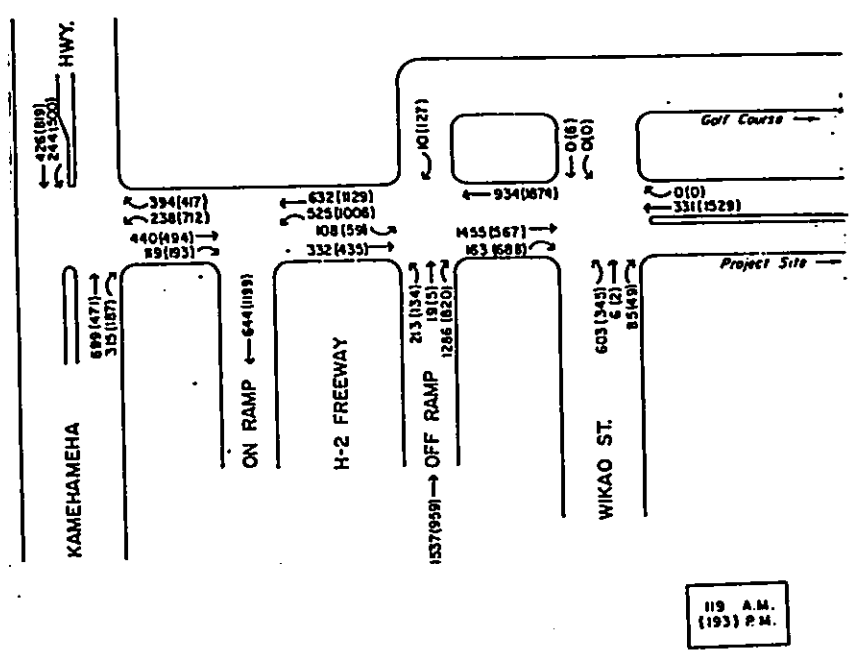
Other Factors: (peak-hour vehicle-trips per main shift employee)

A.M. Peak-Hour:	Inbound	Inbound	Outbound
Main Shift	0.33	0.24	0.01
Third Shift	0.00	0.00	0.06
Other	0.02	0.02	0.04
Total AM =	0.35	0.26	0.11

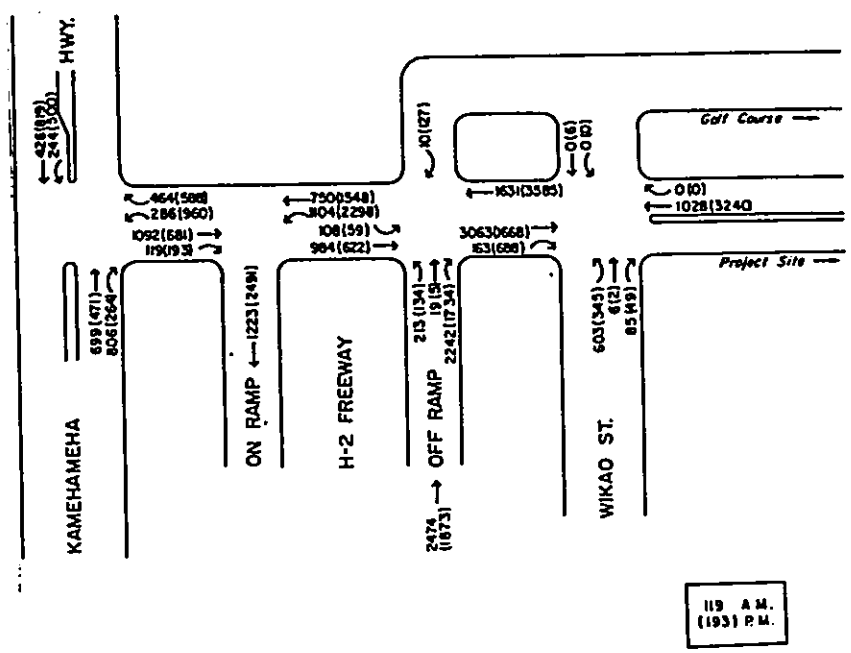
P.M. Peak-Hour:	Outbound	Outbound	Inbound
Main Shift	0.33	0.24	0.01
Third Shift	0.00	0.00	0.10
Other	0.04	0.04	0.07
Total PM =	0.37	0.28	0.18

Peak-Hour, Off-Direction Generation Rates	Year 7	Year 11	Year 16 (Full Development)
AM outbound	0.08	0.08	0.11
PM inbound	0.14	0.16	0.18

Source: Parsons Brinckerhoff Quade and Douglas, Inc., April 1983.



PHASE 1



FULL DEVELOPMENT

SOURCE: PARSONS BRICKERHOFF QUADE & DOUGLAS, INC., SEPTEMBER 1985

NOT TO SCALE	FUTURE TRAFFIC VOLUMES: PHASE 1 & FULL DEVELOPMENT	HAWAII TECHNOLOGY PARK	FIG. IV-7

would be near capacity in both the morning and afternoon peak hours. The ramp connections to H-2 would provide level of service D or better if a second lane is provided on them. During the afternoon rush hour, approximately 30 percent of the vehicles desiring to turn left onto the H-2 on ramp southbound would be unable to do so because of limited intersection capacity; they would have to use Kamehameha Highway as an alternate route.

As shown in Table IV-6, with full development of Melemanu Woodlands and the Hawaii Technology Park, peak-hour service levels on Golf Course Road and the ramps to and from the H-2 Freeway would be E or near capacity. Widening of the freeway south of the Leilehua Interchange to six lanes, three in each direction, would be necessary to improve freeway and ramp levels of service. If this were done, drivers would no longer divert to Kamehameha Highway, and the desired volumes could be accommodated on H-2 at levels of service D or better.

It should be noted that the foregoing analysis is based on traffic generation rates for the proposed Hawaii Technology Park project that are based on mainland experience. In all probability, the level of employment density (and, therefore, trip generation) assumed will not be achieved in the case of the proposed project. To the extent that it is not, the impact that the project would have on traffic flow would be less than those described above.

6.7 IMPACTS ON PUBLIC TRANSIT, AIRPORTS, AND HARBORS

When fully developed, the Hawaii Technology Park would be a major employment center for the island. At present, the nearest public transit route is along Kamehameha Highway. While this is within easy walking distance (0.25 mile) of the closest boundary of the HTP, it is at least a 20 minute walk to the closest point in Phase 2, and 30 minutes to the eastern end of the site. As industrial facilities are developed on the improved lots, there will be an increasing demand for the establishment of municipal bus service into the industrial area. The frequency with which the City is able to serve the project will depend on relative demand and equipment availability at the time. Hence, it is possible that the provision of bus service may lag behind the desire.

Firms of the type that are expected to locate in the HTP typically deal with low weight/high value products. As a result, they would probably generate relatively little increase in the volume of cargo entering and leaving the state by ship through Honolulu or Barbers Point harbors; however, such businesses could generate a considerable amount of air cargo traffic. So long as air passenger traffic remains high as a result of activity in the visitor activity, excess belly space in wide-bodied passenger aircraft is likely to be available for use by shippers. At any rate, it should be relatively easy to meet the air transportation needs of businesses locating in HTP and persons employed there. Because the new wells would be within the Pearl Harbor Ground Water Control Area, it will be necessary to obtain a permit from the Board of Land and Natural Resources (BLNR). In July, 1985, the BLNR allocated 1.0 MGD to the Honolulu Board of Water Supply for a new well in Wahiawa (Wahiawa II) which could be used to supply Phase 1 of the HTP. An allocation would have to be obtained for the proposed Mililani Mauka well system to supply Phase 2. At present, there is a balance of 8.3 MGD available from the Koolau subzone of the Pearl Harbor Ground Water Control Area; the BLNR could grant a portion of this to the BWS for use in the Hawaii Technology Park.

Table IV-6

Forecast Peak-Hour Levels of Service With and Without the Hawaii Technology Park

	Level of Service by Development Amount					
	w/o Project		Phase 1		Ultimate	
Intersection/Road Segment	AM	PM	AM	PM	AM	PM
Golf Course Road and:						
Kamehameha Highway	B	B	C	E	C	C
H-2 On Ramp	A	A	C	E	C	E
H-2 Off Ramp	B	A	A	C	D	E
Wikao Street	A	A	E	D	E	D
Ramps at H-2 Freeway:						
One-Lane On Ramp	A	A	C	D	n/a	n/a
One-Lane Off Ramp	A	A	E	C	n/a	n/a
Two-Lane On Ramp	n/a	n/a	n/a	n/a	C	E
Two-Lane Off Ramp	n/a	n/a	C	C	E	D

Notes:

(1) Without Project levels of service assume signalization of the intersections.

(2) As discussed in the text, the levels of service shown for "Without Project", "Phase 1" and "Ultimate Development" assume different roadway configurations.

(3) Service levels were estimated using procedures outlined in the following reports:

(a) Highway Capacity Manual (1965) - freeways, ramps, and other divided highways.

(b) Circular 212 - signalized intersections.

(c) Circular 281 - unsignalized intersections.

Source: Compiled by Belt, Collins & Associates from Parsons Brinckerhoff Ouade & Douglas, Inc. (1985:8 and 11).

7.0 AIR QUALITY IMPACTS

7.1 INTRODUCTION

A project such as the Hawaii Technology Park is primarily an "indirect" source of air pollution as defined in the Clean Air Act (U.S. Congress, August 1977) in that it serves as an attractor or generator of mobile sources, i.e., motor vehicles. The probable magnitude of such emissions, as well as their effects on ambient air quality, are discussed below.

In additional to mobile sources, it is conceivable that some occupants of the HTP may also desire to establish small stationary or point sources of air pollution as part of their operations. The exact nature and magnitude, and even the probability that such sources might one day be present, cannot be determined at this time. Hence, no assessment of the potential impacts of such hypothetical uses is presented herein. However, it should be noted that such sources are regulated by both Federal and State agencies, and requests for the establishment of such sources will be evaluated at the time they are proposed by both governmental permitting agencies and the Hawaii Technology Park Design Committee.

7.2 AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards is presented in Table IV-7 (U.S. Government, CFR 40, Part 50; State of Hawaii, Title 11, Chapter 50). Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards. Primary standards are intended to protect public health with an adequate margin of safety, while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values (Library of Congress, January 1974).

In the case of the primary automotive pollutants carbon monoxide (CO), oxides of nitrogen (NOx), and photochemical oxidants (Ox), there are only primary standards. Until 1983, there was also a hydrocarbons standard which was based on the precursor role hydrocarbons play in the formation of photochemical oxidants rather than any unique toxicological effect they had at ambient levels. The hydrocarbons standard was formally eliminated in January, 1983 (U.S. Environmental Protection Agency, January 1983).

The U.S. Environmental Protection Agency (EPA) is mandated by Congress to periodically review and re-evaluate the federal standards in light of new research findings (U.S. Congress, August 1977a). The last review resulted in the relaxation of the oxidant standard from 160 to 140 micrograms/cubic meter (ug/m3) (U.S. Environmental Protection Agency, February 8, 1979). The ongoing review has resulted in suggestions that the carbon monoxide (CO) and sulfur dioxide (SO2) standards be made more stringent, but final action has not been taken yet.

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities (Hawaii, State of, Department of Health, n.d.). The maximum downwind level of PM cannot be more than 150 ug/m3 above upwind levels as measured with a Hi-Volume sampler for a 12-hour period.

Table IV-7

Existing Ambient Air Quality Standards

Pollutant	Sampling Period	Federal Standards: Primary[1]	Federal Standards: Secondary[2]	State Standards
Suspended Particulate Matter (Micrograms per Cubic Meter)	Annual Geometric Mean	75	60	--
	Annual Arithmetic Mean	--	--	55
	Maximum Average in Any 24 Hours	260	150	100
Sulfur Dioxide (SO2) (Micrograms per Cubic Meter)	Annual Arithmetic Mean	80	--	20
	Maximum Average in Any 24 Hours	365	--	80
	Maximum Average in Any 3 Hours	--	1,300	400
Carbon Monoxide (CO) (Milligrams per Cubic Meter)	Maximum Average in Any 8 Hours	10	10	5
	Maximum Average in Any 1 Hour	40	40	10
Hydrocarbons (HC) Non-Methane (Micrograms per Cubic Meter)	Maximum Average in Any 3 Hours	160	160	100
Photochemical Oxidants (Micrograms per Cubic Meter)	Maximum Average in Any 1 Hour	240	240	100
Nitrogen Dioxide (NO2) (Micrograms per Cubic Meter)	Annual Arithmetic Mean	100	100	70
	Maximum Average in Any 24 Hours	--	--	150
Lead (Micrograms per Cubic Meter)	Calendar Quarter	1.5	1.5	N/A

[1] Intended to prevent adverse effects on public health.

[2] Intended to prevent adverse effects on public welfare including effects on comfort; visibility, vegetation, animals, aesthetic values, and soiling and deterioration of material.

Source: Compiled by Morrow, September 1985.

7.3 EXISTING AIR QUALITY

There is no continuous air monitoring station in the immediate vicinity of the project site; however, the State Department of Health does operate monitoring stations at Pearl City, some 7.5 miles south of the project and at Kalihi Kai, some 14 miles southeast. At those stations, only sulfur dioxide (SO_2) and total suspended particulates (TSP) are measured on a periodic basis (once every 6 days). Unfortunately, no continuous measurement of the principal automotive pollutants, i.e., carbon monoxide, hydrocarbons, or oxides of nitrogen, are made at the site.

The most recent monitoring data from the two sites are summarized in Tables IV-8 and IV-9. The results suggest that air quality in the vicinity is meeting even the stringent state standards although not by a large margin at the Kalihi Kai site in the case of particulates. In the past, occasionally elevated SO_2 concentrations at Pearl City have been associated with wind conditions which carry the plume from the nearby Waiau Power Plant towards the monitoring site. Federal standards appear to be met at all times.

The monitoring station nearest to the HTP site having a long-term continuous record of carbon monoxide measurements is at the Department of Health building in downtown Honolulu about 16 miles southeast of Mililani. A summary of recent monitoring data from that site is presented in Table IV-10. Carbon monoxide monitoring at the Department of Health building was discontinued in 1979 when the monitor was moved to a residential area in Kaimuki; however, after several years of very low CO levels at that site, the instrument was returned to the DOH building in 1983. The pre-1980 monitoring results indicated occasional violations of the state's 1-hour and 8-hour standards. Examination of meteorological data indicates that these occur most frequently during the winter months when "Kona" weather characterized by lower velocity, southerly winds occur more frequently. Federal standards appear to be met at all times.

During the November, 1976 through April, 1977 period, the State Department of Health conducted a study of carbon monoxide at several sites around the island of Oahu. Two of these sites were in the leeward Oahu area, i.e., Pearl Harbor Elementary School and Holy Family School. The data from these sites are summarized in Table IV-11, and show a few violations of the state's 1-hour and 8-hour CO standards, but no violations of federal standards.

The State Department of Health also monitors continuously for ozone on Sand Island, about 16 miles southeast of the project site. Photochemical oxidants (measured as ozone) are secondary pollutants formed in the atmosphere largely as a result of anthropogenic emissions of hydrocarbons and oxides of nitrogen. The results indicate that the state's 1-hour standard is met over 99% of the time. During 1983, it was exceeded only one time.

Finally, the State also has been having particulate samples analyzed for lead content. Generally, airborne lead levels have declined as anticipated due to the federal program for gradual phaseout of leaded gasoline. Particulate lead accumulated over the years in roadside soils and plants, however, will remain indefinitely in the area and provide inhalation exposure whenever dust is re-entrained in the air as a result of scouring winds or mechanical disturbance due to vehicular motion.

Table IV-8

Air Monitoring Data, Kalihi Kai, Oahu: 1983

Month	No. of Samples	Total Suspended Particulates 24-Hour Concentration (ug/m3) Min.	Max.	Mean
Jan 83	5	37	83	54
Feb 83	3	53	98	69
Mar 83	4	42	75	62
Apr 83	4	29	72	49
May 83	5	27	52	43
Jun 83	4	31	39	35
Jul 83	5	23	40	30
Aug 83	3	30	43	38
Sep 83	4	28	38	31
Oct 83	4	27	51	38
Nov 83	4	30	34	32
Dec 83	1	69	69	69
Annual	46	23	98	46

Source: Hawaii, State of, Department of Health.

Table IV-9

Air Monitoring Data, Pearl City, Oahu: 1983

	Total Suspended Particulates 24-Hr. Concentration (ug/m3)				Sulfur Dioxide (SO2) 24-Hour Concentration (ug/m3)			
Month	Samples	Min.	Max.	Mean	Samples	Min.	Max.	Mean
Jan 83	5	24	42	30	5	3	3	3
Feb 83	4	30	55	44	1	3	3	3
Mar 83	4	24	44	37	4	3	3	3
Apr 83	5	21	41	30	5	3	3	3
May 83	3	18	27	23	3	3	3	3
Jun 83	4	21	30	24	4	3	3	3
Jul 83	4	17	31	23	4	3	3	3
Aug 83	5	19	29	24	4	3	3	3
Sep 83	5	21	27	23	5	3	3	3
Oct 83	5	25	46	33	4	3	3	3
Nov 83	5	22	41	30	5	3	3	3
Dec 83	5	24	57	39	5	3	3	3
Annual	54	17	57	30	49	3	3	3

Source: Hawaii, State of, Department of Health.

Table IV-10

Air Monitoring Data, Department of Health in Downtown Honolulu: 1983

Month	Samples	Carbon Monoxide Concentrations (mg/m3)			
		1-Hr. Min.	1-Hr. Max.	8-Hr. Max.	Mean
Jul	455.0	0.0	3.7	1.5	0.3
Aug	679.0	0.0	4.9	2.4	0.4
Sep	641.0	0.0	4.8	2.4	0.8
Oct	667.0	0.0	5.2	1.6	0.5
Nov	666.0	0.0	7.5	3.0	0.9
Dec	700.0	0.0	8.5	3.1	1.2
Total:	3808.0	0.0	8.5	3.1	0.7

Source: Hawaii, State of, Department of Health.

Table IV-11

State of Hawaii Department of Health Carbon Monoxide Study: 1976-77

Site: Pearl Harbor Elementary School
Period: November 76 to January 1977
Sampling Days: 16

Averaging Period	Concentration (mg/m3)		No. of Violations	
	Minimum	Maximum	HAAOS	NAAOS
1-Hour	0.0	6.4	0	0
8-Hour	0.1	2.9	0	0
16-Hour	0.1	2.4	n/a	n/a

Site: Holy Family School
Period: Feb - Mar 77
Sampling Days: 17

Averaging Period	Concentration (mg/m3)		No. of Violations	
	Minimum	Maximum	HAAOS	NAAOS
1-Hour	0.9	12.4	2	0
8-Hour	0.9	5.3	1	0
16-Hour	0.8	4.3	n/a	n/a

Notes: HAAQS = Hawaii Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards
mg/m3 = milligrams per cubic meter

7.4 CLIMATE AND METEOROLOGY

7.4.1 Temperature

The National Climatic Data Center in its 1982 annual summary for Honolulu notes that:

> Hawaii's equable temperatures are associated with the small seasonal variation in the amount of energy received from the sun and the tempering effect of the surrounding ocean. The range of temperature averages only 7 degrees between the warmest months (August and September) and the coolest months (January and February) and about 12 degrees between day and night. Daily maximums run from the high 70s in winter to the mid-80's in summer, and daily minimums from the mid-60's to the low 70's. However, the Honolulu Airport area has recorded as high as 93 degrees and as low as 53 degrees (National Oceanographic & Atmospheric Administration, 1982).

Using Thornwaite's (1931) method of climatic classification, the project area falls in a "Subhumid" category with a Precipitation/Evaporation (P/E) Index of 49.

7.4.2 Surface Winds

An annual wind rose for the Mililani area is depicted in Figure IV-8. One year of data (1975) from the nearby Wheeler AFB (National Weather Service, 1975) were also analyzed in order to identify diurnal variation. The joint frequency data are presented in Tables IV-12 and IV-13. The wind rose not surprisingly shows the northeast trade wind dominance on an annual basis. The 0650 and 1650 hours joint frequency tables, however, show distinctly different distributions than the 24-hour average, both in wind speed and direction. In the early morning hours, calms occurred 50% of the time, while low wind speeds (0-3 knots), rather equally distributed in direction, accounted for an additional 21%. In the late afternoon, by contrast, northeasterly tradewinds at 4 - 12 knots prevailed (greater than 90%).

7.5 MICROSCALE ANALYSIS

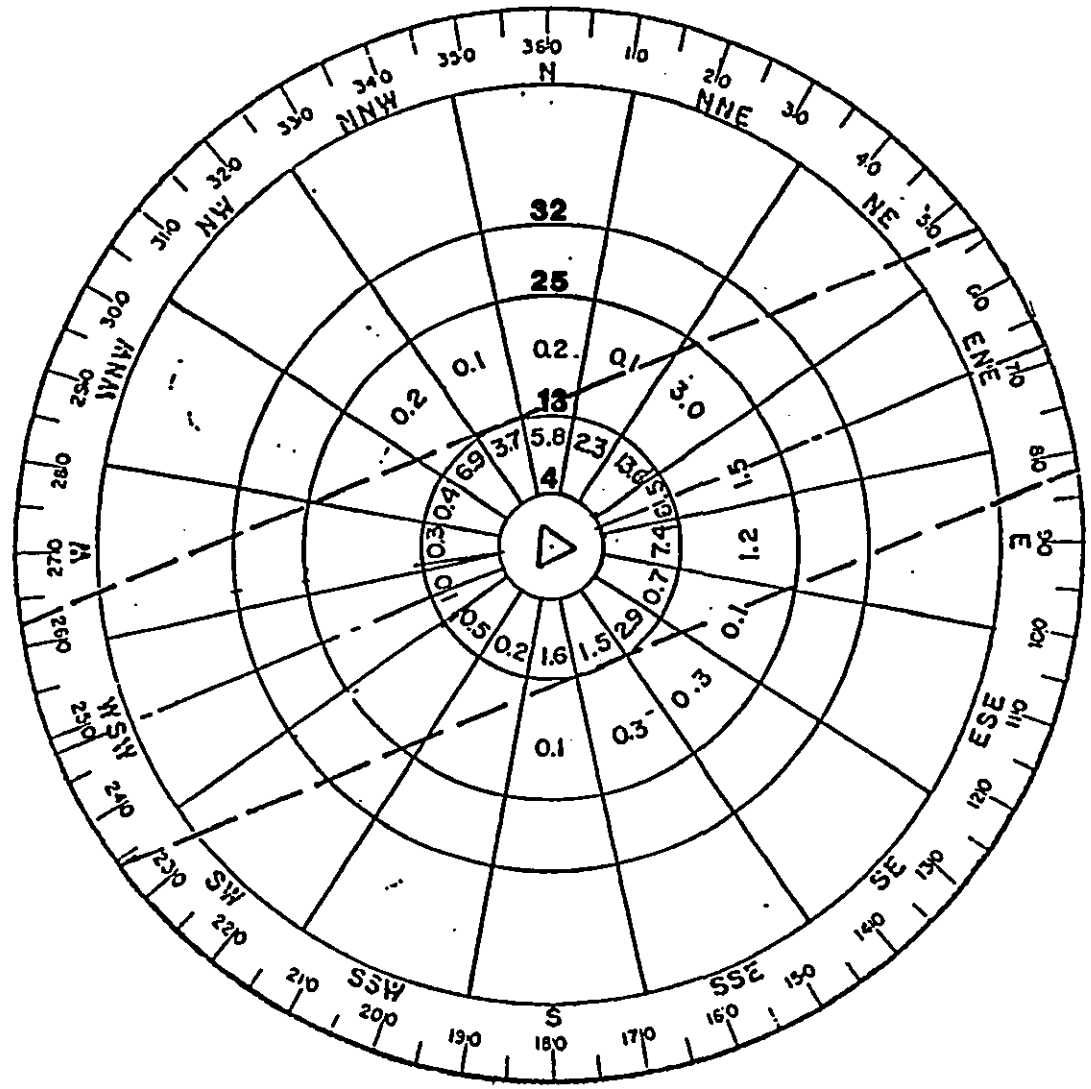
7.5.1 Emission Factors

Automotive emission factors for carbon monoxide were generated for calendar years 1985, 1992, and 2001 using the Mobile Source Emissions Model, or MOBILE-2 as it is called (U.S. Environmental Protection Agency, February 1981). To localize the emission factors as much as possible the age distribution for registered vehicles in the City & County of Honolulu (Department of Data Systems, m.s., August 1983) was input in lieu of national statistics.

7.5.2 Mobile Source Activity

7.5.2.1 Methodology

Due to the present state-of-the-art in air quality modeling, analyses such as this generally focus on estimating concentrations of non-reactive pollutants. For projects involving mobile sources as the principal air pollution source, carbon monoxide is normally selected for modeling because, at one month, its half-life in the atmosphere is relatively long (Seinfeld, 1975), and it comprises the largest fraction of automotive emissions.



SOURCE: MORROW, SEPTEMBER 1985:, BASED ON DATA COLLECTED IN 1975

	ANNUAL WINDROSE WHEELER AIR FORCE BASE	HAWAII TECHNOLOGY PARK	FIG. IV-8

Table IV-12

0650 Windrose - Wheeler AFB, Hawaii, 1975

Direction	Wind Speed (kts) 0-3	4-7	8-12	13-18	>18	TOTAL
N	.0028	.0223	.0084			.0334
NNE	.0028	.0279	.0195			.0501
NE	.0167	.1309	.1281	.0195		.2953
ENE		.0919	.1727	.0195		.2841
E		.0362	.0696	.0056		.1114
ESE	.0028	.0167	.0139			.0334
SE	.0028	.0195	.0084			.0306
SSE	.0028	.0279	.0111	.0028		.0446
S	.0028	.0056	.0028			.0111
SSW		.0111				.0111
SW		.0028				.0028
WSW						.0000
W		.0028	.0028			.0056
WNW	.0028	.0028				.0056
NW		.0139	.0084			.0223
NNW	.0084	.0279	.0028			.0390
TOTAL	.0446	.4411	.4680	.0279		.9804
		CALMS: .0195				1.0000

Source: Morrow, September 1985.

Table IV-13

1650 Windrose - Wheeler AFB, Hawaii, 1975

Direction	Wind Speed (kts) 0-3	4-7	8-12	>12	TOTAL
N	.0083	.0028			.0111
NNE	.0250	.0250			.0500
NE	.0250	.0194	.0083		.0528
ENE	.0056	.0361	.0194		.0611
E	.0139	.0278	.0056		.0472
ESE		.0083			.0083
SE		.0056	.0028		.0083
SSE		.0056	.0056		.0111
S					.0000
SSW	.0028	.0028			.0056
SW	.0083	.0028			.0111
WSW	.0028				.0028
W	.0111	.0056	.0028		.0194
WNW	.0250	.0139			.0389
NW	.0667	.0639			.1306
NNW	.0167	.0194			.0361
TOTAL	.2111	.2389	.0449		.4944
		CALMS: .5056			1.0000

Source: Morrow, September 1985.

In this instance, microscale screening analyses were performed for the two intersections which appeared to have the greatest potential for traffic congestion and, therefore, local air pollution impacts as well. These were the junctions of Golf Course Road at Kamehameha Highway and Wikao Street at Golf Course Road. Motor vehicle activity data, i.e., a.m. and p.m. peak-hour volumes were provided by Parsons, Brinckerhoff, Quade & Douglas, Inc. (April 1983 and September 1984). The screening focused on the morning peak traffic hour because the joint occurrence of maximum source activity (peak traffic volume) and the probabilty of adverse meteorology (low wind speeds and stable atmosphere) is greatest at that time of day.

Because of the generally low level of existing and projected urbanization in the area, it was assumed that no "heat island" effect (with its accompanying increase in turbulence) would occur. Hence, a stable atmosphere (Category "F" as defined by the U.S. Environmental Protection Agency, 1973) and 1 meter/second wind speed were assumed as worst case meteorological conditions. If ongoing urbanization were to lead to an unexpected increase in turbulence in the years ahead, dispersion of pollutants would be increased, and the ambient concentrations would tend to be lower than those reported here.

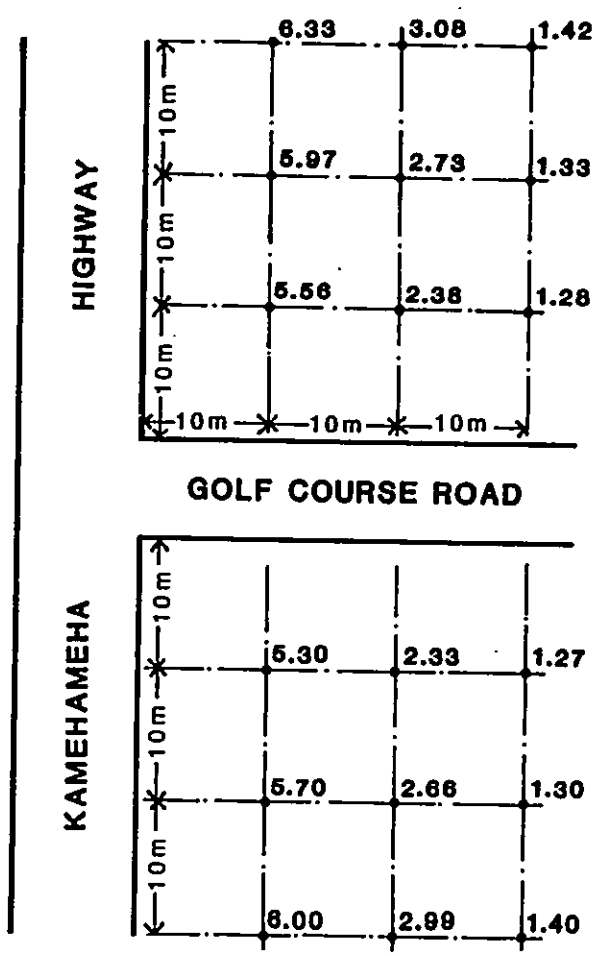
The U.S. Environmental Protection Agency's computer simulation model PAL was employed to estimate near-roadway CO concentrations. An array of receptor locations arranged around the various intersection at distances of 10 to 30 meters from the road edge were used in the model.

Three different scenarios were evaluated in the air quality impact analysis: (1) existing conditions (1985), (2) future without the project (1992), and (3) ultimate development with the project (2001).

7.5.2.2 Results

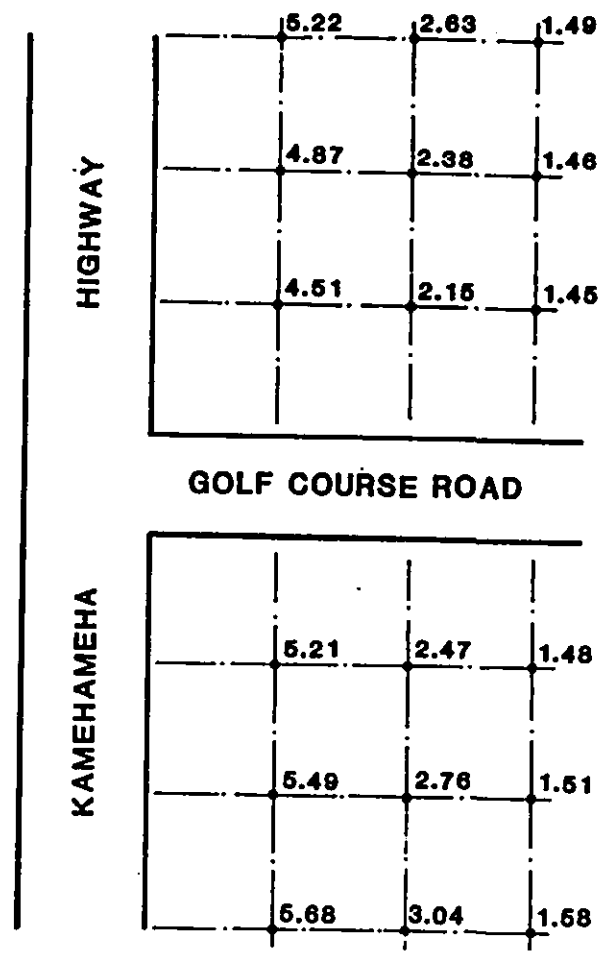
The results, presented in Figures IV-9 and IV-10, suggest that current CO levels in the vicinity of the intersections studied are all well within State, and therefore Federal, ambient air quality standards. By 1992, with the additional residential development planned for the area, traffic volumes and CO levels will generally rise. Predicting queueing at the Golf Course Road - Wikao Street intersection results in worst case CO levels approaching the state's 1-hour standard.

By the year 2001, with the additional traffic generated by the proposed project at its ultimate development stage, the state 1-hour standard would appear to be exceeded in the vicinity of both intersections, again primarily due to queueing at the intersection approaches, particularly on Golf Course Road (eastbound) and Kamehameha Highway (northbound). More detailed analysis of the 1975 Wheeler AFB surface observations indicates the frequency of occurrence of wind and stability conditions necessary to cause those maximum carbon monoxide levels. They indicate that in the case of the Kamehameha Highway intersection there is a zero (0) probability of having the light southerly winds and stability necessary to cause the highest concentrations at receptors R1 through R9. On the other hand, northwesterly winds needed to create high concentrations at receptors R10 through R18 appear to occur at a 9.3% frequency, meaning that about 34 mornings per year at 7:00 a.m. stable, light wind conditions occur. Fortunately, the receptor sites having the highest concentrations are located to the southeast of the intersection in areas with no development.



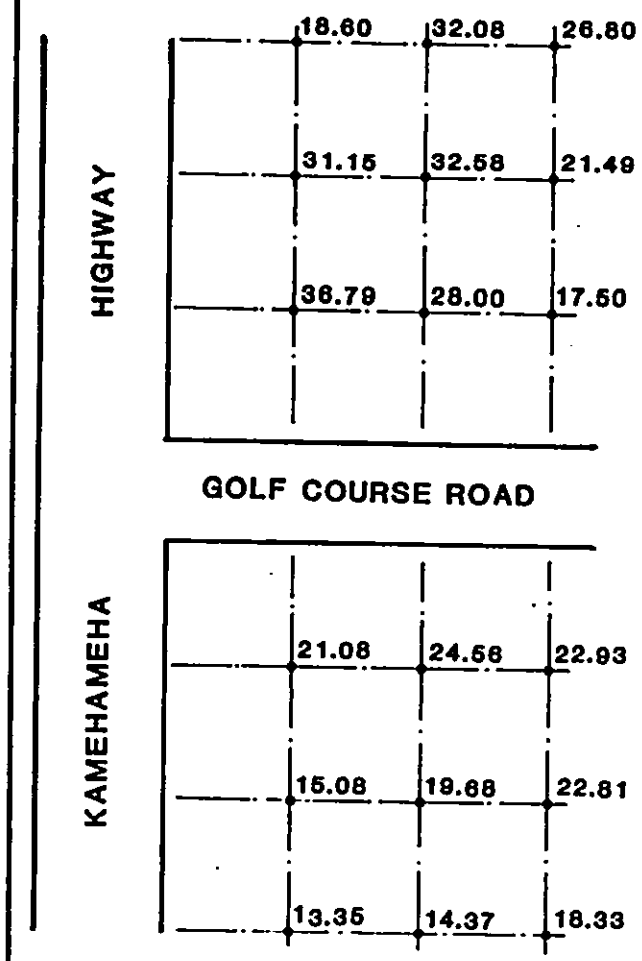
CO CONCENTRATION (mg/m3)

1985 EXISTING



CO CONCENTRATION (mg/m3)

1992 W/O PROJECT



CO CONCENTRATION (mg/m3)

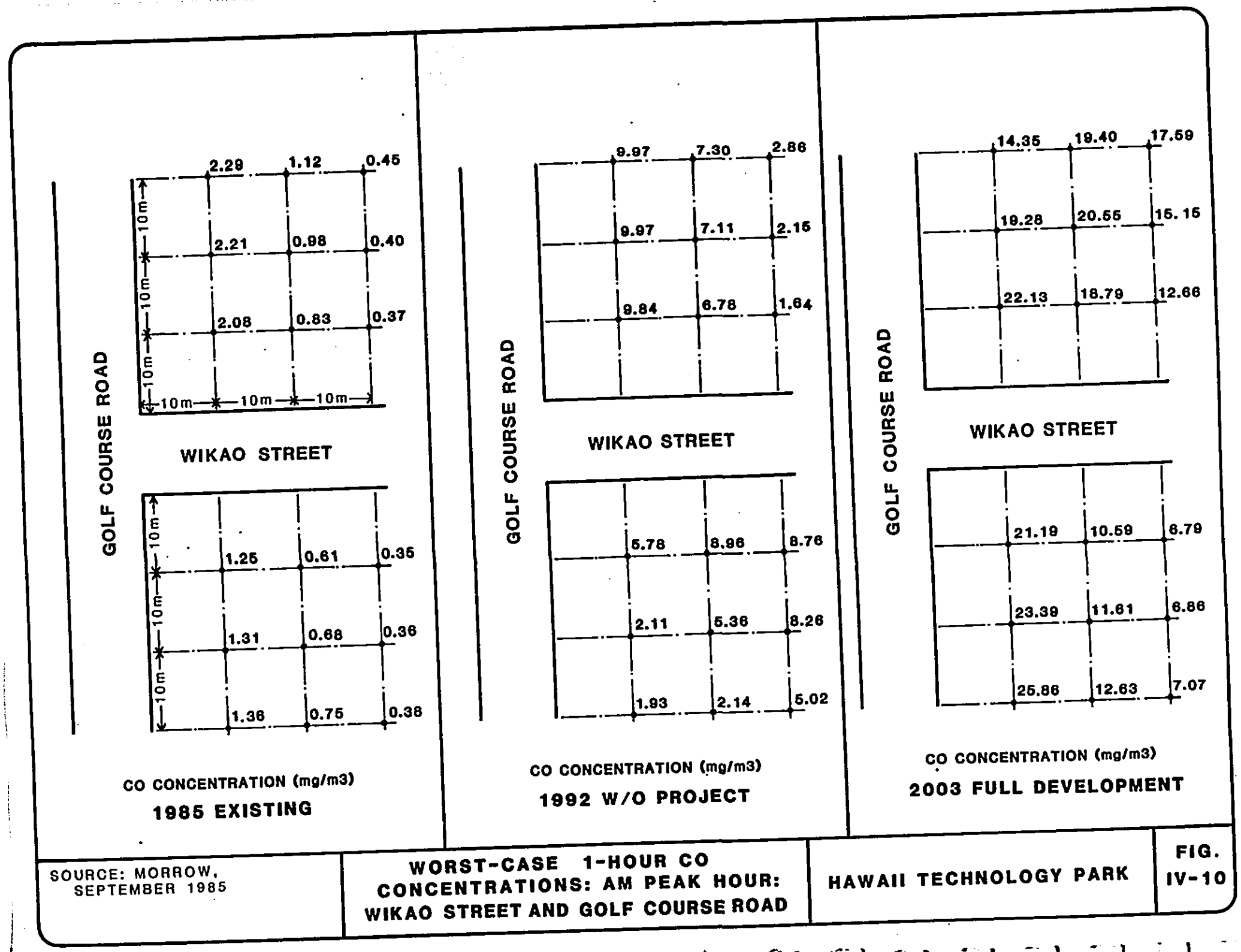
2003 FULL DEVELOPMENT

SOURCE: MORROW, SEPTEMBER 1985

WORST CASE 1-HOUR CO CONCENTRATIONS : AM PEAK HOUR KAMEHAMEHA HIGHWAY & GOLF COURSE ROAD

HAWAII TECHNOLOGY PARK

FIG. IV-9



SOURCE: MORROW, SEPTEMBER 1985

WORST-CASE 1-HOUR CO CONCENTRATIONS: AM PEAK HOUR: WIKAO STREET AND GOLF COURSE ROAD

HAWAII TECHNOLOGY PARK

FIG. IV-10

At the Golf Course Road - Wikao Street intersection, the frequency of northeasterly and westerly light winds are 3.3% and 1.4%, respectively suggesting that on 5 to 12 mornings per year those high concentrations might occur under the projected traffic conditions. Again, there is no existing or proposed development in these areas; hence, there would be little public exposure to CO concentrations above the State ambient air quality standard for this pollutant.

7.6 CONCLUSION AND SUGGESTED MITIGATIVE MEASURES

Based on the foregoing analysis, it appears that if the proposed Hawaii Technology Park and Melemanu Woodlands Phase III projects are fully developed, the resulting traffic increase may cause localized carbon monoxide hot spots which could exceed the State's 1-hour CO standard during the a.m. peak traffic hours. The types of measures that could reduce this adverse impact include:

- reduction in project scope to reduce traffic volumes;
- additional highway/intersection improvements to reduce queueing at intersections;
- measures to encourage or force greater use of public transit;
- reevaluation of data that were used to generate traffic projections; and
- plans for encouraging car-pooling by employees.

8.0 NOISE IMPACTS

8.1 INTRODUCTION

Following initial review of the characteristics of the proposed project, three noise-related issues were identified for in-depth analysis. One of these concerned the amount of noise that would be generated by the proposed project, principally by the vehicular traffic which it would generate. The other two involved the extent to which the project site is subject to noise from adjacent military activities at Wheeler Airfield and the East Range training area of Schofield Barracks which would make it unsuitable for the proposed use. Construction noise for the type of structures envisioned is limited in both intensity and duration. As phased development of the Hawaii Technology Park continues, noise levels on sites adjacent to construction areas would be elevated, but no serious disruption of the ongoing activities or other occupants is expected. The technical analyses were carried out by the acoustical engineering firm of Y. Ebisu & Associates.

8.2 NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

Because of the great physical, temporal, and spatial variability which it exhibits, many different systems have been developed to characterize environmental noise. The two currently used to relate traffic noise levels to land use compatibility, and to assess environmental noise in general, are the Equivalent Noise Level (Leq) and the Day-Night Average Sound Level (Ldn). Both of these descriptors are averages of instantaneous A-weighted Sound Levels as read on a standard Sound Level Meter. The Ldn descriptor is used in this analysis because it is applicable to aircraft noise sources as well as vehicular traffic. Because of the short duration of impulsive noise sources

such as artillery and other weapons firing in the East Range training areas near the project site, it is difficult to incorporate them in the Ldn figures, and they are addressed separately.

Current Federal noise standards and acceptability criteria for residential uses are shown in Table IV-14. As a general rule, noise levels of 55 Ldn or less occur in rural areas, or in urbanized areas which are shielded from streets carrying large volumes of traffic. In urbanized areas, noise levels typically range from 55 Ldn to 65 Ldn, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to noise levels of about 65 Ldn, and the traffic noise may reach 72 Ldn where high speed freeways are involved, whereas noise levels at interior buildings that are shielded by intervening structures may be 55 Ldn or less.

An exterior noise limit of 65 Ldn is used nationally for the purposes of determining noise acceptability for funding assistance from Federal agencies such as FHA, HUD, and VA (U.S. Department of Housing and Urban Development, July 12, 1979). Because of Hawai'i's open living conditions, the predominant use of naturally-ventilated dwellings, and the relatively low exterior-to-interior sound attenuation which these afford, an exterior noise level of 65 Ldn does not eliminate all risks of adverse noise impacts. For these reasons, and as recommended by the U.S. Environmental Protection Agency (March 1974), a lower level of 55 Ldn is considered the "unconditionally acceptable" (or "near-zero risk") level of exterior noise for these uses. However, after considering the cost and feasibility of applying a stringent 55 Ldn standard, government agencies have selected 65 Ldn as a more appropriate regulatory standard.

An exterior noise level as high as 75 Ldn is generally considered acceptable for commercial, industrial, and other uses that are not noise-sensitive. For commercial and industrial land uses, "compatible" (or "Unconditionally Acceptable" noise levels are approximately 10 Ldn higher than for residential uses. This is due to people's generally higher noise tolerance when in non-residential settings and to the higher probability of total closure and air-conditioning of the types of structures that are envisioned at the Hawaii Technology Park. Naturally-ventilated offices and other commercial establishments are an exception to this because of their open character; for these, 65 Ldn is usually taken as a maximum.

As noted previously, the Ldn descriptor is not well suited for use in describing impulsive noise sources of short duration. The use of penalty factors, such as adding 10 dB to measured sound levels or using C-weighted filters has been proposed (Acoustical Society of America, proposed BSR/ASC S12.4, n.d.). However, at this time the relationship between levels of impulsive noise sources and land use compatibility have not been as firmly established as have the relationships for non-impulsive sounds.

Occupants of the proposed Hawaii Technology Park must comply with State Department of Health and City and County Comprehensive Zoning Code (CZC) noise regulations (Hawaii, State of, Department of Health, November 6, 1981; Honolulu, City and County of, August 8, 1968). These are expressed in maximum allowable property line noise limits. Although they are not directly comparable to noise criteria expressed in Ldn, State DOH noise limits for industrial land equate to approximately 76 Ldn, and CZC limits equate to 69 Ldn.

The DOH noise limit for impulsive sounds is 80 dB (Lmax) for industrial lots, and has been used to regulate sources such as pile drivers. Under the DOH noise regulations, impulsive sounds which exceed 80 dB are allowable providing they do not exceed

Table IV-14

Exterior Noise Exposure Classification: Residential Uses

Noise Exposure Class	Day-Night Sound Level	Equivalent Sound Level	Federal Standard(1)
Minimal Exposure	Not Exceeding 55 Ldn	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 Ldn But Not Above 65 Ldn	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 Ldn But Not Above 75 Ldn	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe	Above 75 Ldn	Above 75 Leq	Unacceptable

(1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, the two are equivalent if: (a) heavy trucks do not exceed 20 percent of the total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 p.m. and 7:00 a.m. does not exceed 15 percent of average daily traffic flow.

Source: Federal Interagency Committee on Urban Noise, June 1980.

120 impulses (or 2 minutes total duration) per 20 minute period. The CZC limits on impulsive noise are more complex and require the use of an "impact noise analyzer". In general, the DOH noise regulations are enforced first following receipt of a citizen complaint, and the CZC noise regulations are enforced only if the complaint is not resolved by the Department of Health. As a result, the impulsive noise provisions of the CZC have rarely (if ever) been enforced.

8.3 EXISTING NOISE LEVELS

8.3.1 Non-Traffic Noise

Existing noise levels vary significantly within the project site. In the eastern end of the site, the background ambient noise level is estimated at 45 to 50 Ldn. During periods of activity at Wheeler Air Force Base and the East Range of Schofield Barracks, the noise levels of military aircraft and ground vehicles probably increase this by about 10 dB. Minimum sound levels of 30 to 35 dB occasionally occur, particularly during still periods in the night. Currently, the dominant noise sources are rotary and fixed wing aircraft and military vehicles; during some training periods, sound from weapons firing and battle noise simulators is also evident.

The results of on-site noise measurements are shown in Table IV-15. As shown by the sampling site locations shown on Figure IV-4, the majority of the data was obtained in the eastern (Phase II) portion of the site. In general, aircraft noise events did not exceed 80 dB (Lmax), and their mean level was approximately 70 dB (Lmax). One relatively low (estimated at 500 feet above ground level) overflight of the project area by a helicopter (believed to be a UH-1) did occur during the course of the noise monitoring. It produced an Lmax of between 85 and 90 dB. The average or Equivalent Noise Levels (Leq) measured on the site was approximately 55 dB during periods of air or ground activity. If the sound levels recorded during the monitoring are representative of usual conditions, and there is every reason to believe that they were, then the level of activity would have to increase by an order of magnitude, to approximately 2,750 flybys per day (and 365 days per year) for noise levels at the site to reach 65 Ldn.

Single shots and bursts of weapons firing were measured between 2:00 pm and 3:40 pm on the afternoon of September 5, 1985. The larger weapon was fired in bursts and is believed to have been a large caliber machine gun. The quieter weapon was fired singly and is believed to have been an M-16. It is estimated that the firing occurred approximately one mile from the monitoring site. Lmax (using the FAST meter response) during the weapons firings is estimated at 70 to 75 dB for the machine gun and 60 to 65 dB for the quieter M-16.

8.3.2 Traffic Noise

The existing traffic along the H-2 Freeway in the vicinity of the project site produces roadside noise levels between 65 and 70 Ldn. These are in the "Significant Noise Exposure, Normally Unacceptable" category for residential uses. However, since existing noise developments along H-2 south of the project site are sparse and are located at setback distances of 200 feet or more with partial or complete shielding, existing traffic does not impact a significant amount of residential land. Along Kamehameha Highway, the existing 65 Ldn contour line is estimated to lie only slightly outside the highway right-of-way.

Table IV-15

Summary of Maximum Recorded Sound Levels

		Measured Maximum Sound Levels (in dB)					
		Northeast Site			Southeast Site		
Source	Track	Mean	Std.Dev.	# Samples	Mean	Std.Dev.	# Samples
F-4	Ohvd.	72.6	5.4	3	--	--	--
C-130	A	74.0	--	1	--	--	--
Helo	A	69.2	4.2	14	69.1	0.8	6
Helo	B	69.8	4.4	4	71.9	3.0	2
Helo	low Ohvd.				80.8	5.1	5
Helo	Misc.	65.3	3.1	3	--	--	--
Helo	Bivouac	--	--	--	68.9	2.2	10
OV-10	A	68.4	--	1	--	--	--
OV-10	Local	68.2	0.9	2	--	--	--
C-12	A	68.6	--	1	--	--	--
C-12	B	77.7	--	1	69.1	4.0	2
GA-1	Misc.	60.5	4.2	3	--	--	--
GA-2	Misc.	63.2	--	1	--	--	--
Motor Vehicles		62.6	4.5	9	--	--	--
Constr. Equipment		72.6	2.4	3	--	--	--
Machine Guns		--	--	--	64.6	2.5	13
Small Arms		--	--	--	54.0	2.9	3

(1) The aircraft grouped as "A-Track" were observed to have been flying a straight ground track to the north of the project boundary. Aircraft grouped as "B-Track" were observed to have been crossing over the eastern end of the project site while headed east.

(2) The OV-10s grouped as "Local" were observed to have been flying a right-hand departure pattern, crossing the project site during climbout, and heading north after returning to WAFB.

(3) The helicopters grouped as "Bivouac" were observed flying in the right-hand racetrack pattern beyond the eastern end of the project site, with groups of soldiers suspended below. The helicopter grouped as "Low Overhead" made close passes which produced the highest noise levels.

Source: After Y. Ebisu & Associates, September 1985:11 and 12.

Traffic noise is generally inaudible at the eastern end of the Hawaii Technology Park site because of the distance between it and the roadways. Because of its greater proximity to Wikao Street and the H-2 Freeway, traffic noise levels at the western end of the project site are higher, but even there they are below 55 Ldn. This is because of the low traffic volume on Wikao Street and the shielding provided by the fact that the Freeway is in a cut below Golf Course Road.

8.4 EXPECTED NOISE IMPACTS

8.4.1 Forecast Noise Levels

Predictions of future traffic noise levels were made using the traffic forecasts contained in Section 6 of this chapter. The extent to which traffic noise related to the Hawaii Technology Park would increase noise levels adjacent to roadways serving the area is summarized in Table IV-16. The effect that these increases would have on the distance between the roadway centerlines and the 60, 65, and 70 Ldn contours is given in Table IV-17.

As indicated by the information presented in the tables, traffic resulting from full development of the Hawaii Technology Park would cause measurable increases in ambient noise levels on areas adjacent to roadways. The expected increases range from about 3.0 dB adjacent to the H-2 Freeway south of Golf Course Road to 0.5 dB adjacent to Kamehameha Highway north of the project site.

"With-project" noise levels along the H-2 Freeway immediately south of Golf Course Road are expected to be similar to current noise levels along the H-1 Freeway near Waipahu. Future "with-project" traffic noise levels along Kamehameha Highway are likely to be similar to those which now exist along the highway in the vicinity of Crestview and Gentry-Waipio. The highest traffic noise levels within the Hawaii Technology Park itself are expected to be about 68 dB; these would occur at the western end of the proposed project where traffic volumes are highest.

8.4.2 Significance of Project-Related Changes in Noise Levels/Exposure

8.4.2.1 Traffic Noise

For reasons cited below, the impact that traffic noise from the proposed project would have on development adjacent to the H-2 Freeway is expected to be minimal. First, the majority of the land bordering the freeway is vacant or in agricultural use. Second, while a few existing homes at Mililani Town are within 200 to 300 feet of the freeway centerline, most of the windows of these homes are shielded from roadway noise by the top edges of the freeway cut at the Mililani Town overpass. Finally, while the topmost floors of existing high-rise apartments along Waikalani Drive are in a direct line-of-sight with the H-2 Freeway, the units are set back a minimum of 500 feet from the Freeway centerline; this is enough to reduce noise levels to 65 Ldn or less.

Traffic noise associated with the proposed project is also expected to have little significant effect on ambient noise levels along Kamehameha Highway between Golf Course Road and Waikalani Drive; this is due to the 80 to 100 foot setback distances of existing military housing and to the presence of undeveloped land east of the Freeway. Due to the greater density of adjacent residential development, the potential is greater for traffic noise impacts along Kamehameha Highway south of Waikalani Drive, but they were not evaluated as part of this study. Factors which would tend to mitigate

Table IV-16

Project-Related Changes in Traffic Noise Levels

Location	Existing Ldn	Project Increase	Non-Project Increase	Future Ldn with Hawaii Technol.Park
H-2 Freeway (south)	67.9	3.0	0.6	71.5
H-2 Freeway (north)	67.2	--	--	67.2
Kamehameha Hwy.(south)	65.8	1.5	0.3	67.6
Kamehameha Hwy.(north)	65.4	0.5	0.8	66.7
Wikao Street	52.3	--	7.0	59.3
HTP Internal Street	--	68.3	0.0	68.3

Note: Ldn values calculated at 100 feet from the H-2 Freeway centerline and 50 feet from the centerline of the other roadways.

Source: Compiled by Belt, Collins & Associates based on calculations by Y. Ebisu & Associates.

Table IV-17

Existing and Future Distances to
60 Ldn, 65 Ldn, and 70 Ldn Noise Contours

Location	60 Ldn Setback (in feet)		65 Ldn Setback (in feet)		70 Ldn Setback (in feet)	
	Existg.	Future	Existg.	Future	Existg.	Future
H-2 Freeway (south)	651	1,113	308	526	146	249
H-2 Freeway (north)	590	590	279	279	132	132
Kamehameha Hwy.(south)	122	160	57	74	26	3
Kamehameha Hwy.(north)	115	140	53	65	25	30
Wikao Street	--	45	--	21	--	10
HTP Internal Street	--	178	--	83	--	39

Notes: All setback distances are to the roadway centerlines. Ldn assumed to be equal to AM Peak Hour Leq for H-2 Freeway, and 1 dB greater than AM Peak Hour Leq for other roadways. Setback distances are for unobstructed line-of-sight conditions. As noted in the text, many roadway sections are in cuts that provide significant noise attenuation; as a result, in many instances the actual noise levels would be lower than those reported here.

potential traffic noise impacts in that area are the large setback distances used at Mililani Town and Gentry Waipio; the use of sound attenuating walls at Mililani; and the expected reduction in project-related traffic south of Mililani town as employees of the Hawaii Technology Park who live at Mililani turn into that development.

The highest traffic noise levels within the Hawaii Technology Park site itself -- 68 Ldn along the spine road right-of-way -- would occur near the entrance to the project. Noise levels would decrease by 3 Ldn units for each halving of the traffic volume along the roadway. This level of traffic noise is in the "Acceptable" range for the light industrial and commercial land uses that are proposed.

8.4.2.2 Aircraft Noise

Aircraft noise on the project site is not expected to exceed 65 Ldn on an annually averaged basis. Although aircraft flyby events are generally below 75 dB (Lmax), they are audible at long distances due to the low existing ambient noise levels. The noise levels produced by such aircraft flybys are similar to those produced by a quiet diesel truck operating 50 feet from the listener, and they are relatively simple to attenuate if required for interior office/commercial spaces.

The 80 to 85 dB (Lmax) levels experienced in areas directly under the local traffic pattern for fixed-wing aircraft are similar to the sound levels produced by a moderately noisy diesel truck operating at a distance of 50 feet. Although the aircraft flybys will be clearly audible in outside areas, the noise can be attenuated using conventional construction materials so that acceptable interior noise levels can be achieved. The exterior aircraft noise levels that are forecast are not high for commercial and light industrial land uses.

8.4.2.3 Military Weapons (Simulator) Firings

Noise produced by the firing of M-16 rifles would remain below the State Department of Health limits at the property line under most conceivable conditions. Noise from the louder machine guns would also remain beneath the DOH limits so long as they are fired at least 950 feet from the boundary of the Hawaii Technology Park site. Artillery and grenade noise simulators, which produce louder sounds than the rifles or machine guns, would be in compliance with DOH standards at the property line of industrially-zoned parcels so long as they do not exceed 120 explosions in any 20-minute period.

The future occupants of the proposed project will be able hear the weapons and battle noise simulator firings while out-of-doors, particularly in the Phase II portion. The acceptability of this type of noise to park users will depend upon their noise sensitivity and attitudes. While the possibility of complaints to the military by park users cannot be completely ruled out, the likelihood of such complaints is certainly much lower for an industrial use such as is proposed than it would be for a residential project.

8.4.3 Potential Mitigation Measures

The primary source of project-related noise is vehicular traffic moving to and from the proposed facility, and there is little that can be done by Oceanic Properties to reduce this at its source. However, there are several steps which could be taken to minimize the effects of the traffic noise on the occupants of the project. By far the most important of these is to maintain adequate setbacks between roadways and buildings, but in specialized circumstances noise barriers might also be appropriate.

The effect of aircraft noise on the project could be minimized by establishing corridors for Wheeler Air Force Base aircraft that keep air traffic to the north and east of the project. It might also be advantageous to locate large structures along the northeastern edge of the project to serve as sound attenuation barriers for the southern and western portions of the industrial park.

Finally, it may be possible to use pulsed laser weapons simulators instead of blank ammunition for some of the training activity in East Range. These new technology devices are currently being used at the Army's National Training Center at Fort Irwin, California (IEEE Spectrum, March 1985); in addition to reducing noise levels, they have the ability to score "kills" under simulated battlefield conditions. The use of devices such as these could be beneficial over the long term should training activities in East Range intensify.

9.0 VISUAL IMPACTS

9.1 APPEARANCE AND DESIGN CONTROLS

The Hawai'i Technology Park has been designed as a low density, low rise industrial area which will take advantage of the many panoramas available from the site. Emphasis has been on creating a visually aesthetic environment for on-site occupants as well as off-site bypassers. An open, park-like atmosphere is stressed in the HTP plan, with landscaped open space accounting for a minimum of 30% of each user space (Hawai'i Technology Park Plan, p. 20).

The northern border of the site faces the Leilehua Golf Course and the Schofield East Range Military Reservation, and is lined with mature eucalyptus trees. These trees act as a buffer and natural boundary. The undeveloped expanses of the golf course and military reservation, beyond the trees extend and enhance the open, park-like feel of the site. By retaining these trees, the views from the site to the north would remain essentially unchanged. Panoramic views to the west, east and south would be maintained throughout Park development and completion. The developmnt plan calls for the establishment of open areas and walkways which take full advantage of vistas of Waikakalaua Gulch and neighboring pineapple fields as well as the Waianae and Ko'olau Mountain Ranges, Diamond Head Crater, and the Pacific Ocean.

The site itself would be heavily landscaped, thus softening on site visual impacts of buildings and infrastructure development. Design controls have been specified in the Hawai'i Technology Park's Covenants, Conditions and Restrictions. These controls act as legal enforcement mechanisms to ensure consistently high quality design.

9.2 VIEWS OF SITE FROM ADJOINING PROPERTIES

Views of the site from surrounding areas would be only slightly impacted by the proposed project. Intensive landscaping and the maintenance of existing eucalyptus trees would minimize the visibility of structures and roadways from offsite viewers. Off-site, looking towards the property from the vantages of the Leilehua Golf Course and the military reservation, eucalyptus trees would continue to dominate the view. Structures would be only faintly visible through the trees due to the intensity of on-site landscaping and the relatively low density nature of the design plan.

9.3 VIEWS FROM ADJOINING HIGHWAYS

The project site would remain relatively invisible to travelers along the H-2 Freeway. This is because the freeway is situated in a cut which is well below the plateau on which the proposed development would take place. Occupants of vehicles going to Melemanu Woodlands Phases II and III would notice the changed landscape. Impacts, again, would be minimal due to intense landscaping and the low-density, low-rise nature of the project.

10.0 ARCHAEOLOGICAL AND HISTORICAL IMPACTS

10.1 EXISTING FEATURES

The project site lies within the ahupua'a of Waikele in the ancient district (moku) of Ewa. It is bounded to the north by Waianae Uka ahupua'a and to the south by the valley of Waikakalaua Stream. No Land Commission Awards are shown on the tax map covering the area, indicating that it was probably sparsely populated in the mid-1800s. Minutes of Privy Council meetings in 1846 indicate the presence of taro patches in upper Waikakalaua; the exact location is unknown, but it the area just south of the survey area is well-suited to taro, and the reference could have been to it. Records from the following year show the granting of a lease in Waikakalaua to an individual for use as pasturage, and it could also have been near the project site.

A review of published source material conducted at the outset of planning for the proposed Hawaii Technology Park failed to reveal any reference to historic or archaeologic sites on the project site. McAllister's comprehensive inventory of Oahu sites published in 1931 listed several features within a two-mile radius of the property, including Site 204, Oahunui Stone; Site 130, Moaula Heiau; Site 131, Heiau o Umi; Site 218, Kukaniloko; and Site 219, Ho'olonopahu Heiau. Waikakalaua and Kipapa Gulches are also the scene of a reported battle between an invading army from the island of Hawaii and warriors fighting for Mailikukahi, ancient chief of Oahu. None of these sites has any direct relationship with the Hawaii Technology Park site, and most have reportedly been destroyed (Hommon & Ahlo, March 1983).

After years of pineapple cultivation, it was judged unlikely that cultural artifacts would remain on the plateau portions of the HTP site. However, since isolated artifacts have been found at the margins of fields elsewhere in Hawaii, they were thoroughly examined from the roads which run along the perimeter of the site. No artifacts or other evidence of previous use were found.

Following inspection of the field borders, the survey crew concentrated on the undisturbed areas within the two small gulches that transect the HTP site. During the course of their sweeps of the gulches, only one archaeological site (given the designation 50-80-09-3401) and scattered rubbish were encountered. The rubbish includes rubber tires, fragments of porcelain plates, and other debris that are clearly of modern origin.

The archaeological site is a terrace measuring about 17 meters by 2 to 4 meters wide by 0.3 to 0.6 meter high. Only a small part of the wall is believed to be within the boundaries of the HTP site. The terrace consists of a stacked retaining wall composed of small boulders and cobbles of weathered basalt. It parallels the bed of Waikakalaua Stream, and is about 1.5 meters above it. Hommon and Ahlo (1983) speculate that the feature may have been constructed as a free-standing wall, with the terrace being formed as water-born soil washed down slope and was deposited behind

it; alternately they suggest that it may have been build as a retaining wall to prevent erosion. No surface evidence such as artifacts or food remains was found.

10.2 PROBABLE IMPACTS AND MITIGATION MEASURES

Based on their observations, Hommon and Ahlo (1983) write:

> The relatively small size of the site, its simple form, the absence of evidence of artifactual and other portable items, and the absence of associated sites all support the conclusion that the site is of very little research, cultural, or interpretive value and that it is insufficiently significant to warrant further research or placement on either the Hawaii or National Registers of Historic Places. We thus conclude that no further action with regard to archaeological or historical research or conservation action is warranted or necessary.

While the foregoing makes it clear that on-site development is unlikely to affect significant historic or archaeological resources, as noted elsewhere in this report, current plans call for the upper portion of the project to be supplied with water from the proposed Mililani Mauka system. Since the wells and reservoir for that system would be located on the southern side of Waikakalaua Gulch, it would be necessary to install a connecting pipeline across the gulch to implement this plan. This line would not be constructed until the water master plan and necessary land use changes for the Mililani Mauka development have been approved and water use within the HTP justifies it; hence, its exact alignment has yet to be decided. When detailed planning for that link is initiated, archaeological surveys of the prospective routes will be conducted and the results submitted to the State Historic Preservation Officer for review.

Should any archaeological features be uncovered during the grading and construction phases of the proposed development, the Historic Sites section of the State Department of Land and Natural Resources will be notified. Subject to the review of that agency, appropriate steps will be taken to recover any significant historical data that is present.

11.0 ECONOMIC EFFECTS OF THE PROJECT

11.1 DIRECT EFFECT OF PROJECT ON EMPLOYMENT

Development of the Hawaii Technology Park will lead to the creation of short-term construction jobs and long-term jobs related to the ongoing operations of various businesses at the light industrial park. Both in the short-term and the long-term, employment can be categorized as direct, indirect, or induced.

Direct Employment. Jobs that are the direct result of additional activity taking place within the economy; in the current case, the operation of businesses in the Hawaii Technology Park.

Indirect Employment. Jobs in industries that supply goods and services which are sold to businesses in the primary industry.

Induced Employment. Jobs that are created as wages and proprietors' income earned from direct or indirect employment is spent.

To estimate the number of total jobs generated, selected state-wide input-output multipliers were used; these were supplied by the Research and Economic Analysis Division of the State Department of Planning and Economic Development (DPED). Employment opportunities will be created directly and indirectly at the Hawaii Technology Park site as well as elsewhere in the State, although most likely the large majority of the jobs will be on Oahu.

Both in the short-term and long-term, labor is expected to be available locally within the State to fill most of the jobs that will be created at the Hawaii Technology Park. The construction of infrastructure and site improvements will provide employment for workers in the local construction industry. In 1980, construction workers totaled almost 30,000, or about 7.2 percent of the total number of persons employed statewide (Hawaii, State of, Department of Planning and Economic Development, 1984:358).

For long-term operational jobs, businesses at the industrial park can draw from the pool of available labor, which consists of currently unemployed individuals and those entering the job market for the first time. Unemployment in 1980 was 4.7 percent statewide and 4.6 percent in Honolulu (Ibid.), although these percentages, which are based on recorded numbers of persons filing for unemployment benefits and on a very small sample survey, may be understated.

Recent secondary school and college graduates will also add to the labor supply. SRI states that the University of Hawaii College of Engineering and computer sciences department grant a combined total of almost 350 undergraduate and graduate degrees annually (SRI International, 1983:14). On the high school level, between 1980 and 1984, there were 69,000 graduates, compared to a statewide net gain in jobs of only 1,200, according to the Economic Development Corportation of Honolulu, based on statistics from DPED and the Department of Education. Potential employees who would otherwise leave the State to seek employment elsewhere would have long-term opportunities at the Hawaii Technology Park. Development of the industrial park would contribute toward reducing the out-migration of qualified persons who do not find sufficient employment opportunities in Hawaii.

11.1.1 Construction Period Employment

Development of the Hawaii Technology Park will generate short-term employment during the construction period. Although mentioned in the SRI reports prepared in 1983, this short-term employment was not quantified. The number and type of on-site construction jobs will fluctuate over the period of time during which infrastructure for the entire park and improvements to individual parcels are constructed. To estimate the average number of construction period jobs that are expected to result from the development of the Hawaii Technology Park, estimated construction costs were used as the basis of analysis.

11.1.1.1 Employment Related to Infrastructure Construction

Oceanic Properties estimates that infrastucture costs will total approximately $36 million (in 1985 dollars) for both on-site and off-site infrastructure improvements, including costs related to traffic, drainage, water, wastewater, roads, electricity, and telephone (see Table IV-18). Costs are broken down to about $19.5-million for off-site work, $8.2-million for Phase I on-site infrastucture, and $8.1-million for Phase II on-site infrastructure. These costs are for construction items only, excluding design, interest and soft costs. (The cost estimates in SRI's 1983 analysis have been updated to reflect current unit costs and the revised plan.)

Table IV-18

Preliminary Estimate of Infrastructure Costs
Hawaii Technology Park ($000)

Total Off-Site Costs	$ 19,515
Total Phase I Costs	8,183
Total Phase II Costs	8,126
TOTAL COSTS	$ 35,824

Source: Oceanic Properties, Inc.

To derive estimated annual employment from the above construction costs, it was assumed that roughly half are labor costs, and the other half equipment costs. Thus, about $17,912,000 would represent labor cost. An annual construction year of 2080 hours per person was assumed and applied to the prevailing industry average rate of $35 an hour for labor cost (including wages, fringe benefits, overhead and profit) to arrive at average construction labor cost of $72,800 per worker per year. This translates into about 250 person years of employment, or if we assume a two-year infrastructure construction period, 125 jobs a year. If the construction period is longer, a proportionately smaller average number of annual jobs would result.

The above estimate is only for direct on-site construction jobs related to the installation of infrastructure. The majority of these jobs will be in the building trades, with the remainder administrative, management, and professional positions. Direct employment of construction workers will stimulate additional purchases of goods and services statewide (mostly on Oahu), resulting in indirect and induced employment. The current statewide construction industry employment mulitplier from the State input-output econometric model is 2.5. For every full-time job in the construction industry, another 0.5 indirect job and 1.0 induced job are created, for a total of 2.5 jobs. Thus about 190 equivalent full-time jobs a year would be indirectly created, in addition to the 125 direct jobs, for the estimated two-year infrastructure construction period.

11.1.1.2 Employment Related to Construction of Individual Parcels

The same methodology using estimated construction cost can be applied to estimate employment related to the construction of improvements on individual parcels at the Hawaii Technology Park. SRI projects an absorbtion rate of 20 acres of land per year, with about 100 acres to be absorbed in 5 years in Phase I (90 acres net salable and 9 acres commercial) and 105 acres (100 acres net salable and 6 acres commercial) absorbed in 6 to 7 years in Phase II. For the purpose of this analysis, we assume an average absorbtion rate of 20 acres annually throughout.

According to the master plan for the light industrial park, the "Floor Area Ratio," or FAR, is 0.4. FAR is defined as the ratio of floor area to the total area of the zoning lot. Thus, 8 acres of improvements will be built annually (20 acres x 0.4 FAR), or 348,480 square feet. The average per-square-foot construction cost is estimated at $75, given the expected mix of light industrial, commercial, retail and

support uses. Annually, construction cost would average about $26,136,000. Again, assuming that half the construction cost is for labor and that the average per worker cost is $72,800 annually, we project an average of about 175 workers at all times throughout the construction period of 10 to 12 years for the two phases of the project. During most of this period, probably 150 to 200 construction related workers would be employed at any given time, although this number could be higher or lower depending on the phase of construction.

Applying the 2.5 multiplier to the estimate of direct construction period employment for individual lot development, 263 indirect and induced jobs would be created in addition to the average 175 annual direct construction related jobs.

Table IV-19 summarizes the construction period employment impact of the Hawaii Technology Park.

Table IV-19

Average Annual Construction Employment

	Infrastructure[1]	Site Improvements[2]
Direct	123	175
Indirect and Induced	190	263
TOTAL	313	438

[1]for a period of 2 years
[2]for a period of 10 to 12 years

11.1.2 Operational Period Employment

As part of the Land Use Petition submitted by Oceanic Properties, Inc. to the State Land Use Commission in 1983 for the reclassification of the subject property from the Agricultural district to the Urban district, supporting market and economic impact studies were prepared. Two of these analyzed the impact the project would have on operational period employment: "Task 3 Report: Detailed Action Recommendations and Potential Economic Impacts for Hawaii High Technology Park," by SRI International, and "Summary of Revenue-Cost and Economic Impact Analysis of the Hawaii High Technology Park," by Environment Capital Managers, Inc., in coordination with SRI International. The findings from these studies form the basis for the analysis of operational period employment outlined below.

SRI distinguishes between on-site employees and workers elsewhere in the State, with direct and indirect employment on-site and induced employment elsewhere. We note that employees labeled "on-site indirect" may actually include both indirect and induced employment according to the definitions listed above, since they include those who work for businesses that provide goods and services to the primary industry businesses at the park and to those that provide goods and services to the employees of these businesses. For this environmental impact statement, however, analysis of potential employment impacts uses SRI's classifications.

SRI estimates that the high technology industry employs 30 to 74 persons per acre. Its preliminary estimate of average employment at the Hawaii Technology Park is 45 workers per acre two years after an individual site has been sold. Based on interviews with facility managers of technology firms, SRI estimates an average of 25 employees per acre in the first year, 35 in the second year, and 68 in the third year after initial purchase.

On-site employment will consist mostly of direct employment, along with some indirect employment. In its analysis, SRI estimated that 85 percent of the total park employment will be direct and 15 percent indirect, the latter in essentially local service businesses such as restaurants, personal services, and limited convenience retail outlets. SRI projects that a total of 14,280 jobs will be created on-site, including employees working the third and fourth shifts. It estimates that at full capacity, the Hawaii Technology Park will employ 9,520 persons on the main daytime shift alone (based on 45 workers per acre on 212 acres). Given the 85 to 15 ratio, of the 14,280 on-site jobs, 12,138 will be direct and 2,142 indirect. It should be noted that the revised total acreage of the park is 211 acres, 6 of which are park land. Given the slightly reduced total acreage and the park acreage, which is not expected to generate as much employment per acre as the saleable and commercial acreage, SRI's projections are conservative. Therefore, employment and thus population impacts of the project would tend to be overestimated rather than understated.

To calculate the total direct and induced employment effects of the development of the Hawaii Technology Park, SRI used multipliers for the "miscellaneous manufacturing industry." SRI stated that "the Hawaiian Economy does not have any significant electronics industry of the type contemplated for the High Technology Park. As such, the selection of multipliers was done on the basis of the most closely related industry available." (SRI, 1983:3-2) Based on direct annual output at full operation of $609,840,000 in 1983 dollars, an indirect employment effect of 8 jobs per $1-million and induced employment effect of 17 jobs per $1-million, there will be almost 4,900 indirect jobs and 10,400 induced jobs created. See Table IV-20 below for a breakdown of projected full operation employment.

Table IV-20

Operational Period Employment at Full Operation (Phases I and II)
Hawaii Technology Park

Employment		Number of Jobs
Direct (on-site)		12,138
Indirect		4,879
On-Site	2,142	
Elsewhere	2,737	
Induced		10,367
	TOTAL	27,384

Source: SRI, 1983

11.2 INDIRECT EFFECT OF PROJECT ON POPULATION AND HOUSING REQUIREMENTS

11.2.1 Population Supported by Project-Related Employment

Given the numbers of new jobs expected to be created State-wide as a result of development of the Hawaii Technology Park, the number of persons supported by project-related employment can be estimated by applying coefficients for (1) the number of workers per household and (2) the number of persons per household. The U.S. Bureau of the Census, in its Census of Population: 1980, reported a total of 294,052 households in the State in 1979, and a labor force of 494,223 persons, a ratio of 1.68 workers per household. As reported by DPED, U.S. census figures for 1980 showed that there were 3.15 persons per household. These ratios have most likely changed somewhat in the intervening years to 1985; however, in the absence of more current data, the 1979/1980 ratios have been used to project population impacts.

The population impact of construction period employment is expected to be minimal. First, the construction industry is well established in the islands and experience has shown that the vast majority of construction period workers is drawn from the available labor pool. Second, construction period impacts are short-term. Given the minimal effect of construction employment on population increase, only population impacts resulting from long-term operational employment will be addressed.

It should be noted that the State's population is projected to increase whether or not the Hawaii Technology Park is developed at the proposed site. Market studies have shown the need for a light industrial park on Oahu aimed toward high technology industries, and such a park is likely to be constructed, if not at the proposed site, then at another site on the island. The development of a high technology park elsewhere would have the same effect of providing job opportunities and contributing toward increasing population supported by project-related employment.

Given local government's goal of a diversified Hawaiian economy, with the high technology industry one of the segments targeted for development, a light industrial park such as the Hawaii Technology Park most likely will be built. Should there be a change in public policy toward support of industries other than the high technology industry, this alternate development would also have population impacts.

11.2.1.1 Population Associated with Direct Employment

SRI projects up to 12,138 direct on-site jobs associated with businesses at the Hawaii Technology Park. Applying the coefficients of 1.68 workers per household and 3.15 persons per household, the population supported by project-related direct employment could be as many as 22,759 persons. SRI estimates that about 93 percent of on-site employees will be established residents and that the remainder, or 7 percent, would be new residents. Should this be the case, direct employment would account for a population increase of up to almost 1,600 persons. This increase would be attained incrementally over the anticipated 12-year development period.

11.2.1.2 Population Associated with Indirect and Induced Employment

Using the ratios of 1.68 workers per household and 3.15 persons per household, up to 9,150 population would be associated with indirect employment and up to 19,400 with induced employment. Assuming the same proportion of 7 percent new residents, up to 2,000 additional population would result indirectly from ultimate development of the light industrial park.

11.2.2 Expected Residence of Employees

SRI expects that both production workers and managers and professionals will live in various residential communities on Oahu within 5 to 60 minutes' driving time from the Hawaii Technology Park, the majority in the areas listed below.

Production Workers
- Mililani Town, Waipio, Wahiawa (5-10 minutes)
- Waialua, Haleiwa, Waipahu, Pearl City (10-15 minutes)
- Aiea and Salt Lake vicinity (15-20 minutes)
- Downtown Honolulu (20-30 minutes)

Managers and Professionals
- Mililani Town, Waipio (5-10 minutes)
- Downtown Honolulu (20-30 minutes)
- Kahala, East Honolulu, Hawaii Kai (45-60 minutes)
- Kaneohe, Kailua (45-60 minutes)

Oceanic Properties, Inc., the developer of the Hawaii Technology Park, is also the developer of Mililani Town, a planned residential community near the project site. Although it is recognized that employees at the park who are in-migrants will probably live in several of the communities listed above, Oceanic Properties states that housing in a range of affordable prices will be available at Mililani Town in sufficient numbers to accommodate those new residents who wish to reside in the vicinity of the park. Oceanic Properties expects that most of the production workers will be established residents and that in-migrants will be mostly managerial and professional staff relocating from the mainland U.S.

According to DPED, the average selling price of a single-family home on Oahu was $187,270 in 1984; that of a multifamily unit $101,448. These units included both new housing and resales, in fee simple and leasehold. At Mililani Town, for the same period, the average sales price of a new single-family dwelling was $155,795, that of a resale unit $153,336, all in fee simple (Mililani Town, Inc. Sales Report). According to Oceanic Properties, over the past ten years the average price of new Mililani Town single-family fee simple homes has been below the average price of new and resale single-family fee simple and leasehold units on Oahu.

Current housing supply is available at Mililani Town in the $122,000 to $206,000 range for single-family units, and $55,000 to $68,400 for mulitfamily units. For employees who wish to live near the Hawaii Technology Park, Mililani Town will provide a supply of new and resale housing comparable in range to housing available islandwide. A new supply of about 400 to 500 units a year will be offered, priced to maintain Mililani Town's market share and reputation of providing affordable housing to meet market needs.

The Hawaii Technology Park at full developmnent will generate up to 12,140 direct employment opportunities, in an estimated 7225 households. SRI projects that 7 percent will be new residents who will require housing. It is expected that some established residents may wish to move closer to the high technology park, thus generating additional demand for new housing near the park. (It should be noted, however, that these latter workers would be vacating homes that would then become part of the islandwide supply of available housing.) Assuming a total 10 percent demand for housing, 725 households would be seeking housing over the development period. The 400 to 500 new units a year planned at Mililani Town are adequate to absorb this demand.

Indirect and induced employment islandwide would generate about 15,000 new jobs associated with an estimated 9,000 households. Should 10 percent of these households require housing, there would be an additional demand for 900 housing units over the projected 10- to 12-year development period. Given the more than 4,500 single-family units and 7,600 multifamily units listed for sale islandwide in 1984 (DPED, 1985 Data Book draft), the supply of housing appears sufficient to satisfy the indirectly induced demand for housing.

11.3 EFFECT ON STATE PRODUCT AND INCOME

To estimate the total impact of the Hawaii Technology Park on the State's output of goods and services, and on income to households, multipliers from the State input-output model were used. For details on the analysis and methodology, the reader is referred to the 1983 revenue-cost and economic impact analysis prepared for Oceanic Properties, Inc. by Environment Capital Mangers, Inc., in coordination with SRI International.

11.3.1 Annual Output

Output effects are the changes to the gross State product resulting from the development and operation of the proposed light industrial park. The output of the State is essentially the value-added total of all goods and services provided throughout the State. The output generated by the project has been estimated to be as shown in Table IV-21 below, in 1983 dollars. The direct output value was calculated based on the revenue expected to be generated per leasable acre. Multipliers were then applied to arrive at an estimate of indirect and induced output.

Table IV-21

Additions to Gross State Product
Hawaii Technology Park

Annual output (at full operation)	
Direct	$ 609,800,000
Indirect	183,000,000
Induced	304,900,000
TOTAL	$ 1,097,700,000
Total output (discounted @ 10% to the 1983 base period)	$ 2,084,500,000

Source: Environment Capital Mangers, Inc., 1983:1-4

11.3.2 Income to Households

The Hawaii Technology Park will have a significant impact on personal and household income for residents of the State, mostly on Oahu. Direct income changes were estimated based on wage parameters developed by SRI and the projection of employment at the Hawaii Technology Park. Indirect and induced effects were calculated using the multiplier relationship to direct output. The estimates of income to households shown in Table IV-22 were derived by SRI.

Table IV-22

Income to Households
Hawaii Technology Park

Annual income (in 1983 dollars) to households (at full operation)	
Direct	$ 314,256,390
Indirect	60,984,000
Induced	121,968,000
TOTAL	$ 497,208,390
Total income to households (discounted @ 10% to the 1983 base period)	$ 840,364,916

Source: Environment Capital Mangers, Inc., 1983: 1-4

11.4 REVENUE COST ANALYSIS

In its revenue-cost analysis, Environment Capital Mangers stated that: "The impacts of the proposed Hawaii Technology Park on public sector finances were estimated by comparing the net present (or current) value of anticipated public sector revenues with expected increases in public costs. The net present value of the additional revenues produced by the project during the study period totalled $129.5-million, in constant 1983 dollars. By contrast, the net present value of the public sector cost totalled $63.1-million. This produced a revenue-cost ratio just under 2.1 to 1.0. In simplified terms, this means that the State and Local government agencies affected by the project could expect to receive roughly $2.10 back in additional revenue, over the study period, for each $1.00 it has to spend in providing additional services."

Results from a survey conducted by SRI showed that a major impediment in attracting high technology firms to Hawaii seems to be the State's excise and use tax. Environment Capital Mangers suggests considering the development strategy of creating a Foreign Trade Zone for Hawaii Technology Park users. Should this zone be created, it would serve as an incentive for firms to locate in Hawaii, and would also change the public revenue-cost structure. It would result in a decrease in the revenue-cost ratio to 1.5 to 1.0, versus 2.1 to 1.0 without the Foreign Trade Zone, a less favorable ratio, but still producing a favorable net effect. Thus, both with or without a Foreign Trade Zone, a favorable revenue-cost effect is expected to be achieved.

12.0 DIRECT EFFECTS ON PUBLIC UTILITIES AND SERVICES

12.1 WATER SUPPLY

As indicated in Section 4.3.2 of Chapter II, when fully developed, occupants of the proposed project would consume an estimated 0.85 million gallons of water per day (MGD). The source of the water would be deep wells tapping the Pearl Harbor and Wahiawa high level aquifers. A final decision on the exact location of the source wells, transmission lines, and storage reservoirs must await the Honolulu Board of Water Supply's action on the water master plan for the project. However, based on

preliminary discussions, it is believed likely that a system similar to that outlined in Figure II-9 will be approved.

The Board of Land and Natural Resources (BLNR) regulates groundwater use in the Pearl Harbor area. In December 1984, the BLNR reduced the water allocation to the Oahu Sugar Company, thereby freeing an equivalent amount for use by others. In July, 1985, the Board allocated 9.3 MGD of the available amount to the Honolulu Board of Water Supply for wells in Waipahu and Central Oahu. A new well in Wahiawa received 1.0 MGD of this allocation to supply the HTP, Melemanu III, and others. This allocation will be adequate for Phase I of the proposed project. An additional allocation will be required to construct the Mililani Mauka well system that Oceanic properties proposes to use to supply the water needs of Hawaii Technology Park - Phase 2. Currently, the balance available for allocation from the Koolau subzone of the Pearl Harbor Ground Water Control Area is 8.3 MGD.

Oceanic Properties would install all of the water system improvements needed to support the HTP; these would be designed to meet the City and County of Honolulu Board of Water Supply's standards, and then dedicated to the City when completed. Ongoing maintenance and operation of the system would be funded from user fees. Because of the significant lifts that are involved (about 1,000 feet for the system supplying Phase 1, and over 1,100 feet for the pumps supplying the Mililani Mauka system which would serve Phase 2), the amount of electrical power needed to provide the water would be greater than the system-wide average. Off-setting this, at least in part, is the fact that the cost of maintaining the new system would be lower than average.

Because the HTP system would be interconnected with the Wahiawa and Mililani Mauka systems, water system reliability would be high. By providing a link between two existing systems which are presently isolated from one another, the new wells, reservoirs, and transmission mains would increase the Board of Water Supply's operational flexibility as well.

12.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

12.2.1 Expansion of Facilities

As indicated in Chapter II, Section 4.3.2, wastewater from the proposed project would be collected in a system of gravity mains and carried to the Waipio Pump Station. This facility will need to be modified to accomodate flows from both Melemanu Woodlands -- Phase III and the Hawaii Technology Park. For the most part, sewer lines from the pump station to the Mililani Wastewater Treatment Plant are capable of accommodating the expected flows, but relief and/or replacement lines will probably have to be installed in some segments adjacent to Mililani Town.

12.2.2 Connection of Industrial Users

At present, only residential and commercial users are connected to the Mililani wastewater treatment system. Hence, the waste stream entering the plant consists almost entirely of domestic wastes. Occupants of the proposed Hawaii Technology Park might utilize modest quantities of hazardous materials that are not currently generated within the plant's service area. However, for reasons outlined below, it is considered extremely unlikely that the presence of these materials in a controlled setting will endanger the area's groundwater resources.

12.2.2.1 Restrictions on Use of Hazardous Materials by Park Occupants

The applicant is in the process of developing hazardous materials handling and storage guidelines which would be incorporated in the restrictive codes and covenants governing all occupants of the HTP (see Appendix A). They explicitly prohibit firms which engage in processes typically requiring on-site storage of significant quantities of hazardous materials from locating there. In addition, the guidelines specify a review and approval process which all occupants proposing to engage in the handling and/or storage of hazardous materials must undergo.

12.2.2.2 Industrial Wastewater Discharge Certificate

Industrial users wishing to discharge wastewater into the sanitary sewer sytem must obtain an Industrial Wastewater Discharge Permit from the City and County of Honolulu Department of Public Works. Chapter 11 of the City ordinances prohibits the discharge of hazardous materials into the municipal sewerage system; hence users engaged in activities which might produce such substances must pretreat the waste stream prior to its discharge into the sanitary sewers so that the concentrations of listed pollutants in the effluent do not exceed the limits established in Chapter 11, Section 11-1.6(f)(14). These limits are very stringent, making it unlikely that hazardous materials would reach the public wastewater collection system in significant quantities.

12.1.1.3 Federal Regulations

The storage and use of hazardous substances which might otherwise find their way into the wastewater system is also governed by the Resources Conservation and Recovery Act. These regulations establish a "cradle-to-grave" system for tracking hazardous materials; compliance with them will help insure that there are no dangerous discharges from firms locating within the HTP.

12.2.3 Collection System

The sewer lines through which wastewater from the proposed project would run are all of relatively recent origin; many, in fact, would be newly constructed as part of this project. It is reasonable to assume that the use of current fabrication technology will prevent substantial leakage out of the pipes. Hence, the potential for wastewater contamination of the soil surrounding the sanitary sewer mains (with subsequent movement of the contaminants to the underlying water table) is considered minimal.

12.2.4 Treatment and Disposal

When originally constructed, it was expected that the Mililani Wastewater Treatment Plant would accommodate flows from all of the development planned within Mililani Town and the adjacent employment center. Secondarily treated effluent was discharged to Kipapa Stream. For a variety of reasons, the facility found it difficult to meet conditions established in the National Pollutant Discharge Elimination System permit which allowed its operation. Hence, when the City's new Honouliuli Wastewater treatment plant was completed, a sewer main was constructed which allows wastewater from the Mililani WWTP to be diverted to Honouliuli. There, it receives primary treatment before discharge to the Pacific through a deep ocean outfall.

While the majority of the wastewater entering the Mililani WWTP is diverted to Honouliuli, a portion of it is still given secondary treatment and piped to Oahu Sugar Company fields in Central Oahu and used for irrigation. Irrigation use of the effluent is part of an experimental program started in the mid-1970s. The program, which was intended to conserve water by reusing treated effluent rather than discharging it to the sea, had a promising start, but technical problems associated with the switch from furrow to drip irrigation methods, difficulties coordinating effluent availability with irrigation requirements, and other factors have dampened enthusiasm somewhat. At present, it is not known whether or not the program will be continued when the existing agreement between the City and the Oahu Sugar Company expires in about three years.

If the reuse of treated effluent is halted, the Mililani WWTP will be closed and all wastewater diverted to Honouliuli for treatment and disposal. If it continues, then the plant would remain open and at least some of the wastewater from the Hawaii Technology Park would be treated at the Mililani WWTP and used to irrigate sugar fields. It is believed that the controls on the activities of HTP occupants imposed by the development's restrictive codes and covenants, the discharge limits and pretreatment requirements contained in the City ordinance governing industrial wastewaters (Section 11-5), and the level of treatment provided by the Mililani WWTP will keep effluent applied to the sugar fields (some of which will percolate to the underlying basal lens) free of hazardous substances. However, assurance that this would in fact be the case cannot be given until additional information is available concerning the types of discharges that will occur and the adjustments that will be made in the operation of the treatment facilities.

12.3 SOLID WASTE COLLECTION AND DISPOSAL

12.3.1 Solid Waste Generation, Storage, and Collection

As indicated in Chapter II of this report, the amount of solid waste that would be generated by HTP's occupants cannot be accurately estimated at this time. However, since all of it would be collected by private solid waste contractors under contract on a site-by-site basis, there would be no impact on the City's solid waste collection system. On-site storage of normal municipal solid waste between collection times would be in appropriate locations and containers.

As indicated elsewhere in this report, it is not expected that firms in industries typically generating large quantities of hazardous materials would occupy the HTP; hence, the need for specialized collection vehicles and procedures is expected to be limited. However, in addition to complying with State and Federal laws and regulations, firms within the development which do utilize hazardous materials and/or generate hazardous wastes must prepare a "hazardous materials management plan" and submit it to the Hawaii Technology Park Association's hazardous materials consultant for review and approval.

To place possible generation of hazardous waste by occupants of the Hawaii Technology Park into proper perspective, it may help to note that Hawaii firms generate thousands of tons of such waste each year. Well over 100 businesses in the state are currently engaged in activities involving hazardous waste activities. No data is available regarding the number of "high technology" firms in Hawaii which require hazardous waste disposal, but a study by Brown and Caldwell of Sacremento, California (cited in Phillips, Brand, Reddick & Associates, May 1983) concludes that less than one-fifth of all high technology firms have this need.

In this same vein, it should be noted that the two primary "high technology" uses which generate substantial amounts of hazardous wastes are (1) the fabrication of silicon wafers and subsequent large-scale manufacturing of integrated circuits for semi-conductors, and (2) manufacture of printed circuit boards. The marketing plan for the Hawaii Technology Park does not recommend industries using these two processes as target industries, and production cost and market factors make it unlikely that firms involved in these two areas would locate there.

12.3.2 Solid Waste Disposal

Normal municipal solid waste will be disposed of at approved solid waste disposal facilities. In all likelihood, this will mean the City's proposed resource recovery facility at Campbell Industrial Park or one of the island's public or private landfills. Current tipping fees will be paid for this privilege. Some restrictions apply to the types of solid waste that may be disposed of at these facilities, and the individual solid waste collection contractors will be responsible for compliance with these regulations.

Hazardous wastes must be disposed of in compliance with County, State, and Federal laws and regulations. In addition, HTP's Hazardous Materials Management Plan specifies that occupants of the project who wish to use significant quantities of hazardous materials must demonstrate that disposal will be effected in an environmentally sound manner. Currently, there are no approved hazardous waste disposal sites in the State; hence, ultimate disposal of any hazardous waste generated must be out-of-state, typically in California or Oregon. Development of an in-state hazardous waste disposal facility would require numerous approvals from Federal, State, and County agencies, and none is expected here within the foreseeable future.

12.4 ELECTRICAL POWER AND TELECOMMUNICATIONS

A conservative (i.e., high) estimate of peak electrical usage by occupants of the park when it is fully developed is just over 30 megawatts (Syntech, Ltd., May 12, 1983). Given the most likely mix of user types, it is expected that actual peak demand would be considerably less than this. The Hawaiian Electric Company presently has an installed generating capacity of 1,283 megawatts (Hawaii, State of, Department of Planning and Economic Development, October 4, 1985). Sufficient excess generating capacity is immediately available in the HECO system to accommodate increased demand of this magnitude. It is likely that the surplus will gradually disappear as the population and level of business activity on Oahu slowly increases. However, the utility closely monitors trends in power usage, and foresees no difficulty in expanding its generating capacity as necessary to meet the projected demand.

The Hawaiian Telephone Company will provide telephone service to the site upon request. The facilities that will be required are described in Chapter II of this report.

CHAPTER V

ALTERNATIVES

1.0 INTRODUCTION

Subpart E, Section 1.42.g of the Environmental Quality Commission's Environmental Impact Statement Regulations requires that:

> "Any known alternatives for the action which could feasibly attain the objectives of the action -- even though more costly -- shall be described and explained as to why they were rejected." (Emphasis added.)

In defining alternatives to the proposed project, the meaning of the two key phrases which have been underlined must be considered.

Oceanic Properties/Castle & Cooke's principal "objective" in developing the proposed Hawaii Technology Park is to use its Central Oahu resources and development expertise to earn a reasonable return on its shareholders' investments. Like any private enterprise, the company also pursues other objectives, both financial and social in nature, in response to explicit and implicit organizational policies; but it must maintain its profitability while doing so it if is to survive. As used in the EIS Regulations, the term "feasibly attain" means practical or capable of being successfully brought about. Clearly, there are occasions when even the best alternative open to a company involves a loss, but no private organization can sustain itself for long by regularly engaging in unprofitable undertakings (even if they fulfill some public purpose).

In view of the foregoing, only the "no-action alternative" and alternatives which could be profitably undertaken by Oceanic Properties/Castle & Cooke are addressed below. The discussion is divided into four parts. Section 2.0 discusses the alternative of agricultural use for the land, while Section 3.0 considers the question of alternate urban uses. The discussion contained in Section 4.0 examines alternate site plans. Section 5.0 deals with the possibility of proceeding with the proposed action under an alternate timetable. Finally, the "no-action" alternative is discussed in Section 6.0.

2.0 ALTERNATIVE AGRICULTURAL USE

As discussed in Section 2 of Chapter II, The soils on the project site are moderately-well- to well-suited for agricultural use, and they were used for the cultivation of pineapple for the canned fruit market for many years. More recently, and in response to heavy competition from foreign growers, the Dole Company has switched all of its Oahu fields to the production of fresh fruit. Because it is unirrigated, pineapple growth rates and maturation on the site are seasonal; as a result, it is not well-suited for the production of fresh fruit, and Dole has replaced the acreage which it formerly cultivated on this property with irrigated, lower elevation land.

Through its Waiulua Sugar Company subsidiary, Castle & Cooke has had heavy involvement with sugar, as well as pineapple, cultivation in Central Oahu. In fact, one of the company's strengths lay in its ability to switch between the two crops on a number of fields in order to take advantage of relative differences in market prices. However, economic sugar cultivation requires heavy irrigation, and this cannot be economically provided on the land proposed for the Hawaii Technology Park.

In 1973, the Oahu Land Study (Castle & Cooke, Inc.) concluded that: "There is no single crop which could replace the areas not occupied by sugar and pineapple." Because of the relatively low sugar and pineapple prices that have prevailed over the past decade, Castle & Cooke, Inc. has continued its efforts to identify crops suitable as a replacement for these beleagured mainstays. Thus far, neither these, not parallel efforts made by the Hawaii Sugar Planters Association, the University of Hawaii, or several other Hawaii companies have met with notable success.

Vegetable farmers, and growers of other diversified agricultural crops as well, need to deliver fresh produce to the market on a regular and continuous basis year round. They must cycle fields to produce a high quality crop in weekly or bi-weekly increments as required by the market. Rainfall on the Hawaii Technology Park site is markedly seasonal, with wet winters, moist springs, and dry summers and autumns being the norm. Consequently, irrigation is essential for the cultivation of virtually any type of diversified agricultural crop.

Ornamental greenhouse crops (foliage plants and flowers) are usually grown in specialized media rather than soil. Hence, there is no advantage to locating them on good agricultural soils. Moreover, they also require irrigation, and do best in areas of relatively high insolation. The site of the proposed Hawaii Technology Park has neither of these attributes. Results of pilot studies have shown that commercial production of papayas in Central Oahu requires drip irrigation and is hampered by the prevalence of the mosaic virus in the area. Macadamia nuts could be grown, but economically feasible production would also require irrigation.

Irrigation water and facilities are not currently available at the site. Moreover, the cost of installing and operating such facilities and the difficulty that would be encountered obtaining permission from the Department of Land and Natural Resources to pump additional water within the Pearl Harbor Ground Water Control Area for irrigation use make make it extremely unlikely that crops which require irrigation on anything more than a minor scale could be cultivated on the HTP site.

3.0 ALTERNATE URBAN USES

As noted previously in this report, the project site is physically well-suited to virtually all urban uses, including medium-to high-density residential, commercial, and industrial ones. However, none of them appear to offer the same advantages/lack of disadvantages as the proposed Hawaii Technology Park. Hence, it is considered unlikely that the Development Plan change and modification of State Land Use Commission conditions pertaining to the development of Phase 2 that are necessary to these other, alternative, uses could be obtained.

Sufficient residential development is already planned and/or underway at Mililani Town, Melemanu Phase III, and several other Central Oahu projects to meet the housing needs of the region's population for the foreseeable future. This, together with the fact that residential uses would be substantially more sensitive than the HTP to noise from operations at nearby Wheeler Air Force Base and the East Range training areas of the Schofield Barracks Military Reservation, make them an unattractive alternative for the property.

Without the industrial development that is proposed for the bulk of the 256-acre site, the property would be isolated from potential users of commercial facilities, and the marketing of 250-plus acres of land for commercial use would be impossible. Similarly, there are no known institutional or recreational uses to which the site could be economically put.

With the important exceptions of the increased exposure to noise generated by military activities that is noted above, decreased traffic generation, and decreased presence of potentially hazardous materials, alternate urban uses of the site would have essentially the same consequences for the natural environment as the proposed action, but would lack most of the positive economic and employment benefits provided by the HTP.

4.0 ALTERNATE LAYOUTS/REDUCED DEVELOPMENT

Any number of alternative layouts for the internal roadways and other facilities are possible. However, they offer no obvious advantages to the proposed design.

The proposed plan places service commercial facilities near the entrance to the HTP where they would be most accessible to its occupants, as well as to customers from outside the project who have come there on business. Roadways are planned along the Waikakalaua side of the project, where they can intercept much of the surface runoff that now spills over the edge of the plateau and runs down the steep, erodible sides of Waikakalaua Gulch. The planned storm drainage facilities include a retention basin designed to lower peak storm runoff from the HTP site below its present level.

A buffer area along the project's eastern boundary with the East Range of the Schofield Military Reservation could be left to further reduce the likelihood of conflict between military and civilian uses. Similarly, a portion of the site could be left vacant beneath the track followed by Wheeler-based aircraft making Honolulu-bound IFR departures. Both of these would reduce the developable area within the project to below that recommended by SRI International's marketing studies and make difficult to amortize development costs, thereby compromising the economic viability of the entire project.

The project is already planned with spacious roadways and setbacks. Restrictive codes and covenants would impose design controls on all occupants of the project that would limit the intensity of development on individual lots to below the level permitted by State and City & County ordinances. A further reduction in density would result in higher per-square-foot improvement costs and higher sales prices. These, in turn, would limit the market for the improved parcels and tend to make the high-tech occupants of the facility less competitive on local, national, and international markets.

5.0 ALTERNATIVE DEVELOPMENT TIMETABLES

Oceanic Properties is already moving to develop the proposed Hawaii Technology Park as rapidly as the need to comply with government regulations and review procedures permits. Hence, it is not possible to move the starting date forward. Current plans are to develop the project in two phases, providing sufficient improved land to meet an expected demand of 20 acres per year. Should demand prove greater than expected, development of Phase 2 could easily be initiated sooner than now planned. However, a decision on this matter must await the results of marketing efforts for Phase 1.

Because of the increased costs associated with carrying unproductive financial investments in land and improvements longer than necessary, it is highly unlikely that the developer would voluntarily retard the rate of development. However, it is possible that the City and County could impose (as a condition of zoning) phasing

requirements that would slow construction. To a limited extent, this was already done when full State Land Use Commission approval and Central Oahu Development Plan redesignation were granted for only the Phase 1 portion of the project. A slower development timetable would not significantly reduce any of the potentially negative effects of the proposed action, but it would increase costs. In the absence of a suitable center for high technology industries, Hawaii could lose out on an opportunity to establish a new industrial base which would complement existing activities in tourism, agriculture, and defense. In view of the foregoing, a slower rate of development is not considered superior to the schedule that is proposed.

6.0 NO-PROJECT

Failure to develop the project, whether as a result of its voluntary abandonment by Oceanic Properties or rejection of the rezoning request by the City and County of Honolulu, would leave the project site in its present state. While there is no doubt that the landowner would continue its attempts to find suitable alternate uses, none currently exists. Hence, it is expected that the parcel would remain vacant, with scrub vegetation gradually replacing the untended pineapple plants. The State and County economies would not benefit from the expected construction expenditures or, more importantly, from the jobs and ongoing business activity that would be generated by HTP's occupants. "No-action" would do nothing to achieve the public goals and objectives related to economic development that are discussed in Chapter III of this report, and it would most certainly interfere with Oceanic Properties/Castle & Cooke's efforts to utilize its resources effectively.

CHAPTER VI

LIST OF NECESSARY APPROVALS AND UNRESOLVED ISSUES

1.0 LIST OF NECESSARY APPROVALS

Several steps have already been taken toward approval and realization of the Hawaii Technology Park. A State Land Use District Boundary Amendment has been granted which changed the land use designation of the parcel from Agricultural to Urban. In July, 1985 the land on which Phase I of the project would be constructed was designated "Industrial" on the Central Oahu Development Plan. The following list comprises the additional approvals which are needed.

Approval Needed	Approving Agency or Body
Rezoning	C & C Department of Land Utilization C & C Planning Commission/City Council
Subdivision Approval: 1) Tentative Approval of Prelim. Map 2) Approval of Final Map 3) Approval of Stamped Map	 C & C Department of Land Utilization C & C Department of Land Utilization State Surveyor, Land Court
Building Permit	C & C Department of Public Works
Grading Permit	C & C Department of Land Utilization C & C Department of Public Works
Water Connection Approval Approval of Fire Hydrant Installation Plan	C & C Board of Water Supply
Street Construction, Signing, Lighting, and Pavement Markings	C & C Dept. of Transportation Services
Electrical Connection Approval	Hawaiian Electric Company
Telephone Connection Approval	Hawaiian Telephone Company
Street Tree Plan	C & C Dept. of Parks and Recreation C & C Dept. of Transportation Services
Permit to Perform Work w/in State Hwys	State Department of Transportation
Street Names	C & C Department of Land Utilization
Conditional Use Permit for Construction Activites	State Department of Health
Sewage Treatment Works: Authority to Construct & Operate NPDES Permit	 State Department of Health State Department of Health/ U.S. Environmental Protection Agency

2.0 UNRESOLVED ISSUES

Oceanic Properties will act only as the master developer of the Hawaii Technology Park. Industrial and commercial users will purchase the lots and design and construct facilities suited to their own specific needs. Detailed information concerning the design and operation of the industrial facilities that would be constructed within the HTP will not be available until this has occurred, i.e., until after subdivision is completed and infrastructure improvements are under construction or in place. It is expected that issues related to these parcel-specific matters will be dealt with on a site-by-site, facility-by-facility basis when purchasers of the lots approach the Hawaii Technology Park Design Committee and Federal, State, and County permitting agencies for approval to construct and operate specific improvements.

The design of the stormwater drainage system, including the location and design of the energy-dissipating devices through which stormwater will flow from the plateau to the bottom of Waikakalaua Gulch and the proposed stormwater retention basin, has not been finalized. A National Pollution Discharge Elimination System permit is necessary for these facilities, and an NPDES application will be filed when sufficient information is available.

The exact wastewater collection system improvements that will be needed to accommodate the proposed project have not yet been determined, although preliminary studies indicate that they can be readily provided. Neither have the wastewater pretreatment facilities (if any) of specific industrial users been designed. Adequate review procedures exist in the form of the HTP's hazardous waste management guidelines and Federal, State, and City ordinances and regulations to insure that the wastewater collection and treatment system provide adequate safeguards against environmental harm.

The effect that wastewater from the proposed industrial area would have on the quality of treated effluent from the Mililani Wastewater Treatment Plant that is used to irrigate some Central Oahu sugar fields has not been determined at this time, although it is firmly believed that the effect would be minimal. In the worst case, monitoring of the treatment plant's effluent would indicate that contaminants are remaining in the wastewater despite the highest practicable treatment. In this case, the permit allowing the discharge by the industrial user that is the source of the pollutant could be revoked.

A commitment has been obtained from the Honolulu Board of Water Supply for sufficient water to meet the needs of the first phase of HTP development. A suitable source of water for the second phase of development has been identified in the water master plan for the project, but approval from the Board of Water Supply and the State Department of Land and Natural Development is needed before this portion of the plan can be implemented.

Traffic generation rates used in the analysis are at the high end of the possible range; if they prove correct, roadways serving the project will become congested when the project is fully developed. If actual traffic generation is less than the conservative (high) estimates used in the analysis, then roadway improvement beyond those now planned may be unnecessary. Lower vehicular traffic volumes would also decrease concentrations of air pollutants, significantly decreasing the frequency with which State ambient air quality standards would be exceeded.

CHAPTER VII

CONSULTED PARTIES AND INDIVIDUALS PARTICIPATING IN THE PREPARATION OF THE DEIS

1.0 CONSULTED PARTIES

The announcement that an environmental impact statement (EIS) was being required for the Hawaii Technology Park was published in the Office of Environmental Quality Control Bulletin dated March 8, 1985. All parties and individuals who were thought to have an interest in the proposed project were mailed copies of the EIS Preparation Notice (EISPN) with a letter requesting their comments. The following list includes all who received copies of the EISPN and were asked to respond:

Federal Agencies

Department of the Air Force
Department of the Army
Department of Interior:
    Fish and Wildlife Service
Department of Agriculture:
    Soil Conservation Service

State Agencies

Board of Agriculture
Board of Water Supply
Board of Land and Natural Resources
Department of Health
Department of Planning and Economic Development
Department of Transportation
Office of Environmental Quality Control

University of Hawaii

Environmental Center
Water Resoruces Research Center

City and County Agencies

Building Department
City Council
Department of Accounting and General Services
Department of General Planning
Department of Housing and Community Development
Department of Parks and Recreation
Department of Public Works
Department of Transportation Services
Fire Department
Police Department

2.0 LIST OF PREPARERS OF THE EIS

This Environmental Impact Statement was prepared for Oceanic Properties, Inc. by Belt, Collins & Associates, with assistance provided by subconsultants. The following persons were involved:

Belt, Collins & Associates

Perry J. White	--	Project Manager and Prinicpal Author
Anne L. Mapes	--	Contributor/Planner
Pamela R. Gring	--	Contributor/Planner
Thomas F. Nance	--	Contributor/Civil Engineer, Hydrologist
Karon Uyechi	--	Graphic Artist
Lynn Fukuhara	--	Word Processor

Subconsultants

Yoichi Ebisu	--	Contributor/Acoustical Engineer
James W. Morrow	--	Contributor/Air Quality Consultant
Ab Valencia	--	Graphic Artist

CHAPTER VIII

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APPENDIX A

Correspondence Related to
Environmental Impact Statement Preparation Notice

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

RECEIVED

E.A.(JDN)

March 5, 1985

Mr. Stephen Miller
Oceanic Properties, Inc.
P.O. Box 2780
Honolulu, Hawaii 96803

Dear Mr. Miller:

Proposed Development Plan Amendment and Rezoning
to Develop the Hawaii Technology Park at Mililani,
Central Oahu; Tax Map Key 9-5-2: Portion of 11

Your proposal for Development Plan amendment and rezoning to develop the Hawaii Technology Park was subject to an environmental assessment pursuant to Chapter 343, HRS, the State Environmental Impact Statement (EIS) law. It has been determined that an EIS will be required for the proposed development as explained in the attached EIS Preparation Notice.

The State Office of Environmental Quality Control (OEQC) has been notified of our determination. They will be publishing a notice in their "OEQC Bulletin."

If there are any questions, please contact John Nakagawa of our staff at 523-4648.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization

JPW:ey
cc: Dept. of General Planning

A-1

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

E.A.(JDN)

March 5, 1985

Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mrs. Uyehara:

Chapter 343, HRS
Environmental Impact Statement (EIS) Preparation Notice
for High Technology Industrial Park at Mililani,
Central Oahu; Tax Map Key 9-5-2: Portion of 11

The Department of Land Utilization has determined that the subject applicant action requires an EIS pursuant to Chapter 343, HRS, because the proposal involves a City and County Development Plan amendment. This letter, together with the enclosed environmental assessment, serves as the EIS Preparation Notice. It should be published in the OEQC Bulletin under the "Register of Chapter 343, HRS documents."

The contact person for this EIS will be:

Mr. Stephen H. Miller
Oceanic Properties, Inc.
P.O. Box 2780
Honolulu, Hawaii 96803

If there are any questions, please contact John Nakagawa of our staff at 523-4648.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization

JPW:ey
cc: Dept. of General Planning

CHAPTER 343, HRS
ENVIRONMENTAL IMPACT STATEMENT (EIS) PREPARATION NOTICE

Applicant:	Oceanic Properties, Inc.
Landowner:	Castle & Cooke, Inc.
Accepting Authority:	Department of Land Utilization, City and County of Honolulu
Project Location:	Mililani, Central Oahu, Hawaii
Tax Map Key:	9-5-2: Portion of 11 (256 acres)
Proposal:	Develop a high technology industrial park
Request:	Development Plan amendment and rezoning of the site from Agriculture (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District)

I. PROPOSED ACTION

The applicant is proposing to develop a high technology industrial park in a low-rise campus style, characterized by extensive open space and landscaping. Development of the "Hawaii Technology Park" is proposed on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. (See Location Map) It is about 20 miles from downtown Honolulu and about 15 miles from the Honolulu International Airport.

The site is an elongated, irregularly shaped parcel comprised of gently undulating plateau lands. It was formerly in unirrigated pineapple cultivation and now lies fallow. Waikakalaua Gulch is the dominant natural feature of the site, forming a steep valley along its southern boundary. Adjoining the site on its northern boundary is the Leilehua Golf Course and the Schofield Barracks Military Reservation which also forms the site's eastern boundary.

The Hawaii Technology Park is intended to facilitate the emergence of high technology industry in Hawaii by providing a high quality, attractive and competitive environment for local, national and international technology based industries. "High technology" is a generic term applied to a broad set of activities including, but not limited to, computers, office equipment, communications equipment, electronic components and equipment.

The Park will be designed to accommodate all the functions commonly associated with high-tech industry such as light manufacturing and assembly, research and development, and the ancillary functions of administration and warehousing. A commercial complex will also be provided to serve the Park's users and their employees. Commercial uses will be only accessory to the Park and will include office suppliers, conference facilities, convenience retail outlets, restaurants and professional offices. Approximately 65% of the Park

will be limited to high-tech industries only. Traditional light industrial uses, such as auto repair and construction material suppliers, would not be permitted. The remaining 35% will be used for commercial and other high-tech support services.

A. Technical Characteristics

1. Development Schedule: The 256-acre site is proposed to be developed in two phases of about 128 acres each. Phase I is projected to be developed in 5 years and Phase II in 6 to 7 years after.

2. Land Use Controls: The entire site was originally classified State Agricultural District. On August 6, 1984, the State Land Use Commission reclassified the lands within the proposed Phase I portion to the State Urban District and approved the Phase II portion for incremental redistricting. Phase II would be eligible for reclassification to the State Urban District upon substantial completion of the off-site improvements and on-site improvements within Phase I.

   The City and County Development Plan (DP) designation for the entire site is presently Agriculture and the zoning is AG-1 Restricted Agricultural District. A DP amendment to redesignate the Phase I portion from Agriculture to Industrial has been requested by the applicant and is currently being processed by the City Department of General Planning. Phase II will also require a DP amendment and the entire site will have to be rezoned to I-1 Light Industrial District.

3. Vehicular Access: The principal point of access will be from the H-2 Freeway via an existing off-ramp to the adjacent Leilehua Golf Course Road. The Park will also be accessible from Kamehameha Highway via Leilehua Golf Course Road from the west.

4. Traffic and Circulation: According to the applicant's traffic impact study, the proposed development will significantly increase traffic volumes in the vicinity of the site and will even affect regional traffic conditions. Improvements are proposed at the Leilehua Interchange of the H-2 Freeway and at Kamehameha Highway to serve the traffic generated by the Park.

5. Infrastructure: Due to the isolated location and former agricultural use of the site, there is no public infrastructure to service the Park. Consequently, all utilities, sewers, water supply and storm drainage systems must be installed by the developer.

Wastewater Disposal

The closest wastewater treatment facility is located at Mililani Town. According to the applicant, the Mililani Wastewater Treatment Plant has sufficient capacity to treat the anticipated flows from the Park. Substantial on-site and off-site improvements will be required to convey sewage flows to Mililani.

Water Supply

The applicant indicates that water will be available to serve the Park from new water supply sources currently being developed in the Koolau Mountains east of the site to serve Mililani Town. Also, water allocation will be requested from the State Department of Land and Natural Resources (DLNR) which regulates withdrawal of water from the Pearl Harbor Groundwater Control District in which the site is located.

DLNR has determined that the total sustainable yield for the district is 225 million gallons per day (MGD). This yield was previously allocated to the Oahu Sugar Company (115 MGD), to urban uses (77 MGD). Presently, there is no unallocated daily sustainable yield remaining in the district. DLNR requires specific proposals for importing water or reducing the export of water from the Pearl Harbor basin before considering approving additional allocations.

The applicant is proposing to request an allocation from DLNR based on the following occurrences: (1) reduction of irrigated sugarcane acreage by Oahu Sugar Co.; (2) development of sources outside of the Pearl Harbor basin in Windward and Leeward Oahu; (3) use of drip irrigation, a more efficient use of water, for sugar cultivation; and (4) use of surface water from Waiahole ditch by Oahu Sugar Co. to reduce groundwater withdrawals.

Drainage System

The site's topography is characterized by an average slope of 0 to 5% which the applicant claims is suitable for on-site absorption of runoff through catchment basins and landscaped areas. Measures to mitigate drainage impacts upon Waikakalaua Gulch and Stream as well as the Melemanu Woodland area to the south are also proposed. These include one or more of the following: (1) drainage improvements to Waikakalaua Stream; (2) on-site retention basins to control runoff from the Waikakalaua drainage basin; and (3) division of a portion of the runoff in a westerly direction down the Leilehua Golf Course Road, then across and parallel to Kamehameha Highway into an existing gulch.

Solid and Hazardous Waste Disposal

Refuse will be disposed of through a private refuse collection service. As for hazardous wastes, the applicant does not anticipate that tenants will cause toxic waste disposal problems. Manufacturing industries using chemicals intensively for processing are to be restricted from the Park. Any hazardous wastes would have to be disposed of by Environmental Protection Agency approved methods and at approved disposal sites. Details about these methods and sites should be included in the EIS.

Police and Fire Protection

The applicant indicates that police protection is available from Wahiawa and fire protection is available from Mililani and Wahiawa. Special fire fighting procedures may be required due to the unique nature of the industries.

Electrical and Telephone

These services can be made readily available to the site.

6. Drainage: Open space and landscaping will be the primary characteristics and trademark of the Hawaii Technology Park. Open space is the principal design element serving to "visually integrate and unify the various functions of the Park" (Hawaii Technology Park Master Plan). The Park's layout, streets, building architecture and overall physical design will all contribute to the open space character. Landscaping will be the key element in establishing the island character of the Park. Strict design, building and land use controls will be imposed via the Park's proposed "Covenants, Conditions and Restrictions" to achieve the desired degree of quality and consistency.

B. Environmental Characteristics of the Project and the Affected Environment

1. Site Description: The site is an elongated, irregularly shaped parcel consisting of gently undulating upland with grades ranging from 0 to 10%. This plateau area is bisected by two tributary gulches extending northward from Waikakalaua Gulch (see Location Map). The upland areas of the site are vegetated with untended pineapple plants.

2. Runoff and Flood Hazard: Most of the site drains directly into Waikakalaua Gulch to the southeast, while two small areas in the northwest and northeast corners drain to the north. The site is not subject to flooding, according to the applicant. The EIS

should address the potential impacts upon Waikakalaua Gulch and Stream, as well as downstream areas, due to the increase in runoff.

The Federal Flood Insurance Rate Map designates the site in Zone D; described as an area of undetermined, but possible, flood hazard. City Comprehensive Zoning Code flood proofing requirements are not applicable to Zone D areas because they are not identified as Flood Hazard Districts.

3. Displacement of Agriculture Land: Although this pineapple field now lies fallow, it was once very productive and still has the potential to be so. The State Department of Agriculture has classified about 70% of the site as Prime and about 25% as Unique Agricultural lands in its Agricultural Lands of Importance to the State of Hawaii (ALISH) classification system.

   The proposed development will remove 256 acres of land from agricultural use. To offset this loss, the applicant proposes that the landowner's (Castle & Cooke) Dole Processed Foods Company plant 142 acres of former Oahu Sugar Co. canefields at Waiawa in pineapple. Dole predicts that these new, irrigated fields will have higher per acre yields than the unirrigated subject site.

4. Environmental Quality: The applicant anticipates that air quality in the area will be affected by construction activities and by increased traffic volumes. Information regarding the possibility of undesirable or hazardous air emissions from the various industries should be provided.

   Applicant's studies predict that noise impacts will be limited to vehicular noise since loud noise generating industries will be restricted from the Park. Noise and safety factors (AICUZ and APZ) from aircraft at Wheeler Air Force Station should also be considered.

   Surface water quality of Waikakalaua Stream may be affected by runoff even though mitigating measures are proposed. The possibility of processing chemicals or waste products affecting groundwater quality needs to be addressed.

5. Scenic Views: Design controls and development standards will be imposed to minimize the impact on views toward the site.

6. Flora and Fauna: Applicant's studies indicate that there are no significant, rare or endangered species of flora and fauna. Since the site was formerly in pineapple cultivation, other flora have been eliminated.

7. Archaeological and Historical Resources: Applicant's archaeological reconnaissance survey found only one insignificant low stone terrace in the gulch adjoining the site. No traces of other remains were discovered.

   The survey report was filed with the State Historic Preservation Office of the DLNR. According to DLNR records, the site is not on historic properties that are listed on either the Hawaii or National Registers of Historic Places, or that have been determined eligible for inclusion. Adequacy of the survey should be confirmed by DLNR for the purposes of the EIS.

C. Social and Economic Characteristics

1. Need for the Development: With the sugar and pineapple industries declining, there is a need to develop new industries to diversify the State's economic base. The Hawaii State Plan recognizes the need to diversify and not depend on just a few industries. The State government believes that high technology industry is one possibility. In 1981, the State Department of Planning and Economic Development published the "Hawaii High Technology Development Plan." This plan describes the benefits of the high-tech industry to Hawaii, and Hawaii's advantages in attracting and developing high-tech industry. The applicant proposes that the Hawaii Technology Park will help to satisfy this need.

2. Employment: The Park will primarily consist of light assembly operations, with some research and development, involved in fabricating high value products from components manufactured in other locations. This means smaller and mid-sized companies employing between 30 and 150 workers and not requiring many high-skilled engineers and scientists

   The estimated total employment to be generated by the Park is approximately 27,000 jobs in the following breakdown:

Source	No. of Jobs
Direct (on-site)	12,138
Indirect	4,879
On-site - 2,142	
Off-site - 2,737	
Induced	10,367
TOTAL	27,384

3. Growth and Economic Impacts: Growth and economic impacts upon the area, the region, the county and the state could be significant and need to be addressed.

4. Housing Supply and Affordability: This development with 27,000 jobs could significantly affect the availability and affordability of housing in the area.

5. Alternative Sites: There may not be a need for additional industrial zoned land since sites are available at the Gentry and Campbell Industrial Parks. The EIS should justify the need for additional lands planned and zoned for light industrial use.

6. Development Costs:

Costs	Off-Site	Phase I On-Site	Phase II On-Site	Total
1. Traffic	$ 2,025,000	$ -0-	$ -0-	$ 2,025,000
2. Drainage	-0-	764,000	725,000	1,489,000
3. Water	8,557,000	977,000	1,416,000	10,950,000
4. Sewer	4,164,000	1,913,000	1,989,000	8,066,000
5. Road	-0-	1,750,000	2,251,000	4,001,000
6. Electric	147,125	1,147,795	613,510	1,908,430
7. Telephone	135,000	46,132	44,742	225,874
Total Off-site	$15,028,125			
Total Phase I		$6,597,927		
Total Phase II			$7,039,252	
Total Dev. Costs				$28,665,304
Total Cost Per Net Acre				$ 135,213

II. REASONS SUPPORTING DETERMINATION

The decision to require an EIS for this project is based on Section 1:31, Significance Criteria and Procedures, established in the State "EIS Regulations pursuant to Chapter 343, HRS. It has been determined that the proposed development will have significant overall and cumulative effects. Furthermore, the action may have a major effect on the quality of the environment and may affect the economic and social welfare of the area.

The preparation of the EIS must adhere to Subpart E of the "EIS Regulations." All studies and/or data pertaining to the site and the proposed development should be included in or appended to the EIS.

III. AGENCIES TO BE CONSULTED

The following agencies should be consulted in the preparation of the EIS:

CITY & COUNTY

Board of Water Supply
Building Department
City Council
Department of General Planning
Department of Housing & Community Development
Department of Parks and Recreation
Department of Public Works
Department of Transportation Services
Fire Department
Police Department

STATE OF HAWAII

Department of Accounting & General Services
Division of Public Works
Department of Agriculture
Department of Health
Department of Land & Natural Resources
Department of Planning & Economic Development
Department of Transportation
Office of Environmental Quality Control

UNIVERSITY OF HAWAII

Environmental Center
Water Resources Research Center

FEDERAL

U.S. Air Force, Wheeler Air Force Base
U.S. Army, Schofield Barracks
U.S. Army Corps of Engineers
U.S. Department of Agriculture,
Social Conservation Service
U.S. Fish & Wildlife Service

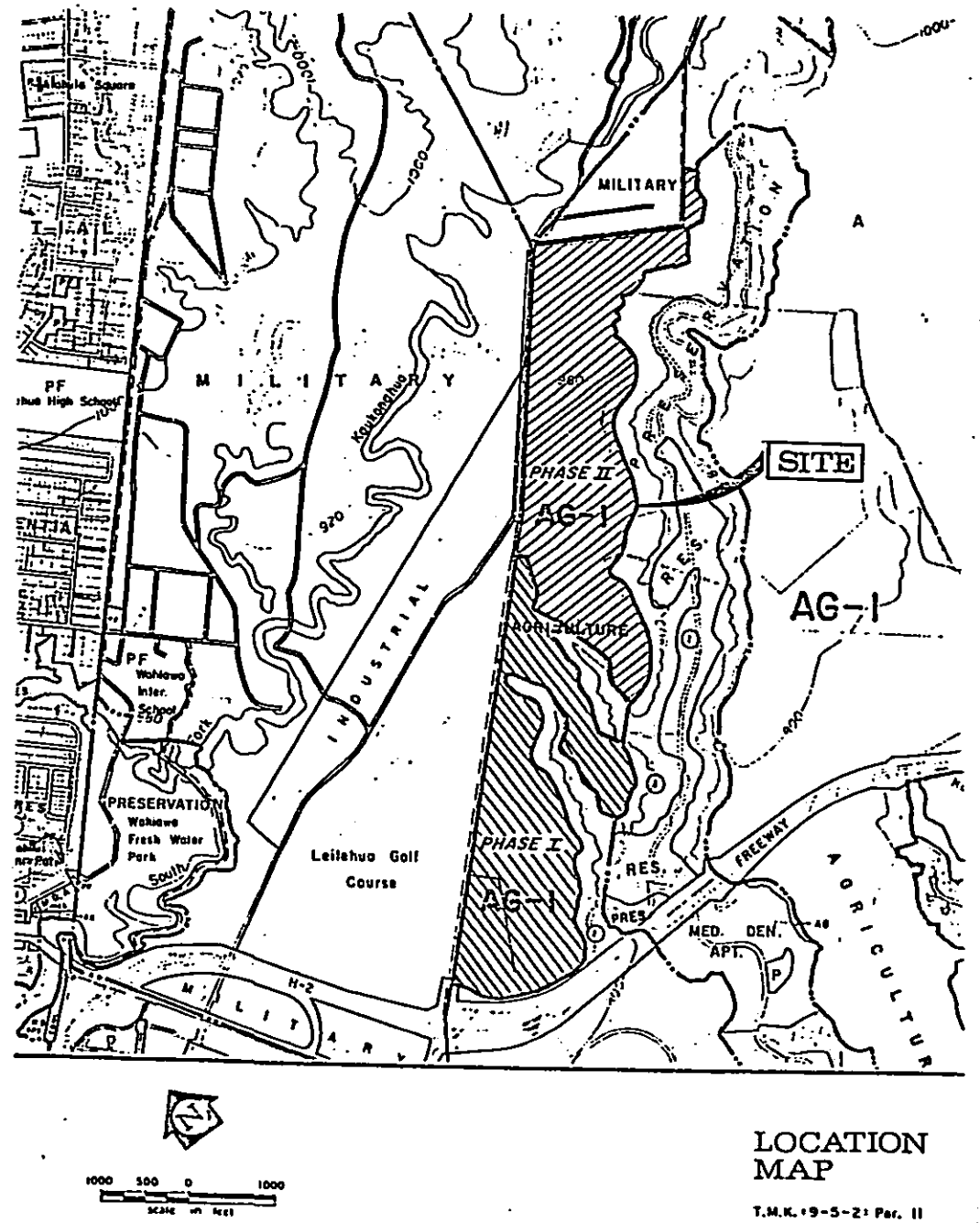
COMMUNITY ORGANIZATIONS

Community Associations
Neighborhood Boards

APPROVED John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPW:ey

cc: Dept. of General Planning



LOCATION
MAP

T.M.K. 9-5-2: Par. 11

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1066

_____
_____
_____

Dear _____:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu 606 Coral Street, Honolulu, Hawai'i 96813, telephone (808) 521-5361, Telex 7431174 BCHSIN
Singapore 304 Orchard Road, #12-06, International Building, Singapore 0923, telephone 235 6870, Telex RS 50464 BCHSIN

June 10, 1985
85-1066

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.
Enclosure

Standard letter to following persons:

Mr. Herbert K. Muraoka, Director
Building Department
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Ms. Patsy T. Mink, Chair
City Council
City and County of Honolulu
City Hall
Honolulu, Hawai'i 96813

Mr. Donald A. Clegg
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Mr. Alvin K.H. Pang, Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Mr. Tom Nekota, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Mr. Hideo Murakami, Comptroller
Department of Accounting and General Services
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawai'i 96813

Mr. Susumu Ono, Chairman
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawai'i 96809

Mr. Kent M. Keith, Director
Department of Planning and Economic Development
State of Hawai'i
P.O. Box 2359
Honolulu, Hawai'i 96804

Dr. Doak Cox, Director
Environmental Center
2550 Campus Center Road, Crawford 317
University of Hawai'i at Manoa
Honolulu, Hawai'i 96822

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
University of Hawaii
2540 Dole Street, Room 283
Honolulu, Hawai'i 96822

Commanding Officer
Department of the Air Force
United States Government
Wheeler Air Force Base, Hawaii 96857

Maj. Gen. Claude M. Kicklighter
Commanding General
Department of the Army
United States Government
Schofield Barracks, Hawai'i 96857

Mr. Francis C.H. Lum
State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
P.O. Box 50006
Honolulu, Hawai'i 96850

Mr. Ernest Kosaka, Project Leader
Environmental Services Office
Fish and Wildlife Service
U.S. Department of the Interior
P.O. Box 50167
Honolulu, Hawai'i 96850

United States Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii
96850

BELT, COLLINS & ASSOCIATES

July 8, 1985

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, HI 96813

Dear Mr. White:

Subject: Environmental Impact Statement Preparation Notice
Development of the Hawaii Technology Park, Mililani, Oahu

The above-mentioned document has been reviewed as requested. We sent the following comments to Mr. Kent M. Keith, Director, Department of Planning and Economic Development, in response to the land use zoning change proposal on June 27, 1983:

"The Mililani town location, between the H-2 Freeway and Waikakalaua and Kipapa Gulches, was one of the best sites for agriculture. However, this area has been lost to agriculture forever. The H-2 Freeway should act as a buffer zone to prevent further urban spread to the east.

"The site is ideally suited for agriculture for the same reasons it is suited for the proposed high-technology park. It is an isolated parcel, compatible with the adjacent surroundings, and the dust, fertilizer and herbicide problems will be minimal to the military and the golf course. The soils are well suited to agriculture and can produce high yields with minimal input.

"The previous granting of the requested boundary change and construction of the project will lead to further devouring of farmland east of Waikakalaua Gulch and mauka of H-2 Freeway. While we concur with the idea of a high-technology park, we feel that this area should remain agricultural."

We feel these comments are still valid.

Thank you for the opportunity to review the document.

Sincerely,

Harry W. Sato
for FRANCIS C.H. LUM
State Conservationist

The Soil Conservation Service is an agency of the United States Department of Agriculture

U.S. Government Printing Office 1983—420 834/1519

A-9

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1538

Mr. Francis C.H. Lum
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Lum:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 8, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White
Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex HI 7474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Commercial Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1388

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853-5000

RECEIVED
JUL 16 1985
BELT, COLLINS & ASSOCIATES

12 JUL 1985

REPLY TO ATTN OF: DEEV

SUBJECT: Environmental Impact Statement Preparation Notice, Development of the "Hawaii Technology Park", Mililani, Oahu

TO: Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

1. In response to your letter of 10 June 1985, we attach our letter of 11 June 1985 to Gray, Hong and Associates regarding the Melemanu Woodlands, Phase III development.

2. Due to the close proximity of your proposed project to Melemanu Woodlands, our concerns expressed in the said 11 June 1985 letter are also applicable to the proposed technology park.

3. Should you have any questions, please feel free to contact Mr George Fujimoto at 449-1831.

ROBERT M. OKAZAKI
Chief, Engrg & Envmtl Plng Div
Directorate of Civil Engineering

1 Atch
15 ABS/DE Ltr, 11 Jun 85 w/Atch

A-10

DEPARTMENT OF THE AIR FORCE
15TH AIR BASE SQUADRON (PACAF)
WHEELER AIR FORCE BASE, HAWAII 96854-5000

DE
JUN 11 1985

REPLY TO ATTN OF: DE (Capt Vawter, 655-1374)

SUBJECT: Request for Consultation Comments, Draft Environmental Statement, Melemanu Woodlands, Phase III, Waipio, Ewa, Oahu, Hawaii

TO Gray, Hong and Associates Inc.
Consulting Engineers
119 Merchant Street, Suite 607
Honolulu, Hawaii 96813

1. In response to your 30 Apr 85 letter, requesting consultation comments (as identified in subject line above), the following is provided:

a. AICUZ INFORMATION: Current Air Installation Compatability Use Zone (AICUZ) information is not available. An AICUZ study is underway that focuses upon Wahiawa, Waipio Valley, and Mililani areas as they are affected by Wheeler Air Force Base. This study will provide baseline maps and sound exposure levels that should be pertinent to your proposed development. However, it will not be until September 1985 before we receive the first draft reports.

b. AIRCRAFT ACCIDENT AREA: Your proposed development is outside of our "clear zone". The potential for aircraft related accidents is reduced, but still exists. Referencing our attachment #1, you can note a graphic presentation of a 60° straight out departure and an IFR departure. This depiction is close to the scale established in your exhibit 4 - INFRASTRUCTURE, but is not guaranteed. Our concern on both departures center on payload and fuel tank offload during emergencies as well as the possibility of downed aircraft. On the final departure heading, during IFR operations, the probability is extremely high that aircraft will be passing over your development at 500 to 100 feet AGL.

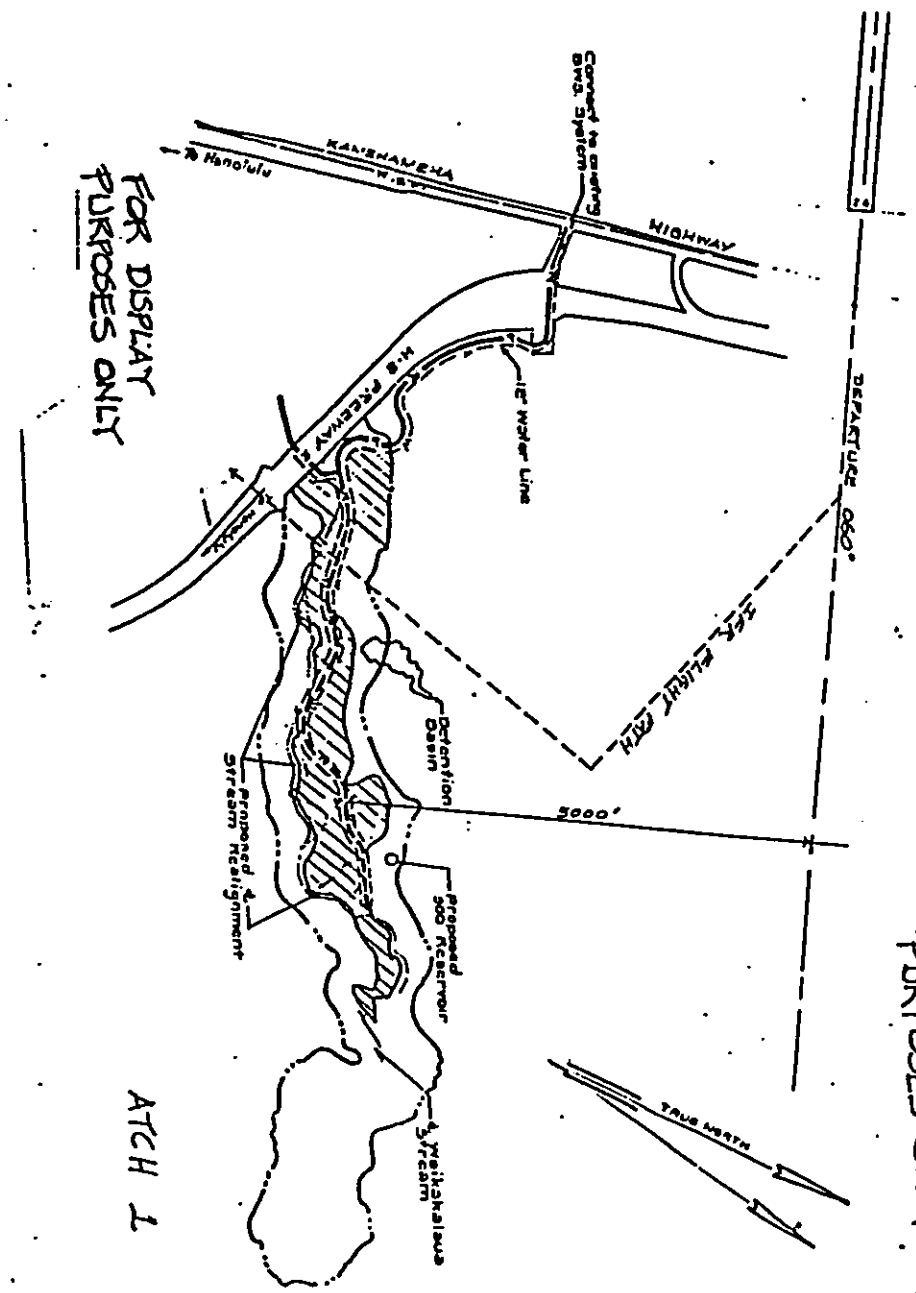
c. AIRCRAFT NOISE AREA: Noise has been a continuous problem to all surrounding residential areas. Your development will be subject to noise levels in excess of 65 DB, from time to time, by both fixed wing and rotor driven aircraft.

d. VEHICULAR TRAFFIC IMPACT: Although your development will not have a direct impact on Wheeler Air Force Base traffic, it will have an effect upon access to and from the installation. During peak periods, Kamehameha Highway, H2 Freeway at Kamehameha Highway and the Leilehua Overpass all suffer from congestion now. An increase in northern bound traffic from your proposed location will only worsen this problem.

2. Wheeler Air Force Base maintains a class "B" airport that services both

fixed wing and rotor driven aircraft. If this land is developed, notice should be given to prospective buyers as to the potential for aircraft noise and accident. Should further information be needed, contact Captain Gary Vawter, 655-1374.

LARRY D. HELLIKSON, Colonel, USAF
Commander



ATCH 1

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1541

Mr. Robert M. Okazaki, Chief
Engineering and Environmental Planning Division
Directorate of Civil Engineering
Department of the Air Force
Headquarters 15th Air Base Wing (PACAF)
Hickam Air Force Base, Hawaii 96853

Dear Mr. Okazaki:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 12, 1985 -- your reference DEEV -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BLTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0921 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

DEPARTMENT OF THE ARMY
HEADQUARTERS 25TH INFANTRY DIVISION
SCHOFIELD BARRACKS, HAWAII 96857-6000

June 19, 1985

RECEIVED
JUL 1 1985
BELT, COLLINS & ASSOCIATES

Route to:
__ Belt, J.
__ Paszkowski, T.
__ Cain, R.
__ White, P.
__ Koyama, G.
__ Kuniyoshi, E.
__ Yoshioka, A.
__ Brown, R.
J Mapes, A.
__ Kaneshiro, C.
__ Uyehara, K.
__ Library
__ File Copy

Mr. Perry J. White
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Thank you for your letter of June 10, 1985 on your plans for a new high technology industrial park. I appreciate the opportunity to express the Division's perspective on this proposed project; however, the 25th Infantry Division is only a tenant user of training lands which are maintained and administered by the United States Army Support Command, Hawaii (USASCH). I have transferred your letter, along with my comments, to the USASCH Commander, Colonel David H. Helela, for action and final reply.

Once again, thank you for your consideration.

Respectfully,

John S. Peppers
John S. Peppers
Brigadier General, U.S. Army
Acting Commander

cc: Commander, USASCH

A-13

BELT, COLLINS & ASSOCIATES
Engineering · Planning
Landscape Architecture

August 23, 1985
85-1597

Mr. John S. Peppers
Brigadier General, U.S. Army
Acting Commander
Department of the Army
Headquarters 25th Infantry Division
Schofield Barracks, Hawaii 96857

Dear General Peppers:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 19, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu. Following your transmittal of my letter of June 10, 1985 concerning the above project to the USASCH Commander, we received a reply dated July 18, 1985 from Colonel David H. Helela, and we are working with his staff to resolve the issues which have been raised.

The DEIS for the project is expected to be completed in September. It will include the USASCH comments and a discussion of the concerns identified therein.

Sincerely,

Perry J. White
Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex BELTHI 7410474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

RECEIVED
JUN 9 1985
BELT, COLLINS & ASSOCIATES
ES
Room 6307
JUN 10 1985

Belt, Collins, & Associates
Attn: Ms. Anne Mapes
606 Coral Street
Honolulu, Hawaii 96813

Re: Environmental Impact Statement Preparation Notice (EISPN), Hawaii Technology Park, Mililani, Oahu

Dear Ms. Mapes:

The U.S. Fish and Wildlife Service (FWS) has reviewed the City and County of Honolulu Department of Land Utilization's EISPN and offers the following comment for your consideration.

In general, the EISPN adequately addresses FWS's concerns for the proposed project. We suggest that the EIS include drainage designs that limit runoff into Waikakalua Stream.

Sincerely yours,

Ernest Kosaka

Ernest Kosaka
Project Leader
Office of Environmental Services

cc: RD, FWS, Portland, OR (AHR)
EPA, San Francisco
DLNR

A-14

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1534

Mr. Ernest Kosaka, Project Leader
Office of Environmental Services
Fish and Wildlife Service
U.S. Department of the Interior
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 10, 1985 -- your reference ES Room 6307 -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5161, Telex BELTH 7430474
Singapore 360 Orchard Road, #12 06, International Building, Singapore 0921 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

JUL 22 1985

BELT, COLLINS & ASSOCIATES

INDEO MURAKAMI
COMPTROLLER

MIKE N. TOMINAGA
DEPUTY COMPTROLLER

LETTER NO (P) 1380.5

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: EIS Preparation Notice
Development of the "Hawai'i
Technology Park," Mililani, Oahu

We have reviewed the subject Environmental Impact Statement and have no comments to offer at this time.

Thank you for informing us of the anticipated circulation date of the draft Environmental Impact Statement.

Very truly yours,

TEUANE TOMINAGA
State Public Works Engineer

RY:jk

A-15

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1533

Mr. Teuane Tominaga
State Public Works Engineer
Department of Accounting and General Services
Division of Public Works
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tominaga:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 22, 1985, -- Letter No. (P)1380.5 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu. While your agency had no comments to make on this matter, we appreciate the time you and your staff spent reviewing the preparation notice.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex BELLHI 7430474
Singapore 360 Orchard Road, #12 01, International Building, Singapore 0911 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney NSW 2089 Telephone 908 1388

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

RECEIVED
JUL 26 1985
BELT, COLLINS & ASSOCIATES

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

JUL 24 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Thank you for notifying us that an environmental impact statement (EIS) is to be prepared for the Hawaii Technology Park at Mililani, Oahu.

The proposed high technology park, located on a 256-acre site in Mililani, Central Oahu, is intended to accommodate high technology industry in Hawaii. The site, an irregularly sloped parcel comprised of gently undulating plateau land, is abutting Waikakalaua Gulch along its southern boundary.

The EIS should address erosion-sedimentation control measures to minimize impact on Waikakalaua Stream and the other adjacent areas.

As the project is located in the Pearl Harbor Ground Water Control Area (PHGWCA), permits from DLNR are required if the plans for the project call for the development of ground water within the PHGWCA. It should be noted that the present sustainable yield within the PHGWCA is 225 mgd and the present withdrawal of ground water from the PHGWCA is 202.5 mgd. Any withdrawals of ground water from the PHGWCA requires the necessary permits from this department.

We concur with the conclusions and recommendations of the consulting archaeologist (Science Management Inc.) that the single archaeological feature discovered during the course of the reconnaissance was a stone terrace, probably agriculturally related, void of any surface evidence such as artifacts or food remains. The consulting archaeologist further states that the relatively small size of the site, its simple form, the absence of evidence of artifactual and other portable items, and the absence of associated sites, all support the conclusion that the site is of very little research, cultural, or interpretive value, and that it is insufficiently significant to warrant further research or placement on either the Hawaii or the National Registers of Historic Places. ("An Archaeological Reconnaissance Survey of the Proposed Hawaii High Technology Park, Ewa, Oahu," SMI, 1983:9)

If any previously unidentified sites or remains (such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings, or walls) are encountered during the course of construction activities, your client should stop work and contact our historic sites office at 548-7460 immediately. Work in the immediate area should be stopped until the office is able to assess the impact and make further recommendations for mitigative activity, if warranted.

Sincerely,

SUSUMU ONO
Chairperson
and
State Historic Preservation Officer

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1543

Mr. Susumu Ono
Chairman and State Historic Preservation Officer
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 24, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 1406 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 HCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
KAMAMALU BUILDING, 250 SOUTH KING ST, HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359, HONOLULU, HAWAII 96804 • TELEX 7430250 HIDED

GEORGE R. ARIYOSHI
GOVERNOR
KENT M. KEITH
DIRECTOR
MURRAY E. TOWILL
DEPUTY DIRECTOR
LINDA KAPUNAI ROSEHILL
DEPUTY DIRECTOR

DIVISIONS
BUSINESS AND INDUSTRY DEVELOPMENT DIVISION
ENERGY DIVISION
FOREIGN-TRADE ZONE DIVISION
LAND USE DIVISION
PLANNING DIVISION
RESEARCH AND ECONOMIC ANALYSIS DIVISION
OFFICES
ADMINISTRATIVE SERVICES OFFICE
INFORMATION OFFICE

RECEIVED
JUL 11 1985
BELT, COLLINS & ASSOCIATES

Ref. No. P-1983

July 5, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: EIS Preparation Notice for Development of the "Hawaii Technology Park," Mililani, Oahu

We have reviewed the subject preparation notice and offer the following comments.

The draft EIS should describe the relationship of the proposed project to the relevant objectives and policies (Part I) and priority guidelines (Part III) of the Hawaii State Plan and State Functional Plans. This discussion should address concerns regarding economic activities, employment opportunities, depleted agricultural land and industrial location. It is the responsibility of the preparer of the EIS to assess and describe these relationships in the EIS.

Thank you for the opportunity to review and comment on the subject document.

Very truly yours,

Murray E. Towill
for Kent M. Keith

cc: Mr. Stephen H. Miller
Oceanic Properties, Inc.
Office of Environmental Quality Control

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1537

Mr. Kent Keith, Director
Department of Planning and Economic Development
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Keith:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 5, 1985 -- your reference number P-1983 -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex [illegible] 7410474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney NSW 2089, Telephone 908 1188

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RECEIVED
JUL 20 1985
BELT, COLLINS & ASSOCIATES

HERBERT K. MURAOKA
DIRECTOR
AND BUILDING SUPERINTENDENT

PB 85-584

June 18, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: EIS Preparation Notice
Development of the "Hawaii Technology Park"
Mililani, Oahu

We have no comments on the proposed high technology park to be developed in Mililani.

Thank you for the opportunity to review the EIS Preparation Notice.

Very truly yours,

Herbert K. Muraoka

HERBERT K. MURAOKA
Director and Building Superintendent

cc: J. Harada

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1531

Mr. Herbert K. Muraoka
Director and Building Superintendent
Building Department
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Muraoka:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 18, 1985, -- Letter No. PB 85-584 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu. While your agency had no comments to make on this matter, we appreciate the time you and your staff spent reviewing the preparation notice.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex [illegible]
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCASIN
Australia Level 2, First Floor, 39 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone [illegible]

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

RECEIVED
JUN 21 1985
BELT, COLLINS & ASSOCIATES

WL/DGP 6/85-1686

June 19, 1985

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

This is in response to your request for assistance in preparing the EIS for the Hawaii Technology Park at Mililani.

Staff from the Department of General Planning worked with the Department of Land Utilization in preparing the EIS Preparation Notice. Therefore, our concerns are addressed in the prep notice, and response to those concerns would satisfy our requirements.

Should you have any questions regarding this matter, please call Walter Lee at 527-6015.

Sincerely,

Donald Clegg

DONALD A. CLEGG
Chief Planning Officer

A-20

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1549

Mr. Donald A. Clegg
Chief Planning Officer
Department of General Planning
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 19, 1985 -- Letter No. WL/DGP 6/85-1686 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

Your concerns, which are reflected in the EIS Preparation Notice, will be addressed in the DEIS.

The DEIS is expected to be completed in September when you will be sent a copy. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTHI 7430474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney NSW 2089, Telephone 908 1388

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4181

FRANK F. FASI
MAYOR

ALVIN K.H. PANG
DIRECTOR

RECEIVED
JUL 24 1985
BELT, COLLINS & ASSOCIATES

July 22, 1985

Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Attention: Ms. Anne Mapes

Gentlemen:

Subject: EIS Preparation Notice
Hawaii Technology Park
Mililani, Oahu

The proposed development of a 256 acre "high technology park" in Mililani, Central Oahu, has been reviewed by this Department.

We have no objections to the general concept of a technology park which will be designed to accommodate such activities as light manufacturing and assembly, research and development and the ancillary functions of administration and warehousing.

We note that this proposed development will provide at least 27,000 jobs and will significantly affect the availability and affordability of housing in the area. Thus, we request that the EIS address the issue of affordability of housing for the proposed employees.

Sincerely,

Alvin Pang

ALVIN K. H. PANG

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1546

Mr. Alvin K.H. Pang
Department of Housing and Community Development
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Pang:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 22, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALMill

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLHI 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCTSIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1388

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

TOM T. NEKOTA
DIRECTOR

RECEIVED
JUN 25 1985
BELT, COLLINS & ASSOCIATES

June 20, 1985

Mr. Perry White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Environmental Impact Statement, Preparation Notice
Hawaii Technology - Mililani
TMK: 9-5-2: por. 11

We have no comments to offer on the proposal to develop a high technology industrial park on lands situated in Mililani. The type of use would have no impact on our public facilities.

Thank you for the opportunity to review the EIS preparation notice.

Sincerely yours,

Tom Nekota

TOM T. NEKOTA, DIRECTOR

TTN:ct

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1532

Mr. Tom T. Nekota, Director
Department of Parks and Recreation
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Nekota:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 20, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu. While your agency had no comments to make on this matter, we appreciate the time you and your staff spent reviewing the preparation notice.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5161, Telex 8117174 BCHSIN
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

July 10, 1985

PN:0045

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Preparation Notice
Environmental Impact Statement
Hawaii Technology Park
Mililani, Oahu

The Environmental Center has conducted a brief, in-house review of the above cited document with the assistance of our staff reviewers, Jacquelin Miller and Noreen Tashima.

We note that the proposed park will provide a site for the development of new industries so as to diversify the State's economic base. In view of the high-priced, rapidly changing industry proposed, we suggest a more recent documentation of need be provided in the Draft Environmental Impact Statement (EIS) to justify the removal of 256 acres of prime and unique agricultural land.

Thank you for the opportunity to comment at the preparation stage of the EIS. We look forward to reviewing the Draft EIS.

Yours truly,

Patrick Takahashi
Acting Director

cc: OEQC
Jacquelin Miller
Noreen Tashima

AN EQUAL OPPORTUNITY EMPLOYER

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1545

Mr. Patrick Takahashi, Acting Director
Environmental Center
University of Hawaii at Manoa
Crawford 317, 2550 Campus Road
Honolulu, Hawaii 96822

Dear Mr. Takahashi:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 10, 1985 -- Letter No. PN:0045 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex [illegible]
Singapore 340 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6070, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney NSW 2089, Telephone [illegible]

RECEIVED
JUL 15 1985
BELT, COLLINS & ASSOCIATES

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

11 July 1985

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Environmental Impact Statement Preparation Notice, Development of the "Hawaii Technology Park," Mililani, Oahu, June 1985

We have reviewed the subject EISPN and offer the following comments:

1. The proposed manufacturing facilities pose a serious potential hazard at this site because of its location within the groundwater recharge area of the sensitive Pearl Harbor aquifer, our primary potable water resource. Solid, liquid, and gaseous materials from manufacturing processes could be spilled and enter the soil and subsequently reach the water table. The present problems with EDB, DBCP, TCP and TCE found in the Pearl Harbor aquifer is a case in point to illustrate the serious consequences that can occur. High technology manufacturing can involve exotic and toxic materials and byproducts. Solvents and other liquids are particularly perilous because after absorption into the soil, it is difficult to document that a spill took place. If its composition is not altered by weathering forces, the possibility of it being percolated down to the water table with rainfall remains a distinct possibility.

   It should be made clear that materials not usually considered particularly dangerous by itself, such as solvents, because no one would drink it, can become threatening when contained in the water supply in sufficient quantities. If on the other hand hazardous contaminants contained with it also reach the ground water table, the situation can become considerably more serious.

   Studies on the mainland indicate that in general, large companies with over 100 employees managed hazardous waste satisfactorily because the diversified staff allowed expertise and resources to cope with waste disposal. Smaller firms, on the other hand, had a more difficult time assembling the necessary equipment and for trained staff to comply with the hazardous waste disposal regulations.

   Typical examples of improper disposal practices are:

   a. Spilled wastes were often washed into storm drains and streets or directly onto the ground.

   b. Small quantities of wastes are disposed with refuse which eventually end up in landfill not authorized for hazardous waste.

   c. Wastes dumped in sanitary sewer systems which do not adequately handle hazardous waste.

2. Presently some of the sanitary sewerage from Mililani Town is being used to irrigate Oahu Sugar Co. lands after wastewater treatment. This present sewage source is entirely domestic. The proposed high technology manufacturing could present an entirely new and difficult dimension to wastewater reuse because industrial sewerage contain the contaminants of manufacturing, some of them toxic. Irrigating with this material could result in percolating the material to the groundwater table or recycling the contaminants to the human food chain, which could happen with heavy metals and other materials.

Heretofore industrial and manufacturing activities has not posed a problem in possible groundwater contamination because these operations have been situated near the coast on "caprock" areas which are tight subterranean formations which preclude water passage through them. It appears that we are entering a new era wherein the groundwater recharge areas which had previously been in agricultural use will be increasingly supplanted by urban activities. And with it will be a need to deal with new issues such as this in the environmental impact statements.

Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi

Edwin T. Murabayashi
EIS Coordinator

ETM:jm

A-24

BELT, COLLINS
& ASSOCIATES
Engineering · Planning
Landscape Architecture

August 23, 1985
85-1540

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
University of Hawaii at Manoa
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 11, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry S. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 300 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 39 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

MAUNA LANI RESORT

On the Kohala Coast/Big Island of Hawaii

April 30, 1985

RECEIVED

Oceanic Properties, Inc.

RECEIVED
MAY 6 1985
BELL, COLLINS & ASSOCIATES

Mr. Stephen H. Miller
Oceanic Properties, Inc.
P. O. Box 2780
Honolulu, HI 96803

Dear Mr. Miller:

I wish to be a consulted party for the following:

DEVELOPMENT PLAN AMENDMENT AND REZONING FROM AGRICULTURE TO INDUSTRIAL FOR DEVELOPMENT OF A HIGH TECHNOLOGY INDUSTRIAL PARK, MILILANI, OAHU, Castle & Cook, Inc./City and County of Honolulu Dept. of Land Utilization.

Thank you.

Very truly yours,

MAUNA LANI RESORT, INC.

Roger Harris
wu

Roger Harris
Project Planner

RH/wu

P.O. Box 4959 • Kawaihae, Hawaii 96743-4959 • Telephone (808) 885-6677 • Telex 752149

A-26

BELL COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1077

Mr. Roger Harris, Project Planner
Mauna Lani Resort, Inc.
P.O. Box 4959
Kawaihae, Hawai'i 96743

Dear Mr. Harris:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

We have received a copy of your letter of April 30, 1985 to Oceanic Properties, Inc., requesting to be a consulted party for the above project. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion of the project (which was reclassified from Agricultural to Urban by the State Land Use Commission in 1984) from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural to Industrial; the application is being processed through the Department of Land Utilization, City and County of Honolulu.

Attached for your review is a copy of the EISPN issued by the Department of Land Utilization. As you know, according to the Environmental Impact Statement (EIS) Regulations, you should respond within 30 days. If all goes as planned, the EIS will be available in September 1985.

Thank you for your interest in the Hawai'i Technology Park project. If you have any questions regarding the project, please call me or Anne Mapes of our office at 521-5361.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:ll

cc: Oceanic Properties, Inc.

Enclosure

BLIT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1076

Mr. Kisuk Cheung, Chief
Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawai'i 96858

Dear Mr. Cheung:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

[illegible]

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. Although a flood insurance rate map panel has not been printed for the general vicinity, according to the Federal Flood Insurance Administration, the site of the proposed Park is within Zone C, an area of minimal flooding. Do you concur with this opinion?

2. We do not anticipate that the project will involve any activities that would require a Department of the Army permit. Can you confirm this?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
DUNNING HALL
FORT SHAFTER, HAWAII 96858-5000

July 18, 1985

RECEIVED
JUL 2 . 1985
BELT, COLLINS & ASSOCIATES

REPLY TO ATTENTION OF:
Directorate of Facilities Engineering

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Your letter dated June 10, 1985 and the attached notice on the Hawaii Technology Park were forwarded by Major General Claude M. Kicklighter, Commander of the 25th Infantry Division, to the US Army Support Command, Hawaii (USASCH) for appropriate action. USASCH is responsible for the management of US Army-owned or controlled lands in the State of Hawaii.

USASCH previously commented on the proposed Mililani High Technology Industrial Park. These letters are attached for your information. Additional comments are provided below:

a. Although this concern has been earlier stated, there is the possibility of conflicts with US Army and Air Force aviation activities at Wheeler Air Force Base. Buildings higher than three stories and antennas taller than 50 feet will present aviation safety hazards. Fixed-wing aircraft fly at an altitude of 150 to 200 feet within 200 meters of the proposed park site. Further, there is the problem of aircraft noise.

b. Our letter, dated July 22, 1982, indicated that military field training activities in East Range, Schofield Barracks would not conflict or impact on the proposed industrial park. However, the quality and intensity of training have increased recently, especially with the conversion of the 25th Infantry Division to a light division configuration. There is now the possibility of training conflicts with Phase II of the proposed project. The Phase II lands abut East Range Training Areas 9 and 10 (ER 9 and ER 10) (shown on the attached map). ER 9 and ER 10 are presently

occupied 200 days each year by units training with Battle Noise Simulators (pyrotechnics) and blank ammunition for rifles and machine guns. Other sections of East Range are unsuitable for the use of pyrotechnics because of nearby residential areas in Wahiawa. Further, the eastern end of ER 10 is used as a company-size bivouac area. ER 9 and ER 10 are essential training areas, whose value would be lost if training restrictions were imposed due to the proposed project.

Thank you for the opportunity to comment on the environmental impact statement preparation notice. If you require additional information or assistance, please contact the Environmental Management Office, Directorate of Facilities Engineering, at 655-0691/0694.

Sincerely,

David H. Helela
Colonel, Infantry
Commanding

Attachments

Copy Furnished: Mr. Hirai

Commander
25th Infantry Division
ATTN: APVG-PT-EN
Schofield Barracks, Hawaii 96857-6000

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858

RECEIVED
JUL 1985
BELT, COLLINS & ASSOCIATES

July 1, 1985

Mr. Perry White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Development of the Hawaii Technology Park, Mililani, Oahu. The following comments are offered:

a. The Department of the Army permit requirements are not applicable.

b. EIS Preparation Notice, I.B.2 Runoff and Flood Hazard. The following statement, "... the site is not subject to flooding, according to the applicant...", may or may not be the potential flooding condition for the site of the proposed Hawaii Technology Park at Mililani. The Zone D classification for the area, under the Flood Insurance Study for the City and County of Honolulu by the Federal Insurance Administration, is applied to unstudied flood hazard areas. The site is designated Zone D or area of undetermined but possible flood hazards, and is not within Zone C or area of minimal flooding as suggested in your letter.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

A-29

11 FEB 1985

Director of Facilities
Engineering

Mr. Paul T. F. Low
President
EDP Hawaii Inc.
1164 Bishop Street, Suite 1515
Honolulu, Hawaii 96813

Dear Mr. Low:

Reference is made to your November 19, 1984 letter to this headquarters, subject: Oceanic Properties Hawaii Technology Park's Request to Construct a Portion of a 1.5 Million Gallon Reservoir and Reservoir Access Road Within U.S. Military Reservation Property.

After review of your proposal to construct a 1.5 million gallon reservoir on a portion of the Army's East Range, Schofield Barracks, the following comments are furnished:

a. From the existing topography, it does not appear feasible to construct the access road east of the military boundary as stated in your letter.

b. It appears that most of the road must be constructed on top of the ridge line straddling the military reservation boundary. Extensive cutting and grading of the top of the ridge line would be required, with erosion becoming a problem.

In view of the foregoing, approval of the concept of building portions of the access road and reservoir on military land cannot be granted until more definitive drawings and information are provided. Further, we would desire the opportunity to review the Environmental Assessment for the proposed action.

Sincerely,

Original signed by
Kenneth G. Bell
RONALD A. BORRELLO
Colonel, CE
Director of Facilities
Engineering

CF:
C, EPS.
C, Environmental

EDP Hawaii Inc.
Consulting Engineers

1164 Bishop Street, Suite 1515
Honolulu, Hawaii 96813
Telephone: (808) 526-1177

November 19, 1984

Director of Facilities
Engineering
Department of Army
HQ U.S. Army Suppport Command, Hawaii
Fort Shafter, Hawaii 96858

Attention: Mr. Bobby Billingsly
Realtor Officer

SUBJECT: Oceanic Properties Hawaii Technology Park's Request to Construct a Portion of a 1.5 Million Gallon Reservoir and Reservoir Access Road within U.S. Military Reservation Property

Enclosed herewith for your review and information are two exhibits. Exhibit A is a 200 scale aerial photo contoured map. Delineated on Exhibit A is the Land Court boundary separating the Military Reservation from Castle & Cooke lands.

Also delineated on Exhibit A is the proposed site of the 1.5 million gallon reservoir and the proposed location of the reservoir access road. Please note that although portions of the access road encroach within military property, the access road will be constructed below and east of the ridge which serves as a natural barrier between the military land and Castle & Cooke's property. Although a portion of the reservoir site will be on military property like the access road, the reservoir will be shielded on the east range side by the natural ridge. The reservoir will also be encircled with a security chain link fence six feet in height.

Exhibit B is a photocopy of a portion of the map showing the training areas of the East Range.

Since Mr. Wallace Miyahira and my discussion with you on October 17, 1984, I have confirmed the ownership of the eastern portion of ER-10 with the chief of the real estate division of the Corps of Engineers and the real estate officer of Castle & Cooke, Ltd. It has been confirmed that the portion of ER-10, east of the Land Court boundary has been returned to Castle & Cooke and may be used by Castle & Cooke without reservation.

Your Department's approval of the concept of building portions of the reservoir access road and the reservoir on military land east of the natural ridge which separates the East Range from Castle & Cooke's property is requested.

More definitive design information will be submitted to your Department upon receipt of your Department's approval to the concept of using a portion of the military land for the access road and reservoir.

PAUL T. F. LOW
President

PL:vo

Encls.: 2

OKUMURA TAKUSHI FUNAKI & WEE
ATTORNEYS AT LAW
A LAW CORPORATION

SUTERI OKUMURA
JAMES T. FUNAKI
TOM SEEK PAI
ALFRED M. E. WONG
DICKSON C. H. LEE

ROY E. TAKUSHI
JOSEPH E. WEE
SHUICHI MIYASAKI
ROBERT M. EHRHORN, JR.

PETER T. STONE
JAMES N. H. YEE
GARY Y. OKUDA

SUITE 1400
GROSVENOR CENTER
733 BISHOP STREET
HONOLULU, HAWAII 96813

TELEPHONE: (808) 543-0800
CABLE ADDRESS: COUNSELLOR

August 1, 1983

Colonel Ronald A. Borrello
Directorate of Facilities Engineering
Department of the Army
Headquarters United States Army
Support Command, Hawaii
Fort Shafter, Hawaii 96858

Dear Colonel Borrello:

Thank you for your comments of June 29, 1983 on the Environmental Assessment (EA) for the proposed Hawaii High Technology Park at Mililani, Hawaii. Your recommendations for additional materials in the EA and Appendix E are being considered. After reviewing your letter with our consultants, we are providing herein, for your information, direct responses to the concerns addressed in your letter.

a. Access from the H-2 northbound off-ramp to the Leilehua Golf Course with the proposed layout would involve a right turn from the end of the off-ramp at a signalized intersection. The two eastbound lanes on Golf Course Road would be stopped, allowing right turn traffic to proceed safely across to the left turn lane serving the golf course. The alternative golf course access location opposite the off-ramp that you suggest would improve ingress, but would result in greater impacts to Army lands, possible restricted egress choices, or other problems, such as weaving of vehicles traveling from the golf course to the H-2 southbound on-ramp. The alternative, however, could be explored further with USASCH staff during the design stage.

The attached copy of Figure 6 from the Traffic Impact Study report has been marked to show the intersections proposed to be signalized. An attached Figure 7 shows the interim traffic conditions, assuming that access to Leilehua Golf Course be provided opposite Wikao Street.

b. The proposed widening of Golf Course Road would occur within the existing State Highways Division right-of-way; some additional right-of-way may be necessary along Kamehameha Highway, from the existing lawn area in front of the National Guard Armory. On-site activities within the armory would not be affected.

Access to the armory, however, could be affected. The analyses of weekday peak hour traffic conditions did not include armory traffic because of the low levels of activity during the week. The major armory activities occur on weekends, when traffic volumes from the proposed project are not expected to be significant. Potential conflicts between armory traffic and project traffic would be minimal.

Parking on the shoulders of Golf Course Road, currently used by Guardsmen attending drills, would not be available with the widened roadway. An existing parking lot north of the armory may have to be expanded to provide replacement parking.

c. A list of persons and agencies consulted in the preparation of the EA is being compiled and will be provided when completed.

Yours very truly,

James T. Funaki

James T. Funaki
Attorney for Oceanic Properties, Inc.

Enclosures

cc: Stephen H. Miller
Phillips Brandt Reddick
Parsons Brinckerhoff Quade & Douglas, Inc.
Department of General Planning
Land Use Commission

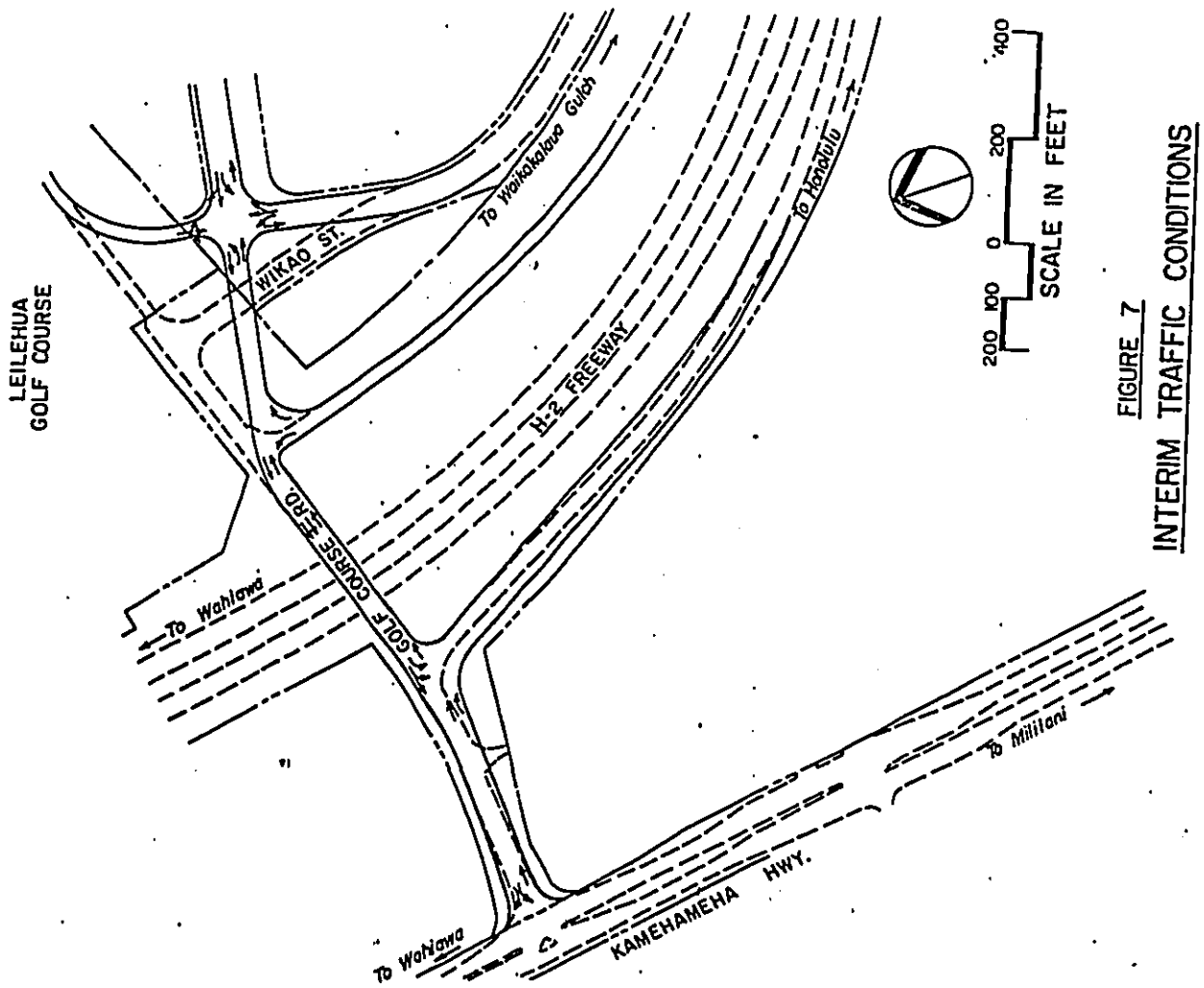


FIGURE 7
INTERIM TRAFFIC CONDITIONS

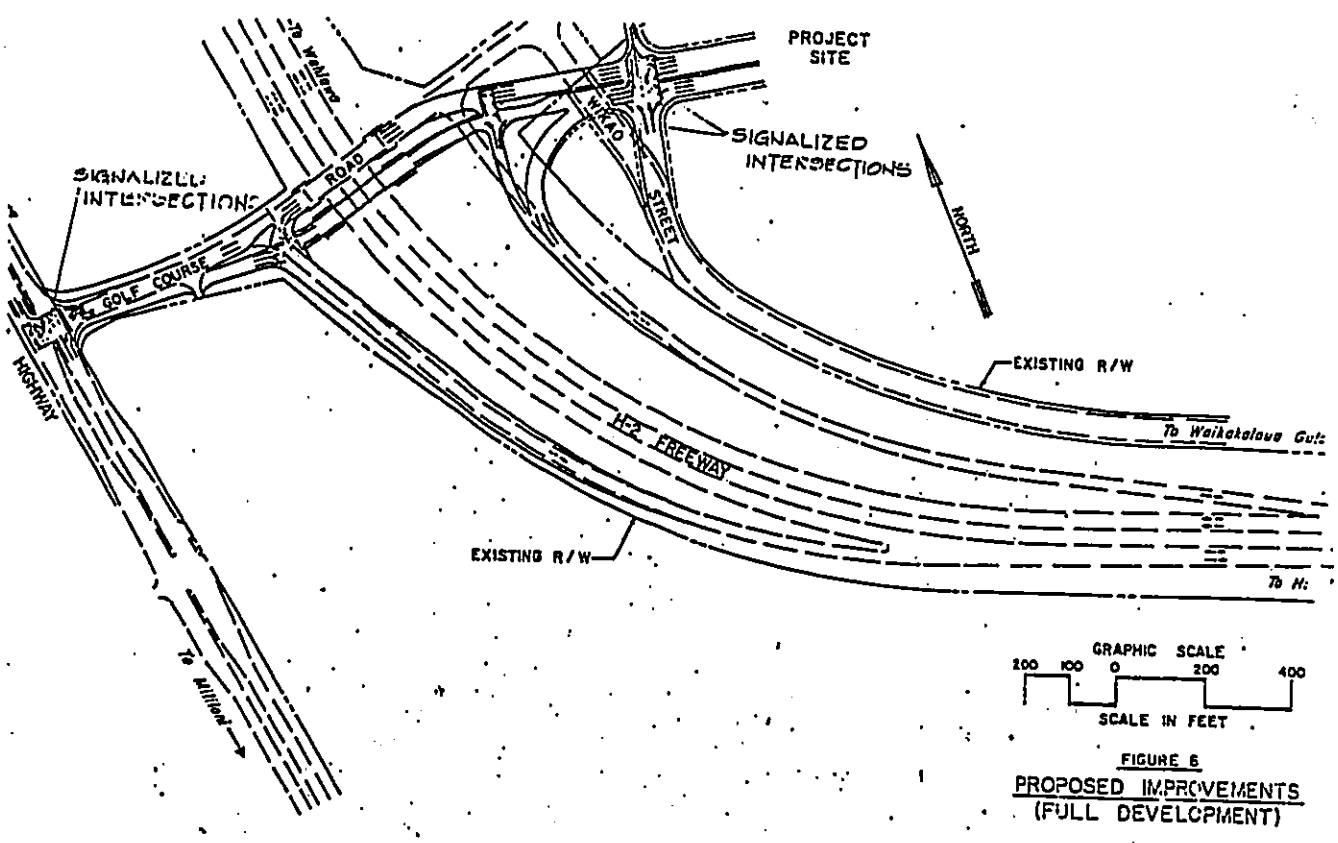


FIGURE 6
PROPOSED IMPROVEMENTS
(FULL DEVELOPMENT)

List of Persons and Agencies Consulted

SLUC Petition/Environmental Assessment
Hawaii High Technology Park
Mililani, Hawaii

Agencies contacted:

1. State of Hawaii, Department of Transportation, Highways Division.

   a. Highway Design Branch (obtained construction drawings for H-2 and Leilehua Interchange).

   b. Planning Branch (obtained SDOT traffic count data; discussed State's planned and programmed improvements to H-2, Kamehameha Highway, and other State Highway facilities in Central Oahu; discussed SDOT review procedures on SLUC petitions).

2. City and County of Honolulu, Department of Transportation Services.

   a. Traffic Engineering Division, Planning Section (checked for applicable DTS traffic count data; checked for other development in the area which would affect future traffic volumes).

   b. Mass Transit Division (discussed bus system plans and operations; discussed procedures for requesting additional bus service).

Agencies not contacted, but published material used:

1. State of Hawaii, Department of Planning and Economic Development. (Census and other data, population projections, from The State of Hawaii Data Book)

2. City and County of Honolulu, Department of General Planning (Population projections from "Oahu General Plan")

JUN 29 1983

Directorate of Facilities Engineering

Mr. James T. Funaki
Attorney at Law
Okamura, Takushi, Funaki and Wee
Crossroads Center, Suite 1400
711 Kinoole Street
Honolulu, Hawaii 96813

Dear Mr. Funaki:

Your letter (with attachments) to Pacific Ocean Division, Corps of Engineers, dated June 7, 1983, concerning Oceanic Properties, Inc. petition for a land use district boundary amendment was forwarded to the US Army Support Command, Hawaii (USASCH) for appropriate action. USASCH is responsible for the management of Army owned and controlled lands in the State of Hawaii. The Environmental Assessment (EA) for the Proposed Hawaii High Technology Park, Mililani, Oahu, Hawaii has been reviewed. Earlier comments on the proposed action were provided to Mr. Stephen H. Miller of Oceanic Properties, Inc. by USASCH letter, dated July 22, 1982. Additional comments are furnished below:

a. If the proposed traffic changes detailed in Appendix E (Traffic Impact Study) to the EA are implemented, we have strong reservations concerning the safety and adequacy of the vehicular access to and from Leilehua Golf Course. Based on the proposed road realignments shown on Figure 4, it does not appear that there will be sufficient distance for a vehicle to safely proceed from the intersection of the Golf Course Road and the H-2 freeway off-ramp (northbound), across three lanes of traffic, and into the lane leading to Leilehua Golf Course. A more direct alignment to the golf course should be considered, possibly a route near the intersection where traffic from the H-2 off-ramp (northbound) will turn left and be westbound on the Golf Course Road. Further, the study should indicate on Figure 4 the intersections which are proposed to be signalized. Because the proposed interim improvements (p. 10-11 of Appendix E) may be implemented during year one of the development and maintained at least for 6 - 8 years, the inclusion of a figure depicting the various traffic changes would greatly assist in evaluating possible project impacts.

b. [illegible]. The proposed widening of the Golf Course Road at Kamehameha Highway may result in impacts upon activities at the adjacent National Guard Armory. Potential conflicts have not been and should be addressed.

c. To more fully assist in the environmental evaluation of the proposed project, a list of persons and agencies consulted during the preparation of the EA should be included as an appendix to the report.

If you require additional information or clarification, please contact the Environmental Management Office, at 655-0691/0694. Thank you for the opportunity to comment on the EA.

Sincerely,

Original signed by
Ronald A. Borrello
Colonel, Corps of Engineers
Director of Facilities Engineering

Copies Furnished:

Mr. Stephen H. Hiller
Project Manager
Oceanic Properties, Inc.
130 Merchant Street
P.O. Box 2780
Honolulu, Hawaii 96803

Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Land Use Commission
State of Hawaii
Old Federal Building, Room 104
335 Merchant Street
Honolulu, Hawaii 96813

Oceanic Properties Inc

130 Merchant Street
P O Box 2780
Honolulu Hawaii 96803
Telephone (808) 548-48:

June 9, 1983

Commander
U. S. Army Support Command, Hawaii
ATTENTION: APZV-EHR-RE
Fort Shafter, Hawaii 96858

Gentlemen:

In response to your letter dated July 22, 1982 regarding the application by Oceanic Properties, Inc. for amendment to the Central Oahu Development Plan Land Use Map to convert agricultural land to industrial use for the proposed High Technology Park, further explanation is required on our part on the proposed development for a reservoir site on adjacent military land.

The reservoir site selection was based on ground elevation requirements to provide gravity flow of water through pipelines to the project site from a proposed 2.5mg water tank. The map attached hereto shows the proposed location of the water tank and the establishment of the tank does not intend to replace the Ku Tree Reservoir. As noted on the map, the tank will be located between the Ku Tree Reservoir and the project site.

Insofar as availability of military training lands on Oahu, Castle & Cooke, Inc., as well as other major landholders, has been very cooperative in permitting the U. S. Army to use their lands for maneuver trainings in the past. We have no intention of withholding future requests and hope that the above explanation is helpful. If there are any questions or further discussions are necessary, a meeting can be arranged or you can contact the undersigned at 548-2908.

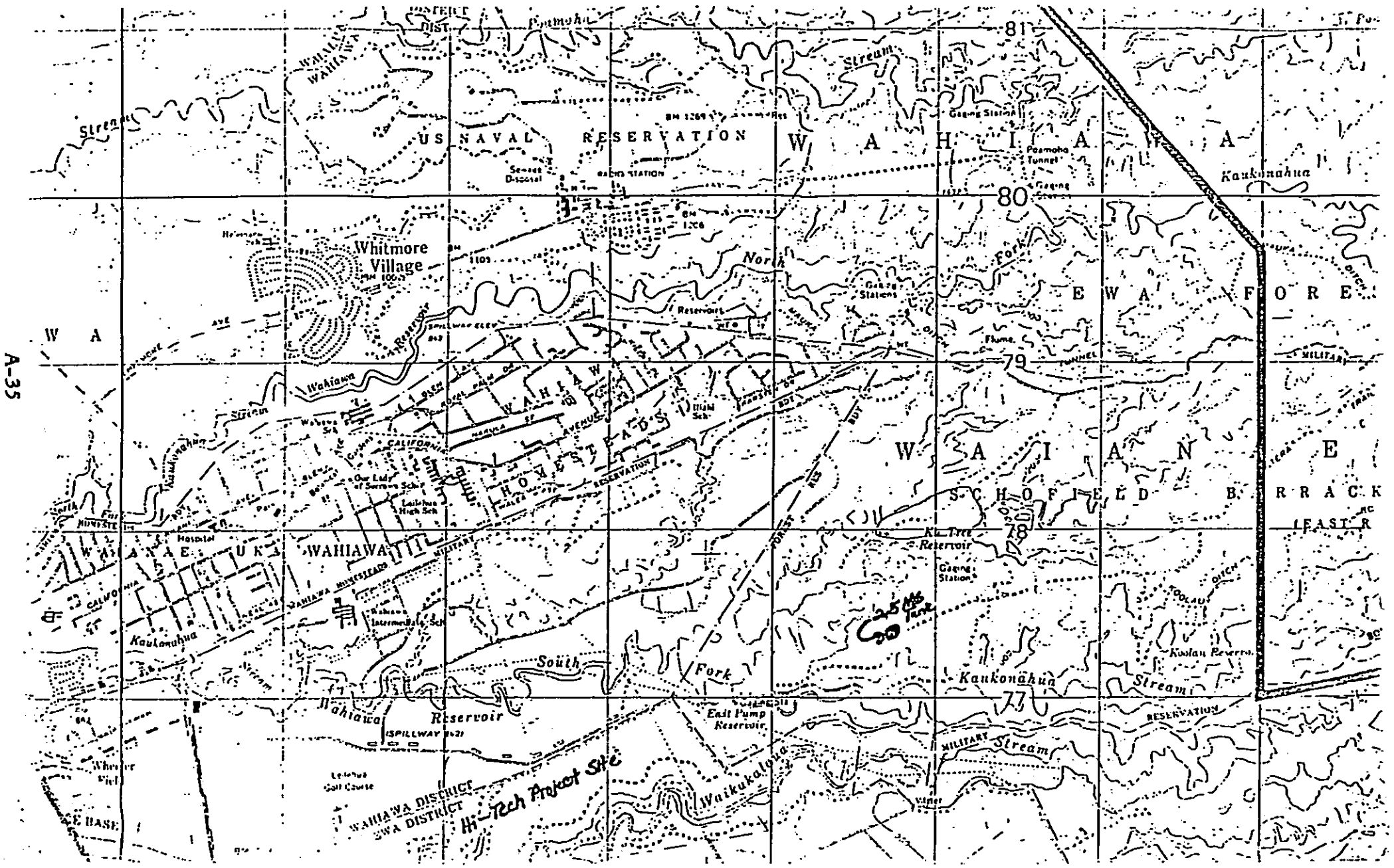
Very truly yours,

OCEANIC PROPERTIES, INC.
Land Manager for
Castle & Cooke, Inc.

Edward K. Chong

Edward K. Chong
Land Agent

cc: Masao Tanimoto
Stephen H. Hiller


US NAVAL RESERVATION
WAHIAWA
Whitmore Village
North Fork
South Fork
Wahiawa Reservoir
Kaukonahua
Stream
Wahiawa Reservoir
East Pump Reservoir
Waikukalua
Kaukonahua
Stream
Kaukonahua
Stream
Kaukonahua
Stream
Kaukonahua
Stream
Wahiawa Heights
Schofield Barracks
Wahiawa Homestead
Wahiawa District
Hi-Tech Project Site
Wahiawa Intermediate Sch
Leilehua High Sch
Our Lady of Sorrows Sch
Leilehua Golf Course
Kipapa Tunnel
Gaging Station
Reservoirs
Flume
Tunnel
Kolau Reservoir
Kolau Ditch
Reservation
Military
81
80
79
78
77

APZV-DR-E

22 JUL 1982

Mr. Stephen H. Miller
Oceanic Properties, Inc.
P.O. Box 2720
Honolulu, HI 96803

Dear Mr. Miller:

Reference is made to your letter of June 10, 1982, concerning the application by Oceanic Properties, Inc. for amendment to the Central Oahu Development Plan Land Use Map for the eventual conversion of 460 acres of agricultural land to industrial use for the proposed Hawaii High Technology Park.

Based upon a review of Oceanic Properties, Inc. petition for a development plan amendment, the following comments are provided on the proposed project:

a. The proposed site is directly under the traffic pattern of Wheeler Air Force Base (WAFB). The 1981 traffic count for air operations at Wheeler AFB was 130,248 activities. The type aircraft involved are: C-130, U-21, O-2, CH-47, AH-1, UH-1 and OH-58. Ninety-eight percent of the activities occur between the hours of 0700 and 2200, Monday through Friday. The proposed site is subjected to high levels of noise and vibration from both fixed wing and helicopter overflights at altitudes of between 500 ft and 1,000 ft above ground level. The site may not be suitable for activities sensitive to noise and vibration.

b. As stated in the amendment, discussions may be held between the applicant and the military to attempt to alleviate potential aviation conflicts (p. VI-6). However, with the anticipated increased level of aviation activity and present operational constraints imposed by the existing surrounding communities, it would appear unlikely that there could be further significant flight rerouting/timing at WAFB. Instead, the developer should explore other alternatives or mitigation measures that could be accomplished without the necessity of changes to WAFB aviation operations.

c. The amendment states that access from the project site to the H-2 freeway would be via a short section of the Leilehua Golf Course Road (p. I-10 and IV-10). Would there be a need for an easement agreement between the developer and the Army? Will this section of the Leilehua Golf Course Road be able to safely accommodate the increased traffic load?

d. The amendment recommends the development of a high level water source on the project site and a reservoir (size unspecified) on adjacent military land (apparently East Range, Schofield Barracks) (p. IV-11, 12). It would appear unlikely that a portion of East Range training area could be dedicated for this purpose when the availability of military training lands on Oahu is very limited. Furthermore, the construction of the proposed reservoir at East Range could be at cross-purposes with the possible disestablishment of the Ku Tree Reservoir.

e. Although not the recommended alternative, the Schofield Barracks Sewage Treatment Plant is mentioned in the amendment as a possible facility to receive wastewater generated by the proposed project (p. I-10 and IV-15, 16). Such use will impact future development plans at Schofield Barracks and it appears that use of the Schofield Barracks STP should not even be considered in the amendment.

f. The amendment does not and should address potential short and long-term conflicts between the proposed Phase I development and the adjacent National Guard Armory and nearby Navy Camp Stover Housing for military personnel and their dependents located within WAFB.

g. There would appear to be no conflict or impact associated with the type of training being conducted by military personnel on the ground in East Range.

It is hoped that the foregoing information may be of use to you in this matter.

Sincerely,

Original signed by

LEONARD HASSE, JR.
LTC, CE
Acting Director of Engineering and Housing

CF:
Dept of General Planning
City and County of Honolulu
650 S. King St
Honolulu, HI 96813
Master Planning, EPS
Environmental Off

Oceanic Properties Inc

130 Merchant Street
PO Box 2780
Honolulu Hawaii 96803
Telephone (808) 548-481

June 10, 1982

Commander
U.S. Army Support Command Hawaii
Fort Shafter, Oahu, HI 96858

Attention: Mr. Billingsley
Real Estate Division

Dear Mr. Billingsley:

Pursuant to my phone conversation with you on June 10, 1982, I am forwarding a copy of our application for an amendment to the Central Oahu Development Plan Land Use Map requesting the eventual conversion of 460 acres of agricultural land to industrial use for the proposed Hawaii High Technology Park.

Oceanic Properties, Inc. and its parent company, Castle & Cooke, Inc., are requesting the State and City and County to rezone the first phase of the development of approximately 163 acres located between Kamehameha Highway and the H-2, just east of Wheeler. The proposed use is for a light industrial park to suit the needs of the high technology industry in support of the State's efforts to attract this most desirable industry to Hawaii. The enclosed document describes proposed action, its impacts and the development concept in depth.

The purpose of this letter is both to inform the appropriate Schofield and Wheeler personnel of the proposed change in use of adjacent property and to request their evaluation of our proposal to identify any possible conflicts between land uses or operations.

Therefore, I would appreciate your channeling this letter and the attached document to the proper authorities so that we can obtain a response in writing as to any possible conflicts the military might see with the development of the subject property as a High Technology Park.

A specific question that I would appreciate a response to as soon as possible regards the ordnance activity in the East Range. We would like to know if the percussive vibration in either the air or ground from any shelling, artillery or explosive activity in the East Range might be transmitted as far as the closest (northeastern-most) boundary of our site (see aerial photo of site at the introduction of the attached document).

The tolerances that many high tech firms deal with are so minute that they are not able to locate plants near sources of ground vibration such as railroads or an area that experiences frequent earth tremors. In pursuing this project, we need to know the general types of activities occurring on the military land that lies between Wahiawa and the proposed site in order to evaluate any potential conflicts or environmental impacts that would affect high tech operations.

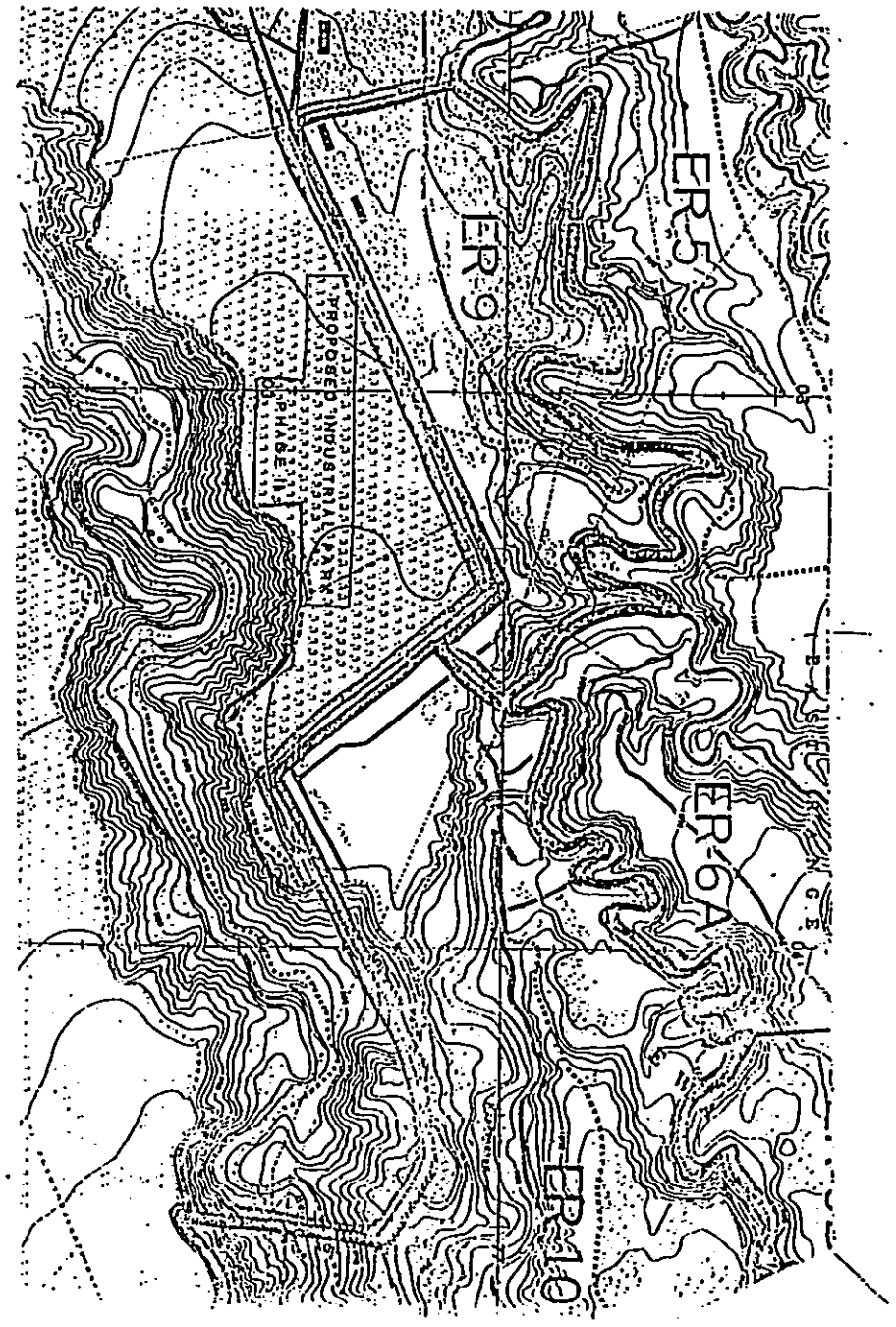
We may also need to approach the Department of Defense at a later date to determine the feasibility of locating a water reservoir on DOD property north of the site. Your advice as to the appropriate contact in this matter would be appreciated.

If you have any questions, please call me at 548-3735. Your help and cooperation in this matter are greatly appreciated.

Very truly yours,

Stephen H. Miller
Project Manager

ics
Enclosure



BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1502

Colonel David H. Heiela, Infantry
Directorate of Facilities Engineering
Department of the Army
Headquarters U.S. Army Support Command, Hawaii
Dunning Hall
Fort Shafter, Hawaii 96858

Dear Colonel Heiela:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 18, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 1406 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex 723-8474
Singapore 840 Orchard Road, #12-06 International Building, Singapore 0922, Telephone 235-6870, Telex RS 24364 BCISIN
Australia Level 2, First Floor 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908-1308

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1072

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawai'i
1428 South King Street
Honolulu, Hawai'i 96814

Dear Mr. Suwa:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu [illegible] Street, Honolulu, Hawai'i 96813 Telephone [illegible] Telex [illegible]
Singapore [illegible] Orchard Road #12-06, International Building, Singapore [illegible] Telephone [illegible] Telex [illegible]

The site of the proposed Hawai'i Technology Park was reclassified from "Agricultural" to "Urban" (Phase I) in 1984 by the State Land Use Commission. The property is in close proximity to existing urban development, and, despite the fact that most of the area is rated as either "prime" or "unique" agricultural land in the ALISH system, there are no plans to put it to any agricultural use. Castle & Cooke has fulfilled the condition for State land reclassification of the project site that requires it to replace the acreage that was formerly planted in pineapple with 142 alternate acres of pineapple. The Dole Co. has, in fact, replanted about 168 acres of former Oahu Sugar Co. acreage in the Waiawa area to pineapple. See the attached figure for the location of the replacement fields.

The landowner believes that the proposed change in use is fully justified, in view of the Urban land use classification, the lack of existing irrigation facilities, the fact that no crops are currently grown on the land, and Castle & Cooke's replanting the pineapple formerly grown in the area on irrigated lands made surplus by the economically induced reductions in sugarcane cultivation. Do you know of any evidence to the contrary? If so, would you please provide it.

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRPERSON, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

July 1, 1985

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Environmental Impact Statement Preparation Notice (EISPN) for Development of the "Hawaii Technology Park", Mililani, Oahu
TMK: 9-5-2: por. 11

This is in response to your letter of June 10, 1985, requesting our comments on the proposed project. The attached EISPN issued by the Department of Land Utilization (dated March 5, 1985) is identical to the document on which our Department submitted comment on April 2, 1985 (see attached copy of letter to Stephen H. Miller, Oceanic Properties).

We note from your cover letter that the Dole Company has planted pineapple on approximately 168 acres of Field 4113 which was formerly in sugarcane cultivation. This fulfills one of the commitments made in the petition for land use district boundary amendment that was incrementally approved by the Land Use Commission on August 6, 1984 (Docket No.: A83-551, Environmental Assessment, prepared by Phillips, Brandt, Reddick and Associates; May 16, 1983, page V-15).

Page 3 of the subject EISPN indicates that the water requirements of the project (approximately .85 million gallons per day) will require a water allocation from the Department of Land and Natural Resources. The EISPN speculates that the allocation

would be possible with: (1) a reduction of irrigated sugarcane acreage by Oahu Sugar Company; (2) the development of new water sources in Windward and Leeward Oahu; (3) the use of drip irrigation for sugarcane cultivation; and (4) the use of surface water from Waiahole Ditch by Oahu Sugar to reduce groundwater withdrawals. Our concern is that continued incremental allotments of water from agricultural to urban uses are, like similar changes in land uses, irreversible. To rely on the continued reduction of sugarcane acreage to provide the "excess" water needed would, at the same time, reduce water available for existing and future agricultural uses in the Central Oahu and Ewa areas.

Reflecting this concern is the Hawaii State Plan Priority guideline 226-103 (h)(3) which encourages the restriction of new urban development where water is insufficient for both agricultural and domestic uses.

Finally, we believe there should be a definite commitment (if one has not already been established) by the project developer to seek out appropriate high-tech firms and manage the project as an ongoing entity. This would appear to improve the likelihood of success and achievement of the State's objectives for high technology development.

Thank you for the opportunity to comment.

Sincerely,

JACK K. SUWA
Chairman, Board of Agriculture

Attachment

cc: Department of General Planning, C&C
Department of Land Utilization, C&C

April 2, 1985

Mr. Stephen H. Miller
Oceanic Properties, Inc.
P. O. Box 2780
Honolulu, Hawaii 96803

Dear Mr. Miller:

Subject: Environmental Impact Statement (EIS) Preparation Notice for Development Plan Amendment and Rezoning from Agriculture to Industrial for Development of a High Technology Industrial Park, Hilliani, Oahu

This is to confirm that the Department of Agriculture would like to be a consulted party in the preparation of the subject EIS. We have previously reviewed the petition for land use district boundary amendment which was partially approved by the Land Use Commission on August 6, 1984. Our concerns with respect to this EIS include but are not limited to the impacts of the project on sugar and pineapple production ~~pr~~ acreage as well as groundwater and surface water allocation in Central Oahu. In particular, we are concerned whether sufficient water will be available for the proposed planting of 142 acres of irrigated pineapple at Waiawa, and whether Oahu Sugar Company and the landowner have agreed to this change of use. (?)

Please address all correspondence to:

Mr. Jack K. Suwa, Chairman
Board of Agriculture
P. O. Box 22159
Honolulu, HI 96822

Thank you.

Sincerely,

JACK K. SUWA
Chairman, Board of Agriculture

cc: Dept. of Land Utilization
OEQC

I 9-5-2; Pg. 8 11

A-41

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1544

Mr. Jack K. Suwa, Chairman
Board of Agriculture
Department of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 1, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex BELLHI 7430474
Singapore 140 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1188

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1073

Mr. Leslie S. Matsubara, Director
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, Hawai'i 96801

Dear Mr. Matsubara:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. Oceanic Properties believes that high-technology industries can be accommodated at the proposed industrial park without causing toxic waste disposal problems. The proposed Covenants for the Hawai'i Technology Park require all owners and occupants to follow the Hazardous Materials Storage and Handling Guidelines. Restrictions are outlined in the preliminary draft guidelines, a copy of which is attached. Does your department believe there are any potential hazardous waste problems that would not be forestalled by enforcement of these guidelines? If so, what are they? Can you suggest any additional items that should be included in the industrial park's covenants and guidelines?

2. Present plans are to connect the high-tech park to the Mililani Wastewater Treatment Plant. Do you foresee any sewage-related health problems that should be addressed?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

Honolulu 1088 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex [illegible]
Singapore 1041 Orchard Road, #12-06, International Building Singapore 0923, Telephone [illegible], Telex [illegible]

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

JUL 22 1985
BELT, COLLINS & ASSOCIATES

In reply, please refer to:
EPHSO-

July 18, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral St.
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Environmental Impact Statement (EIS) for Preparation Notice for High Technology Industrial Park at Mililani, Central Oahu; TMK 9-5-2: Portion of 11

Thank you for allowing us to review and comment on the subject EIS. Several of our branch/programs have expressed concerns and comments. Several of these concerns may be overlapping, however, so as not to lose their perspective of concern, I am transmitting them all to you for consideration.

Wastewater Treatment

The EIS for the subject project should address the nature of the waste(s) that will be generated by the various industries in the park. Depending on the waste(s) that is generated, pretreatment may be required prior to disposal of the waste to the Mililani Wastewater Treatment Plant System.

The EIS should also address the effects of the industrial waste on the (1) Mililani effluent reuse on the sugarcane in central Oahu and groundwater, (2) operations of the Mililani and Honouliuli Wastewater Treatment Plant, and (3) compliance with Chapter 54, Water Quality Standards.

Drinking Water

The Drinking Water Program has serious concerns regarding this proposal. First, high technology industries deal with many different materials, some of which are hazardous or toxic. These activities are suspected of being the cause of contamination of potable water wells in other areas. It is our understanding that storage tanks used to hold either the materials themselves or the waste from these activities have been blamed for the contamination of both public water supplies and private water sources.

Second, the proposed location of these activities is situated over prime domestic water resources. As indicated in the preparation notice, the former use of the land at this site was unirrigated pineapple cultivation. This would infer that there is sufficient rainfall in the area to grow crops without the use of irrigation. As you

know, Hawaii's primary source of water is the rainwater which is caught by the soil and migrates to the aquifer below. The fact that there is plentiful rainwater increases the possibility of contaminants being carried to the aquifer by the water moving through the soil. The failure to properly protect the water resources will have dramatic ramifications on public health and available water resources.

The proposed environmental impact statement should include extensive discussions of the potential for contamination of the groundwater as well as the surface water resources. These should include identification of materials to be used, how they are to be handled, and what measures are to be taken to prevent groundwater contamination through leakage, mishandling, spillage, accident, and other means by which these materials may be released into the environment. The EIS should describe any monitoring system developed to detect such releases and the frequency at which such monitoring will take place. The document should describe the consequences of groundwater contamination identifying those water systems which would be affected by such contamination.

In summary, the development of a high technology park can have serious negative impacts on groundwater resources. The fact that this project is located over potable water resources which are already being used to meet water supply needs makes the concerns over potential contamination even more critical.

We believe that full discussions of the potential for contamination, methods and activities to prevent such contamination, and remedial actions necessary to abate contamination should be included in the environmental impact statement in order to fully disclose all aspects of the issue of groundwater contamination. The Drinking Water Program cannot overemphasize the need for full discussion of the topics mentioned above.

Environmental Permits

Secondary Containment of Hazardous Material - The "Hawaii Technology Park, Hazardous Material Storage and Handling Guidelines," indicates that secondary storage containment facilities open to rainfall (for spills) shall contain an additional volume to retain a 24-hour rainfall 25 year storm. Point source discharges of this type will require a permit, however, under 40 Code of Federal Regulations, Section 122.4(d) when the discharge cannot meet the applicable water quality requirements no permit may be issued under the delegated National Pollutant Discharge Elimination System (NPDES)(State of Hawaii, Department of Health, Administrative Rules (AR), Title 11, Chapter 55, Water Pollution Control). The above would most likely be a violation of AR 11-54, Water Quality Standards, Section 11-54-04(a)(4) which states in part that all waters shall be free of deleterious substances in this case, toxic or harmful to human.

Contaminated Point Source Storm Water - Under recent Environmental Protection Agency (EPA) NPDES permit requirements, all contaminated point source storm water from commercial and industrial operations will require an NPDES discharge permit. Application for a permit will be required starting December 31, 1985.

Primary Containment of Hazardous Material - Although the State does not presently have regulations for primary (direct contact) containment storage facilities, some type of monitoring system should be required to insure storage "integrity," especially with the contaminated drinking water problems in the Mililani area. All concerns including EPA are looking at new regulations to control leakage from this type of facility, so potential users should be on the alert and lookout for any new adopted regulations.

Noise

There are reservations in the proposed project due to noncompatible use of land. Subject to the type and nature of industrial usage, noise from activities associated with such facilities may have an adverse effect on residential communities East of the project's location. We concur with the applicant's proposed action to prohibit loud noise generating industrial usage such as auto repair and construction material suppliers.

Noise due to increase in traffic, including heavy vehicles utilized for deliveries, may also pose a problem in term of annoyances on neighboring residential areas.

Construction activities must comply with the provisions of Title II, Administrative Rules Chapter 43, Community Noise Control for Oahu:

a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.

b. Construction equipment and on-site vehicles or devices requiring an exhaust of gas or air must be equipped with mufflers.

c. The contractor must comply with the conditional use of the permit as specified in the regulations and the conditions issued with the permit.

Traffic noise from heavy vehicles travelling to and from the construction site must be minimized in residential areas and must comply with the provisions of Title II, Administrative Rules Chapter 42, Vehicular Noise Control for Oahu.

Hazardous Waste

The proposed development of the "Hawaii Technology Park" poses several concerns with respect to hazardous materials/waste. The following comments are submitted for consideration:

- Although "High Technology" has been touted as a "clean" industry for the State of Hawaii, some functions associated with the high-tech industry such as light manufacturing and assembly, research and development may require the use of highly-toxic acids, gases, and solvents. Therefore, such waste would require proper handling and disposal.

- One of the major concerns is the contamination of our groundwater and drinking water sources. High technology has been attributed to the contamination of water sources in other areas such as the South San Francisco Bay area ("Silicon Valley") which have been listed on the National Priorities List for Superfund. Since the location of this proposed development is in a sensitive groundwater resource area, precautions should be taken with respect to the handling, storage, use, and disposal of hazardous materials/waste.

- Special attention should also be directed to improper disposal of hazardous materials/waste into the wastewater treatment facilities and the drainage system. Since sewage effluent is sometimes used in the irrigation of sugarcane and the drainage system flowing into existing gulches, disposal of hazardous waste via these routes may lead to contamination of the environment.

- Hazardous materials and waste facilities which use such materials will be subject to the RCRA-Hazardous Waste and Leaking Underground Storage Tank programs.

- The EIS should address the details of those activities which will be allowed in the park including use of potential hazardous materials, the allowable quantities of hazardous materials permitted by the High Technology Park Association and potential hazardous waste generated, handled and method of disposal.

Comments on the proposed high technology industrial park hazardous materials storage and handling guidelines:

Part I - General, Section I.3 Administration

The qualifications of the "hazardous materials consultant" should be well defined since the task of this person seems to be widespread and encompasses many responsibilities that require extended knowledge of federal, state and local regulations. In addition, the decisions that he/she would make is of utmost importance that the person hired in such a position make responsible decisions applicable to existing laws and regulations.

Section I.4 - Materials Regulated

a. Hazardous Materials

Include in this section the following:

(6) Any materials regulated under the Comprehensive Environmental Response Comprehensive Liabilities Act (CERCLA).

(7) Any materials stored in underground storage tanks.

b. Exempted Materials

(1) Paint thinners and wax strippers should be included as a regulated material since they are solvents that are regulated under the Hazardous and Solid Waste Amendment of 1984 (HSWA) - small quantity generator requirements.

(2) Insignificant quantities should not be based on the hazardous materials consultant's views, but rather on the types and toxicity of materials used, as stipulated in the regulations.

Part II - Limitations on Operations and Activities

Section 2.3 - Limitations on Quantities of Hazardous Materials

The statement, "... the quantities of hazardous materials permitted to be present on-site at any given time will be limited to volumes which would not necessitate storage in underground tanks, ..." is contradictory to the statement, "... the use of underground storage tanks is permitted provided that such tanks are in compliance with the requirements of Sections 9001," found in the same section.

Should the park allow the use of underground storage tanks, what would be stored in them and what would the monitoring procedures be to prevent leakage.

Part III - Hazardous Materials Management Plan

Section 3.3 - Content of HMMP

A provision in the HMMP should identify who would be financially responsible for incidents or any spill mishaps.

Part IV - Storage and Containment Standards

Section 4.2 - Storage and Containment Requirements

f. Monitoring capability: Visual inspections are not possible with regard to underground storage tanks.

g. Screening and protection of outside storage facilities: The plan should also include what kind of protection from weathering and possible runoff of hazardous materials (e.g. corrosion of containers).

Part V - Inspection and Maintenance

Section 5.1 - Inspection by Owner

What types of testing, monitoring and inspection are the owners required to conduct?

Section 5.4 - Remedial Action

The HMMP should include provisions for appropriate cleanup actions for releases of hazardous materials.

Part VII - Miscellaneous

Section 7.1 - Handling Hazardous Materials

Will personnel as well as facility owners working with hazardous materials be fully trained as to the risk, safety measures and proper handling methods?

Part IV - (Include in Storage and Containment Section)

Additional requirements should be written to include design and maintenance for piping of containers for hazardous materials as well as control valves to regulate the flow.

There is a strong possibility that through the use of hazardous materials, waste will be generated. The Hazardous Materials Storage and Handling Guidelines DO not address how the park's plan will handle and dispose of the waste.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

MELVIN K. KOIZUMI
Deputy Director for
Environmental Health

cc: Mr. Stephen H. Miller
Mr. John P. Whalen (Attn: John Nakagawa)

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1551

Mr. Melvin K. Koizumi
Deputy Director for Environmental Health
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 18, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Your concerns will be addressed in the DEIS to the extent possible at this time.

We appreciate your detailed comments on the preliminary Hazardous Materials Storage and Handling Guidelines that were sent to you for review. Oceanic Properties, Inc. is conferring with its engineering consultants and attorneys regarding the suggestions you made, and I expect that the Guidelines will eventually be modified. Review of the Guidelines will be ongoing throughout the development process. The Guidelines are written specifically as guidelines to be later refined in detail by a professional waste engineer or hazardous materials consultant. At that time, more specific items such as design, installation, operation and maintenance procedures will be addressed.

Oceanic Properties, Inc. would like to emphasize the supplemental nature of the proposed Guidelines. It is Oceanic Properties' intention to cooperate in every possible way with the government agencies having jurisdiction, and it believes that the Guidelines offer a level of self-regulation above and beyond all governmental laws and regulations that must be met.

Guidelines may in some cases be more stringent than existing governmental controls; where there is a difference, the intent is that the stricter rule shall govern. Regarding enforcement of rules, Oceanic Properties has recourse only to civil measures. The Government's police powers offer it a quicker, and in many instances, more predictable means of insuring that established environmental standards are met.

Honolulu 1406 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex [illegible]
Singapore 100 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS [illegible]
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone [illegible]

The DEIS for the project is expected to be completed in September when you will be sent a copy. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

September 17, 1985
85-1662

Mr. Melvin K. Koizumi
Deputy Director for Environmental Health
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, Hawai'i 96801

Dear Mr. Koizumi:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Since I wrote to you on August 23, 1985, concerning your comments on the Preparation Notice for the above project, Oceanic Properties' legal consultants have reviewed in depth the preliminary Hazardous Materials Storage and Handling Guidelines. The guidelines have been modified to address your concerns as well as those of the City and County of Honolulu Department of Public Works.

Attached is a copy of your July 18, 1985 letter, with marginal notations by Oceanic Properties' legal counsel to show where the guidelines have been changed in response to your comments. Also attached is a copy of the revised guidelines. Please note that these guidelines will continue to be refined, although the changes made in response to your department's concerns are expected to remain part of the final document.

Our current schedule calls for the Draft EIS for the "Hawai'i Technology Park" to be available in early October when you will be sent a copy.

Sincerely,

Perry J. White

ALM:PJW:lf

Attachments

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLHI 7418474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6871, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

BELL COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1074

Mr. Wayne J. Yamasaki, Director
Department of Transportation
State of Hawai'i
869 Punchbowl Street
Honolulu, Hawai'i 96813

Dear Mr. Yamasaki:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu 1001 Bishop Street Honolulu, Hawaii 96813 Telephone (808) 521-5361 Telex [illegible]
Singapore Robinson Road #12-01 International Building Singapore 0923 Telephone [illegible] Telex [illegible]

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. The proposed project is expected to increase traffic volumes in the vicinity of the site and to affect regional traffic conditions. The developer will make off-site roadway and traffic improvements for the proposed project as may be required by the State Department of Transportation, in accordance with one of the conditions imposed by the State Land Use Commission when it reclassified the land. Regardless of the proposed project, does your department have plans for improving any roads and intersections in the vicinity of the project?

2. Traffic studies by an Oceanic Properties, Inc. consultant indicate that impact to highway facilities remote from the project site would be minimal, and that primarily affected would be traffic flows in the reverse direction from existing peak flows. (A copy of the study is attached for your information.) Do you concur?

3. Are you aware of any trip generation studies that would provide information useful to our traffic analysis? If so, would you please provide us with copies or indicate how they may be obtained.

4. Does your Department have traffic forecasts for the highways, roads, and intersections in the vicinity of the proposed Park? If so, would you please provide us with copies or indicate how they may be obtained?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

GEORGE R. ARIYOSHI
GOVERNOR

WAYNE J. YAMASAKI
DIRECTOR

DEPUTY DIRECTORS
JONATHAN K. SHIMADA, Ph.D
WALTER T.M. HO
CHERYL D. SOON
ADAM D. VINCENT

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

IN REPLY REFER TO
STP 8.10789

August 23, 1985

Mr. Perry White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Environmental Impact Statement
Preparation Notice
Hawaii Technology Park
Mililani, Oahu

Following are our comments on the preparation notice on the Hawaii Technology Park:

1. The analysis of impacts should consider the traffic generated by the Melemanu Woodlands. Any conclusions based on a study without this development's contribution to the existing traffic would be conservative.

2. We believe that the Golf Course Road/Wikao Street intersection and Leilehua Interchange off-ramp will be congested, and consequently, those facilities should be evaluated in tandem. Also, if the proposed Golf Course Road/Wikao Street intersection is at capacity, other alternatives should be investigated including the elimination of this intersection and the routing of traffic through the technology park.

   In addition, the developer should also consider widening the off-ramps from its junction with Route H-2 and/or widening portions of Route H-2 to accommodate anticipated traffic volumes.

3. The developer should be advised to contact the National Guard regarding the latter's facilities and activities in this area.

4. Off-site roadway improvements required to mitigate the traffic impacts are the responsibility of the developer and should be emphasized in the EIS.

5. Plans for all roadway improvements affecting the state highways must be reviewed and approved by the Department of Transportation.

The following responses are provided to the questions contained in your letter of June 10, 1985:

1. Currently, there are no projects to improve the highway facilities in the vicinity of the technology park.

2. In accordance with the projects TIAR, it is anticipated that there will be three workshifts upon completion of the development. Consequently, the end of the third shift would likely correspond to the A.M. peak of other developments and would contribute to the congestion of Kamehameha Highway, Route H-2, and Waiawa Interchange. Also, the beginning of the second shift may worsen the anticipated congestion of Route H-2 and Kamehameha Highway during the P.M. peak hour. However, should the change of workshifts not correspond to the peak hour of operation of our highways, we agree that impacts to our facilities from the technology park will be minimal.

3. The Oahu Metropolitan Planning Office may be able to provide you with trip generation studies.

4. The following traffic studies may be of assistance to you:

   a. Mililani Town Proposed General Plan Amendment;

   b. Gentry Waipio, Final

   These studies should be obtainable from the project's respective developer.

We will be looking forward to reviewing the EIS when it becomes available.

Very truly yours,

Wayne J. Yamasaki
Director of Transportation

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

September 30, 1985
dot9-30.let
85-1734/544-03

Mr. Wayne J. Yamasaki, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yamasaki:

Environmental Impact Statement for the Proposed
Development of the "Hawai'i Technology Park", Mililani, O'ahu

Thank you for your letter of August 23, 1985 (Reference STP8.10789) regarding the Environmental Impact Statement we are preparing for the proposed Hawai'i Technology Park at Mililani, O'ahu. We appreciate the information you provided in response the requests contained in our June 10, 1985 letter.

With respect to the comments you made on the EIS Preparation Notice, please be advised that Parsons Brinckerhoff Quade and Douglas, Inc. has updated their 1983 traffic study for the project; copies of both the 1983 and 1985 studies are attached for your use. They, together with ongoing correspondence between the developer and your department address the combined effect of the Hawaii Technology Park and Melemanu Woodlands Phase III projects. Moreover, the proposed road network, particularly the interface between Wikao Street and the on-site roadways, has been modified in response to your department's concerns. Engineers for the project have coordinated their activities with the National Guard.

Oceanic Properties, Inc. understands its obligation to obtain approval from the Department of Transportation for any changes to State roadways, and has directed its consulting engineers to continue to cooperate with you in every way possible. In the meantime, if you or your staff have any questions regarding the environmental aspects of the project, please contact me at 521-5361.

Sincerely,

Perry J. White

Perry J. White

cc: Stephen H. Miller

Honolulu 1406 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 340 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50364 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1075

Ms. Letitia H. Uyehara, Director
Office of Environmental Quality Control
State of Hawai'i
550 Halekauwila Street, Room 301
Honolulu, Hawai'i 96813

Dear Ms. Uyehara:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, two-thirds of the "Hawai'i Technology Park" would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

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If all goes as planned, it is expected that the EIS will be available in September 1985.

Honolulu [illegible] Street, Honolulu, Hawai'i [illegible] Telephone [illegible] Telex [illegible]
Singapore [illegible] Orchard Road, [illegible] International Building, Singapore [illegible] Telephone [illegible] Telex [illegible]

Thank you very much for your cooperation. If you have any questions regarding the project, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1067

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96813

Dear Mr. Hayashida:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. Information provided to us indicates that the existing Board of Water Supply system that services the area where the Hawai'i Technology Park is proposed to be located is operating at maximum capacity. However, we understand that water previously needed for agricultural purposes will become available for alternative uses as some agricultural activities decrease. Is this assumption correct?

2. Engineering studies commissioned by Oceanic Properties project that the proposed Park would generate an average demand for potable water of approximately 0.85 mgd when fully developed (212 acres of land that may be developed as industrial lots, and a usage rate of 4000 gallons/acre/day). Do you concur with this estimate?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

RECEIVED
JUN 27 1985

FRANK F. FASI, Mayor

ERNEST A. WATARI, Vice Chairman
MILTON J. AGADER
RYOKICHI HIGASHIONNA
PAULA R. RATH
RUSSELL L. SMITH, JR.
WAYNE J. YAMASAKI
DONNA B. GOTH
KAZU HAYASHIDA
Manager and Chief Engineer

June 25, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Your Letter of June 10, 1985 Requesting Comments on the Environmental Impact Statement (EIS) Preparation Notice for the Development of the "Hawai'i Technology Park", Mililani, Oahu, TMK: 9-5-2:Portion of 11

Thank you for permitting us to comment on the EIS Preparation Notice.

We have the following comments to your two questions:

1. "Information provided to us indicates that the existing Board of Water Supply system that services the area where the Hawai'i Technology Park is proposed to be located is operating at maximum capacity. However, we understand that water previously needed for agricultural purposes will become available for alternative uses as some agricultural activities decrease. Is this assumption correct?"

   You are correct in noting that the existing Board of Water Supply (BWS) system, supplied by the Wahiawa Wells I, cannot service the proposed Hawai'i Technology Park. A new water source will be required to service the development. Action must be initiated with the State Department of Land and Natural Resources (DLNR) to increase our allocation in the Pearl Harbor Basin. About 22.5 million gallons per day (mgd) which were released by the sugar plantation are now available for reallocation.

2. "Engineering studies commissioned by Oceanic Properties project that the proposed Park would generate an average demand for potable water of approximately 0.85 mgd when fully developed (212 acres of land that may be developed as industrial lots, and a usage rate of 4000 gallons/acre/day). Do you concur with this estimate?"

   We concur with your estimated average demand figure of 0.85 mgd based on 212 acres of developable land at a usage rate of 4000 gallons/acre/day.

Additional comments regarding the proposed project are:

1. Page 3, Wastewater Disposal

   The proposed project is located in the "No-Pass" zone where ground disposal of wastes may adversely affect the quality of ground water resources. We concur with the plans to collect sewage and convey it off-site to the City's Mililani wastewater treatment plant.

2. Page 3, Water Supply

   DLNR has drilled three exploratory wells in the Koolau mountains mauka of Mililani Town. This water may be available should the well field be developed, the water allocated to BWS, and the source connected to our system.

3. Page 4, Solid and Hazardous Waste Disposal

   The disposal of solid and hazardous waste material is of major concern to us. We have no objections to having a private refuse collection service handle solid wastes generated in the project area provided that solid wastes is separate from hazardous wastes and is disposed of at authorized sites.

Pure Water . . . man's greatest need – use it wisely

June 25, 1985

We concur with the statement in the EIS Preparation Notice that "any hazardous wastes would have to be disposed of by Environmental Protection Agency approved methods and at approved disposal sites." Any storage of hazardous wastes in the project area, whether underground or on grade, must meet EPA's Leaking Underground Storage Tank (LUST) Program implemented by Public Law 98-616, November 8, 1984. Any storage of hazardous wastes above grade must also be addressed in terms of preventing any leakage and seepage into the ground.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

A-54

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1536

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 25, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5161, Telex RCA 7430474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone (02) 1 188

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1070

Mr. Frank K. Kahoohanohano, Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawai'i 96814

Dear Chief Kahoohanohano:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu 680 Ala Moana Street, Honolulu, Hawai'i 96813, telephone (808) 521-5361, telex 723 7430374
Singapore 9A Orchard Road, #12-06, International Building, Singapore 0923, telephone 235 6870, telex RS 50464 BCINSN

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. What fire stations would provide service to the proposed project?

2. Please provide a brief description of the stations' primary service areas, the number of personnel, buildings, and mobile equipment.

3. What response times do you project for servicing the Park?

4. Do you foresee any special problems servicing the proposed high-tech facilities?

5. Are there any special design provisions that Oceanic Properties should consider that would reduce the risks of damage from fire to Park facilities?

6. Is the Fire Department the agency responsible for inspecting "hazardous materials" containment facilities? If not, which agency would be responsible?

7. In regard to "hazardous materials" containment, what national fire codes and regulations need to be adhered to? We understand the City and County of Honolulu regulates such matters in accordance with the standards set forth in the 1979 edition of the Uniform Fire Code, but has been considering adoption of the 1982 edition. Has the later code been adopted?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:ll

cc: Oceanic Properties, Inc.

Enclosure

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET ROOM 305
HONOLULU, HAWAII 96814

RECEIVED
JUN 19 1985
BELT, COLLINS & ASSOCIATES

FRANK F. FASI
MAYOR

FRANK K. KAHOOHANOHANO
FIRE CHIEF

LIONEL E. CAMARA
DEPUTY FIRE CHIEF

June 17, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Re: Environmental Impact Statement Preparation Notice
Development of the "Hawaii Technology Park,"
Mililani, Oahu

In reply to your letter of June 10, 1985, we have reviewed the information submitted for the above proposed project and submit the following comments and/or recommendations for your consideration:

Fire Protection Services

Fire protection services are provided by Mililani Fire Station (Engine 36) and Wahiawa Fire Station (Engine 16 and Tanker 16), which are approximately three miles away with average response time of three minutes. Both stations have one (1) officer and four (4) men assigned to each engine company with one (1) additional man assigned to Tanker 16.

Supportive services are also available from the Pearl City Fire Station (Engine 20) and Waiau Fire Station (Engine 38 and Ladder 39).

In addition, under the City-Federal Fire Department Mutual Aid Pact, federal units are also available from Wheeler Air Force Base and Schofield Barracks.

Public Facilities

We are primarily concerned with water supply resources for fire fighting purposes and access roadways for our fire apparatuses.

Water fire flow requirements and fire hydrant installation and spacing are normally provided in accordance with Board of Water Supply Standards for industrial designated areas.

Access roadways to and within the proposed project are generally governed by the Department of Transportation and Department of Land Utilization. However, access roadways must also meet the requirements of the Uniform Fire Code, including the provisions for dead-end streets.

Hazardous Materials

The requirements for design and construction of buildings intended for the handling and storing of hazardous materials are generally covered by both the Uniform Building Code and Uniform Fire Code.

The Uniform Fire Code (Article 80, Hazardous Materials), is primarily concerned with the storage and use of certain hazardous materials. Flammable liquids and gases are covered by other sections of the code. The 1982 edition of the Uniform Fire Code with amendments will probably be adopted before the end of 1985.

Since other government agencies also monitor the use of hazardous materials, we suggest you contact the State Department of Health, State Department of Agriculture, State Department of Labor, OSHA Division and even perhaps the Federal Environmental Protection Agency.

Should you have any questions or wish additional information, you may contact Battalion Chief Ernest Latorre of our Fire Prevention Bureau at 943-3165.

Very truly yours,

FRANK K. KAHOOHANOHANO
Fire Chief

FKK:lm/EPL
cc: Fire Prevention Bureau

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1548

Mr. Frank K. Kahoohanohano, Fire Chief
Fire Department
City & County of Honolulu
1455 S. Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Chief Kahoohanohano:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 17, 1985 regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS).

Concerning your comments on the monitoring of hazardous materials, you suggest that we contact the State Department of Health and the State Department of Agriculture. These two agencies were sent copies of the EIS Preparation Notice, and we have received comments from them. You also suggest that we contact the State Department of Labor, OSHA Division, and the U.S. Environmental Protection Agency. We do not feel that it is appropriate to contact these agencies until specific tenants of the Mililani Hawaii Technology Park are known and potential hazards can be better defined.

The DEIS for the project is expected to be completed in September when you will be sent a copy. We look forward to your further participation in the EIS process.

Sincerely,

Perry S. White

Perry S. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLHI 7430474
Singapore 140 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 HCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1188

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1071

Mr. Douglas G. Gibb, Chief
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawai'i 96814

Dear Chief Gibb:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu 680 Coral Street Honolulu, Hawaii 96813 Telephone (808) 521-5361 Telex [illegible]
Singapore 841 Orchard Road #12-06 International Building Singapore 0923 Telephone [illegible] Telex [illegible]

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. What station would provide service to the proposed project?

2. Please provide a brief description of the station's primary service area and its staffing.

3. Do you foresee any special problems serving the proposed Park? If so, please describe them and indicate any measures that might be taken to avoid or remedy them.

4. Would additional police facilities and/or services be required in the long term as a result of the project? If so, can you provide an estimated cost for them?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 • AREA CODE (808) 943-3111

FRANK F. FASI
MAYOR

DOUGLAS G. GIBB
CHIEF

WARREN FERREIRA
DEPUTY CHIEF

RECEIVED
JUN 21 1985
BELT, COLLINS & ASSOCIATES

OUR REFERENCE EC-GF

June 19, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

In Re: Environmental Impact Statement Preparation Notice
Development of the "Hawaii Technology Park," Mililani, Oahu

The following information is provided in response to your letter of June 10, 1985.

1. What station would provide service to the proposed project?

   Wahiawa Police Station.

2. Please provide a brief description of the station's primary service area and its staffing.

   The proposed High-Technology Park is located in District II of the Honolulu Police Department. The district encompasses the North Shore from Kaena Point to Waialee Bridge and all of Central Oahu, south to a point just north of Waipahu. Currently there are 177 sworn personnel assigned to the district.

3. Do you foresee any special problems serving the proposed park? If so, please describe them and indicate any measures that might be taken to avoid or remedy them.

   It would be beneficial if anti-crime features were incorporated into the park's design, i.e., sufficient lighting, safe parking areas, avoidance of the isolating of buildings, avoidance of concealing shrubbery, etc.

   Also, as high-tech implies high-value, firms in the park could become victims of burglaries and thefts. The employment of private security personnel on a 24-hour basis would greatly reduce the opportunities for these types of crime.

   Prior considerations for traffic safety within the confines of the park would reduce potential traffic incidents.

4. Would additional police facilities and/or services be required in the long term as a result of the project? If so, can you provide an estimated cost for them?

   We are unable to determine whether additional police facilities or services will be required in the long run as a result of this project.

Thank you for allowing us to comment on this EIS Preparation Notice.

Sincerely,

DOUGLAS G. GIBB
Chief of Police

By Warren Ferreira
WARREN FERREIRA
Deputy Chief of Police

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1535

Mr. Douglas G. Gibb
Chief of Police
Police Department
City & County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Chief Gibb:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of June 19, 1985 -- your reference EC-GF -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 406 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELHH 7410474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1068

Mr. Russell L. Smith, Jr.
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Smith:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

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We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

Honolulu 1088 Canal Street, Honolulu Hawai'i 96813, Telephone (808) 521-5361, Telex BELLHI 7438474
Singapore 1041 Orchard Road, #12-06 International Building Singapore 0923, Telephone 235 6870, Telex RS 50364 BCINSIN

1. Refuse is planned to be removed from the site through a private refuse collection service. Where would solid waste generated by the proposed project be disposed of in the long run? Has a new leeward landfill site been acquired, and do you foresee disposal through a solid waste recovery system?

2. Engineering studies commissioned by Oceanic Properties project that the high-tech park would generate approximately 46.3 tons of solid waste per day. This is based on 212 acres of industrial facilities, 45 employees per acre, and a solid waste genertion rate of 9.7 pounds per employee per day. (This generation rate is based on actual measurements from a scientific instruments industrial development). Do you concur with these figures?

3. The proposed Covenants for the Hawai'i Technology Park require all owners and occupants to follow the Hazardous Materials Storage and Handling Guidelines. For your information, a copy of the preliminary draft guidelines is enclosed. The objective is to prevent the uncontrolled discharge of hazardous materials into the ground or atmosphere of the Park, and to monitor the storage of acceptable amounts of hazardous materials on-site. In your opinion, does adherence to these guidelines constitute sufficient preventive measures?

4. Engineering studies project that the Hawai'i Technology Park would ultimately generate an average flow of approximately 0.85 mgd of wastewater, given a rate of 4000 gallons per acre per day. They also conclude that existing facilities at the Mililani and Honouliuli Wastewater Treatment Plants can accommodate this flow. Do you agree?

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:ll

cc: Oceanic Properties, Inc.

Enclosure

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
JUL 5 1985
BELT, COLLINS & ASSOCIATES

FRANK F. FASI
MAYOR

RUSSELL L. SMITH, JR.
DIRECTOR AND CHIEF ENGINEER

ENV 85-164

July 1, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Re: EISPN For Hawaii Technology Park
Mililani, Oahu, Tax Map Key: 9-5-2: Por. or 11

We are responding to your letter of June 10, 1985, and the Environmental Impact Statement Preparation Notice for the subject proposed project. Responses on the specific questions raised in your letter are in the same order as they were presented.

1. Non-hazardous wastes may be disposed of at the privately-owned and operated Palailai landfill or the proposed City leeward landfill at Waimanalo Gulch. The proposed Waimanalo Gulch landfill is expected to be operational by mid-1987 when Palailai is scheduled to be closed. Combustible non-hazardous wastes may be taken to the proposed H-POWER facility at Campbell Industrial Park when the facility becomes operational in 1989. Non-combustible non-hazardous wastes should continue to go to the landfill. Regulated hazardous wastes are not accepted at the City's waste disposal facilities.

2. The City does not maintain refuse generation rate on any specific activity, including "high tech" parks. Therefore, we are not able to concur or confirm the given figures.

3. The Hazardous Materials Storage and Handling Guidelines, as indicated by its title and contents, concentrate on the handling and storage of hazardous wastes. We suggest that the guidelines be expanded to cover the disposal requirements of hazardous and toxic material (CERLA hazardous wastes, 40 CFR Part 302). As mentioned previously, the City does not accept regulated hazardous wastes. Specific comments on the guidelines are listed below.

4. The existing treatment facilities at Mililani and Honouliuli are presently able to accommodate the 0.85 mgd average flows from the proposed development. This does not necessarily mean that the existing collection and conveyance systems including pump stations are adequate to handle the peak sewage flows. In this respect, the EIS should discuss how the park's wastewater will be connected to the existing municipal sewer system.

   An Industrial Wastewater Discharge Certificate will be required before firms will be allowed to connect to the proposed system. Pretreatment of industrial wastes may also be required prior to discharges. The appropriated sections in Chapter 11, Revised Ordinances of Honolulu, should be consulted for specific requirements.

5. Comments on the EISPN are as follows:

   a. A drainage report must be submitted to the Drainage Section, Division of Engineering, for review and approval. The report should assess the impact of storm runoff from the proposed project on Melemanu Woodlands and especially Waipio Farm Lots.

   b. According to 40 CFR Part 122, stormwater runoff systems, including pipes, conduits, ditches and channels located at an industrial yard, are considered as Group I stormwater point sources and will require a NPDES permit. The requirements of 40 CFR Part 122 apply to both private and municipal systems. If the municipal stormwater system is affected, the applicant will be required to provide the necessary permit information prior to dedication of the system to the City.

   c. We assume that all streets within the high tech park will be constructed according to City standards.

6. Comments on the Hazardous Material Storage and Handling Guidelines are as follows:

   a. Regulated Material (page 2). CERLA hazardous wastes include RCRA hazardous wastes, radionuclides and other regulated toxic wastes (See 40 CFR Part 302, 50 FR 13456, dated April 4, 1985), whereas the RCRA hazardous wastes listing is less comprehensive.

   b. Exempt Materials (page 3). The general exemption of all consumer type hazardous products seems to be too broad unless they are strictly household products. For example, bulk paint thinner, other liquids and corrosive chemicals cannot be disposed of with general refuse.

   c. Governmental Regulations (pages 3-4). If there are conflicts between government regulations and the guidelines applicable to the generation, treatment, storage, handling and disposal (added) of hazardous materials, the more stringent rules should apply.

d. Part II Intent (page 4). Hazardous material with known or suspected health risks should be regulated by the association.

e. Limitations on Quantities of Hazardous Materials (page 5). Section 9001 of the Resources Conservation and Recovery Act, as amended by PL 98-616, should be broadened to include other sections of the new Subtitle I, as well as regulations that will be promulgated by EPA pursuant to Subtitle I.

f. Storage Facility Map (page 6). In addition to the general chemical name, the hazardous material should be identified by its chemical abstract service registry number (CASRN) to facilitate identification by Federal emergency response agencies.

g. Inspections (page 7). Will a minimum frequency of inspections be specified by the association?

h. Disposal (page 8). This subsection should be expanded to include more details on procedures.

i. Secondary Containment (page 10). Floor drains should not be installed in containment areas and shall not be connected to the storm and sanitary sewer systems of the City.

j. Drainage System (page 11). Connection of private drainage system to the City drainage system must be approved by the Director and Chief Engineer subject to the applicable provisions in 40 CFR Part 122, and other Federal, State and City statutes and regulations.

k. Inspection by the Association (page 13). The association should (will) conduct regular inspection. Uniform Hazardous Waste Manifests (EPA Form 3700-22A) or other applicable State's manifests should be inspected. Firms found violating the guidelines should be inspected more frequently.

l. Uncontrolled Discharge of Hazardous Material (page 15). Reportable amounts of the uncontrolled discharge of hazardous material are listed in 40 CFR Part 302. The United States Coast Guard is the local Federal response agency under CERLA.

m. Cleanup Responsibility (page 15). To ensure clean up of spills, bonds, letters of credit and other sureties may be desirable from park occupants. Also, will a contingency fund be created to dispose hazardous wastes abandoned by insolvent firms?

Very truly yours,

For RUSSELL L. SMITH, JR.
Director and Chief Engineer

A-63

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1550

Mr. Russell L. Smith, Jr.
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Smith:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 1, 1985 -- Letter No. ENV 85-164 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Your concerns will be addressed in the DEIS to the extent possible at this time.

We appreciate your detailed comments on the preliminary Hazardous Materials Storage and Handling Guidelines that were sent to you for review. Oceanic Properties, Inc. is conferring with its engineering consultants and attorneys regarding the suggestions you made, and I expect that the Guidelines will eventually be modified. Review of the Guidelines will be ongoing throughout the development process. The Guidelines are written specifically as guidelines to be later refined in detail by a professional waste engineer or hazardous materials consultant. At that time, more specific items such as design, installation, operation and maintenance procedures will be addressed.

Oceanic Properties, Inc. would like to emphasize the supplemental nature of the proposed Guidelines. It is Oceanic Properties' intention to cooperate in every possible way with the government agencies having jurisdiction, and it believes that the Guidelines offer a level of self-regulation above and beyond all governmental laws and regulations that must be met.

Guidelines may in some cases be more stringent than existing governmental controls; where there is a difference, the intent is that the stricter rule shall govern. Regarding enforcement of rules, Oceanic Properties has recourse only to civil measures. The Government's police powers offer it a quicker, and in many instances, more predictable means of insuring that established environmental standards are met.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex BELTH 7410474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1888

August 23, 1985
85-1550

The DEIS for the project is expected to be completed in September when you will be sent a copy. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

September 17, 1985
85-1662

Mr. Russell L. Smith, Jr.
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Smith:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Since I wrote to you on August 23, 1985, concerning your comments on the Preparation Notice for the above project, Oceanic Properties' legal consultants have reviewed in depth the preliminary Hazardous Materials Storage and Handling Guidelines. The guidelines have been modified to address your concerns as well as those of the State Department of Health.

Attached is a copy of your July 1, 1985 letter, with marginal notations by Oceanic Properties' legal counsel to show where the guidelines have been changed in response to your comments. Also attached is a copy of the revised guidelines. Please note that these guidelines will continue to be refined, although the changes made in response to your department's concerns are expected to remain part of the final document.

Our current schedule calls for the Draft EIS for the "Hawai'i Technology Park" to be available in early October when you will be sent a copy.

Sincerely,

Perry J. White

ALM:PJW:lf

Attachments

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 1136 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
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BELL, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

June 10, 1985
85-1069

Mr. John E. Hirten, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Hirten:

Environmental Impact Statement Preparation Notice
Development of the "Hawai'i Technology Park," Mililani, Oahu

Oceanic Properties, Inc., a wholly-owned subsidiary of Castle & Cooke, Inc., proposes to develop a high technology industrial park in a low-rise campus style on a 256-acre site in Mililani, Central Oahu, east of the H-2 Freeway. In accordance with the approved Development Plan amendment, at least two-thirds of the Hawai'i Technology Park would be occupied by high-tech industries; the remaining third could be used for commercial and other high-tech support services.

The project is planned for implementation in two phases; lands in Phase I are in the State Urban District and lands in Phase II will be eligible for reclassification from Agricultural to Urban designation after substantial completion of improvements within Phase I. Oceanic Properties has recently received a Development Plan amendment to redesignate the Phase I portion from Agricultural to Industrial. Currently being requested is rezoning of Phase I lands from Agricultural (AG-1 Restricted Agricultural Zoning District) to Industrial (I-1 Light Industrial Zoning District). This application is being processed through the Department of Land Utilization, City and County of Honolulu.

On March 5, 1985, the Department of Land Utilization determined that an Environmental Impact Statement (EIS) for the proposed action is required pursuant to Chapter 343, Hawai'i Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) announcing this determination was published in the March 8, 1985 issue of the Office of Environmental Quality Control Bulletin. A copy of the EISPN issued by the Department of Land Utilization is attached to this letter. It describes the proposed project and the affected environment, and identifies the major impacts that should be addressed in the EIS.

We request that you/your organization assist us in preparing the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special knowledge, or interest. You could help us address those issues that are of greatest concern by indicating in writing the specific questions, issues, and topics you believe are important, as well as the reasons why they are important. The more specific you can be, the greater the likelihood that we will be able to respond satisfactorily.

Honolulu 606 Coral Street, Honolulu, Hawai'i 96813, Telephone (808) 521-5361, Telex [illegible]
Singapore 8[illegible] Orchard Road #12-08 International Building Singapore 0923, Telephone 235 6070, Telex RS 50363 BCINS

In addition to identifying any particular concerns you may have regarding the proposed project, we would appreciate it if you would answer the following questions relative to your department's activities and/or responsibilities in the area. The information you provide will be used to assess the potential impacts of the proposed development.

1. Please send us the latest schedules and maps for bus routes serving the project site.

2. What additional service in terms of additional trips scheduled, additional routes, or changes in routing might your department make over the long run to accommodate bus riders who work at the proposed Park?

3. Are you aware of any trip generation studies that would provide information useful to our analysis of traffic impacts? If so, would you please provide us with copies or indicate how they may be obtained.

As you probably know, the Environmental Impact Statement Regulations stipulate that a written response to requests for comments be made within 30 days of their receipt, and we hope you will respond within this time period. Doing so will ensure that no important issues are neglected because they are raised belatedly.

If all goes as planned, it is expected that the EIS will be available in September 1985. At that time, the document will be circulated for public review and comment.

Thank you very much for your cooperation. If you have any questions regarding the project or the kinds of input that would be most helpful to us in preparing the EIS, please call me or Anne Mapes of our office at 521-5361. We would be happy to provide any additional information we can.

Sincerely,

Anne L. Mapes
for Perry J. White

ALM:lf

cc: Oceanic Properties, Inc.

Enclosure

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

JOHN E. HIRTEN
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

RECEIVED
JUL 12 1985
BELT, COLLINS & ASSOCIATES

6/85-2536

July 9, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Environmental Impact Statement - Development of the "Hawaii Technology Park," Mililani, Oahu

We include the following information and comments as requested by you in your letter dated June 10, 1985.

1) Latest Bus Schedules and Maps

Attached are the bus schedules of the bus routes serving Mililani.

2) Additional Future Trips, Routes and Changes

Specific commitments cannot be made at this time. In general, if the public transit need exists and the equipment and funding resources are available, additional and/or future services can be considered. It should be noted that Mililani will have to compete with similar demands from other areas of Oahu at that period of time.

3) Vehicular Access and Circulation

a) The need to provide adequate off-street parking for workers and customers to prevent future traffic problems should be addressed.

b) A study should be included to determine if the local roadway system between Kamehameha Highway to the proposed project can accommodate the impact of added traffic on the existing facilities or if additional roadway improvements will be required.

We further recommend that you contact Oceanic Properties regarding their plans or proposals to provide for a Transportation Center in Mililani as part of their future developments.

Should you have need for further information regarding traffic data, contact Mr. Roy Kaneko (523-4735), Chief of Traffic Engineering. Mr. Howard Takara, Chief of Bus Systems (523-4138) will provide additional bus systems information as needed.

Sincerely,

JOHN E. HIRTEN

Attachments

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

August 23, 1985
85-1539

Mr. John E. Hirten, Director
Department of Transportation Services
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Hirten:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawai'i Technology Park," Mililani, Oahu

Thank you for your letter of July 9, 1985 -- Letter No. 6/85-2536 in your reference system -- regarding the Environmental Impact Statement Preparation Notice for the proposed development of a high technology industrial park in Central Oahu.

The comments and information that you provided are valuable to us in preparing the Draft Environmental Impact Statement (DEIS). Our current schedule calls for the DEIS to be completed in September, when you will be sent a copy of the report. We look forward to your further participation in the EIS process.

Sincerely,

Perry J. White

Perry J. White

ALM:lf

cc: Stephen H. Miller, Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLH 7430474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

APPENDIX B

Hawaii Technology Park:
Hazardous Materials Storage and Handling Guidelines (Draft)

DRAFT

SEP - 5 1985

HAWAII TECHNOLOGY PARK

HAZARDOUS MATERIALS STORAGE AND HANDLING GUIDELINES

TABLE OF CONTENTS

PART		PAGE
I	GENERAL	1
II	LIMITATIONS ON OPERATIONS AND ACTIVITIES	5
III	HAZARDOUS MATERIALS MANAGEMENT PLAN	7
IV	STORAGE AND CONTAINMENT STANDARDS	10
V	INSPECTION AND MAINTENANCE	15
VI	EMERGENCIES	17
VII	MISCELLANEOUS	20
VIII	ENFORCEMENT	21

PART I

GENERAL

1.1 Purpose and Definitions. The purpose of these guidelines is to protect the ground water resources of the State of Hawaii by preventing releases of hazardous materials into the ground at Hawaii Technology Park and to otherwise prevent releases of hazardous materials into the ground or the atmosphere. The terms used herein shall have the meanings given to them in the Declaration of Protective Covenants, Conditions and Restrictions for Hawaii Technology Park, except as otherwise provided herein or unless clearly repugnant to the context.

1.2 Applicability. These guidelines apply to and must be complied with by all Owners and Occupants of Lots in Hawaii Technology Park who engage in the handling, transportation, treatment, storage and/or disposal of hazardous materials at Hawaii Technology Park.

1.3 Administration. These guidelines will be implemented and enforced by the Hawaii Technology Park Association through its Board of Directors. The Board of Directors will retain a suitably qualified independent engineer, chemist or other appropriate professional consultant (the "hazardous materials consultant") who will administer the procedural requirements of these guidelines and ensure compliance with the substantive requirements of these guidelines. The hazardous materials consultant will report to the Board of Directors as needed and will prepare an annual report. The hazardous materials consultant will also assist the Design Committee in reviewing the HMMP described in Part III hereof and in determining whether the HMMP conforms with these guidelines.

The hazardous materials consultant will be selected based upon its experience, knowledge and expertise in the following areas:

(a) federal, state and local regulation of hazardous materials;
(b) evaluation of alternative hazardous materials management strategies;
(c) health and environmental risk assessments;
(d) soil sampling and ground water monitoring;
(e) ground water flow and contamination modeling;
(f) development of remedial action alternatives and plans;
(g) supervision or implementation of remedial action plans;
(h) facility inspections; and
(i) environmental audits.

1.4 Materials Regulated.

a. Hazardous Materials. The hazardous materials regulated by these guidelines will consist of the following:

(1) Any and all materials which are listed by the Environmental Protection Agency at 40 Code of Federal Regulations, Part 302, as the same may be amended from time to time; and

(2) Any and all materials which are listed by the Department of Transportation at 49 Code of Federal Regulations, Section 172.101, as the same may be amended from time to time; and

(3) Any and all materials which are classified by the National Fire Protection Association ("NFPA") as either a flammable liquid or Class II combustible liquid or a Class III A combustible liquid; and

(4) Any and all materials now or hereafter listed as hazardous or extremely hazardous by the State of Hawaii.

b. Hazardous Wastes. Hazardous wastes are defined as any and all materials which are listed by the Environmental Protection Agency at 40 Code of Federal Regulations, Part 261, as the same may be amended from time to time. Hazardous wastes are regulated under these guidelines as hazardous materials, and where indicated, these guidelines impose additional requirements on the handling and disposal of hazardous wastes.

c. Exempt Materials. These regulations do not apply to the following materials:

(1) Retail Products. Hazardous materials, excluding hazardous wastes, when contained solely in consumer products packaged for distribution to, and use by, the general public; or commercial products used at the facility solely for janitorial or minor maintenance purposes, such as paint thinner and wax stripper.

(2) Insignificant Quantities. Hazardous materials, excluding hazardous wastes, in quantities demonstrated to the satisfaction of the Association's hazardous materials consultant to not present a significant actual or potential hazard to public health, safety or welfare.

1.5 Governmental Regulations. In addition to complying with these guidelines, all Owners and Occupants of Lots in Hawaii Technology Park shall comply with all federal, state and local governmental laws, ordinances and regulations applicable to the generation, treatment, storage, disposal handling and transportation of hazardous materials. In addition, all owners and occupants shall obtain all necessary federal, state and local permits for the facilities described herein.

PART II

LIMITATIONS ON OPERATIONS AND ACTIVITIES

2.1 Intent. The intent of this Part is to reduce the risk associated with the storage and use of hazardous materials by regulating the operations and activities of facilities permitted to locate at Hawaii Technology Park to those facilities which use hazardous materials safely and properly, taking into account known health risks with respect to such hazardous materials. It is anticipated that facilities permitted to locate at Hawaii Technology Park will generate only small quantities of hazardous waste as those terms are defined in the Resource Conservation and Recovery Act, as it may be amended from time to time.

2.2 Limitations on Operations: Owners and Occupants who propose to engage in operations or processes typically requiring onsite storage of significant quantities of hazardous materials, as described in Section 2.3 below, will not be permitted to locate at the Hawaii Technology Park.

2.3 Limitations on Quantities of Hazardous Materials. At each facility, the quantities of hazardous materials permitted to be present onsite at any given time will be limited to volumes which would not necessitate storage in underground tanks. All onsite storage must comply with the requirements of the Honolulu Fire Department, including without limitation the requirements set forth in Articles 79, 80 and 82 of the Fire Code of the City and County of Honolulu and Sections 30 and 58 of the NFPA regulations, as the same may be amended from time to time. Notwithstanding the foregoing limitation, the use of underground storage tanks for fuel storage is permitted provided that such tanks are in compliance with the requirements of Sections 9001, et seq of the Resource Conservation and Recovery Act, as the same may be amended from time to time, and regulations promulgated thereunder, and provided further that such tanks are in compliance with state and local laws, ordinances and regulations and are approved pursuant to the HMMP described in Part III below.

PART III

HAZARDOUS MATERIALS MANAGEMENT PLAN

3.1 Intent. The intent of this Part is to provide for the regulation of hazardous materials use by requiring the submittal and approval of a Hazardous Materials Management Plan ("HMMP") which demonstrates the safe storage and handling of hazardous materials.

3.2 Applicability. Each Owner or Occupant proposing to engage in the handling and storage of hazardous materials is required to submit an HMMP. This requirement does not apply to exempt materials and quantities as provided in Part I above.

3.3 Content of HMMP. The Owners or Occupants intending to engage in the use of hazardous materials must submit an HMMP to the Design Committee as part of the approval process for plans and specifications. The HMMP must be approved by the Design Committee, in consultation with the hazardous materials consultant, prior to the construction of any building, structure or other improvement. The HMMP shall include the following:

a. General Facility Site Plan. The General Facility Site Plan shall consist of a site plan drawn at a legible scale which shows the location of all buildings and structures, chemical loading and

outside storage areas, parking lots, internal roads, storm and sewer drains and adjacent land uses. Any other relevant information should also be shown on the site plan.

b. Storage Facility Map. The Storage Facility Map shall show the location of each hazardous materials storage facility, including all interior and exterior storage facilities, access to such storage facilities, emergency equipment related to each storage facility, and the general purpose of the other areas in the subject facility. The Storage Facility Map shall also indicate all hazardous material stored at the facility by general chemical name, and the capacity limit of each container. The Storage Facility Map shall also indicate the Chemical Abstracts Service Registry Numbers ("CASRN") for those hazardous materials listed in 40 Code of Federal Regulations § 302.4.

The Storage Facility Map is intended to provide emergency response personnel with a summary of the key information that they may need on the scene in the event of an emergency.

c. Separation and Protection of Materials. The HMMP shall contain a description of the methods to be utilized to ensure separation and protection of stored hazardous materials from factors which may

cause fire or explosion, or the production of flammable, toxic or poisonous gas, or the deterioration of the containments.

d. Monitoring Program. The HMMP shall contain a description and, where appropriate, a design diagram of the location, type and suitability of monitoring methods to be used in each storage facility containing hazardous materials.

e. Inspections. The HMMP shall specify the frequency of inspections of storage facilities which will be undertaken by the Owner or Occupant. At a minimum, there must be annual inspections by the Owner or Occupant.

f. Recordkeeping Forms. The HMMP shall contain an inspection check sheet or log to be used in conjunction with routine inspections.

g. Emergency Equipment and Personnel. The HMMP shall describe emergency equipment availability, testing and maintenance. The HMMP shall identify the Owner or Occupant's emergency response manager who is to be notified in the event of an emergency.

h. Disposal. The HMMP shall include plans for disposal of hazardous waste demonstrating that disposal will be effected in an environmentally-sound manner and in compliance with federal, state and local laws, ordinances and regulations.

i. Additional Information. Additional information may be required for the HMMP where such information is reasonably necessary to ensure against releases of hazardous materials.

3.4 Limitation of Liability. The Declarant, the Association, the Board of Directors, and the Design Committee shall not be liable for any damage, loss or prejudice suffered or claimed by any person on account of (a) the approval or disapproval of any HMMP or any plans, drawings or specifications, whether or not in any way defective; or (b) the construction of any improvements or the performance of any work, whether or not pursuant to any approved HMMP, plans, drawings or specifications; or (c) any actions or omissions of the hazardous materials consultant retained by the Board of Directors.

PART IV

STORAGE AND CONTAINMENT STANDARDS

4.1 Intent. The intent of this Part is to specify standards for the proper storage and containment of hazardous materials with the objective of preventing

releases into the ground or the atmosphere. The HMMP shall demonstrate compliance with this part. Where there is any conflict with any applicable federal, state or local laws or regulations, the stricter standards shall prevail.

4.2 Storage and Containment Requirements. Primary and secondary levels of containment will be required for all storage facilities intended for the storage of hazardous materials, as specified below.

a. Primary Containment. Primary containment is the first level of containment, i.e., the inside portion of that container which comes into immediate contact on its inner surface with the hazardous material being contained.

(1) All primary containment must be product-tight, i.e., impervious to the hazardous material which is contained, or is to be contained, so as to prevent the seepage of the hazardous material from the primary containment. To be product-tight, the container shall be made of a material that is not subject to physical or chemical deterioration by the hazardous material being contained.

b. Secondary Containment. Secondary containment is the level of containment external to and separate from the primary containment.

(1) All secondary containments are to be constructed of materials of sufficient thickness, density, and composition so as not to be structurally weakened as a result of contact with the released hazardous materials and so as to be capable of containing hazardous materials released from a primary container for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of the released hazardous material.

(2) In the case of an installation with one primary container, the secondary containment is to be large enough to contain at least 110% of the volume of the primary container.

(3) In the case of a storage facility with multiple primary containers, the secondary container is to be large enough to contain 150% of the volume of the largest primary container placed in it, or 110% of the aggregate internal volume of all primary containers in the storage facility, whichever is greater.

(4) If the storage facility is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 25-year storm history.

c. Separation of Materials. Materials that in combination may cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, shall be separated in both the primary and secondary containment so as to avoid intermixing.

d. Overfill Protection. Means of overfill protection may be required for any primary container. This may be an overfill prevention device and/or an attention-getting high-level alarm. Whether such protection is required shall be determined by the Design Committee in consultation with the hazardous materials consultant.

e. Drainage System. Drainage of precipitation from within a storage facility containing hazardous materials shall be controlled in a manner approved by the Design Committee in consultation with the hazardous material consultant so as to prevent hazardous materials from being released. No drainage system will be approved unless the flow of the drain can be controlled. The drainage system design and specifications shall be included for prior approval as part of the HMMP submittal.

f. Monitoring Capability. All storage facilities intended for the storage of hazardous materials shall be designed and constructed with a monitoring system capable of detecting when the hazardous material stored in the primary containment has entered the secondary containment. Visual inspection of the primary containment is the preferred method; however, other means of monitoring may be required by the Design Committee in consultation with the hazardous materials consultant. Whenever monitoring devices are provided, they shall, where applicable, be connected to attention-getting visual and/or audible alarms.

g. Screening and Protection of Outside Storage Facilities. Outdoor storage facilities are to be screened from external view in the manner prescribed by the Declaration of Protective Covenants, Conditions and Restrictions for Hawaii Technology Park, and shall also be adequately protected from collision by vehicles.

PART V

INSPECTION AND MAINTENANCE

5.1 Inspection by Owner. Every Owner or Occupant subject to these guidelines must provide testing, monitoring and inspections in compliance with the HMMP and must maintain records adequate to demonstrate compliance therewith. Such inspections shall be undertaken by a qualified independent engineer, chemist or appropriate professional consultant acceptable to the Board of Directors of the Association. Such inspections shall include a review of all Uniform Hazardous Waste Manifests (EPA Form 3700-22A, as may be amended from time to time) prepared since the last inspection.

5.2 Inspections by the Association. The Association or the Board of Directors may conduct inspections, at their discretion, for the purpose of ascertaining compliance with these guidelines and causing to be corrected any conditions which would constitute any violation of these guidelines or of any other statute, code, rule or regulation affecting the storage of hazardous materials. The Board of Directors may direct the hazardous materials consultant to conduct such inspections.

5.3 Right-of-Entry. Whenever necessary for the purpose of inspection or for determination of compliance with

the requirements of these guidelines, the Association, the Board of Directors, the hazardous materials consultant or their designee, may enter any facility or structure at all reasonable times to make such inspection or determination.

5.4 Remedial Action. Whenever the hazardous materials consultant finds an instance of noncompliance with the approved HMMP or with these guidelines, the Owner or Occupant responsible must within 10 days, or such shorter time when practicable and necessary in the judgment of the hazardous materials consultant, remedy the noncompliance and make any modifications or repairs as required by the hazardous materials consultant. If remedial action is not possible within 10 days, the owner or occupant must take remedial action within the shortest practicable period as determined by the hazardous materials consultant.

5.5 Routine Maintenance, Repair or Replacement.

a. The Owner or Occupant will perform routine maintenance, upkeep and minor repairs in a careful and safe manner. No approvals by the Association, the Board of Directors, the Design Committee, or the City and County will be required for such routine maintenance and upkeep.

b. Any substantial modification or repair of a storage facility other than minor repairs or emergency repairs will require submittal and approval of an amended HMMP which shows such modifications in accordance with Part III of these guidelines prior to the initiation of such work.

c. An Owner or Occupant may make emergency repairs to a storage facility in advance of seeking an additional approval whenever an immediate repair is required to prevent or contain a release of hazardous materials or to protect the integrity of the containment. However, as soon as possible, and in any event no later than 24 hours after such emergency repairs have been started, the Owner or Occupant shall advise the Board of Directors or its designee of the emergency and thereafter shall seek approval pursuant to Part III by submitting drawings or other information adequate to describe the repairs to the Design Committee.

PART VI

EMERGENCIES

6.1 Release of Hazardous Materials. As soon as any person in charge of a storage facility or responsible for emergency response for a facility has knowledge of any confirmed or unconfirmed release of a hazardous material, such person shall take all necessary steps to ensure the discovery and containment and cleanup of such release and shall notify the Board of Directors or its designee of the occurrence within 24 hours of the discovery thereof. In addition, the Owner or Occupant is solely responsible for reporting to the appropriate federal agency if there is a release of a reportable quantity of a hazardous substance as those terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act and the regulations promulgated thereunder, as they may be amended from time to time.

6.2 Cleanup Responsibility. Any Owner or Occupant responsible for storing or handling hazardous material ("responsible party") shall institute and complete all actions necessary to remedy the effects of any release, whether sudden or gradual. The Association may undertake actions to remedy the effects of such releases itself, if the Board of Directors determines that it is reasonably necessary under the circumstances to do so. The responsible party shall be liable to reimburse the Association for all costs incurred in remedying the effects of such release.

6.3 Recording. The occurrence of each release of hazardous materials and response thereto shall be recorded in the monitoring records of the Owner or Occupant.

6.4 Indemnification. The Owner and Occupant shall indemnify, hold harmless and defend the Association, the Board of Directors, the Design Committee, the hazardous materials consultant, the City and County of Honolulu and the Declarant against any claim, cause of action, disability, loss, liability, damage, cost or expense, howsoever arising, which occurs by reason of a release of hazardous material in connection with the Owner's or Occupant's operations.

B-11

6.5 Emergency Equipment. Emergency equipment shall be provided which is reasonable and appropriate for potential emergencies presented by the stored hazardous materials. Such equipment shall be regularly tested and adequately maintained, and shall be listed in the HMMP.

6.6 Posting of Emergency Procedures. Simplified emergency procedures shall be posted conspicuously in locations where hazardous materials are stored. Such procedures shall include the notification of a designated emergency response manager.

PART VII

MISCELLANEOUS

7.1 Handling Hazardous Materials.

a. Handling, dispensing and mixing of hazardous materials must not be done in such a manner as to substantially increase the risk of a release. Any Owner or Occupant responsible for storing or handling hazardous material shall conduct training for employees working with hazardous materials as to the proper handling of and emergency procedures for hazardous materials.

b. When hazardous materials are moved into or out of a storage facility, they shall remain in the travel path only for the time reasonably necessary to transport the hazardous material, and such movement shall be in a manner which will not result in a release.

7.2 Secured Facilities. Access to the storage facilities shall be secured by means of fences and/or locks. The access to the storage facilities shall be kept securely locked when unattended.

7.3 Out-of-Service Storage Facilities.

a. Storage facilities which are temporarily out of service, and are intended to be returned to use, must continue to be monitored and inspected.

b. No storage facility shall be abandoned. Any storage facility which is not being monitored and inspected in accordance with these guidelines must be closed and/or removed in a manner approved by the Board of Directors of the Association.

PART VIII

ENFORCEMENT

8.1 Remedies for Noncompliance. In addition to the compliance program set forth in Part V above, any person may avail himself or herself of the remedies set forth in Sections 7002 and 7003 of the Resource Conservation and Recovery Act, as the same may be amended from time to time. Further, any aggrieved person may avail himself or herself of the EPA Office of Ombudsman established pursuant to Section 2008 of the Resource Conservation and Recovery Act, as the same may be amended from time to time. These rights and remedies shall not restrict any other rights and remedies provided by law.

The foregoing Hazardous Materials Storage and Handling Guidelines are hereby adopted by the Board of Directors of the Hawaii Technology Park Association.

DATED: _____, 19___.

_____

_____

_____

Directors

APPENDIX C

Comments and Responses Regarding the Draft Environmental Impact Statement

COMMENTS AND RESPONSES REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Draft Environmental Impact Statement (EIS) for the Hawaii Technology Park in Mililani, Oahu, was submitted to the Environmental Quality Commission on October 7, 1985. Letters commenting on the Draft EIS were received from the agencies and organizations listed below. Their comment letters and the responses to these are reproduced on the following pages.

Federal Agencies

Headquarters, Naval Base Pearl Harbor
U.S. Department of Agriculture, Soil Conservation Service
U.S. Department of the Interior, Fish and Wildlife Service
U.S. Department of the Interior, Geological Survey, Water Resources Division

State Agencies

Department of Accounting and General Services, Division of Public Works
Department of Defense
Department of Planning and Economic Development
Department of Social Services and Housing
Department of Transportation
Office of Environmental Quality Control

City and County Agencies

Board of Water Supply
Building Department
Department of Housing and Community Development
Department of Parks and Recreation
Department of Public Works
Department of Transportation Services
Fire Department
Police Department

Organizations

University of Hawaii, Environmental Center
University of Hawaii, Water Resources Research Center
Hawaiian Electric Company

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

RECEIVED
NOV 6 1985
BELT, COLLINS & ASSOCIATES

November 4, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Draft EIS - Hawaii Technology Park, Mililani, Oahu, Hawaii

C-1 We reviewed the subject draft environmental impact statement and have no further comments to make other than those in our letter of July 8, 1985 (page A-9 of the EIS).

Thank you for the opportunity to review the document.

Sincerely,

FRANCIS C.H. LUM
State Conservationist

cc:
Mr. Perry J. White
Belt Collins and Associates
660 Coral Street
Honolulu, Hawaii 96813

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2003

Mr. Francis C. H. Lum
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Lum:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your November 4, 1985 letter to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your agency had no further comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex 8111174 8474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

OCT 25 1985

BELT, COLLINS & ASSOCIATES
IN REPLY REFER TO:

ES
Room 6307

OCT 24 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement (EIS) for the Hawaii Technology Park, Mililani, Oahu

Dear Mr. Whalen:

The U.S. Fish and Wildlife Service has reviewed the referenced Draft EIS and offers the following comments for your consideration.

a. The U.S. Department of Transportation, Fourteenth Coast Guard District, is the co-chair of the Regional Response Team for oil and hazardous substance spills in Hawaii. Their comments on the proposed project, particularly in regard to potential hazardous substance spills, hazardous waste disposal, hazardous substance spill contingency planning, and the adequacy of the Hazardous Materials Storage and Handling Guidelines (Appendix B) should be solicited. We have forwarded our copy of the Draft EIS to the Coast Guard for their use and comments.

b. The Service recently participated in an Oil and Hazardous Substance Contingency Planning course sponsored by the U.S. Navy. The instructors pointed out that on-site drainage systems (storm drains and swales) are frequently involved in transporting on-site oil and hazardous substance spills to off-site locations. The drainage system for the Hawaii Technology Park should consider the potential for off-site transport of hazardous substance spills.

We appreciate the opportunity to comment.

Sincerely yours,

Ernest Kosaka

Ernest Kosaka
Project Leader
Office of Environmental Services

cc: EPA, San Francisco
U.S. Coast Guard, Marine Safety Office
NMFS-WPPO
Belt Collins and Assoc. (Perry White)

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

C-2

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2004

Mr. Ernest Kosaka
Project Leader, Office of Environmental Services
U.S. Department of the Interior
Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of October 24, 1985--your reference ES, Room 6307--on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu. We appreciate the time you and your staff spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

a. Thank you for forwarding your copy of the DEIS to the Fourteenth Coast Guard District for its use and comment. Although we have not yet received any comments, we agree that the Coast Guard's input would be valuable. Should comments be received after the Final EIS has been published, they will be forwarded to the developer of the Hawaii Technology Park.

b. Oceanic Properties shares the Service's concerns regarding off-site transport of hazardous substances through the on-site storm drainage system, and the utmost care is being taken to insure that this does not occur. For the reasons outlined below, off-site transport is considered very unlikely. First, the Hawaii Technology Park will not be marketed toward users of large quantities of chemicals, such as wafer and silicon "chip" manufacturers. Second, the Hazardous Waste Storage and Handling Guidelines imposed by the developer, which will govern the activities of project occupants, prohibit businesses that require underground storage of large amounts of chemicals from locating in the park. Third, firms generating substantial volumes of hazardous materials would probably not find it economically feasible to establish operations in Hawaii, which has no approved disposal site for hazardous wastes. Fourth, those wishing to discharge wastewater into the sanitary sewer system must obtain an Industrial Wastewater Discharge Permit (see Page 4-62 of the DEIS) and remove hazardous wastes through approved pretreatment measures prior to discharge. Finally, in addition to complying with the Hawaii Technology Park's own stringent requirements, tenants must meet all governmental requirements on the local, state and federal levels in order to obtain a building permit.

Sincerely,

Perry J. White

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.

Honolulu: 680 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521 5361, Telex BH LTD 7438474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923, Telephone 235 6871, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1188

RECEIVED
NOV 4 1985
BELT, COLLINS & ASSOCIATES

Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

October 31, 1985

Mr. John P. Whalen, Director
City & County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement for "Hawaii Technology Park, Mililani, Oahu, Hawaii"

We have reviewed the subject draft Environmental Impact Statement and offer the following comments:

1. The location of the proposed Technology Park and the nature of the activities and materials that may be present there pose a significant potential threat to underlying potable ground water. Detection of pesticides and industrial solvents in ground water beneath central Oahu in the past several years has shown that such contaminants can reach the deep water table, if they are mishandled or applied on the land surface. In the central Oahu area, there is no geologic horizon to prevent downward migration of contaminants. Thus, the potential for ground-water contamination at the proposed Technology Park is far greater than in the coastal plain areas, where the occurrence of "caprock" serves to limit the potential to contaminate potable ground water. Campbell Industrial Park on the Ewa plain is a good example of such a locality.

2. In view of the potential for ground-water contamination that accompanies the proposed Technology Park, we find the proposed "Hazardous Materials Storage and Handling Guidelines" (Appendix B) to be encouraging and commendable. Strict adherence to such guidelines by every tenant of the Park should minimize contamination problems at the Park. We would point out, however, that an incidence of oversight or mishandling by a tenant of the Park could circumvent the good intentions of the guidelines, if it were not identified and remedied very quickly.

MR. PERRY J. WHITE

Thank you for the opportunity to review and comment on the Draft EIS.

Sincerely,

Dan A. Davis
Acting District Chief

Enclosure

cc: Mr. Perry J. White, Belt Collins and Associates, Honolulu

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2016

Mr. Dan A. Davis, Acting District Chief
U.S. Department of the Interior
Geological Survey
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

Dear Mr. Davis:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of October 31, 1985 on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu. We appreciate the time you and your staff spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

1. Your concern that there is no geologic stratum to prevent deep percolation of contaminants is well taken. However, Oceanic Properties has taken measures to assure that activities at the Hawaii Technology Park will not be a serious threat to the quality of the groundwater beneath the site. The most important of these are its Hazardous Materials Storage and Handling Guidelines, which prohibit operations that would handle substantial quantities of hazardous materials from locating in the park. In addition, the Guidelines impose stringent monitoring requirements and controls on businesses using hazardous materials, including secondary containment and a ban on underground storage. Finally, compliance with governmental regulations will further minimize the potential for groundwater contamination.

2. Handling of potentially hazardous materials is subject to many developer, County, State, and Federal controls. Even if an accident should occur despite all the precautions that are being taken, the provisions for secondary containment and the limited allowable on-site storage will reduce its size and greatly limit the risk to the aquifer.

Sincerely,

Perry L. White

ALM:PJW

cc: Oceanic Properties, Inc.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

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OCT 18 1985
BELT, COLLINS & ASSOCIATES

9510
Ser 002B/1940
17 OCT 1985

Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

DRAFT ENVIRONMENTAL IMPACT STATEMENT
DEVELOPMENT PLAN FOR THE HAWAII TECHNOLOGY PARK

The Draft EIS for the Development Plan for Hawaii Technology Park has been reviewed and we have no comments to offer. Since we have no further use for the EIS, the EIS is being returned to the Office of Environmental Quality Control, by copy of this letter.

Thank you for the opportunity to review the Draft EIS.

Sincerely,

Henry J. Rinnert

Enclosure

Copy to:
Mr. John P. Whalen, Director
City & County of Honolulu
Dept. of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Mr. Perry J. White
Belt Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Office of Environmental Quality Control

C-5

BELT, COLLINS & ASSOCIATES
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November 19, 1985
85-2002

Captain Henry J. Rinnert
Facilities Engineer
Department of the Navy
Headquarters, Naval Base Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860

Dear Captain Rinnert:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 17, 1985 letter (No. 9510, Ser 002B/1940 in your reference system) to Ms. Letitia N. Uyehara, Director of the Office of Environmental Quality Control, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While you had no comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

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(P)1713.5

OCT 2? 1985

Mr. John P. Whalen, Director
Dept. of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for the Hawaii Technology Park

We have reviewed the subject document and have no comments to offer.

Very truly yours,

T. Tominaga
TEUANE TOMINAGA
State Public Works Engineer

SM:jk
cc: Mr. Perry J. White

C-6

November 19, 1985
85-2005

Mr. Teuane Tominaga
State Public Works Engineer
State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tominaga:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 22, 1985 letter (No. [P]1713.5 in your reference system) to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your agency had no comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White
Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex. BELTHI 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

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State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

HIENG

NOV 0 6 1985

Mr. John P. Whalen, Director
City and County of Honolulu
Dept of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft EIS for the Hawaii Technology Park

This is in response to the OEQC letter of October 8, 1985 regarding the above subject project.

Enclosed for your information is a copy of our letter to EDP Hawaii, Inc. regarding this project.

Yours truly,

Jerry M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

Enclosure

cc: √Belt Collins & Assoc.

C-7

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2006

Major Jerry M. Matsuda
State of Hawaii
Department of Defense
Office of the Adjutant General
Honolulu, Hawaii 96813

Dear Major Matsuda:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your November 6, 1985 letter (HIENG in your reference system) to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. We appreciate the time you and your staff spent reviewing the document and thank you for bringing to our attention your letter to EDP Hawaii, Inc. regarding the Hawaii Technology Park project.

Sincerely,

Perry J. White

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
KAMAMANU BUILDING, 250 SOUTH KING ST, HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359 HONOLULU, HAWAII 96804 • TELE. 548-3250 HDPED

GEORGE R. ARIYOSHI
GOVERNOR
KENT M. KEITH
DIRECTOR
MURRAY E. TOWILL
DEPUTY DIRECTOR
LINDA KAPUNAI ROSEHILL
DEPUTY DIRECTOR

DIVISIONS
BUSINESS AND INDUSTRY DEVELOPMENT DIVISION
ENERGY DIVISION
FOREIGN-TRADE ZONE DIVISION
LAND USE DIVISION
PLANNING DIVISION
RESEARCH AND ECONOMIC ANALYSIS DIVISION

OFFICES
DIRECTOR'S OFFICE
ADMINISTRATIVE SERVICES OFFICE
INFORMATION OFFICE

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BELT, COLLINS & ASSOCIATES

Ref. No. P-2937

October 31, 1985

The Honorable John P. Whalen
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

C-8

Subject: Draft EIS for the Hawaii Technology Park, Mililani, Oahu

We have reviewed the subject draft environmental impact statement (DEIS) and have no comments.

Thank you for the opportunity to review the subject document.

Very truly yours,

Kent M. Keith

cc: Mr. Perry J. White,
Belt, Collins and Associates
Office of Environmental Quality Control

BCA
BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2007

Mr. Kent M. Keith, Director
State of Hawaii
Department of Planning
and Economic Development
P.O. Box 2359
Honolulu, Hawaii 96813

Dear Mr. Keith:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 31, 1985 letter (No. P-2937 in your reference system) to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your agency had no comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

GEORGE R. ARIYOSHI
GOVERNOR

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FRANKLIN Y. K. SUNN
DIRECTOR
RICHARD K. PAOLINAWAN
DEPUTY DIRECTOR
ALFRED K. SUGA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING

October 28, 1985

Mr. John P. Whalen, Director
City & County of Honolulu
Department of Land Utilization
650 So. King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft Environmental Impact Statement for the Hawaii Technology Park

The Hawaii Housing Authority has reviewed subject EIS and has no comment to offer relative to the proposed action at this time.

Thank you for allowing us to comment on this matter.

Sincerely,

Franklin Y. K. Sunn
Director

√cc: Mr. Perry J. White

C-9

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2008

Mr. Franklin Y. K. Sunn, Director
State of Hawaii
Department of Social Services and Housing
1390 Miller Street
Honolulu, Hawaii 96813

Dear Mr. Sunn:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 28, 1985 letter to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your agency had no comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

GEORGE R. ARIYOSHI
GOVERNOR

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WAYNE J. YAMASAKI
DIRECTOR

DEPUTY DIRECTORS
NATHAN K. SHIMADA, Ph.D.
WALTER T.M. HO
CHERYL D. SOON
ADAM D. VINCENT

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

IN REPLY REFER TO:
STP 8.10927

November 4, 1985

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Traffic Impact Study Reports and Draft EIS
Hawaii High Technology Park
Mililani, Hawaii

After reviewing the subject reports that accompanied your letter of September 10, 1985, the following comments are offered:

1. During the early stages of the developer's plans, the highway improvements which the developer will implement should be submitted to the Department of Transportation, Highways Division for review and approval. Contrary to the TIAR, the installation of traffic signals must also conform with our design standards and requirements.

2. The TIAR should also indicate that the developer will fund all improvements relative to his proposed highway accesses including the improvements to be implemented beyond Phase I. This includes the widening of the freeway to six lanes discussed on Page 12 of the TIAR.

Our comments on the draft EIS are as follows:

1. We have met with the developer's representative on several occasions, and consequently, through their coordination efforts, the majority of our concerns have been satisfactorily addressed.

2. One of our primary concerns has <u>not</u> been addressed and should be resolved prior to approval of the project Final EIS. The capacity of the on- and off-ramps for Route H-2 will be restricted by its' single-lane connection. As indicated in the DEIS, additional

capacity will be needed, and hence the portion of Route H-2 southerly of Leilehua Interchange should be widened to six lanes (please refer to page 4-25). As clearly stated in our letter of August 23, 1985, the funding of this improvement should be the responsibility of the developer. In addition, the construction timetable for the additional laneage should be indicated in the EIS and be based on the anticipated traffic growth and the facility's corresponding level of service.

3. All proposed improvements located within the State highway right-of-way shall be reviewed and approved by State Department of Transportation, Highways Division, during early development stages.

Please contact us if you have any questions.

Very truly yours,

Jonathan K. Shimada
for Wayne J. Yamasaki
Director of Transportation

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2009

Mr. Wayne J. Yamasaki, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yamasaki:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 4, 1985--your reference STP 8.10927--on the Draft Environmental Impact Statement (DEIS) for the above project. We appreciate the time you and your staff spent reviewing the document. Parsons Brinckerhoff Quade and Douglas, Inc., the developer's traffic consultant, has prepared the following responses to your comments.

Traffic Impact Assessment Report (TIAR)

1. Plans for highway improvements within or out of the existing highway right-of-way will be coordinated with the Department of Transportation (DOT), Highways Division, during design. The installation of traffic signals will conform to DOT's design standards and other requirements. All plans will be submitted to the Highways Division for review and approval.

2. As stipulated in the Decision and Order issued by the State Land Use Commission, Oceanic Properties will fund all improvements of highway accesses when warranted by traffic conditions. Oceanic Properties does not intend to provide additional through-lanes on the H-2 Freeway south of the Leilehua Interchange.

Draft EIS

1. No response required.

2. The DEIS indicates that the ramps can accommodate traffic from Phase 1 of the Hawaii Technology Park. The additional capacity provided by widening H-2 on- and off-ramps would only be needed to accommodate traffic demands predicted for ultimate development of the project.

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Singapore 140 Orchard Road, #12-01, International Building, Singapore 0923, Telephone 235 6870, Telex RS 50404 PCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1388

The DEIS also states that the employment densities assumed in the traffic analyses will, in all probability, not be achieved. In this case, traffic demands will be lower than predicted. The identification of the need for widening H-2 to facilitate on- and off-ramps and the timetable for this improvement should therefore be evaluated when Oceanic Properties applies for rezoning of the Phase 2 area. At that time, employment densities and traffic generation rates can be reassessed using actual data from Phase 1.

3. Proposed improvements located within the State's highway right-of-way will be coordinated with the State DOT, Highways Division, throughout all stages of development.

Sincerely,

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.
Parsons Brinckerhoff Quade and Douglas, Inc.

GEORGE R. ARIYOSHI
GOVERNOR

RECEIVED
NOV 7 1985
BELT, COLLINS & ASSOCIATES

LETITIA N. UYEHARA
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
500 HALEKAUWILA STREET
ROOM 301
HONOLULU, HAWAII 96813

November 5, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

C-12

Dear Mr. Whalen:

Subject: Draft EIS for the Hawaii Technology Park, Mililani, Oahu

The opportunity to review and comment on the subject draft EIS is appreciated.

We submit the following concerns:

Hazardous Waste

Page 2-4 could be improved by being more specific about the types of activities proposed to be included in the industrial park. At a minimum, this should include clarification as to whether "product fabrication and assembly" would include activities such as semiconductor wafer manufacturing, wafer fabrication, and final assembly. These types of activities would be of concern because they utilize hazardous materials, and they could generate substantial quantities of hazardous waste.

Furthermore, the discussion on page 2-26 on hazardous waste should be expanded to include the management of hazardous waste as required in the EPA-administered Resource Conservation and Recovery Act of 1976. At a minimum this discussion would include a complete

description of types and quantities of hazardous wastes that will be generated as defined in 40 CFR Part 261 et. seq., and the facilities that will be constructed and policies instituted in order to properly treat, store, transport, dispose, and recycle hazardous waste as mandated by 40 CFR Parts 260-264.

Water Supply

Paragraph 2 of Section 4.3.2 (page 2-3) states that part of the industrial park will be served with water from the existing Wahiawa water system. This paragraph should be clarified to state whether this proposal is still possible in light of the fact that water from the Wahiawa system had to be diverted to backup the Schofield water system found to be contaminated with excessive levels of tetrachlorethylene.

This paragraph might be further clarified by describing what alternative sources of water would be used in the event that the Wahiawa Baseyard Well, or the proposed new well, were discovered to be contaminated with unacceptable levels of chemical compounds.

Clarification of the above drinking water contamination issues with the appropriate agencies and disclosure in the final EIS are recommended.

We hope that the above comments will assist you and the applicant in finalizing the EIS for this proposed high technology park.

Sincerely,

Letitia N. Uyehara
Director

cc: Belt, Collins & Associates

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2010

Ms. Letitia N. Uyehara, Director
State of Hawaii
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

C-13

Thank you for your comments of November 5, 1985 on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu. We appreciate the time you and your staff spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

Hazardous Waste

The Hawaii Technology Park will not be marketed toward chemically intensive users such as silicon "chip" manufacturers or wafer manufacturers. The Hazardous Materials Handling and Storage Guidelines of the Conditions, Covenants and Restrictions, developed by Oceanic Properties, prohibit underground storage of chemicals and therefore exclude from the park businesses that require large quantities of chemicals. According to Oceanic Properties, the Hawaii Technology Park is designed specifically to appeal to technology-intensive firms with Pacific Basin interests, including manufacturers of software, electronics equipment and components, and other state-of-the-art products, as well as firms engaged in research.
Other targeted industries include biotechnology, ocean engineering and renewable energy. All activities which will locate to the Hawaii Technology Park will be subject to the Guidelines. Section 3.1, Chapter II of the EIS will be revised to reflect the above.

In addition to restrictions imposed by the Guidelines, park tenants will be subject to governmental controls on the Federal, State, and County levels, including requirements of the EPA-administered Resource Conservation and Recovery Act of 1976 as to the management of hazardous waste. At this stage of planning, specific future tenants of the Hawaii Technology Park cannot be identified, although most likely they will be involved in the types of activities listed above. Each tenant will be screened on a case-by-case basis, with full disclosure required of the potentially hazardous materials that will be used in the business, and a full description of its handling, storage, and disposal. Finally, as each occupant applies for a building permit, it will be necessary for it to obtain an Industrial Wastewater Discharge Certificate from the State Department of Health.

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Singapore 360 Orchard Road, #12-06, International Building, Singapore 0912 1, Telephone 235 6870, Telex RS 50464 IK ISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1888

Water Supply

The use of water from the Wahiawa system as a backup to the Schofield water system is only a temporary measure. Thus, the Honolulu Board of Water Supply has indicated that the Wahiawa water system will have the capacity to service the Hawaii Technology Park. The Board and the State Department of Health have moved aggressively to provide treatment facilities needed to remove identified contaminants and to control activities which might further threaten the integrity of the aquifer.

Sincerely,

Perry J. White

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

RECEIVED
NOV 7 1985
BELT, COLLINS & ASSOCIATES

November 5, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR HAWAII TECHNOLOGY PARK, TMK: 9-5-02:11

Thank you for the opportunity to review and comment on the proposed project. We find the portions related to water supply and ground water acceptable. However, the following corrections should be made to Section 4.3.2, Water Supply:

1. We plan to maintain the 12-inch main along Kamehameha Highway as noted in the report.

2. The developer of Melemanu III will be required to install individual pressure reducing devices for high pressure services. We do not allow master pressure reducing valves within our system.

We are presently reviewing the water master plan for the proposed developments.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

for KAZU HAYASHIDA
Manager and Chief Engineer

cc: Belt, Collins & Associates (P. White)

C-14

BELT, COLLINS & ASSOCIATES
Engineers • Planners
Landscape Architects

November 19, 1985
85-2011

Mr. Kazu Hayashida
Manager and Chief Engineer
City and County of Honolulu
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 5, 1985 on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization. We appreciate the time you and your staff spent reviewing the document.

The following changes to Section 4.3.2, Chapter II, will be incorporated into the Final EIS, as requested in your letter:

1. The section will indicate that the Board of Water Supply plans to maintain the existing 12-inch main along Kamehameha Highway.

2. The narrative will indicate that individual pressure reducing devices or other acceptable alternatives for high pressure services will be installed for the Melemanu Woodlands III project.

Sincerely,

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.

Honolulu [illegible] Telephone [illegible]
Singapore [illegible] Telephone [illegible]
Australia [illegible] Telephone [illegible]

RECEIVED
OCT 24 1985
BELT, COLLINS & ASSOCIATES

PB 85-1110

October 21, 1985

MEMO TO: MR. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT EIS FOR HAWAII TECHNOLOGY PARK
MILILANI, OAHU

We have reviewed the draft EIS for the Hawaii Technology Park and have no comments.

Thank you for the opportunity to review the draft EIS.

HERBERT K. MURAOKA
Director and Building Superintendent

TH:jo
cc: J. Harada
P. White, Belt Collins & Associates

C-15

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2012

Mr. Herbert K. Muraoka
Director and Building Superintendent
City and County of Honolulu
Building Department
650 King Street
Honolulu, Hawaii 96813

Dear Mr. Muraoka:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 21, 1985 letter (No. PB 85-1110 in your reference system) to Mr. John P. Whalen, Director of the Department of Land Utilization, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your agency had no comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry L. White

ALM

cc: Oceanic Properties, Inc.

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Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4191

FRANK F. FASI
MAYOR

ALVIN K.H. PANG
DIRECTOR

RECEIVED
NOV 5 1985
BELT, COLLINS & ASSOCIATES

November 4, 1985

MEMORANDUM

TO: John P. Whalen, Director
Department of Land Utilization

FROM: Alvin K. H. Pang

SUBJECT: Draft Environmental Impact Statement
Hawaii Technology Park
Mililani, Oahu

The proposed development to create a new industrial subdivision for the High Technology Park of 256 acres in Mililani, Central Oahu, has been reviewed by this Department. We have no objections to the general concept of accommodating such activities as research and development, manufacturing and assembly, and ancillary warehousing and administrative functions.

We note that the proposed development would employ up to 14,000 persons. The increased demand for workers would tend to decrease unemployment, at the same time, the number of different types of job opportunities would also be increased and would affect the availability and affordability of housing in the area. The developer indicates that both production workers, managers and professionals will live in various residential communities on Oahu within 5 to 60 minutes driving time to the proposed development. Thus, we request that the draft notice address the issue of affordability of housing for the proposed employees.

Thank you for the opportunity to comment on the proposed development.

For ALVIN K. H. PANG

cc: Mr. Perry J. White
Belt Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

C-16

BELT, COLLINS & ASSOCIATES
Engineering · Planning
Landscape Architecture

November 19, 1985
85-2013

Mr. Alvin K. H. Pang, Director
City and County of Honolulu
Department of Housing and
Community Development
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Pang:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 4, 1985 on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization. We appreciate the time you and your staff spent reviewing the document.

Chapter IV, Section 11.0 contains a discussion of the effect that the proposed project would have on employment, population, and housing. Your letter focuses on one aspect of those topics, the affordability of housing for persons employed by businesses at the Hawaii Technology Park.

As indicated in the DEIS, the vast majority of employees are already Oahu residents and will require housing regardless of whether or not the Hawaii Technology Park is constructed. By increasing the number of jobs available on Oahu, the Hawaii Technology Park project will increase per capita disposable income and, therefore, make housing more affordable.

In addition to the employees who would be drawn from the existing work force, SRI estimates that there will be some in-migration of workers and their dependents as a result of the project. It forecasts a 1,600 population increase over the 12-year development period as a result of this in-migration. With respect to housing affordability, it should be noted that in-migrants would make the move only if the combination of employment and housing opportunities here is more attractive than the alternatives available elsewhere.

To put the housing situation into proper perspective, it should be noted that new housing construction in Mililani alone during the development period is expected to be from 400 to 500 units per year, or nearly half the total number of units that would be required to accommodate all the Hawaii Technology Park employees that are expected. Moreover, Mililani Town has a wide range of available housing types for sale, ranging from $55,000 to $68,400 for multifamily units to $120,000 to $195,000 for single-family units.

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The "affordability" of housing is in part a function of the supply of available housing and the demand for these residences. By developing the Hawaii Technology Park, Oceanic Properties will be creating new jobs, which will increase to some extent the demand for housing. At the same time, Oceanic Properties will provide a supply of housing sufficient to meet the projected demand. Since no imbalance in supply and demand will occur, the "affordability" of housing is not expected to change as a result of the project.

Sincerely,

Perry J. White

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RECEIVED
OCT 29 1985
BELT, COLLINS & ASSOCIATES

TOM T. NEKOTA
DIRECTOR

October 24, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: TOM T. NEKOTA

SUBJECT: DRAFT EIS FOR THE HAWAII TECHNOLOGY PARK

We have reviewed the draft EIS for the Hawaii Technology Park and have no objections to the proposed project.

We are happy to know that approximately six acres will be set aside for recreational use.

Thank you for the opportunity to review the draft EIS

Tom T. Nekota
TOM T. NEKOTA, Director

TTN:el

cc: Perry White - Belt, Collins & Associates

C-18

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2014

Mr. Tom T. Nekota, Director
City and County of Honolulu
Department of Parks and Recreation
650 King Street
Honolulu, Hawaii 96813

Dear Mr. Nekota:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 24, 1985 letter to Mr. John P. Whalen, Director of the Department of Land Utilization, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. We appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White
Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

NOV 4 1985

BELT, COLLINS & ASSOCIATES

ENV 85-292

October 30, 1985

MEMORANDUM

TO: MR. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: RUSSELL L. SMITH, JR., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: EIS FOR THE HAWAII TECHNOLOGY PARK
MILILANI, OAHU, HAWAII (TMK: 9-5-2: POR. OF 11)

The subject Draft EIS was reviewed and we have the following comments.

1. The right-of-way widths of the primary access and secondary roads are given in Section 4.3.1. What other specific roadway improvements will be provided to meet the City's standards assuming that the roadway network will be dedicated to the City?

2. The Drainage Master Plan for the Park (Section 4.3.5) is being reviewed; however, approval has not been granted yet.

3. Industrial wastes discharging into a publicly owned treatment works (POTWs) (Section 4.3.3.1) are required to be pretreated by the discharges according to applicable categorical pretreatment standards (40 CFR 403, Chapter 11, R.O. Honolulu). In addition, an Industrial Wastewater Discharge Certificate must be obtained from the City and County's Division of Wastewater Management. Disposition of the sludge (residues) of any pretreatment process which is classified hazardous must also be planned.

4. It is premature to assume that "high tech" wastewater (Section 12.2.2) will be "less benign" than domestic sewage. Only after biological treatability studies have been conducted for each category of waste streams, can any positive conclusion be made. Toxic pollutant(s) in the waste streams are able to upset the biological treatment reactors at the Mililani wastewater treatment plant (WWTP).

5. The Mililani WWTP was designed and operated as a secondary treatment plant prior to the 1972 establishment of the National Pollutant Discharge Elimination System (NPDES) permit system as part of Public Law 92-500. The plant effluent was discharged into Kipapa Stream which flows into West Loch, Pearl Harbor, as part of Waikele Stream. West Loch was designated Class AA waters in 1968 and no new direct waste discharge was allowed (no zone of mixing was permitted under Chapter 37-A, PHR).

When the NPDES permit for Mililani WWTP was granted by the State Department of Health (DOH), the permit writer interpreted that the effluent discharged into Kipapa Stream had the same impact as a direct discharge into West Loch, Pearl Harbor. The diversion of the effluent from entering West Loch became a DOH policy and the NPDES permit was used as a vehicle to carry out that policy. The Schofield plant which still discharges into Waikele Stream was not affected by the DOH policy because it was not under the DOH jurisdiction at that time. To meet the stringent DOH permit requirements, advanced treatment technology was necessary with no corresponding environmental benefits, i.e., "not cost-effective" since water quality in West Loch was and is sub-marginal.

The recommended alternative to the Kipapa Stream discharge was the reclamation of the effluent for reuse in sugar cane irrigation by the plantation. Over five (5) years of in-situ experimental studies were conducted involving conventional ditch irrigation, drip irrigation, and post-treatment technology. After a prolong delay, the plantation decided not to accept the Mililani effluent for adjacent cane fields which were being converted from ditch irrigation to drip irrigation because of potential operational problems and increased cost.

A sub-alternative was then developed and accepted by the plantation which would divert the Mililani effluent to field 215 above Waipahu for ditch irrigation. During the period when the effluent was not needed, e.g., during rainfall, the effluent was sent to the Waipahu sewage pump station for transmission to the Honouliuli WWTP.

We understand that assurance cannot be given for the potential contamination of groundwater from the Hawaii Technology Park waste streams after treatment at Mililani WWTP and application of the effluent for cane irrigation. However, it is premature to assume that "adjustment" can be made in the operation mode if the treatment works to remove potential hazardous pollutants. Depending on the physical and chemical characteristics of the pollutant(s), additional capital improvement may become necessary.

6. The City and County anticipates that a waiver from secondary treatment requirements under Section 301(h) of the Clean Water Act of 1977 will be granted by EPA in 1986. Under Section 2.0, "Unresolved Issue," of the EIS, it is suggested that the irrigation reuse option be halted and the hazardous pollutants be discharged through the deep Barbers Point ocean outfall. This suggestion, if it results in high toxic concentration in the Honouliuli effluent, could jeopardize the conditions of the waiver.

For RUSSELL L. SMITH, JR.
Director and Chief Engineer

cc: Belt Collins and Associates

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2015

Mr. Russell L. Smith, Jr.
Director and Chief Engineer
City and County of Honolulu
Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Smith:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of October 30, 1985--your reference ENV 85-292--on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization. We appreciate the time you and your staff spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

1. It is the developer's intention that all interior roadways be built to satisfy City and County requirements for dedication.

2. No response required.

3. All industrial users who expect to discharge industrial effluent will be responsible for obtaining an Industrial Wastewater Discharge Certificate. Tenants using potentially hazardous materials will be responsible for pretreating the industrial waste resulting from their operations before discharging the waste into publicly owned treatment works, in accord with the standards you note. Residues from pretreatment processes will also be stored and disposed of in accordance with applicable governmental regulations.

4. Page 4-61, Section 12.2.2 of the DEIS states:

"If the proposed Hawaii Technology Park is connected to the [Mililani] system, the potential would exist for new, and possibly less benign, types of waste to enter the system...it is considered extremely unlikely that this potential would be realized." (Emphasis added.)

We did not mean to imply that "high tech" wastewater would be more harmful than domestic sewage. On the contrary, given existing governmental controls and the restrictions imposed by Oceanic Properties through its own Hazardous Materials Storage and Handling Guidelines, we believe it highly unlikely that this will be the case. The pretreatment of industrial wastes will involve several levels of regulation and control to ensure safe handling and discharge. The Final EIS will be revised to clarify this point.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

5. Thank you for your cogent summary of the circumstances surrounding the NPDES permit under which the Mililani Wastewater Treatment Plant is operated. The discussion of potential impacts presented in Section 12.2.4 of the DEIS did not mean to imply that "adjustments in the operation of the treatment facilities" was the answer to all potential problems. By far the most important safeguard lies in the careful screening of park occupants and their activities, in monitoring their hazardous materials management practices, and in preventing the discharge of hazardous substances into the municipal sewer system via pretreatment and other means. We understand that removal of industrial pollutants at the Mililani Wastewater Treatment Plant, whether by adjusting the operation of the existing facilities or through the addition of new treatment works, would be undertaken only to the extent necessitated by failure of the first lines of defense.

6. Your comments regarding effluent disposal through the Honouliuli Wastewater Treatment Plant/Barbers Point ocean outfall are well taken. By far the best means of avoiding potential problems and complying with environmental quality standards is to eliminate potential pollutants at their source, and it is expected that the efforts Oceanic Properties, Inc. is making in this direction will be successful. Should higher than expected levels of pollutants be detected at the Mililani Wastewater Treatment Plant, it is expected that irrigation reuse would be halted and all the effluent diverted to Honouliuli until the source of the pollutant can be identified and eliminated. Such diversions would endure for only short periods of time, and it is believed that disposal into the ocean (where dispersion of the pollutants would be rapid and the effects ephemeral) is preferable to continued land application and possible contamination of the aquifer, which would take far longer to cleanse itself.

Sincerely,

Perry J. White

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

JOHN E. HIRTEN
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

RECEIVED
NOV 6 1985
BELT, COLLINS & ASSOCIATES

TE-4775
PL1.0119

November 4, 1985

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: JOHN E. HIRTEN, DIRECTOR

SUBJECT: HAWAII TECHNOLOGY PARK
DRAFT ENVIRONMENTAL IMPACT STUDY
TMK: 9-5-2: POR. 11

This is in response to OEQC's letter dated October 8, 1985. We have reviewed the draft EIS for the subject project and offer the following comments:

1. The intersection of Wikao Street and the main access road into the project site should remain under the jurisdiction of the State Department of Transportation to provide full control of all major intersections leading into the park;

2. Separate left turn bays should be provided in the median on the main access road at its intersection with Wikao Street if adequate right-of-way is available;

3. The methodology used in determining the LOS should be clearly referenced and stated.

4. The design of the internal roadway system must conform to City and County standards.

If you have any questions, please contact Kenneth Hirata of my staff at 523-4635.

NOV 04 '85
JOHN E. HIRTEN

✓cc: Mr. Perry J. White
Belt, Collins & Associates

C-22

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2017

Mr. John E. Hirten, Director
City and County of Honolulu
Department of Transportation Services
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Hirten:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 4, 1985--your reference TE-4775, PL1.0119--on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization. We appreciate the time you and your staff spent reviewing the document. Parsons Brinckerhoff Quade and Douglas, Inc., the developer's traffic consultant, and EDP Hawaii, Inc., the developer's engineering consultant, have prepared the following responses to your comments.

1. The developer concurs with your comment. EDP Hawaii has written to the State Department of Transportation requesting that the State of Hawaii assume full responsibility for the intersections of Wikao Street and the main access road with Golf Course Road. The latter connects the H-2 Freeway and Kamehameha Highway with the Hawaii Technology Park.

2. During the design process, Oceanic Properties and its consultants will work with your department on the issue of left turns at the intersection of the main access road and Wikao Street.

3. The levels of service were estimated by Parsons Brinkerhoff Quade & Douglas in their 1985 traffic study using procedures outlined in the following reports:

(a) Highway Capacity Manual (1965) - freeways, ramps, and other divided highways
(b) Circular 212 - signalized intersections
(c) Circular 281 - unsignalized intersections

These reports by the Transportation Research Board are referenced in the DEIS, page 8-4. Table IV-6 in the Final EIS will be revised to state the methodology used.

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN
Australia: Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908-1388

4. The alignment and grades of the internal roadway system will be designed to City and County standards; EDP Hawaii is working with your staff on acceptable modifications to the pavement widths for portions of the roadways. All interior roadways will be built to satisfy City and County requirements for dedication to the City.

Sincerely,

Perry J. White

Perry J. White

ALM:PJW

cc: Oceanic Properties, Inc.
EDP Hawaii, Inc.
Parsons Brinckerhoff Quade and Douglas, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

RECEIVED
NOV 8 1985
BELT, COLLINS & ASSOCIATES

FRANK K. KAHOOHANOHANO
FIRE CHIEF

November 5, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: FRANK K. KAHOOHANOHANO, FIRE CHIEF

SUBJECT: REQUEST FOR ZONE CHANGE - CENTRAL OAHU
MILILANI HAWAII TECHNOLOGY PARK
TAX MAP KEY: 9-5-02: POR. 11

We have reviewed the draft EIS for the Hawaii Technology Park and note that comments submitted to Belt Collins and Associates by the Fire Department have been incorporated in the draft by reproduction of our reply dated June 17, 1985 (page A-56).

The Fire Department has no objection to the proposed Hawaii Technology Park.

Should you have any questions, please contact Battalion Chief Kenneth Word at 943-3838.

FRANK K. KAHOOHANOHANO
Fire Chief

FKK:KAW/lm

cc: Mr. Perry J. White,
Belt Collins and Associates

C-24

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2018

Mr. Frank K. Kahoohanohano
Fire Chief
City and County of Honolulu
Fire Department
1455 S. Beretania Street
Room 305
Honolulu, Hawaii 96814

Dear Chief Kahoohanohano:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your November 5, 1985 letter to Mr. John P. Whalen, Director of the Department of Land Utilization, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. While your department had no further comments, we appreciate the time you and your staff spent reviewing the document.

Sincerely,

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12 06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - AREA CODE (808) 841-1111

FRANK F. FASI
MAYOR

OUR REFERENCE EC-JS

RECEIVED
OCT 28 1985
BELT, COLLINS & ASSOCIATES

DOUGLAS G. GIBB
CHIEF

WARREN FERREIRA
DEPUTY CHIEF

October 23, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DOUGLAS G. GIBB, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: (1) Draft EIS for the Hawaii Technology Park
(2) Request for Zone Change - Central Oahu
Mililani Hawaii Technology Park
Tax Map Key: 9-5-02: Por. 11 (85/Z-20 (BN)

The Honolulu Police Department has no objection to the proposed zoning change to accommodate the Hawaii Technology Park.

As with any new development in the Central Oahu area, we are concerned over the potential traffic safety problems that could result from the greatly increased traffic in the area. It is imperative that the phased program of roadway improvements described in the draft should proceed on a timely basis.

We are encouraged by the fact that the proposed technology park will operate with shifts of workers and that a large number of the employees can be expected to be drawn from residential areas in close proximity to the park, thus reducing some of the traffic pressures on the "downstream" H-1.

Consideration for traffic safety, and incorporation of anti-crime measures during planning and construction, as recommended in our input to the EIS preparation notice, will hopefully minimize the demand for police services in the proposed park.

Thank you for permitting us to comment on this draft EIS and zoning change.

DOUGLAS G. GIBB
Chief of Police

By Warren Ferreira
WARREN FERREIRA
Deputy Chief of Police

cc: Mr. Perry J. White
Belt, Collins & Associates

C-25

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2019

Mr. Warren Ferreira
Deputy Chief of Police
City and County of Honolulu
Police Department
1455 Beretania Street
Honolulu, Hawaii 96814

Dear Mr. Ferreira:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your October 23, 1985 letter (EC-JS in your reference system) to Mr. John P. Whalen, Director of the Department of Land Utilization, acknowledging receipt of the Draft Environmental Impact Statement for the proposed project. We appreciate the time you and your staff spent reviewing the document and the resulting comments.

Sincerely,

Perry J. White

ALM

cc: Oceanic Properties, Inc.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTHI 7430474
Singapore 160 Orchard Road, #12-06, International Building, Singapore 0917, Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089, Telephone 908 1388

RECEIVED
NOV 6 1985
BELT, COLLINS & ASSOCIATES

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

1 November 1985

Mr. John P. Whalen, Director
City & County of Honolulu
Department of Land Utilization
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement, Hawaii, Technology Park, Mililani, Oahu, Hawaii, October 1985

We have reviewed the subject DEIS and offer the following comments:

1. P. 4-8, sec. 3.2.2 groundwater. This statement appears to be in error: "...during most rainfall occurrences at this site, capacities of soil moisture retention and subsequent evapotranspiration exceed the amount of rainfall which infiltrates into the soil mantle." This implies that very little if any deep percolation takes place. Recent information indicates that about 20 inches of recharge takes place annually in this area from precipitation (Giambelluca 1983). Therefore, groundwater contamination through percolation is a definite possibility even without retention basins. The contamination of the Mililani Wells with pesticides applied on pineapple fields not very far from the subject site, further attests to the occurrence of deep percolation in this locale. Also, perched water was found in drilling during the Hawaii State Department of Agriculture's pesticide coring studies near the well site.

2. Underground storage of hazardous and toxic liquids and gasses is particularly undesirable because of the inherent difficulty in detecting leakage from them. Precluding such storage is a definite step in the right direction. In line with this, may we suggest inclusion in the "Hazardous Materials Storage and Handling Guidelines" that employees will be availed of the serious potential hazard to the groundwater that mishandling or spillage can cause. This is because in the final analysis, it is their diligence which will impact most directly on the intent and purpose of the guidelines.

Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi

Edwin T. Murabayashi
EIS Coordinator

Reference: Giambelluca, Thomas W., May 1983, Water Balance of the Pearl Harbor - Honolulu Basin, Hawaii, 1946-1975, Technical Report No. 151, Water Resources Research Center, University of Hawaii, Honolulu, Hawaii.

ETM:jm

cc: P. J. White, Belt Collins

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BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2021

Mr. Edwin T. Murabayashi
EIS Coordinator
University of Hawaii at Manoa
Water Resources Research Center
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 1, 1985 on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu. We appreciate the time you and your staff spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

(1) Groundwater

Section 3.2.2 of the DEIS concludes that most of the rainfall falling on the Hawaii Technology Park site will either be returned to the atmosphere by evapotranspiration or become surface runoff. However, it notes that deep percolation of rainwater will occur, particularly in the vicinity of the stormwater detention basin. Hence, we agree with you that potential contamination of groundwater supplies is a real concern. Our differences appear to be limited to the exact amount of percolation which would occur and the significance of this with respect to actual groundwater pollution.

(a) Amount of Percolation. Your letter cites an estimate by Giambelluca (1983) that groundwater recharge in this area due to rainfall amounts to about 20 inches per year. Following receipt of your letter, we examined the published study and the computer output data that is on file; we found that the computed recharge given in the report is actually 40 inches per year (refer to the tabulated summary below). If this were accurate, it would mean that recharge amounts to 75 percent of rainfall; we believe this is unrealistically high. In view of this and other factors outlined below, we question the accuracy of the Giambelluca model with respect to the Hawaii Technology Park site.

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Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1188

Hydrologic Results for Wb-Zone 186 in Giambelluca, 1983
(All Values in Inches Per Year)

Parameter	30-Yr Average 1946-1975	Dry Year 1973	Wet Year 1951
Rainfall	54.0	40.9	74.1
Runoff	3.3	1.0	6.5
Actual Evapotranspiration	10.5	10.5	10.5
Recharge	40.2	29.4	57.1
Evapotransporation Deficit	0.0	0.0	0.0

Giambelluca's (1983) estimate of runoff from the project site was computed using the SCS Curve Number Method with a CN value of 59 (Table 17, page 58, with pineapple cultivation as the land use). The resulting average annual runoff of just 3.3 inches is very low; we believe it is inconsistent with the fact that a substantial proportion of the annual rainfall typically occurs during severe storms that produce considerable runoff. Further, the evapotranspiration rate, set at 10.5 inches per year for every year in the 30-year period, amounts to just 14 percent of the pan evaporation rate measured at nearby Station 820.2; this also appears to be unreasonably low. Finally, it should be noted that the Giambelluca study is for existing conditions; both the runoff and evapotranspiration rates would be increased substantially by the proposed development, leading to lower deep percolation. In short, while we agree with Giambelluca that there will be some deep percolation on the Hawaii Technology Park site, in all probability it is considerably lower than his report suggests.

(b) Potential Contaminants. The potential for groundwater pollution is minimized at the outset due to stringent monitoring and controls imposed by the developer on businesses using hazardous materials at the Hawaii Technology Park. These controls include the prohibition of underground storage of chemicals (which effectively precludes users of large quantities of chemicals from locating to the park) and requirements for secondary containment. Controls imposed by various governmental agencies will further minimize the potential for groundwater contamination.

The same factors that minimize the potential for groundwater pollution also serve to protect against contamination of surface runoff. In addition, stormwater discharges now require National Pollution Discharge Elimination System permits. Hence, occupants of the park must demonstrate that proposed drainage systems will provide adequate protection before building permits will be issued.

(2) Underground Storage

As stated above, underground storage of hazardous materials will not be allowed at the Hawaii Technology Park, above-ground containment will require secondary containment, and the materials will be subject to stringent monitoring and controls imposed by the developer in

the Hazardous Materials Storage and Handling Guidelines. We agree that the diligence of employees will, in the final analysis, have an important direct impact on the effectiveness of the controls. Occupants of the park will be apprised of the potential dangers associated with handling hazardous materials and of the steps needed to minimize the potential for polluting underground water resources. Employees handling hazardous materials will be informed of appropriate emergency procedures, including notification of a designated emergency response manager. For further details, see Part VI, Emergencies, of the Hazardous Materials Storage and Handling Guidelines in Appendix B of the DEIS.

Sincerely,

Perry J. White

PJW:ALM

cc: Oceanic Properties, Inc.

HEI

Brenner Munger, Ph.D., P.E.
Manager
Environmental Department
(808) 548-6880

November 7, 1985

ENV 2-1
HV/G
RECEIVED
NOV 12 1985
BELT, COLLINS & ASSOCIATES

Mr. John P. Whalen, Director
City & County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft Environmental Impact Statement - Hawaii Technology Park, Mililani

We have reviewed the above subject statement and offer the following comments:

1. The developer must coordinate closely with HECO to ensure that the integrity and reliability of the system is maintained.

2. If any of the lines need to be relocated, the developer shall obtain the necessary new easements and file the required EIS.

   The two existing 46 kv circuits are commonly called the "A" and "B" lines. The "A" line lies closer to Kamehameha Highway; the "B" line is further east (mauka). Both lines are covered by perpetual easements. The "A" line has a relocation clause which states in substance that we must pay for any line relocations but the property owner (Castle & Cooke) must give us a satisfactory substitute easement at no charge. The "B" line has no relocation clause. Any relocations and new easement will be funded by Castle & Cooke or its developer.

3. If any relocation, line or pole, is required, the developer will coordinate all work necessary for a timely relocation.

4. Reference paragraph 4.3.4.1. Electrical Power - The two 46 kv transmission lines indicated are actually subtransmission lines. The lines do cross the project site along with a 12 kv distribution line. The existing 12 kv line may be able to serve the initial needs for construction but this will depend upon the line loading at that time. Based on the load presented in the study, the Hawaiian Electric Company will ask for a substation site with an ultimate capacity of four 10 MVA substation transformers. Initially, the industrial park can be served by one 10 MVA substation transformer and a single 46 kv circuit from either the "A" or "B" lines. Additional transformers will be needed as the load increases. A second 46 kv circuit from the other line will be needed in the future to provide additional protection as the load increases.

Sincerely,

Brenner Munger

JMP/gs

cc: Perry J. White
Belt Collins and Associates

BELT, COLLINS & ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2024

Mr. Brenner Munger
Manager, Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. Munger:

Environmental Impact Statement (EIS) for the Proposed "Hawaii Technology Park", Hililani, Oahu

Thanks for your November 7, 1985 letter to Mr. John P. Whalen, Director of the City & County of Honolulu Department of Land Utilization, concerning the Draft Environmental Impact Statement (DEIS) for the above-referenced project. We appreciate the time you and other members of Hawaiian Electric's staff spent reviewing the document. The numbering on the following responses corresponds to the numbering used in your letter.

(1) Coordination

The electrical engineer for the project will closely coordinate its plans with HECO to insure that the on-site facilities are compatible with the existing power grid.

(2) Easements and Environmental Documentation

At the present time, it is not expected that relocation of the existing power lines will be necessary. If detailed engineering studies suggest that relocation is advisable, Oceanic Properties will assume responsibility for the relocation costs and for preparation of the necessary environmental documents. Castle & Cooke is prepared to provide the necessary easements across its property.

(3) Line and Pole Relocation

Oceanic Properties will coordinate all work necessary for relocation in a timely fashion.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLH 7430474
Singapore 360 Orchard Road, #12 06, International Building, Singapore 0923 Telephone 235 6870, Telex RS 50464 BCISIN
Australia Level 2, First Floor, 19 Grosvenor Street, Neutral Bay, Sydney, NSW 2089 Telephone 908 1388

(4) Reference Paragraph 4.3.4.1 Electrical Power

We understand that the ability of the existing 12 KV distribution line to serve the initial needs of the project is subject to line loading from other sources at the time construction is begun. The developer's electrical engineer will be meeting HEI Systems people within the next few weeks to determine the true loading calculations and capacities as they relate to the number of 10 MVA transformers that will be required at the Hawaii Technology Park substation.

Thank you again for your comments. If you would like any further clarification, please call either myself or Anne Mapes at 521-5361.

Sincerely,

Perry J. White

Perry J. White

PJW:gk

cc: Oceanic Properties, Inc.

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

RECEIVED
NOV 8 1985
BELT, COLLINS & ASSOCIATES

November 7, 1985

RE:0426

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft Environmental Impact Statement
Hawaii Technology Park
Hililani, Oahu

The draft environmental impact statement addresses the potential environmental impact related to the development of the Hawaii Technology Park at Hililani, Oahu. This would be a new industrial subdivision aimed specifically at firms involved in advanced technology areas such as electronics, instruments, telecommunications, bio-technology and renewable energy sectors. The developer has asked that approximately 120 acres of land adjacent to Waikukalaua Gulch in Central Oahu be rezoned from agriculture (AG-1) to industrial (I-1).

The Environmental Center review has been prepared with the assistance of Paul Ekern, Agronomy and Soils; Theodore Norton, Pacific Biomedical Research Center; Roy Takekawa, Environmental Health and Safety Office; and Walington Yee, Environmental Center.

Water supply (pp. 2-23 to 2-24)

The discussion of the proposed water supply for this project states that a balance of 8.3 MGD is available from the Koolau subzone of the Pearl Harbor groundwater control area and that a portion of this water could be used in the Hawaii Technology Park. Two concerns have come to our attention:

1. It should be recognized that industrial pollutants generated by this technology park are likely to contaminate the sewage effluent so that its reuse for irrigation will not be possible. Hence, water demand for Oahu sugar will increase.

2. The nearby contamination of wells in Hililani with DBCP and 1,2,3-Trichloropropane strongly suggests that consideration be given to implementing charcoal treatment to well water supplies for this project.

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(Note in particular the concerns cited during the consultation period by the Water Resources Research Center and the Department of Health.)

Hazardous waste (pp. 2-25 to 2-26)

Recent reports, such as the enclosed article from the Sierra, Nov-Dec 1984, on groundwater contamination by "high technology" industries who use degreasing solvents such as perchloroethylene ($CC\ell_2 = CC\ell_2$), trichloroethylene ($CHC\ell = CC\ell_2$) and more recently, 1,1,1-trichloroethane ($CH_3 - CC\ell_3$), coupled with reports on leaking storage tanks, transmission lines, pumps, etc., call attention to the magnitude of the potential problem. The Department of Health has already found "perchloroethylene" and TCE in certain well waters in Hawaii. Specific operational plans and emergency contingency plans dealing with the use and waste disposal requirements for these and related hazardous chemicals need to be addressed in detail in the final EIS. The record of groundwater contamination and waste disposal problems at similar high tech parks should be fully examined and presented in the final EIS. Appropriate mitigative measures and risk assessment analyses can then objectively address the potential hazards.

Without an approved hazardous waste disposal site in Hawaii and the high cost of shipping such materials to the mainland, hazardous waste would be best avoided, perhaps through explicit information to future occupants.

Storm drainage (p. 2-27 to 2-28)

Hawaii Technology Park is adjacent to the Melemanu Woodlands residential development thus they share similar hydrologic problems. These problems were discussed in our review of the draft EIS for the Melemanu Woodlands Phase III development so we are enclosing a copy of this review for your information. Also, the recent flood and land slip damage to a Kipapa Gulch house stresses the possible danger from even the very moderate rains of the recent storms and problems with the design of the flume from Hililani into Kipapa Gulch have called attention to the extreme difficulty in transferring water across the gulch slope to a safe bottom discharge.

Caution should be stressed when designing and constructing the earth fill dam for the proposed 3.4 million cubic foot detention basin due to the difficulties encountered under Hawaiian conditions. The latest dam, Ho'omaluhia, is as yet untested under major flood rain. We note that the proposed detention basin is to be constructed just above the site set aside for phase III of the Melemanu Woodlands residential development. In case of dam failure, will the overflow channel from this basin be sufficient to safely convey the waters to the gulch without jeopardizing the residential structures below?

Effect on productive agricultural use

Relocation of pineapple cultivation (p. 4-4)

The lands to be occupied by the Hawaii Technology Park have been designated "prime" and "unique" agricultural lands by the Board of Agriculture. Both of these designations reflect the exceptional quality of these lands for agricultural purposes. Sufficient rainfall and excellent soil conditions have permitted pineapple cultivation, without irrigation, over many years. The draft EIS indicates that since EDB has been banned, pineapple production is being shifted to fields that can be drip irrigated so that EPA approved nematocides can be introduced in the irrigation system. According to the draft EIS, the project lands cannot be economically irrigated (the basis for this statement is not provided), and all of Dole's Oahu pineapple production is now aimed at the fresh fruit market, which requires irrigation for maximum fruit quality. Thus, it is concluded that the project lands are not suitable for continued pineapple production and therefore loss of these lands will not be significant to the State of Hawaii.

Recent developments, however, lead us to question the rationale for this conclusion. The announcement that Dole intends to move their pineapple cannery to Hililani is inconsistent with the draft EIS statement that Dole intends to direct all their Oahu production to fresh fruit. In keeping with the widely recognized need to diversify agriculture and thereby broaden our agricultural product economic base, abandonment of prime and unique lands to industrial uses should not be predicated on the suitability of those lands to pineapple or other "single crop" production. The discussion of alternative crop use provided on page 5-1 is perfunctory.

Air quality impacts (p. 4-27)

Will the use of coal be permitted as a fuel source by any of the industries, including the pineapple cannery, in the Hawaii Technology Park?

Waste treatment and disposal (pp. 4-61 to 4-64)

Since there is presently no way of knowing what specific industries will be occupying the park and thus what wastes will be generated and therefore what disposal precautions, if any, will need to be taken, we can only speak in general terms regarding products whose use and disposal should be carefully evaluated.

In planning for hazardous waste management the usual concerns with heavy metals, lead, cadmium, mercury, etc. are readily identified. Substances of concern also include certain exotic chemicals or gases such as phosphene and silane used in various electronic engineering processes. Both these gases are considered hazardous and both are readily soluble in water, hence they may enter the waste water system and eventually the Hililani Sewage Treatment Plant.

The draft EIS references the protection provided by the Federal Resources Conservation and Recovery Act and in particular the manifest "cradle-to-grave" system for tracking hazardous substances. It should be noted, however, that small businesses, those producing less than 100 lbs of hazardous waste per month, are exempt from most Environmental Protection Agency hazardous waste regulations. This includes exemption from the cradle-to-grave manifest procedure also. It should be recognized that 100 lbs. of hazardous waste, per month, per industry can be a significant impact to the environment. The acknowledgement (p. 4-63) that over 100 businesses in Hawaii are engaged in activities involving hazardous waste yet "no data is available regarding the number of 'high technology' firms in Hawaii which require hazardous waste disposal" is not reassuring. There appears to be no mechanism in the state to monitor even the larger produces of hazardous waste, ie. the one-fifth (20+) that produce more than 100 lbs/month, (a California study is cited that found that less than one-fifth of all high technology firms have the need for hazardous waste disposal). This in turn suggests that approximately four-fifths (80) of the 100+ businesses producing hazardous waste could be disposing of up to 100 lbs of waste per month (up to 96,000 lbs/year/80 businesses), exempt from federal regulations.

Furthermore, since "no data is available" for the number of firms disposing of hazardous waste in Hawaii (p. 4-63, para. 5), what is the basis for the statement that "Hawaii firms generate thousands of tons of such [hazardous] waste each year?" While it may be quite true, the statement appears to be unsupported with data.

The volumes of hazardous waste produced and lack of data on the disposal practices for existing businesses calls attention to the need to pursue and implement a statewide monitoring program for hazardous wastes prior to approving any new sources.

In developing guidelines for the management of hazardous waste we urge that you consider the establishment of a central collection point/facility within the park complex. As was pointed out in comments submitted during the consultation phase by the Water Resources Research Center, small businesses, those employing less than 100 people, find it difficult to provide the needed equipment and trained staff to meet regulations. With the establishment of a centralized collecting point and management system, all companies would benefit by lower, shared, hazardous waste management costs. The system would provide a far broader, more comprehensive and informed management team than what could be realistically achieved on an individual basis.

In formulating hazardous waste management guidelines, provision needs to be made for financial bonds or similar guarantees of financial responsibility for hazardous waste removal and clean up operations for businesses which fail or otherwise leave the park.

Appendix B

The guidelines being developed for the storage and handling of hazardous materials provide for a single individual to be responsible for the administration of these guidelines. This person is to be responsible for a selected list of topics (items a-i) requiring extensive technical and professional expertise. We do not believe it reasonable to expect one person to have the breadth of technical competance required to meet the multiple and diverse responsibilities cited. We urge that a team approach be used with established communication links to the University of Hawaii and the Department of Health personnel with expertise in the multiple facets of hazardous waste management.

Conclusion

We have cited a number of significant environmental concerns pertinent to this project. These concerns range from questions regarding the quantity and quality of the water supply, waste disposal needs, soil stability, public safety, and loss of agricultural lands.

The extremely high potential for significant pollution to the ground water supply and hence to public health overshadow the other concerns. The final EIS should clearly indicate the risks involved, the methods to reduce those risks, the risk hazard assessment given the application of the methods and the contingency plans for dealing with those risks should contamination of the Pearl Harbor aquifer occur.

We appreciate the opportunity to comment on this draft EIS and look forward to your response.

Yours truly,

Jacquelin M. Miller

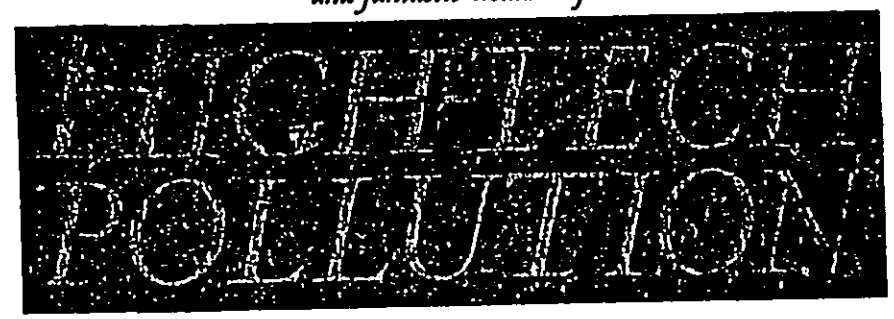
Jacquelin Miller
Acting Associate Specialist

Attachment

cc: OEQC
✓Perry J. White,
Belt Collins and Associates
Patrick Takahashi,
Acting Director, Environmental Center
Paul Ekern
Theodore Norton
Roy Takekawa
Walington Yee

Sierra, Nov-Dec 1984

To residents of smokestack cities, Silicon Valley has it all—a fast-paced economy, an enviable lifestyle, and fantastic weather. Just don't drink the water.



SILICON VALLEY—as the belt of industrial suburbs at the southern edge of San Francisco Bay is widely and aptly known—is the home of America's booming high-technology electronics industry. Governors, mayors, and chambers of commerce throughout the United States see Silicon Valley as a model for reindustrialization, in which clean, light, "sunrise" industries replace heavy, dirty, "smokestack" industries as the cornerstone of American economic prosperity.

It's easy to see why the electronics industry has developed a "clean" image. Its well-landscaped factories resemble modern college libraries. Production takes place in "clean rooms" where the air is filtered and the workers wear surgical gowns. Electronic products don't breathe exhaust or drip oil, and in many applications, such as automobile engine control, microprocessor chips actually lower energy consumption while reducing polluting emissions.

Appearances do not tell the whole story, however. On December 7, 1981, water officials quietly shut down a contaminated drinking well operated by the Great Oaks Water Company just 2,000 feet from an underground storage tank at Fairchild Semiconductor's plant in South San Jose. Officials estimated that 14,000 gallons of 1,1,1-trichloroethane (TCA), a degreasing agent used to clean silicon "chips" and printed-circuit boards, plus 44,000 gallons of toxic waste materials, had been leaking from the tank undetected for a least a year and a half. Fairchild officials explained that the liquid-level indicator on the 6,000-gallon tank had malfunctioned, and had been giving incorrect readings for years.

The public was not informed of the Fairchild contamination until seven weeks later, when an environmental reporter for the San Jose *Mercury News* broke the news to a startled public. When the plant's residential neighbors learned about the presence of TCA in their drinking water, they blamed the area's unusually high concentration of birth defects and liver and kidney problems on that exposure, and more than 200 people filed multimillion-dollar suits against the pioneering high-tech firm.

Industry leaders and government officials were "surprised" by the discovery of leaks. Before 1982 only a handful of activists in Silicon Valley had raised the issue of high-tech pollution, and their warnings had been largely ignored. The 1975 finding by the Environmental Protection Agency that trichloroethylene (TCE), a more toxic relative of TCA, causes liver cancer in laboratory animals raised few eyebrows among industry leaders, government officials, or the mass media. "At that time, there were so many things people didn't know," says Steve Heikkila, an engineer with the San Francisco Bay Regional Water Quality Control Board. "There was no reason then for industry officials to consider the possibility of a leak when they were thinking about siting."

LENNY SIEGEL

Illustrations by John Hersey

ATTACHMENT

University of Hawaii at Manoa

Environmental Center
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August 22, 1985

RE:0420

Mr. John Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft Environmental Impact Statement
Melemanu Woodlands, Phase III
Waipio, Oahu

The above cited DEIS addresses the potential environmental impacts related to the proposed rezoning from AG-1 agricultural district to R-6 residential district for development of Melemanu Woodlands, Phase III, Waipio, Ewa, Oahu. Under this proposal the applicant proposes to rezone and develop 70± acres of land in Central Oahu mauka of H-2 freeway and within Waikakalaua Gulch.

The Environmental Center review of the above cited document has been prepared with the assistance of Paul Ekern, Water Resources Research Center; and Walington Yee, Environmental Center.

Drainage Improvements

The 50-year peak flow discharge of 7000 cfs may be too low an estimate for this site. Calculations using data from the Rainfall Frequency Study for Oahu, DLNR, 1984, and runoff values based on pan evaporation measurements (WRRC Technical Report 156) indicate a value nearer 9000 cfs maximum flow for the 50-year design peak discharge.

Soils

The presence of Kawaihapai soils, with slow permeability and runoff, in this construction phase of the project, rather than solely Helemano soils, with moderately rapid permeability and runoff, as in the earlier construction phases, indicates a different set of geomorphic conditions which along with the alluvial bottom suggests a greater flooding hazard.

Have any studies been undertaken to determine if perched water exists in the adjacent interfluvial areas? The Dole Pineapple Field Well #4111 showed evidence of such waters. We are concerned that perched waters could cause bank instability in the gulch side walls.

Preliminary Drainage Report (Appendix A)

Flood discharges measured at the south fork Kaukonahua Stream (see reference 2 and 3 below) just north of the site, suggest possible runoff relationships to the project site perhaps better than from the crest gage along the Waikakalaua Stream. In this regard, the following references may be of use to you:

1. Water Resources Data Hawaii, Water Year 1981, Volume 1, Hawaii, U.S. Geological Survey Water Data Report HI-81-1, 1982.
2. Floods of March-May 1963 in Hawaii, Walter C. Vaudrey, U.S. Geological Survey, Water Resources Division, July 1963.
3. Meterological Aspects of the Oahu Flood of 19 April 1974, Thomas A. Schroder, Technical Report No. 97, UHMET 76-03, February 1976.

Thank you for the opportunity to provide comments at this DEIS stage.

Yours truly,

Jacquelin N. Miller
Acting Associate Director

cc: OEQC
Gray, Hong & Associates Inc
Patrick Takahashi, Act. Dir., Env. Ctr.
Paul Ekern
Walington Yee

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 19, 1985
85-2020

Ms. Jacqueline Miller
Acting Associate Specialist
University of Hawaii at Manoa
Environmental Center
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Ms. Miller:

Environmental Impact Statement (EIS) for the Proposed
Development of the "Hawaii Technology Park," Mililani, Oahu

Thank you for your comments of November 7, 1985--your reference RE: 0426--on the Draft Environmental Impact Statement (DEIS) for the above project, addressed to Mr. John P. Whalen, Director of the Department of Land Utilization, City and County of Honolulu. We appreciate the time you and others named in your letter spent reviewing the document. Following are our responses to your comments in the order that they appear in your letter.

Water Supply

(1) Contrary to the statement made in your letter, it is unlikely that industrial pollutants from the proposed industrial park would contaminate sewage effluent to the extent that its continued reuse for irrigation becomes impossible. In fact, as indicated in the Draft EIS and reiterated below, such an occurence is considered extremely unlikely.

First, Oceanic Properties does not intend to market sites within the Hawaii Technology Park toward chemically intensive users, but to design, assembly, and marketing-oriented firms. Moreover, the Hazardous Materials Storage and Handling Guidelines of the Conditions, Covenants and Restrictions (CC & R's), which have been developed by Oceanic Properties, expressly bar operations which involve substantial quantities of hazardous materials (those that require underground storage) from locating in the HTP. This is expected to deter most firms with potentially polluting activities from locating there. In addition to this check, Hawaii's high land costs, isolation from potential markets, expensive energy, and numerous other factors make it very unlikely that firms, such as "chip" manufacturers, engaged in the types of activities which have led to environmental problems on the mainland would chose to locate on Oahu.

Finally, firms that want to discharge industrial wastewater into the municipal sewer system (whereby it could reach the Mililani Sewage Treatment Plant and Oahu Sugar Company's fields) must obtain an Industrial Wastewater Discharge Certificate from the City & County Department of Public Works. If necessary, on-site pretreatment of wastewater to an acceptable standard as determined by the Department of Health and the U.S. Environmental Protection Agency (EPA) would be required before discharge into the municipal sewer system.

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The safeguards provided by this system (which, it should be noted, did not exist at the time the industrial pollution found in some mainland areas occurred) are expected to provide an adequate margin of safety for the proposed HTP project. Hence, the likelihood that irrigation reuse would have to be discontinued is extremely small. Even if it were, the volume ofwater is so small (currently about 0.5 MGD) compared to the total irrigation use of the plantation, that there would be little difficulty making up the shortfall from other sources.

(2) The wells referred to will be owned and operated by the Honolulu Board of Water Supply. The Board is in the process of providing treatment facilities for some of its existing Central Oahu wells that have been shown to contain measurable levels of the pollutants mentioned in your letter. This is being done even though (a) the concentrations are below the threshold levels set by the EPA and (b) a recent risk assessment study conducted by the State Department of Health has found no evidence of adverse health effects among persons who drank water from the contaminated wells.

Hazardous Waste

It is true that traces of industrial chemicals have been found in water drawn from a number of Oahu's wells, a fact that demonstrates the need for continued vigilence. However, as previously indicated, it is neither desired nor expected that firms using substantial quantities of hazardous materials will locate at the Hawaii Technology Park. The Hazardous Materials Storage and Handling Guidelines drafted by Oceanic Properties do not allow the presence on-site of large quantities of potentially hazardous materials. Underground storage of hazardous materials is expressly prohibited, and the stringent secondary containment requirements imposed upon above-ground storage facilities make it unlikely that substantial spills of hazardous materials would occur which could affect the groundwater beneath the site. These factors make it inappropriate to compare the proposed project with mainland developments where groundwater contamination has been reported.

Potential adverse effects of the proposed project have been considered and have led to the many precautions incorporated in the developers's Hazardous Materials Storage and Handling Guidelines. These include the collection and distribution of information concerning the use of hazardous materials. The requirement that a qualified hazardous waste consultant approve plans is intended to insure that the hazardous waste handling activities of even the smallest, least sophisticated of the park's occupants receive adequate professional internal review and attention. Moreover, the project is subject to a raft of Federal, State, and County controls designed to insure safe handling and disposal of industrial materials. With respect to potential hazards from this source, it should be noted that, since it will not attract chemically intensive users, it is inappropriate to compare the Hawaii Technology Park with the high tech industrial parks which are the focus of the article to which you refer.

Storm Drainage

While the Melemanu Woodlands Phase III and Hawaii Technology Park projects are adjacent to one another, they are very different from a hydrologic standpoint. The former is situated along the banks of Waikakalaua Stream and must contend with periodic flood discharges, while the latter is atop the plateau.

Your letter does not provide details concerning the land slip damage to the Kipapa Gulch house. However, it should be noted that the only structures that would be constructed for the HTP project on the upper portions of the gulch sides would be the storm drainage discharge structures. These would be comparable to the existing drainage structure adjacent to Wikao Street, including the use of similar energy-dissipating devices. No problems have been encountered with the structural integrity of this facility or with flooding or erosion at its discharge point. Such structures have been widely used throughout the United States, and it is believed that they will be more than adequate in the present instance.

As noted in your letter, it is always prudent to approach the design of dams with the utmost caution, particularly when they are located immediately above residential areas. The developers of the Melemanu Woodlands Phase III project have assumed responsibility for the design and construction of the proposed stormwater detention basin, and it is currently under design. The design of the dam will be subject to the review and approval of the City and County of Honolulu Department of Public Works to ensure acceptable standards for public health and safety, and will contain provisions for the handling of overflow.

Given the circumstances and the safety margin incorporated into modern design standards governing dams such as the one that is proposed as part of the Melemanu Woodlands Phase III project, a failure is considered extremely unlikely. However, in the event that unforeseen circumstances did result in a failure, downstream flooding would occur. With respect to such a possibility, it is worth noting that earthen dams characteristically fail over a period of hours or days, not catastrophically as in the case of reinforced concrete dams. This provides time for evacuation of low-lying areas and tends to lessen the resulting flood.

Effect On Productive Agricultural Use

The announcement that Dole intends to move its cannery from Iwilei to a location near Mililani is not inconsistent with the statement contained in the EIS that essentially all of the company's Oahu production is aimed at the fresh fruit market. The company's existing Iwilei canning facilities are decades old and they are located on very valuable land adjacent to Honolulu's Central Business District. It now makes more sense economically to replace the existing facilities with a modern, more efficient cannery located on less valuable land rather than to rebuild on the current site. It is these considerations which have motivated the proposed move. A more modern cannery will result in lower production cost and will free up valuable land for higher and better uses. While all of the Oahu fruit is grown for the fresh fruit market, some is found not to be of the quality required by the fresh fruit market; it will be canned at the proposed Dole cannery together with fruit grown on Lanai.

Changing economic conditions dictate changing use of land. Hawaii is a high cost producer of all agricultural commodities. As a result, Dole cannot compete with foreign producers in the large-scale production of canned pineapple for export; it has therefore moved into the fresh fruit market. Cultivation for fresh fruit on the project lands would require the installation of an irrigation system, and water would have to be brought in from Wahiawa. The cost of installing and operating an irrigation system makes fresh fruit production uneconomic. This is the reason why Dole has moved the pineapple production which formerly took place on the Hawaii Technology Park site to fields where the presence of existing facilities makes irrigation less costly.

At this time, use of the lands at the site of the proposed Hawaii Technology Park for alternative crops is not economically viable for the land owner. In its 1984 Hierarchy of Agricultural Lands Study for Central Oahu, Castle & Cooke undertook a comprehensive evaluation of the diversified agriculture potential of its Central Oahu lands. This and other in-house studies have all reached the conclusion that alternate crop use requires irrigable lands. The studies also concluded that even if irrigation of the Hawaii Technology Park site were practical, the potential demand for diversified agricultural crops could be met using only a small portion of agricultural land owned by Castle & Cooke. In fact, the additional acreage required for Oahu to become 95 percent self-sufficient in commonly consumed fresh produce would be less than 2,600 acres. Hence, use of the Hawaii Technology Park site for purposes other than agriculture will not have a detrimental effect on either Dole's continued pineapple production or the viability of diversified agriculture. This same conclusion was reached by the State Land Use Commission when it redesignated the land from Agriculture to Urban and by the City Council when it designated the Phase I area for industrial use on the Development Plan.

Air Quality Impacts

Coal is not intended to be used at the park. See the CC & R's for smoke emmission standards.

Waste Treatment and Disposal

Each tenant at the park will be responsible for the treatment and disposal of any hazardous wastes, although these are expected to be present in limited quantities due to the nature of the businesses that will locate to the park. In addition to the Hawaii Technology Park's own Hazardous Waste Handling and Disposal Guidelines, tenants must meet all governmental requirements; these include EPA regulations which address the issue of financial responsibility.

Your comments indicate a concern that governmental organizations will be unable to adequately monitor the use of hazardous materials that may be used at the Hawaii Technology Park. At the present time,there is no clear evidence that the kinds of firms that would locate at the HTP would use significant amounts of hazardous materials or generate more hazardous waste than other businesses already located in Hawaii. Granting of industrial zoning for the proposed project does not constitute permission to use and/or dispose of any hazardous materials or wastes. Rather, the possible use of hazardous materials is a separate issue, and we have confidence that the disclosure required by Oceanic Properties prior to building, the ongoing monitoring and oversight of a private consulting firm, and the multiple levels of approvals required by Federal, State, and County agencies charged with the regulation of these substances, will insure that operations of the park are consistent with the public welfare.

Appendix B

The availability of an expert "hazardous waste consultant" (see Guidelines) is part of the services planned to be provided by the Park Association to park tenants. The term "consultant" is meant in the broader sense of the word, not as an individual but as a professional engineering firm. Three firms with divisions specializing in environmental management have reviewed the Guidelines, and their suggestions have been incorporated in them. The firms are

Harding Lawson Associates, Kennedy/Jenks Engineers, and Dames & Moore. It is expected that one of these firms, or another with comparable expertise, will be selected to serve as "hazardous waste consultant." To the degree that the expertise of the University of Hawaii and Department of Health professionals can be tapped as the need arises, the work of the Hawaii Technology Park's consultant would be further enhanced.

Conclusion

In the judgment of Oceanic Properties and its consultants, rather than a "high potential" for "significant" pollution, there is a low probability of such pollution, due to the nature of the businesses expected to locate to the park, the stringent monitoring and controls imposed by the developer, and the review process by various County, State and Federal agencies before issuance of permits. To date, the most significant groundwater contamination in Hawaii has occurred as a result of agricultural, rather than industrial activities. Although some industrial pollution has been noted and continued vigilence is called for, with the many safeguards that are planned as part of this project, we do not foresee contamination of the Pearl Harbor aquifer.

Sincerely,

Perry J. White

PJW:ALM

cc: Oceanic Properties, Inc.
Patrick Takahashi