BENJAMIN M. MATSUBARA, #993-0
CURTIS T. TABATA, #5607-0
Matsubara, Kotake & Tabata
888 Mililani Street, Suite 308
Honolulu, Hawai`i 96813

Attorneys for Petitioner
GENTRY INVESTMENT PROPERTIES

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Petition Of GENTRY INVESTMENT PROPERTIES, A Hawai`i Limited Partnership  To Amend The Agricultural Land Use District Boundary Into The Urban Land Use District For Approximately 282.614 Acres Of Land At `Ewa, O`ahu, Hawai`i, Tax Map Key Nos: 9-1-10: 7 And 9-1-69:5	DOCKET NO. A03-738 PETITIONER GENTRY INVESTMENT PROPERTIES SUPPLEMENTAL MEMORANDUM IN SUPPORT OF PETITIONER'S MOTION FOR AN ORDER RELEASING CONDITIONS 1 THROUGH 22; DECLARATION OF QUENTIN MACHIDA; EXHIBITS "3" – "22"; CERTIFICATE OF SERVICE

PETITIONER GENTRY INVESTMENT PROPERTIES SUPPLEMENTAL MEMORANDUM IN SUPPORT OF PETITIONER'S MOTION FOR AN ORDER RELEASING CONDITIONS 1 THROUGH 22

Comes now, Petitioner GENTRY INVESTMENT PROPERTIES ("Petitioner" or "Gentry"), by and through its attorneys, MATSUBARA, KOTAKE & TABATA, and respectfully submits its Supplemental Memorandum in Support of Petitioner's Motion for an Order Releasing Conditions 1 through 22 ("Motion").

Petitioner hereby provides the following documents as additional exhibits in support of the Motion.

Condition 3. **Wastewater Facilities**. The Department of Environmental Services' acceptance of the Ewa by Gentry 2 Wastewater Pump Station dated March 23, 2011, is attached hereto and incorporated herein as Exhibit "3". The Department of Environmental Services' invoice dated September 17, 2020 and Gentry's payment dated October 16, 2020 for the Upgrades to Ewa Gentry 1 Pump Station is attached hereto and incorporated herein as Exhibit "4".

Condition 4. **Transportation**. The Ewa Regional Transportation Projects matrix is attached hereto and incorporated herein as Exhibit "5". The Ewa Makai - Public Roadway Dedication Status is attached hereto and incorporated herein as Exhibit "6".

Condition 5. **Landscaped Building Setback**. The Ewa Makai Plat Map West is attached hereto and incorporated herein as Exhibit "7". The Ewa Makai Plat Map East is attached hereto and incorporated herein as Exhibit "8". Both maps show that the Gentry Ewa Makai project ("Project") has a setback of at least 12 feet from Fort Weaver Road.

Condition 6. **Archaeology**. The archaeological discussion in the Final Environmental Impact Statement for Gentry Ewa Makai and the Archaeological Survey for Gentry Ewa Makai (pdf p. 22) are attached hereto and incorporated herein as Exhibit "9".

Condition 7. **Historic Preservation Mitigation Plan**. Correspondence between Gentry and the Office of Hawaiian Affairs dated August 5, 2008 and April 6, 2010, discussing Condition 7 and the naming of a new middle school are attached hereto and incorporated herein respectively as Exhibits "10" and "11".

Condition 8. **Solid Waste Management Plan**. The solid waste discussion in the Final Environmental Impact Statement for Gentry Ewa Makai is attached hereto and incorporated herein as Exhibit "12".

Condition 9. **Air Quality Monitoring**. The Air Quality Study for Gentry Ewa Makai that is attached to the Final Environmental Impact Statement for Gentry Ewa Makai is attached hereto and incorporated herein as Exhibit "13".

Condition 11. **Regional Drainage Solutions**. The Letter Agreement between Gentry and the Hawaii Prince Golf Course dated July 16, 2003, mutually addressing drainage issues, is attached hereto and incorporated herein as Exhibit "14".

Condition 13. **Avigation and Noise Easement**. Attached hereto and incorporated herein respectively as Exhibits "15", "16" and "17", are the following: the October 26, 2010 letter between Gentry and the State Department of Transportation regarding the grant of avigation and noise easement; the Grant of Avigation and Noise Easement recorded October 28, 2010 as Land Court Document No. 4014373; and the Honolulu International Airport Noise Contour Map 2003.

Condition 14. **Sound Attenuation**. The Noise Contour Maps for the Barbers Point Air Station and the Honolulu International Airport showing areas exposed to noise levels of 65 Ldn or greater are attached hereto and incorporated herein as Exhibit "18". Exhibit "18 shows that the Project is not within the 65 Ldn areas for either airport.

Condition 15. **Civil Defense Systems**. Letter dated August 10, 2005 from the Office of the Director of Civil Defense, State of Hawaii, Department of Defense, re Final Inspection, Gentry Homes, Ltd., Area 19 Siren and indicating acceptable status, is attached hereto and incorporated herein as Exhibit "19".

Condition 16. **Energy Conservation Measures**. Energy conservation measures that were implemented in the Project are discussed in Exhibit "20" which is attached hereto and incorporated herein.

Condition 17. **Compliance with Representations to the Commission**. The Ewa Makai Master Plan that was represented to the commission is attached hereto and incorporated herein as Exhibit "21", and the Ewa Makai Land Use Plan that shows the existing development is attached hereto and incorporated herein by reference as Exhibit "22". Exhibits 21 and 22 demonstrate that Petitioner has complied with its representations to the commission.

DATED: Honolulu, Hawai`i, August 1, 2025.

Of Counsel:
MATSUBARA, KOTAKE & TABATA
A Law Corporation

BENJAMIN M. MATSUBARA
CURTIS T. TABATA
Attorneys for Petitioner
GENTRY INVESTMENT PROPERTIES

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Petition Of	)	DOCKET NO. A03-738
	)	
GENTRY INVESTMENT PROPERTIES, A Hawai`i Limited Partnership	)	DECLARATION OF QUENTIN MACHIDA
	)	
To Amend the Agricultural Land Use District Boundary Into the Urban Land Use District for Approximately 282.614 Acres of Land at `Ewa, O`ahu, Hawai`i, Tax Map Key Nos: 9-1-10: 7 And 9-1-69:5	)	

DECLARATION OF QUENTIN MACHIDA

QUENTIN MACHIDA states as follows:

1. I am over 18 years of age, and I am the President and Chief Executive Officer of Gentry Homes, Ltd. I have personal knowledge of the matters contained in this Declaration, and, if called upon to testify, I could and would competently testify thereto.

2. Attached to Petitioner Gentry Investment Properties Supplemental Memorandum in Support of Petitioner's Motion for an Order Releasing Conditions 1 Through 22 ("Supplemental Memorandum") as Exhibit "3" is a true and correct copy of the Department of Environmental Services' acceptance of the Ewa by Gentry 2 Wastewater Pump Station dated March 23, 2011.

3. Attached to the Supplemental Memorandum as Exhibit "4" is a true and correct copy of the Department of Environmental Services' invoice dated September 17, 2020 and Gentry's payment dated October 16, 2020 for the Upgrades to Ewa Gentry 1 Pump Station.

4. Attached to the Supplemental Memorandum as Exhibit "5" is a true and correct copy of the Ewa Regional Transportation Projects matrix.

5. Attached to the Supplemental Memorandum as Exhibit "6" is a true and correct copy of the Ewa Makai - Public Roadway Dedication Status.

6. Attached to the Supplemental Memorandum as Exhibit "7" is a true and correct copy of the Ewa Makai Plat Map West.

7. Attached to the Supplemental Memorandum as Exhibit "8" is a true and correct copy of the Ewa Makai Plat Map East.

8. Attached to the Supplemental Memorandum as Exhibit "9" is a true and correct copy of the archaeological discussion in the Final Environmental Impact Statement for Gentry Ewa Makai and the Archaeological Survey for Gentry Ewa Makai (pdf p. 22).

9. Attached to the Supplemental Memorandum as Exhibit "10" is a true and correct copy of the Correspondence between Gentry and the Office of Hawaiian Affairs dated August 5, 2008 discussing the naming of a new middle school.

10. Attached to the Supplemental Memorandum as Exhibit "11" is a true and correct copy of the Correspondence between Gentry and the Office of Hawaiian Affairs dated April 6, 2010 discussing condition 7.

11. Attached to the Supplemental Memorandum as Exhibit "12" is a true and correct copy of the solid waste discussion in the Final Environmental Impact Statement for Gentry Ewa Makai.

12. Attached to the Supplemental Memorandum as Exhibit "13" is a true and correct copy of the Air Quality Study for Gentry Ewa Makai that is attached to the Final Environmental Impact Statement for Gentry Ewa Makai.

13. Attached to the Supplemental Memorandum as Exhibit "14" is a true and correct copy of the Letter Agreement between Gentry and the Hawaii Prince Golf Course dated July 16, 2003, mutually addressing drainage issues.

14. Attached to the Supplemental Memorandum as Exhibit "15" is a true and correct copy of the October 26, 2010 letter between Gentry and the State Department of Transportation regarding the grant of avigation and noise easement.

15. Attached to the Supplemental Memorandum as Exhibit "16" is a true and correct copy of the Grant of Avigation and Noise Easement recorded October 28, 2010 as Land Court Document No. 4014373.

16. Attached to the Supplemental Memorandum as Exhibit "17" is a true and correct copy of the Honolulu International Airport Noise Contour Map 2003.

17. Attached to the Supplemental Memorandum as Exhibit "18" is a true and correct copy of the Noise Contour Maps for the Barbers Point Air Station and the Honolulu International Airport showing areas exposed to noise levels of 65 Ldn or greater.

18. Attached to the Supplemental Memorandum as Exhibit "19" is a true and correct copy of a letter from the Office of the Director or Civil Defense, Department of Defense, State of Hawaii re Final Inspection, Gentry Homes, Ltd., Area 19 Siren dated August 10, 2005.

19. Attached to the Supplemental Memorandum as Exhibit "20" is a true and correct copy of the energy conservation measures that were implemented in the Project.

20. Attached to the Supplemental Memorandum as Exhibit "21" is a true and correct copy of the Ewa Makai Master Plan that was represented to the commission.

21. Attached to the Supplemental Memorandum as Exhibit "22" is a true and correct copy of the Ewa Makai Land Use Plan that shows the existing development.

I declare under penalty of law that the foregoing is true and correct.

Dated: Honolulu, Hawai`i, August 6, 2025.

QUENTIN MACHIDA

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

PETER B. CARLISLE
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

MANUEL S. LANUEVO, P.E., LEED AP
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
CSM 11-075

March 23, 2011

MEMORANDUM

TO: DAVID K. TANOUE, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

Ross S. Tanimoto

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: ACCEPTANCE OF EWA BY GENTRY 2
WASTEWATER PUMP STATION

All discrepancies have been addressed and corrected. We recommend that the pump station be accepted.

Should you have any questions please call Craig Nishimura, Chief, Division of Collection System Maintenance at 768-7223.

cc: Department of Design and Construction

EXHIBIT "3"

THE GENTRY COMPANIES
Engineering Division

Job/Acct Code: _____
Cost Code: _____
Date: 9.28.2020
Approved: _____

CITY & COUNTY OF HONOLULU
HONOLULU, HAWAII 96813
25-Sep-20

Invoice CSM-09.25.2020

Gentry Homes, Ltd.
Attn: Mr. Brian Maja, Vice President
733 Bishop Street #1400
Honolulu, HI 96813-4022

Job Description: Upgrades to Ewa Gentry 1 Pump Station
Work Location: Ewa Gentry 1 Pump Station
Service Dates: Work performed on multiple dates - see attachments (2019)

	Contractor/Vendor	Description		
Cost:	Mechanical Contractor-JMI	Invoice	$	17,940.00
	Electrical Contractor - American Electric	Invoice	$	11,857.54
	Hawaii Engineering Service Inc.	Flygt NZ3202.820 Submersibile Pump - CIP Quote	$	71,781.51
		Check Valve - CIP Quote	$	7,252.08
		Knife Gate Valve - CIP Quote	$	4,255.76
	Pacific Pipe	Pipe and Fitting - Invoice	$	1,564.21
	PACE Supply	Spacer - Inovice	$	793.00
	TOTAL DUE		$	115,444.10

Attachments

I certify that the foregoing is just and correct and payment has not been received.

DL Melanie Felipe-Dela Rosa, Fiscal Officer II

Please make check payable to City and County of Honolulu and mail to:
Environmental & Transportation Services Fiscal
Frank Fasi Municipal Building, 4th Floor
650 South King Street
Honolulu, Hawaii 96813
Phone 768-8625

EXHIBIT "4"

Ewa Gentry 1 – (050)

Existing, One and Three sewage pumps

Newly Installed third pump in second position has been in service since March, 2019.

Contractors/Vendors

Contractor/Vendor	Description	Cost
Mechanical Contractor – JMI	Invoice	$17,940.00
Electrical Contractor - American Electric	Invoice	$11,857.54
Hawaii Engineering Service Inc.	Flygt NZ3202.820 Submersible Pump – CIP quote	$71,781,51
	Check Valve – CIP Quote	$7,252.08
	Knife Gate Valve – CIP Quote	$4,255.76
Pacific Pipe	Pipe and Fitting - Invoice	$1564.21
PACE Supply	Spacer - Invoice	$793.00
	Total	$115,444.10

DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY AND COUNTY OF HONOLULU

DIVISION OF COLLECTION SYSTEM MAINTENANCE
99-989 IWAENA STREET, AIEA, HAWAII 96701
Website: http://envhonolulu.org

KIRK CALDWELL
MAYOR

LORI M.K. KAHIKINA, P.E.
DIRECTOR

EDMUND LUNG, P.E.
ACTING CHIEF

IN REPLY REFER TO:
CSM 20-238

SEPTEMBER 17, 2020

MEMORANDUM

TO: MELANIE FELIPE DELA ROSA
E&T, BUDGET AND FISCAL SERVICES

FROM: CHRISTOPHER S. LAUDE, ACTING CHIEF
DIVISION OF COLLECTION SYSTEM MAINTENANCE

SUBJECT: CSM CHARGE BACK REQUEST FOR EWA GENTRY 1 PUMP STATION UPGRADES

Please prepare a billing invoice for CSM reimbursement from the following party:

Developer:	Gentry Homes, Ltd.
Billing Address:	733 Bishop Street #1400 Honolulu, HI 96813-4022
Contact Information:	Mr. Brian Maja, Vice President – Engineering Phone #: 599-5558
Job Description:	Agreement with Developer for Upgrades to Ewa Gentry 1 Pump Station
Amount:	$115,444.10
Service Date:	Work performed on multiple dates – see attachments (2019)
Address/Location:	Ewa Gentry 1 Pump Station

Prepared by: _____
Joy K. Barlan, Office Manager

Vendor: 01333 CITY & COUNTY OF HONOLULU Date: 10/16/2020 Chk no: 100731

VOUCHER JOB NO.	INVOICE INVOICE DESCRIPTION	DATE	INVOICE AMOUNT	HELD AMOUNT	DISCOUNT	NET AMOUNT
10202000110	HOM100120	10/01/20	115,444.10			115,444.10
151416	EWA GENTRY 1 PUMP STATION					

Check totals: 115,444.10 115,444.10

GENTRY HOMES, LTD.
P.O. BOX 295
HONOLULU, HI 96809
(808) 599-5558

BANK OF HAWAII
P.O. BOX 2900
HONOLULU, HI 96846

59-102/1213

DATE	CHECK NO.	AMOUNT
10/16/2020	100731	$*****115,444.10

ONE HUNDRED FIFTEEN THOUSAND FOUR HUNDRED FORTY-FOUR DOLLARS AND 10 CENTS

VOID

PAY TO THE ORDER OF
CITY & COUNTY OF HONOLULU
530 SOUTH KING STREET, ROOM 208
HONOLULU, HI 96813

Victoria L. Drake

VOID

Ewa Regional Transportation Projects
Status Report: June 30, 2003

Project Title	Builder	Brief Description	Estimated Cost	Schedule
Kapolei Parkway, Phase 8A	City and County of Honolulu – Department of Design and Construction	Construction of makai side of roadway between OR&L Railroad tracks to Renton Road (approx. 2,400 ft.)	$5.8 million	Construction Start: Fall 2003 Complete: Fall 2004
Kapolei Parkway, Phase 8B	City and County of Honolulu – Department of Design and Construction	Construction of makai side of the roadway between Renton Road and the City/State property line at the western boundary of Ewa Villages (approx. 3600 ft.)	$8 million	Design Complete: Summer 2004
Kapolei Parkway, Phase 8C	City and County of Honolulu – Department of Design and Construction	Construction of mauka side of roadway between the OR&L Railroad tracks and the City/State property line at the western boundary of Ewa Villages (approx. 6,000 ft.)	$11.7 million	Design Complete: Summer 2004
Kapolei Parkway – Sun Terra to Haseko's Ocean Pointe Project	Gentry Homes, Ltd.	Construction of a four-lane divided roadway from existing Kapolei Parkway improvements to the makai boundary of the Laulani parcel, including bike path and sidewalks (approx. 2,283 ft.)	Not currently available	Design Start: 2003 Complete: end of 2004 Construction: Start: 2005 Complete: Mid 2006
Kapolei Parkway - Ocean Pointe from Keoneula Boulevard Mauka to Gentry Boundary	Haseko Homes, Inc.	Construction of a four-lane roadway, which will include a median, sidewalks and landscaping. (approximately 950 ft.)	Not currently available	Construction Start: 2004 Complete: 4th Quarter 2005
Kapolei Parkway – Ocean Pointe from Keoneula Boulevard Makai to Papipi Road	Haseko Homes, Inc.	Construction of a four-lane roadway, which is 60' in width and will include sidewalks. The road is currently in construction and the portion that still needs to be completed is approximately 660 ft.	Not currently available	Construction Start: 2003 Complete: 2006

Source: Data compiled from entities responsible for projects, which are listed in "Builder" column

EXHIBIT "5"

Project Title	Builder	Brief Description	Estimated Cost	Schedule
Kamokila Boulevard Extension	City and County of Honolulu – Department of Design and Construction	Approximately 1/5 mile four-lane road to connect Kamokila Boulevard to Roosevelt Avenue	$1 million	1. City Resolution 03-81 passed on June, 2003 to amend Ewa Development Plan to add symbol to Public Infrastructure Map 2. #2002205 Street Improvements – Roosevelt Avenue to Kamokila Boulevard included in FY04 City Budget
North-South Road – First Phase	State of Hawaii – Department of Transportation	The first phase will consist of three lanes (one northbound, one southbound, and one possibly reversible) and a half diamond interchange with H-1 (only town bound on-ramp and Waianae bound off-ramp	$60 million	Design: Possible design build project Construction: Start: Before the end of 2004
North-South Road – Second Phase	State of Hawaii – Department of Transportation	The second phase will consist of expansion to six lane roadway and a full diamond interchange with H-1	$60 million	Not currently available
Fort Weaver Road Intersection Improvements, Vicinity of Laulaunui Street	State of Hawaii – Department of Transportation	Project will include widening of Fort Weaver from 4 to 6 lanes from Farrington Highway to Laulaunui Street and various improvements to Laulaunui Street	$7.5 million	Design: Start: January 2002 Complete: August 2003 Construction: Start: March 2004 Complete: March 2005
Fort Weaver Widening, Vicinity of Aawa Drive to Geiger Road	State of Hawaii – Department of Transportation	Project will widen Fort Weaver from 4 to 6 lanes from Aawa Drive to Geiger Road	$19.8 million	Design Start: June 2002 Project is on hold as previous consultant is no longer in business.
Fort Barrette Road Widening – Farrington Highway to Barber's Point Gate	State of Hawaii – Department of Transportation	Project will widen Fort Barrette to 4 lanes and include other improvements: bike lanes, sidewalks, etc.	$7.5 million	Design: Start: May 2004 Complete: April 2008 Construction: Start: June 2008

Project Title	Builder	Brief Description	Estimated Cost	Schedule
Kalaeloa Road Improvements – Roosevelt Avenue	State of Hawaii – Department of Transportation	Upgrades and improvements to Roosevelt Avenue, including reconstructing/rehabilitating the existing roadway, drainage systems, curbs, gutters, and sidewalks	$8 million	Design: Start: Early 2004 Complete: Late 2006 Construction: Early 2007
Palailai Interchange – Modification (H-1)	State of Hawaii – Department of Transportation	Minor modifications to existing interchange	Not currently available	Planning Start: 2004 Complete: 2006 Design Start: 2006 Complete: 2008
Makakilo Interchange – Modification (H-1)	State of Hawaii – Department of Transportation	Project will add two more ramps on Waianae side of interchange (on ramp from Makakilo Drive toward Waianae and off-ramp from Waianae to Makakilo Drive)	Not currently available	Planning Start: 2004 Complete: 2006 Design Start: 2006 Complete: 2008
Kapolei Interchange (H-1)	State of Hawaii – Department of Transportation	Construction of new H-1 Interchange at vicinity of Kapolei Bus Transit Center	Not currently available	Planning Start: 2004 Complete: 2006 Design Start: 2006 Complete: 2008

Tentative and subject to change. Based on information furnished by the responsible parties.

EWA BY GENTRY

EWA MAKAI - PUBLIC ROADWAY DEDICATION STATUS

(as of 4-7-2025)

FILE NO.	PROJECT NAME	DEDICATION DATE
2004/SUB-104	Area 34	11/18/2016
2005/SUB-47	Area 36, Ph 1 & Rd B	12/9/2015
2005/SUB-56	Area 36, Ph 2	5/25/2018
2005/SUB-57	Area 36, Ph 3	4/5/2018
2014/SUB-132	Area 36, Ph 4	9/17/2021
2006/SUB-135	Area 37, Ph. 1	9/11/2020
2005/SUB-307	Area 37, Ph. 2	12/6/2017
2006/SUB-150	Area 40 Model Complex	9/19/2019
2006/SUB-191	Area 40, Phase 1	1/25/2019
2010/SUB-67	Area 40, Phase 2A	3/10/2021
2011/SUB-167	Area 40, Phase 3	9/17/2021
2004/SUB-227	Kapolei Parkway Extension	9/11/2020

FILE NO.	PROJECT NAME	PENDING DEDICATION
2016/SUB-058	Area 51, Incr. 1	*Dedication docs submitted; action pending dedication of access road, i.e. Kamakana St*
2016/SUB-088	Area 51, Incr. 2	

EXHIBIT "6"

PLAT 73

PLAT 161

PLAT 103

KA'ILIKE STREET

PLAT 70

PLAT 141

FORT WEAVER ROAD

PA'APA'ANĀ STREET

PĒKAU STREET

OLOWĀ STREET

HŌ'ILI'ILI STREET

LAKIKŪ STREET

PELUKUA DRIVE

KEAUNUI STREET

PLAT 145

PLAT 149

PELELEU PLACE

TRANSFORMER VAULT ESMT "9419" [42 sf]
TRANSFORMER VAULT ESMT "9420" [42 sf]
TRANSFORMER VAULT ESMT "9421" [42 sf]
TRANSFORMER VAULT ESMT "9426" [42 sf]
TRANSFORMER VAULT ESMT "9427" [42 sf]
TRANSFORMER VAULT ESMT "9428" [42 sf]
TRANSFORMER VAULT ESMT "9429" [42 sf]
TRANSFORMER VAULT ESMT "9422" [42 sf]
TRANSFORMER VAULT ESMT "9423" [42 sf]
TRANSFORMER VAULT ESMT "9424" [42 sf]
TRANSFORMER VAULT ESMT "9425" [42 sf]
TRANSFORMER VAULT ESMT "9345" [42 sf]
TRANSFORMER VAULT ESMT "9343" [375 sf]
TRANSFORMER VAULT ESMT "9396" [42 sf]

DROPPED PARCELS: 14

DEPARTMENT OF BUDGET & FISCAL SERVICES
REAL PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH
CITY & COUNTY OF HONOLULU
TAX MAP

FIRST TAXATION DIVISION		
ZONE	SECTION	PLAT
9	1	144

SCALE: 1 INCH = 50 FEET

LCAPP 1069, MAPS 1357, 1359, 1360, HONOULIULI, EWA, OAHU, HAWAII (Formerly por. 9-1-12)

Date: 09/17/2020 OZ

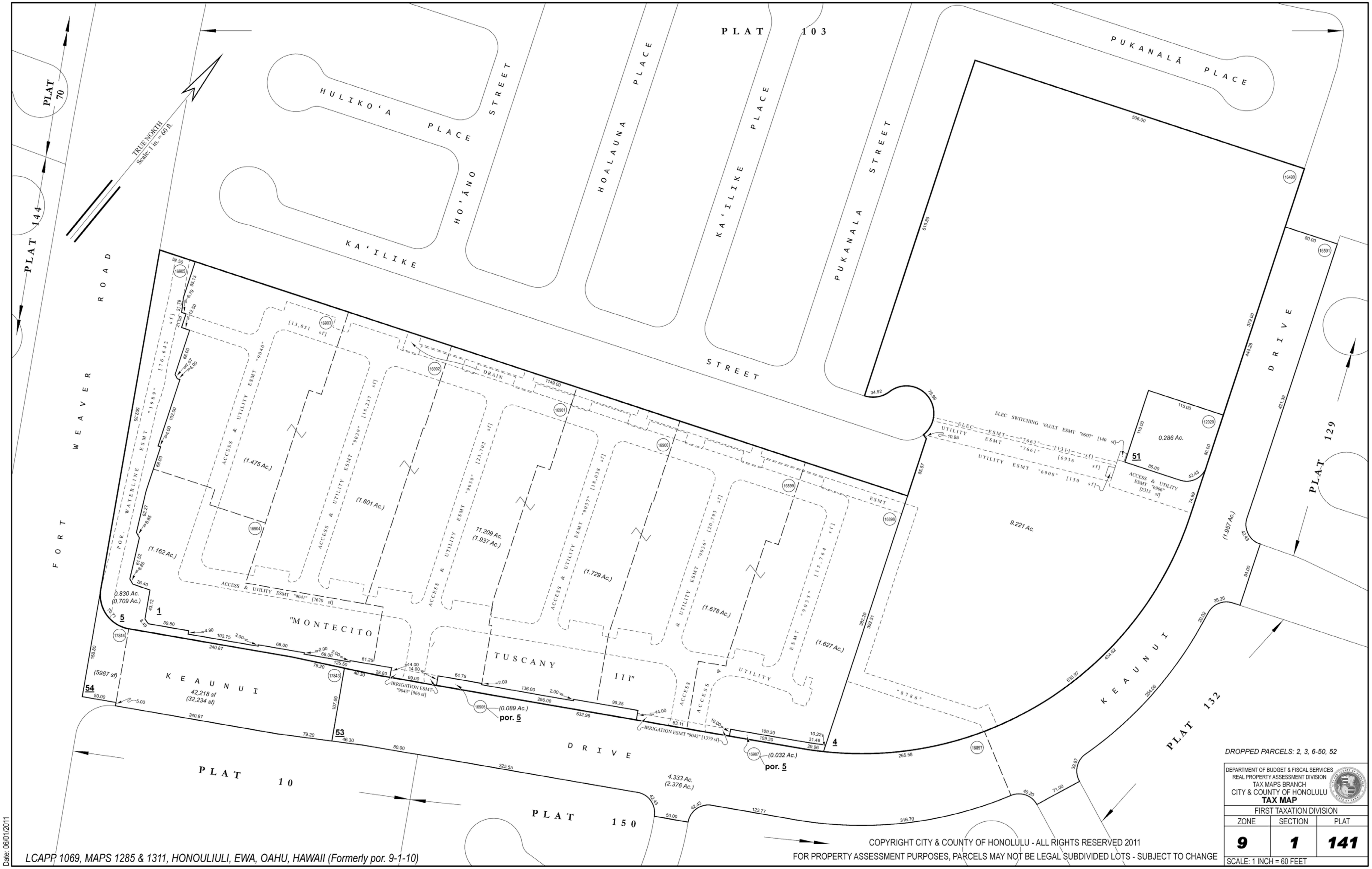
PLAT 103
PLAT 70
PLAT 144
PLAT 129
PLAT 132
PLAT 10
PLAT 150
TRUE NORTH
Scale: 1 in. = 60 ft.
HULIKO'A PLACE
HO'ĀNO STREET
HOALAUNA PLACE
KA'ILIKE PLACE
PUKANALA STREET
PUKANALĀ PLACE
KA'ILIKE STREET
FORT WEAVER ROAD
KEAUNUI DRIVE
"MONTECITO TUSCANY III"
11.209 Ac.
(1.937 Ac.)
9.221 Ac.
0.286 Ac.
0.830 Ac.
(0.709 Ac.)
42,218 sf
(32,234 sf)
4.333 Ac.
(2.376 Ac.)
(1.957 Ac.)
DROPPED PARCELS: 2, 3, 6-50, 52
DEPARTMENT OF BUDGET & FISCAL SERVICES
REAL PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH
CITY & COUNTY OF HONOLULU
TAX MAP
FIRST TAXATION DIVISION
ZONE 9
SECTION 1
PLAT 141
SCALE: 1 INCH = 60 FEET
COPYRIGHT CITY & COUNTY OF HONOLULU - ALL RIGHTS RESERVED 2011
FOR PROPERTY ASSESSMENT PURPOSES, PARCELS MAY NOT BE LEGAL SUBDIVIDED LOTS - SUBJECT TO CHANGE
LCAPP 1069, MAPS 1285 & 1311, HONOULIULI, EWA, OAHU, HAWAII (Formerly por. 9-1-10)
Date: 06/01/2011

EXHIBIT "8"

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2002/ED-11 (TH)

September 2, 2003

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Leiopapa A Kamehameha Building
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

Acceptance Notice for the Final Environmental Impact Statement
for the Gentry Ewa Makai (Residential Development) Project,
Tax Map Key: 9-1-069: 005 and 9-1-010: 007 Ewa, Oahu, Hawaii

We are notifying you of our acceptance of the subject Final Environmental Impact Statement (FEIS) for the Gentry Ewa Makai (Residential Development) Project. The Department of Planning and Permitting has determined that the subject FEIS is acceptable under the procedures established in Chapter 343 of the Hawaii Revised Statutes.

Pursuant to the procedures contained in Section 11-200-23(c), Chapter 200, Title 11 (Environmental Impact Statement Rules), Department of Health Administrative Rules, we request that this acceptance notice be published in the September 23, 2003 Environmental Notice.

Attached is a copy of our acceptance report. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely yours,

ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:js
236955
Attachment
cc: Ms. Debra Luning, Gentry Investment Properties
Mr. Taeyong Kim, Environmental Communications
The Estate of James Campbell

EXHIBIT "9"

2003- Oahu- FEIS -
Gentry Ewa Makai

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

July 2003

GENTRY
Gentry Investment Properties

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

Accepting Authority:

City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Applicant:

Gentry Investment Properties
P.O. Box 295
Honolulu, Hawai'i 96809-0295

EIS Consultant:

Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawai'i 96813

This Environmental Impact Statement and all ancillary documents were prepared under my direction or supervision, and the information submitted, to the best of my knowledge, fully addresses EIS content requirements as set forth in Section 11-200-17, Hawai'i Administrative Rules.

_____ _____

Taeyong M. Kim
Principal
Environmental Communications, Inc.

Date

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

5.0 BUILT ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATIVE MEASURES

5.0 EXISTING BUILT ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

5.1 Archaeology, Historic and Cultural Resources

Pacific Legacy, Inc., conducted an archaeological survey for the proposed project to assess the probability of an archaeological or cultural remains on the project site. This report, titled *Archaeological Survey for the Proposed* 'Ewa *Gentry Makai Development* 'Ewa *District, Ahupua'a of Honouliuli, Island Of O'ahu* can be found in its entirety in Appendix H.

5.1.1 Historic Land Use

Kamehameha gave the entire *ahupua'a* of Honouliuli to Kalanimoku, after he conquered O'ahu, with the right that he could pass it on to his heirs. Later, Kalanimoku passed on the land to his sister Wahinepi'o.

The entire *ahupua'a* of Honouliuli (Land Commission Award 11216, Apana 8; approximately 43,250 acres) was awarded to a granddaughter of Kamehameha I, Mikahela Kekau'nohi, one of the wives of Kamehameha II and daughter of Wahinepi'o (who she likely claimed the land through). Kekau'nohi was awarded land on all of the Hawai'ian Islands including the *ahupua'a* of Honouliuli and Waimalu on O'ahu (LCA records on file at the State of Hawai'i, Bureau of Conveyances; Vol. 9, pg. 659). "About 150 acres of the *ahupua`a* (Honouliuli) were excluded as part of *kuleana* awards to commoners" (Tuggle and Tuggle 1997:34). A total of 72 awards were made all of which appear to be in or adjacent to Honouliuli Gulch (Tuggle and Tuggle 1997:34), which is not within or near the project area.

By the 1850's cattle ranching was firmly established at 'Ewa with an estimated 12,000 head of cattle. By 1877, James Campbell was said to have some 32,000 head of wild cattle (Briggs 1926, quoted in Kelly 1991: 162). The sugar industry in Hawai'i began to rapidly expand in the 1890's and severely altered the appearance of the `'Ewa Plain and the rest of the islands. Construction for the O'ahu Railway & Land (OR&L) railroad began in 1889 and eventually went around the island. This opened up `'Ewa and the rest of O'ahu for sugar, pineapple, and eventually military use.

In 1888, Benjamin F. Dillingham's company O'ahu Railway and Land Company began construction of the OR&L railroad that was to extend westward from Honolulu. By 1890 it extended to Pearl City, by 1895 it extended to Waianae, and by 1899 it extended to Kahuku, the farthest point form Honolulu. The railroad carried both passengers and freight. The railroad was instrumental in the development of several sugar plantations ('Ewa Plantation Company, Kahuku

Plantation Company, O'ahu Sugar Company, and the ~~Wailua~~ *Waialua* Agricultural Company) as well as James Dole's pineapple efforts in central O'ahu. During World War II, the O'ahu Railway, as it became to be known, transported supplies, munitions, troops, and defense workers. At its height, the O'ahu Railway consisted of 175 miles of track. After World War II, railroad business declined dramatically – in 1947 all operations outside of Honolulu were abandoned, a pineapple shuttle from Pier 34 to the cannery ceased operation in 1972. A portion of the railroad right-of-way between Nanakuli and Honouliuli was placed on the National Register of Historic Places.

In 1893 the first sisal or *malina* (*Agave sisalana*) plants were imported from Florida (approximately 20,000 plants) and experimentally planted in an area southeast of Pu`u o Kapolei. The Hawai'ian name, *malina,* means marine, indicating that the plant was used in the manufacturing of marine ropes (Neal 1965: 225). The Hawai'ian Fibre Company was established in 1898 to utilize the sisal grown on the 300 acre plantation in 'Ewa (Tuggle and Tuggle 1997: 37). The production of sisal in 'Ewa continued into the 1920's.

By the 1920s, Honouliuli was used almost exclusively for sugar cultivation and ranching. The 'Ewa Plantation Company controlled approximately 12,000 acres which included sugar cane, a sisal plantation, residential areas for several thousand people, and a limestone quarry. The O'ahu Sugar Company controlled 3,000 acres although not all of it was planted in sugar. Honouliuli Ranch, the largest landholder, controlled approximately 20,000 acres with much of it considered waste because it contained gullies and rocks. Six thousand acres were reportedly planted in pineapple, or forest and wetland.

Frierson (1973) indicates that the 'Ewa Plantation Company drastically altered the landscape in an attempt to increase the amount of fertile agricultural land. Prior to the rainy season, the plantation excavated drainage ditches from the lower slopes of the Wai'anae range down to the lowlands. Vertical channels were cut into the adjacent slopes to encourage erosion. Frierson writes that "enough soil was washed down the ditches and deposited on the plain to reclaim 373 acres in a few years" (Frierson 1973:17). "By 1931, 'Ewa Plantation had seventy artesian and four surface wells with eighteen pumps (Wilcox 1996: 107).

The 'Ewa Plantation was acquired by O'ahu Sugar Company in 1970. The O'ahu Sugar Company operated two mills in 'Ewa and Waipahu. Sugar cultivation along the 'Ewa Plain began a slow and steady decline in the 1970's. The O'ahu Sugar Company with the demise of sugar ceased operations at 'Ewa in 1994. Real estate development has flourished including the creation of Kapolei, touted as O'ahu's "second city."

5.1.2 Archaeological Background

The first archaeological sites identified on 'Ewa were recorded by J. Gilbert McAllister (1933) in the 1930's. McAllister identified several sites on the 'Ewa Plain. Among these were Site 138, Site 139, Site 141, Site 145 and Site 146. *None of these are on the Ewa Makai project site.*

Site 138. Puu Kapolei Heiau, on Puu Kapolei hill, Honouliuli.

The stones from the heiau supplied the rock crusher which was located on the side of this elevation, which is about 100 feet away on the sea side. There was formerly a large rock shelter on the sea side where Kamapuaa is said to have lived with grandmother (McAllister 1933:108).

Site 139. Kalanamaihiki fishing shrine at Kapapapuhi, Honouliuli.

Near the end of the small tongue of land that juts out opposite Laulaunui Island in the west loch of Pearl Harbor, are two large rough stones about 2.5 feet in size, with six or seven smooth stones averaging 1 foot in size in a small pile adjoining the larger stones. The entire site is covered with akulikuli and would not be noticed or considered if the Hawai'ians did not know of its former sacredness (McAllister 1933:108).

Site 141. Kaihuopalaai.

The site is named for Kaihuopalaai, said to be the daughter of Konikonia and his wife Hinaaimalama. Fornander (37, vol5, p. 270) writes " on O'ahu, Kaihuopalaai saw a goodly man by the name of Kapapaapuhi (site 139) who was living at Honouliuli, 'Ewa; she fell in love with him and they were united, so Kaihuopalaai has remained in 'Ewa to this day. She was changed into that fishponds in which mullet are kept and fattened, and this fish is used for that purpose to this day" (McAllister 1933:108).

Site 145. Puuloa.

Puuloa, site where the first breadfruit in Hawai'i is said to have been planted. As noted by Thrum: Tradition credits the introduction of the breadfruit trees in these islands to Kahai, a son of Moikeha, who brought a species from Upolu, in the Samoan Group, on his return voyage from Kahiki, and planted same at Puuloa, O'ahu (McAllister 1933:109).

Site 146. The 'Ewa Coral Plains.

Site 146, 'Ewa coral plains, throughout which are remains of many sites. The great extent of old stone walls, particularly near the Puuloa Salt

> Works, belongs to the ranching period about 75 years ago. It is probable that the holes and pits in the coral were formerly used by the Hawaiians. Frequently the soil on the floor of the larger pits was used for cultivation, and even today one comes upon bananas and Hawai'ian sugar cane still growing in them. They afford shelter and protection, but I doubt if previous to the time of Cook there was ever a large population there (McAllister 1933:109).

5.1.3 Previous Archaeology

A vast number of archaeological studies have been conducted on the 'Ewa Plain in recent years. These investigations are related to the expansive development that has taken place on the 'Ewa Plain in the last 20 years. Only a limited number of investigations will be presented here. For a complete synthesis of the cultural resources recorded on the 'Ewa Plain prior to 1995, the reader is directed to Tuggle and Tuggle (1997). Additional information can be obtained from Haun (1991) and Tuggle (1995).

In 1975, Clark and Connolly (1975) conducted an archaeological reconnaissance survey for the Honouliuli Sewage Treatment plant and ocean outfall. They surveyed the entire parcel proposed for the facility. No sites were identified. Clark and Connolly did not survey the corridor that extended makai from the plant to the ocean since it passed through sugarcane fields. However, they did survey the beach portion where the outfall would be located. No cultural features were identified. They concluded that if any significant cultural resources would be impacted, it would be located on the beach and not on the plain itself.

In 1978 A. Sinoto (1978) of the Bishop Museum conducted archaeological test excavations at Barbers Point. While excavating limestone sinkholes, Sinoto recovered the remains of numerous fossil bird bones "including the skeletal remains of many extinct species, such as large flightless geese, eagles, ibises, finches" (Kirch 1985:117). Later studies have indicated that human alteration of the environment (i.e. land clearing of the native vegetation) and direct predation may have led to the extinction of these species.

In 1979, Bert Davis (1979) conducted archaeological investigations in an area totaling approximately 1,099 acres. This area was previously surveyed by Jourdane (1979) for the proposed 'Ewa Marina Community Development. The survey resulted in the identification of 18 previously unrecorded archaeological sites (State Site Numbers 3201-3218) composed of 107 features including sinkholes, mounds, platforms, and enclosures. A second survey, performed in an area previously utilized for sugar cane cultivation, did not identify any archaeological sites.

In 1983, Hommon and Ahlo (1983) conducted archaeological subsurface testing at the proposed 'Ewa Marina Community Development Area (TMK 9-1-12:2-3, 5-17, 23, 28). The project area is located south of the area previously surveyed by Davis (1979) and Jourdane (1979). A total of five trenches were excavated. No cultural remains were identified.

In 1987, Paul H. Rosendahl, Inc, (Dicks et al. 1987) conducted an archaeological reconnaissance survey with subsurface testing on a 216-acre parcel for the proposed West Loch Estates Golf Course and parks. A total of seven archaeological sites were identified (State Sites 3318 to 3324). These sites consisted of prehistoric and historic burials and habitation sites located on H'ae'ae Point and on the slopes and uplands surrounding the Honouliuli Stream floodplain. Other sites recorded were remnants of an agricultural system including: irrigated pondfield cropping of the floodplain, and dryland cultivation in the surrounding slopes and uplands.

Also in 1987, Rosendahl (1987) conducted an archaeological surface survey with subsurface testing immediately adjacent to area mentioned above (Dicks et al. 1987) as part of the Environmental Impact Statement. The survey resulted in the identification of four archaeological sites including a small cemetery related to the sugarcane industry, a historic surface artifact collection area that pre-dates the sugarcane industry and a probable exposed midden pit.

In 1988, The Bishop Museum (Davis 1988) conducted archaeological testing for the 'Ewa Gentry project at Honouliuli (the current project area). The project area was situated in an area previously utilized for sugar cane cultivation. A surface survey previously conducted by Kennedy (1988) for the same area failed to identify any archaeological sites. No archaeological sites were identified during testing.

Cultural Surveys Hawai'i (Hammatt et al. 1990) conducted archaeological investigations for the proposed 'Ewa Villages project site, immediately north of the Honouliuli Sewage Treatment Plant. A total of 616 acres were surveyed and a total of nine sites were identified, all associated with the sugar cane industry and the supporting plantation. Site types identified were: a historic cemetery, reservoir, a communal bathhouse, OR&L tracks, village store and saimin stand, and a roundhouse.

In 1990, Archaeological Consultants of Hawai'i, Inc (Kennedy et al. 1991) conducted an archaeological inventory survey for the then proposed Puuloa Golf Course (now the New 'Ewa Beach Golf Club)(TMK: 9-1-01:27&6). The project area was bounded is at the south end of Fort Weaver Road and to the north of The Pacific Tsunami Warning Center. The survey resulted in the recording of 72 prehistoric, historic and modern sites. Most of the sites were sinkholes containing cultural material, C-shapes, enclosures and mounds. Kennedy and Denham

(1992) conducted data recovery at sites slated to be impacted during construction of the golf course. It was concluded that initial occupation of the area occurred between A.D. 1020-1480. Three of the sites (3910, 3921 and 3770) were judged no longer significant following data recovery. All other sites slated for data recovery were considered significant and recommended for preservation.

In 1991, The Bishop Museum (Goodman and Cleghorn 1991) conducted an archaeological surface survey in conjunction with a historical documents and literature search for the Laulani Fairways Housing project at Pu'uloa (TMK 9-1-10: por. 7; 9-1-12:por.5). The project area is located to the south Honouliuli Sewage Treatment Plant and to the east of Barbers Point Naval Air Station and is approximately 300 acres in size (this is the current project area). No surface cultural remains were identified during the survey.

In 1991, the Applied Research Group (Jayatilaka et al. 1992) conducted an archaeological survey with subsurface testing on a 270-acre parcel for the then proposed Hawai'i Prince Golf Course (also the current project area)(TMK 9-1-10). No surface archaeological remains were identified during the survey. Eleven backhoe trenches and four backhoe scrapes were excavated. No cultural remains were identified and no further work was recommended.

In 1993, Pantaleo and Sinoto (1993) conducted an archaeological inventory survey for a proposed offsite drainage system at the 'Ewa Gentry in Honouliuli. Only one historic site was identified, a concrete drainage ditch that measured 4,600 feet long, 150 feet wide and between 20 and 25 feet deep. No other significant cultural remains were recorded.

Also in 1993, the Bishop Museum (Goodman et al. 1993) conducted an archaeological reconnaissance survey of a proposed commercial project. The project area is located south and east of the Honouliuli Sewage Treatment Plant, and to the west of Fort Weaver Road, surrounded to the north, south and west by former sugarcane fields (the current project area) (TMK 9-1-69:por. 5). No cultural remains were identified.

In 1996, Scientific Consultant Services (Spear 1996) conducted an archaeological survey for an area north of the Honouliuli Treatment Plant, and west of the Tenney and Varona plantation villages. The survey concentrated on two short, shallow gulches present in an area formerly used for sugarcane cultivation. No archaeological sites were identified during the survey.

Tuggle and Tuggle (1997) authored a synthesis of cultural resource studies conducted on the 'Ewa Plain. Although the manuscript was prepared for the Barbers Point Naval Air Station, it examines the prehistory and history, the previous archaeology, and the natural resources found on the 'Ewa Plain. Their

manuscript was used in the preparation of this document and proved to be invaluable. It is highly recommended for anyone planning to work in the region.

Paul H. Rosendahl conducted three archaeological data recovery projects (1988, 1989, and 1990) at West Loch Estates Residential Increment I, Golf course and Shoreline Park located in Honouliuli, 'Ewa District, Island of O'ahu (Wolforth et al. 1998). This "work included excavations at Sites 3319, 3320, and 3321; backhoe trenching at Sites 3322 (buried fishpond) and 3324 (extensive pondfield system); and monitoring of construction activities " (Wolforth et al. 1998:ii). The other sites identified were an artifact concentration, human skeletal remains and temporary habitations. Excavations uncovered ash lenses, midden deposits, possible postholes, rock alignments, and a segment of the OR&L railway. Radiocarbon dates obtained from test excavations indicates that the pondfields were in use between 10th and 17th *Century* A.D.

5.1.4 Site Predictability

Due to the impacts of residential and road development, ranching, sugarcane cultivation, and military activities, prehistoric surface remains were not expected within the project area. However, it is possible that excavations will expose sinkholes that have been filled in by alluvium moving downslope, numerous cultivation activities and by various residential and commercial developments. These sinkholes often contain archaeological deposits (i.e. human remains, hearths and extinct bird bones). Numerous sinkholes have been recorded on Barbers Point Naval Air Station and at other areas in 'Ewa. Human burials may also be uncovered during the course of pipeline excavations. Sinkholes and human burials are the most probable site types that may be encountered during the course of the project.

5.1.5 Methods and Results

The archaeological survey was conducted on May 17, 2001. A vehicular survey was conducted around the outer edges of the project area. When areas of interest were identified the archaeologists conducted a pedestrian survey. Given the vast amount of visibility in the area, spacing between archaeologists was between 25-35 m. The project area was photo documented using a digital camera.

The archaeological survey determined that the entire project area had undergone significant impacts from agricultural and developmental use. In fact, evidence of irrigation lines were still present in a large portion of the project area. The entire project area was devoid of any natural features or contours. No archaeological resources were present within the project area.

The area south of the Coral Creek Golf Course contains a large drainage area. This drain apparently serves for runoff purposes of the golf course. The drainage

consists of an excavated area approximately 40 m wide and 3-4 m deep. The entire face of the drain is coral and limestone. A check of the wall of the drain failed to identify any exposed subsurface features.
The survey also determined that parcels adjacent to the current project area are currently being developed for residential housing. This area located along the far eastern end of the project area was previously surveyed by Jayatilaka et al. (1992). See Appendix for additional photographs of the modified nature of the project area.

Existing Conditions

The archaeological survey determined that no archaeological sites are present within the current project area. The archival research and a review of previous archaeological studies on the 'Ewa Plain demonstrate that the area has undergone dramatic and extensive alterations over its long land use history. A review of the previous archaeology for the area indicated that the project area was previously surveyed by Davis (1988) Jayatilaka et al. (1992) and Goodman and Cleghorn (1991) and Goodman (1993). None of these surveys identified any cultural resources within the project area. This fact was confirmed when the current survey also failed to locate any cultural resources within the current project area (See Appendix for photographs).

Anticipated Impacts and Mitigative Measures

Given that the project area was under sugar cane cultivation for approximately 100 years, it seems unlikely that any subsurface cultural materials are still present within the project area. While there are no surface archaeological sites, there is the possibility of encountering subsurface resources in the form of sinkholes containing cultural materials and possibly human burials. These features could be as deep as 3 feet below ground surface. It is recommended that an archaeologist be retained on an on-call basis to assist the contractor in the event that subsurface archaeological resources are encountered.

5.1.6 Cultural Resources

As part of the environmental impact statement process, Pacific Legacy, Inc., conducted a Cultural Impact Assessment for the proposed 'Ewa Gentry Makai development project. The study is attached as Appendix I to this environmental impact statement.

5.1.7 Kupuna Informants

Individuals and organizations knowledgeable about the area and/or cultural practices or features relating to the area were identified and contacted. Oral history interviews and consultations were conducted. In addition, archival research was undertaken to identify

additional cultural features in the area and traditional practices that may have been conducted in the area.

5.1.8 Traditional History

Pre- and early post-contact histories of the research area convey a setting that usually refers to the entire 'Ewa Coral Plain as a unit rather than the individual *ahupua'a* of Honouliuli or Puuloa. The 'Ewa plain is relatively flat and inclines slightly to the coastline (south, east, and west), with topography varying little. Coral sinkholes and the volcanic cone Pu'u o Kapolei are the main topographic deviation.

Pu'u o Kapolei is a traditional landmark with a rich legendary history, noted from the time of the earliest of ancient settlements in Hawai'i. Historic activities, however, have destroyed much of the area and its ancient Hawaiian cultural features. The numerous cultural coral sinkholes on the plain - which includes the project area - were filled-in and plowed over during the historic cattle-grazing and later sugarcane production.

Tuggle and Tomonari-Tuggle (1997) have provided a synthesis of the 'Ewa Plain cultural environment. This information will not be restated here, however, culturally informative themes within their synthesis include: environment, vegetation and fauna, landform subdivisions, archaeology, subsistence resources, cultivation potential, important places, traditions, resources, traditional themes and pre and post-historical documentation. The reader is directed to this report for additional information.

The environment in the research area is documented in numerous historic descriptions as being barren, desolate, and generally unpopulated. Ancient oral histories also refer to the area as barren, however, in considering the flora and avifauna depicted in ancient chants and oral history accounts such as those above, the references to *barren* may have much to do with the relative comparative island environments. Archaeological investigations, reported in the next section, show that sinkholes on the plain were utilized for agricultural purposes. It is likely that any ancient and pre-contact permanent habitations were close to the coastline or stream outlets, at least for those who did not rely on tribute subsistence.

Following the contact years, the area attracted a minimal number of foreign settlers. Only those that could use the area as commercial investment desired land in this area. Initially, the salt-works and cattle (grazing) industries dominated the land, and later sugar cane agriculture extended *makai* into the plain beyond the current project area.

Discussion

The archival and oral historical research conducted indicates that the project parcel is located on the -'Ewa Coral Plain within an area traditionally referred to as the plain of Kaupea - the barren place for mischievous wandering spirits called *ao ku'*ewa . Further distinction places the project parcel in an area named Kelea.

This area is documented as having been a main thoroughfare for travelers to the settlements on the western coastline. A trail is documented in oral history as having passed between Pu'u o Kapolei and Pu'u o Palailai.

Any permanent Hawai'ian residents of the coral plains, during both pre- and post-contact years, would have had an arduous time of acquiring subsistence resources, particularly during drought. Resources within the *ahupu'a* of Honouliuli and Puuloa included access to marine resources, and fertile coastline and stream gulch area agricultural lands. The abundant forest resources, mentioned above, were located north of the Honouliuli *ahupua'a*. Avifauna was also available on the plain.

Although the project parcel and surrounding area did not support a large human settlement area, it has a rich cultural history and legendary fame. The area is referred to in many chants and oral histories. The importance of Pu'u o Kapolei as a seasonal solstice landmark related to an ancient cultural viewing event, of which the project area lies in the direct path, is of particular cultural importance. The traditional place name Kaupea, and its cultural significance as the "earthly place for wandering mischievous *ao ku*'Ewa" who did not make it to the desired afterlife realm, identifies the area as an important part of the ancient Hawai'ian belief system.

Anticipated Impacts and Mitigative Measures

The only archaeological sites documented in the project parcel area thus far are the coral *sinkholes*, which were used for agriculture. The traditional surface for these sites have long been destroyed, with in-fill during the cattle grazing years and plowing during clearing for sugarcane agriculture.

It does not appear that the proposed development will have any adverse effect to traditional cultural activities in the area. The project is not located near the above referenced locations.

5.2 Roadways and Traffic

A traffic impact analysis titled, Traffic Impact Analysis, 'Ewa by Gentry Makai Development, was prepared by Parsons Brinkerhoff for the project. The full study is provided in Appendix J. ~~A schedule of roadway improvements is provided in Table 1.~~ *A revised Traffic Impact Analysis Report (TIAR) is forthcoming for review by the Department of Planning and Permitting during the zoning process. The text changes shown in the FEIS will be reflected in the revised TIAR.*

5.2.1 Introduction to Traffic Impact Analysis

The traffic impact analysis documents the assumptions and methodology used and summarizes the findings and recommendations of a traffic impact assessment study for the proposed 'Ewa by Gentry - Makai development in 'Ewa, Oahu, Hawai'i. Existing and projected Year 2010 traffic conditions at key roadway intersections located within the project study area were evaluated. Figure ~~12~~ *14* shows the general location the proposed project, and Figure ~~13~~ *15* illustrates a

APPENDIX H

FINAL REPORT

ARCHAEOLOGICAL SURVEY FOR THE PROPOSED 'EWA GENTRY MAKAI DEVELOPMENT 'EWA DISTRICT, AHUPUA'A OF HONOULIULI, ISLAND OF O'AHU

(TMK 9-1-10:7 AND 9-1-69:5)

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ABSTRACT

Pacific Legacy, Inc., at the request Environmental Communications, conducted an archaeological survey for the proposed 'Ewa Gentry Makai residential housing, commercial and industrial mixed uses, community facilities and open spaces development at a 283-acre parcel in 'Ewa (TMK 9-1-10:7 and 9-1-69:5), *ahupua'a* of Honouliuli, island of O'ahu. The proposed project area is currently zoned for agriculture and presently consists of fallow agricultural land formerly used for sugar cane production and limited grazing activities.

Archival research and a review of previous archaeological studies in the area indicates that the 'Ewa Plain has undergone dramatic and extensive alterations over its long land use history. The review of the previous archaeology for the area determined the current project area has been previously surveyed by Davis (1988), Goodman and Cleghorn (1991), Jayatilaka et al. (1992), and Goodman et al. (1993). None of these surveys identified any cultural resources within the project area. Based on this information, it seemed extremely unlikely that any surface archaeological sites would be present within the project area. Further, given that the project area was under sugar cane cultivation for approximately 100 years, it seems unlikely that any subsurface cultural material is present in the area.

Indeed, the current survey failed to identify any surface cultural remains. The proposed project area is completely devoid of any natural features and contours. No cultural resources are present in the proposed project area.

While there are no surface archaeological sites in the project area, there is the possibility of encountering subsurface resources in the form of sinkholes containing cultural materials and possibly human burials. These features could be as deep as 3 feet below ground surface. It is recommended that an archaeologist be retained on an on-call basis to assist the contractor in the event that subsurface archaeological resources are encountered.

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

Pacific Legacy, Inc., at the request Environmental Communications, conducted an archaeological survey for the proposed 'Ewa Gentry Makai residential housing, commercial and industrial mixed uses, community facilities and open spaces development at a 283-acre parcel in 'Ewa (TMK 9-1-10:7 and 9-1-69:5), *ahupua'a* of Honouliuli, island of O'ahu (Figure 1). The proposed project area is currently zoned for agriculture and presently consists of fallow agricultural land formerly used for sugar cane production and limited grazing activities.

1.1 SCOPE OF WORK

Tasks for the current project were performed as follows:

(1) a review of the relevant previous archaeological research conducted in the immediate area;

(2) review of historic documents and literature pertaining to the area;

(3) a survey of the proposed project area; and

(4) the preparation of a final report summarizing results of the survey and recommendations for future work.

1.2 PROJECT LOCATION AND ENVIRONMENTAL SETTING

The district of 'Ewa (or The 'Ewa Plain, as it is often referred) located on the southwest side of O'ahu, was formed by "a broad elevated coral reef partly covered by alluvium carried out from the mountains" (Macdonald et al. 1983: 420). The district of 'Ewa has undergone numerous changes in modern times.

The project area is located along both the east and west sides of Fort Weaver Road. The project area is bounded by residential housing and the Coral Creek Golf Course to the north, the Hawaii Prince Golf Course and residential housing to the south, undeveloped land to the east and the former Barbers Point Naval Air Station to the west. Fort Weaver Road bisects the project area.

Elevation of the 'Ewa Plain ranges from sea level to over 200 feet (60.96 m) above mean sea level (AMSL). Approximately 20 inches (50.80 cm) of rain falls annually (with the majority occurring between November and February) with temperatures ranging between 60E and 90EF with the highest temperatures occurring in August and September (Armstrong 1983).

The only permanent running water at Honouliuli is located in Honouliuli Gulch, located on the northeast side of the *ahupua'a*, adjacent to the *ahupua'a* of Ho'ae'ae.

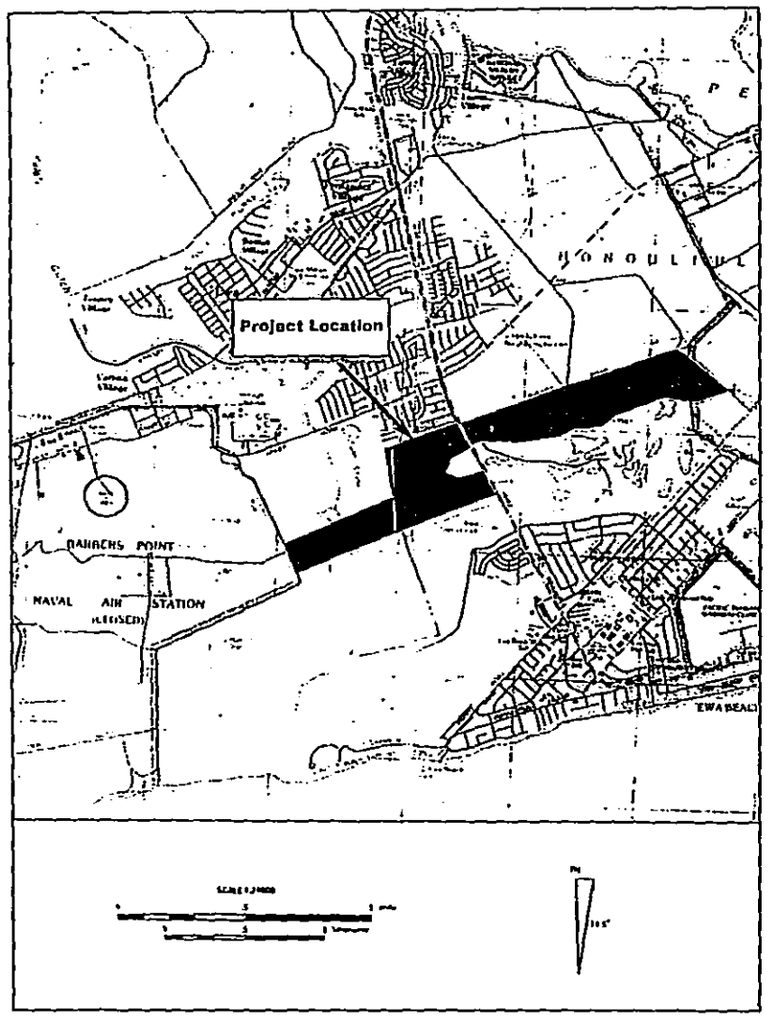

Figure 1. Approximate Location of Project Area depicted on USGS Ewa and Pearl Harbor Quadrangular Map, 1998 and 1999.

1.2.1 Vegetation

Vegetation throughout the 'Ewa Plain consists of a variety of alien plants including: lantana (*Lantana camara*), *koa haole* (*Leucaena glauca*), *klu* (*Acacia farnesiana*), *kiawe* (*Prosopis pallida*), finger grass (*Chloris* sp.), natal grass (*Tricholaena rosea*), and various ornamental trees and bushes.

1.2.2 Soils

Soils in the region of 'Ewa include: the Waipahu Series, Honouliuli Series, Pearl Harbor Series, Kaloko series, Ewa Series, Mamala series, Filled Land, and Coral Outcrop (Foote et al. 1972). Each of these soils is briefly discussed below.

Coral Outcrop consists of coral or cemented calcareous sand on the island of Oahu. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. Elevations range from sea level to approximately 100 feet. . .This land type is used for military installations, quarries, and urban development. Vegetation is sparse. It consists of *kiawe*, *koa haole*, and fingergrass (Foote et al. 1972:29).

Fill Land consists mostly of areas filled with bagasse and slurry from sugar mills. A few areas are filled with material from dredging and from soil excavation. Generally, these materials are dumped and spread over marshes, low-lying areas along the coastal flats, coral sand, coral limestone, or areas shallow to bedrock. . .This land type is used mostly for the production of sugarcane (Foote et al. 1972:31).

Honouliuli Series consists of well-drained soils on coastal plains on the island of Oahu in the Ewa area. These soils developed in alluvium derived from basic igneous material. They are nearly level and gently sloping. Elevation ranges from 15 to 125 feet. . .These soils are used for sugarcane, truck crops, orchards and pasture. The natural vegetation consists of *kiawe*, *koa haole*, fingergrass, bristly foxtail, and bermudagrass (Foote et al. 1972:43).

Kaloko Series consists of poorly drained soils on coastal plains on the islands of Kauai and Oahu. These soils developed in alluvium derived from basic igneous rock; the alluvium has been deposited over marly lagoon deposits. The soils are nearly level. Elevations range from sea level to 20 feet. . .These soils are used for irrigated sugarcane and pasture. The natural vegetation consists of *kiawe*, klu, bermuda grass, and annuals (Foote et al. 1972:58).

Mamala Series consists of shallow, well-drained soils along the coastal plains on the islands of Oahu and Kauai. These soils formed in alluvium deposited over coral limestone and consolidated calcareous sand. They are nearly level to moderately sloping. Elevations range from nearly sea level to 100 feet on Oahu but extend to 850 feet on Kauai. . .These soils are used for sugarcane, truck crops, orchards, and pasture. The natural vegetation consists of *kiawe*, *koa haole*, bristly foxtail, and swollen fingergrass (Foote et al. 1972:93).

Waipahu Series consists of well-drained soils on the marine terraces on the island of Oahu. These soils developed in old alluvium derived from basic igneous rock. They are nearly level to moderately sloping. Elevations range from nearly sea level to 125 feet . . .These soils are used for sugarcane and homesites. The natural vegetation is fingergrass, bermuda grass, bristly

foxtail and *kiawe* (Foote et al. 1972:134).

Pearl Harbor Series consists of very poorly drained soils on nearly level coastal plains on the island of Oahu. These soils developed in alluvium overlying organic material. Elevations range from nearly sea level to 5 feet. . .These soils are used for taro, sugarcane, and pasture. The natural vegetation consists of cattails, mangrove trees, California grass, and sedges (Foote et al. 1972:112).

2.0 ARCHIVAL RESEARCH

The information discussed below was obtained from a document and literature search conducted at the State Historic Preservation Division, Department of Land and Natural Resources Library at Kapolei, The State of Hawai'i Library and The State Bureau of Conveyances. Materials obtained from this search are used in the current document to assess possible impact to cultural resources. Based on these results, recommendations will be presented for further archaeological work.

2.1 TRADITIONAL HISTORY

Several works have summarized the traditions of 'Ewa. Among these are Sterling and Summers (1978), Kelly (1991), and Charvet-Pond and Davis (1992). The reader is referred to these for more detailed information. Presented below is a brief discussion, highlighting the themes of the 'Ewa Plain.

Sterling and Summers (1978) relates an interesting legend regarding the creation and name of the 'Ewa Plain:

> When Kane and Kanaloa were surveying the islands they came to Oahu and when they reached Red Hill saw below them the broad plains of what is now 'Ewa. To mark the boundaries of land they would throw a stone and where the stone fell would be the boundary line. When they saw the beautiful land lying below them, it was their thought to include as much of the flat level land as possible. They hurled the stone as far as the Waianae range and it landed somewhere in the Waimanalo section. When they went to find it, they could not locate the spot where it fell. So Ewa (strayed) became known by that name. The stone that strayed (Sterling and Summers 1978:1).

The stone was eventually found at Pili o Kahe. The spot marks the boundary between Honouliuli and Waianae. It is said that the hill on the 'Ewa side is the male and the hill on the Waianae side is the female (Sterling and Summer 1978: 1).

Traditionally, Pu'u o Kapolei may have been the most important cultural place on 'Ewa. Pu'u o Kapolei is a volcanic cone that in ancient times had several uses (the residence of *kamapua'a*, a landmark, and a point for solar observation). The *pu'u* was said to have a *heiau* (possibly dedicated to the sun) which was destroyed prior to McAllister's O'ahu survey (1933). Tuggle and Tuggle (1997:28) claim that Pu'u o Kapolei may have been the term for the whole region of 'Ewa and not just the hill. This is based on the fact that Pu'u o Kapolei was the primary landmark for travelers between Pearl Harbor and west O'ahu with the trail passing inland of it. The *ahupua'a* of 'Ewa was known for its taro (*kalo*). In fact, 'Ewa was said to have its own taro that was favored by the inhabitants of the region. This particular type of taro was known as *Kaikoi* and was the famous type of taro grown in 'Ewa (Handy and Handy 1972). Sterling and Summers (1978) also discuss this type of taro. In a newspaper article taken from *Na Wahi Pana o Ewa*, by Ka Loea Kalaiaina, dated June 3, 1899, the merits of the 'Ewa taro are discussed:

> The native of Ewa, whether man or woman, will know just how to do it (pound

> *poi*) until your palate is pleased. This is one thing on the ka-i koi taro of Ewa. That is the taro that visitors gnaw on and find it so good that they want to live until they die in Ewa. The poi of ka-i koi is so delicious (Sterling and Summers 1978: 8).

Of the lands used to cultivate taro, Handy (1940) writes:

> Large terrace areas are shown on the U.S. Geological Survey map of Oahu (1917) bordering West Loch of Pearl Harbor, the indication being that these are still under cultivation. I am told taro is still grown here. This is evidently what is referred to as "Ewa taro lands" (Handy 1940: 82).

Traditionally, the ʻEwa district was an alii stronghold. This is attributed to the fact that Pearl Harbor was abundant with marine resources.

> The primary reason for ʻEwa's prominence in history and as an aliʻi stronghold was undoubtedly the existence of the great number of fishponds at different points around Pearl Harbor, which was ʻEwa territory. . .The Pearl Harbor ponds were stocked with various kinds of fish, but especially mullet, because these inland waters were the summer home of the mullet of Oahu (Handy and Handy 1972:470).

2.2 HISTORIC LAND USE

Kamehameha gave the entire *ahupuaʻa* of Honouliuli to Kalanimoku, after he conquered Oʻahu, with the right that he could pass it on to his heirs. Later, Kalanimoku passed on the land to his sister Wahinepiʻo.

The entire *ahupuaʻa* of Honouliuli (Land Commission Award 11216, Apana 8; approximately 43,250 acres) was awarded to a granddaughter of Kamehameha I, Mikahela Kekauʻonohi, one of the wives of Kamehameha II and daughter of Wahinepiʻo (who she likely claimed the land through). Kekauʻonohi was awarded land on all of the Hawaiian Islands including the *ahupuaʻa* of Honouliuli and Waimalu on Oʻahu (LCA records on file at the State of Hawaiʻi, Bureau of Conveyances; Vol. 9, pg. 659). "About 150 acres of the *ahupuaʻa* (Honouliuli) were excluded as part of *kuleana* awards to commoners" (Tuggle and Tuggle 1997:34). A total of 72 awards were made all of which appear to be in or adjacent to Honouliuli Gulch (Tuggle and Tuggle 1997:34), which is not within or near the project area.

By the 1850's cattle ranching was firmly established at ʻEwa with an estimated 12,000 head of cattle. By 1877, James Campbell was said to have some 32,000 head of wild cattle (Briggs 1926, quoted in Kelly 1991: 162). The sugar industry in Hawaii began to rapidly expand in the 1890's and severely altered the appearance of the ʻEwa Plain and the rest of the islands. Construction for the Oahu Railway & Land (OR&L) railroad began in 1889 and eventually went around the island. This opened up ʻEwa and the rest of Oʻahu for sugar, pineapple, and eventually military use.

In 1888, Benjamin F. Dillingham's company Oahu Railway and Land Company began construction of the OR&L railroad that was to extend westward from Honolulu. By 1890 it

extended to Pearl City, by 1895 it extended to Waianae, and by 1899 it extended to Kahuku, the farthest point form Honolulu (National Register of Historic Places Nomination Form; see Appendix A). The railroad carried both passengers and freight. The railroad was instrumental in the development of several sugar plantations (Ewa Plantation Company, Kahuku Plantation Company, Oahu Sugar Company, and the Wailua Agricultural Company) as well as James Dole's pineapple efforts in central Oahu. During World War II, the Oahu Railway, as it became to be known, transported supplies, munitions, troops, and defense workers. At its height, the Oahu Railway consisted of 175 miles of track. After World War II, railroad business declined dramatically – in 1947 all operations outside of Honolulu were abandoned, a pineapple shuttle from Pier 34 to the cannery ceased operation in 1972. A portion of the railroad right-of-way between Nanakuli and Honouliuli was placed on the National Register of Historic Places.

In 1893 the first sisal or *malina* (*Agave sisalana*) plants were imported from Florida (approximately 20,000 plants) and experimentally planted in an area southeast of Puʻu o Kapolei. The Hawaiian name, *malina*, means marine, indicating that the plant was used in the manufacturing of marine ropes (Neal 1965: 225). The Hawaiian Fibre Company was established in 1898 to utilize the sisal grown on the 300 acre plantation in ʻEwa (Tuggle and Tuggle 1997: 37). The production of sisal in ʻEwa continued into the 1920's.

By the 1920s, Honouliuli was used almost exclusively for sugar cultivation and ranching. The ʻEwa Plantation Company controlled approximately 12,000 acres which included sugar cane, a sisal plantation, residential areas for several thousand people, and a limestone quarry. The Oʻahu Sugar Company controlled 3,000 acres although not all of it was planted in sugar. Honouliuli Ranch, the largest landholder, controlled approximately 20,000 acres with much of it considered waste because it contained gullies and rocks. Six thousand acres were reportedly planted in pineapple, or forest and wetland.

Frierson (1973) indicates that the Ewa Plantation Company drastically altered the landscape in an attempt to increase the amount of fertile agricultural land. Prior to the rainy season, the plantation excavated drainage ditches from the lower slopes of the Waiʻanae range down to the lowlands. Vertical channels were cut into the adjacent slopes to encourage erosion. Frierson writes that "enough soil was washed down the ditches and deposited on the plain to reclaim 373 acres in a few years" (Frierson 1973:17). "By 1931, ʻEwa Plantation had seventy artesian and four surface wells with eighteen pumps (Wilcox 1996: 107).

The ʻEwa Plantation was acquired by Oahu Sugar Company in 1970. The Oahu Sugar Company operated two mills in ʻEwa and Waipahu. Sugar cultivation along the ʻEwa Plain began a slow and steady decline in the 1970's. The Oahu Sugar Company with the demise of sugar ceased operations at ʻEwa in 1994. Real estate development has flourished including the creation of Kapolei, touted as Oʻahu's "second city."

2.3 ARCHAEOLOGICAL BACKGROUND

The first archaeological sites identified on 'Ewa were recorded by J. Gilbert McAllister (1933) in the 1930's. McAllister identified several sites on the 'Ewa Plain. Among these were Site 138, Site 139, Site 141, Site 145 and Site 146.

Site 138. Puu Kapolei Heiau, on Puu Kapolei hill, Honouliuli.

> The stones from the heiau supplied the rock crusher which was located on the side of this elevation, which is about 100 feet away on the sea side. There was formerly a large rock shelter on the sea side where Kamapuaa is said to have lived with grandmother (McAllister 1933:108).

Site 139. Kalanamaihiki fishing shrine at Kapapapuhi, Honouliuli.

> Near the end of the small tongue of land that juts out opposite Laulaunui Island in the west loch of Pearl Harbor, are two large rough stones about 2.5 feet in size, with six or seven smooth stones averaging 1 foot in size in a small pile adjoining the larger stones. The entire site is covered with akulikuli and would not be noticed or considered if the Hawaiians did not know of its former sacredness (McAllister 1933:108).

Site 141. Kaihuopalaai.

> The site is named for Kaihuopalaai, said to be the daughter of Konikonia and his wife Hinaaimalama. Fornander (37, vol5, p. 270) writes "...on Oahu, Kaihuopalaai saw a goodly man by the name of Kapapaapuhi (site 139) who was living at Honouliuli, Ewa; she fell in love with him and they were united, so Kaihuopalaai has remained in Ewa to this day. She was changed into that fishponds in which mullet are kept and fattened, and this fish is used for that purpose to this day" (McAllister 1933:108).

Site 145. Puuloa.

> Puuloa, site where the first breadfruit in Hawaii is said to have been planted. As noted by Thrum:
>
> > Tradition credits the introduction of the breadfruit trees in these islands to Kahai, a son of Moikeha, who brought a species from Upolu, in the Samoan Group, on his return voyage from Kahiki, and planted same at Puuloa, Oahu (McAllister 1933:109).

Site 146. The Ewa Coral Plains.

> Site 146, Ewa coral plains, throughout which are remains of many sites. The great extent of old stone walls, particularly near the Puuloa Salt Works, belongs to the ranching period about 75 years ago. It is probable that the holes and pits in the coral were formerly used by the Hawaiians. Frequently the soil on the floor of the larger pits was used for cultivation, and even today one comes upon bananas and Hawaiian sugar cane still growing in them. They afford shelter and protection, but I doubt if previous to the time of Cook there was ever a large population there (McAllister 1933:109).

2.4 PREVIOUS ARCHAEOLOGY

A vast number of archaeological studies have been conducted on the 'Ewa Plain in recent years. These investigations are related to the expansive development that has taken place on the 'Ewa Plain in the last 20 years. Only a limited number of investigations will be presented here. For a complete synthesis of the cultural resources recorded on the 'Ewa Plain prior to 1995, the reader is directed to Tuggle and Tuggle (1997). Additional information can be obtained from Haun (1991) and Tuggle (1995).

In 1975, Clark and Connolly (1975) conducted an archaeological reconnaissance survey for the Honouliuli Sewage Treatment plant and ocean outfall. They surveyed the entire parcel proposed for the facility. No sites were identified. Clark and Connolly did not survey the corridor that extended makai from the plant to the ocean since it passed through sugarcane fields. However, they did survey the beach portion where the outfall would be located. No cultural features were identified. They concluded that if any significant cultural resources would be impacted, it would be located on the beach and not on the plain itself.

In 1978 A. Sinoto (1978) of the Bishop Museum conducted archaeological test excavations at Barbers Point. While excavating limestone sinkholes, Sinoto recovered the remains of numerous fossil bird bones "including the skeletal remains of many extinct species, such as large flightless geese, eagles, ibises, finches" (Kirch 1985:117). Later studies have indicated that human alteration of the environment (i.e. land clearing of the native vegetation) and direct predation may have led to the extinction of these species.

In 1979, Bert Davis (1979) conducted archaeological investigations in an area totaling approximately 1,099 acres. This area was previously surveyed by Jourdane (1979) for the proposed 'Ewa Marina Community Development. The survey resulted in the identification of 18 previously unrecorded archaeological sites (State Site Numbers 3201-3218) composed of 107 features including sinkholes, mounds, platforms, and enclosures. A second survey, performed in an area previously utilized for sugar cane cultivation, did not identify any archaeological sites.

In 1983, Hommon and Ahlo (1983) conducted archaeological subsurface testing at the proposed 'Ewa Marina Community Development Area (TMK 9-1-12:2-3, 5-17, 23, 28). The project area is located south of the area previously surveyed by Davis (1979) and Jourdane (1979). A total of five trenches were excavated. No cultural remains were identified.

In 1987, Paul H. Rosendahl, Inc, (Dicks et al. 1987) conducted an archaeological reconnaissance survey with subsurface testing on a 216 acre parcel for the proposed West Loch Estates Golf Course and parks. A total of seven archaeological sites were identified (State Sites 3318 to 3324). These sites consisted of prehistoric and historic burials and habitation sites located on Hō'ae'ae Point and on the slopes and uplands surrounding the Honouliuli Stream floodplain. Other sites recorded were remnants of an agricultural system including: irrigated pondfield cropping of the floodplain, and dryland cultivation in the surrounding slopes and uplands.

Also in 1987, Rosendahl (1987), conducted an archaeological surface survey with subsurface testing immediately adjacent to area mentioned above (Dicks et al. 1987) as part of the Environmental Impact Statement. The survey resulted in the identification of four archaeological sites including a small cemetery related to the sugarcane industry, a historic surface artifact collection area that pre-dates the sugarcane industry and a probable exposed midden pit.

In 1988, The Bishop Museum (Davis 1988) conducted archaeological testing for the Ewa Gentry project at Honouliuli (the current project area). The project area was situated in an area previously utilized for sugar cane cultivation. A surface survey previously conducted by Kennedy (1988) for the same area failed to identify any archaeological sites. No archaeological sites were identified during testing.

Cultural Surveys Hawaii (Hammatt et al. 1990) conducted archaeological investigations for the proposed 'Ewa Villages project site, immediately north of the Honouliuli Sewage Treatment Plant. A total of 616 acres were surveyed and a total of nine sites were identified, all associated with the sugar cane industry and the supporting plantation. Site types identified were: a historic cemetery, reservoir, a communal bathhouse, OR&L tracks, village store and saimin stand, and a roundhouse.

In 1990, Archaeological Consultants of Hawaii, Inc (Kennedy et al. 1991) conducted an archaeological inventory survey for the then proposed Puuloa Golf Course (now the New Ewa Beach Golf Club)(TMK: 9-1-01:27&6). The project area was bounded is at the south end of Fort Weaver Road and to the north of The Pacific Tsunami Warning Center. The survey resulted in the recording of 72 prehistoric, historic and modern sites. Most of the sites were sinkholes containing cultural material, C-shapes, enclosures and mounds. Kennedy and Denham (1992) conducted data recovery at sites slated to be impacted during construction of the golf course. It was concluded that initial occupation of the area occurred between A.D. 1020-1480. Three of the sites (3910, 3921 and 3770) were judged no longer significant following data recovery. All other sites slated for data recovery were considered significant and recommended for preservation.

In 1991, The Bishop Museum (Goodman and Cleghorn 1991) conducted an archaeological surface survey in conjunction with a historical documents and literature search for the Laulani Fairways Housing project at Pu'uloa (TMK 9-1-10: por. 7; 9-1-12:por.5). The project area is located to the south Honouliuli Sewage Treatment Plant and to the east of Barbers Point Naval Air Station and is approximately 300 acres in size (this is the current project area). No surface cultural remains were identified during the survey.

In 1991, the Applied Research Group (Jayatilaka et al. 1992) conducted an archaeological survey with subsurface testing on a 270-acre parcel for the then proposed Hawaii Prince Golf Course (also the current project area)(TMK 9-1-10). No surface archaeological remains were identified during the survey. Eleven backhoe trenches and four backhoe scrapes were excavated. No cultural remains were identified and no further work was recommended.

In 1993, Pantaleo and Sinoto (1993) conducted an archaeological inventory survey for a proposed offsite drainage system at the 'Ewa Gentry in Honouliuli. Only one historic site was identified, a concrete drainage ditch that measured 4,600 feet long, 150 feet wide and between

20 and 25 feet deep. No other significant cultural remains were recorded.

Also in 1993, the Bishop Museum (Goodman et al. 1993) conducted an archaeological reconnaissance survey of a proposed commercial project. The project area is located south and east of the Honouliuli Sewage Treatment Plant, and to the west of Fort Weaver Road, surrounded to the north, south and west by former sugarcane fields (the current project area) (TMK 9-1-69:por. 5). No cultural remains were identified.

In 1996, Scientific Consultant Services (Spear 1996) conducted an archaeological survey for an area north of the Honouliuli Treatment Plant, and west of the Tenney and Varona plantation villages. The survey concentrated on two short, shallow gulches present in an area formerly used for sugarcane cultivation. No archaeological sites were identified during the survey.

Tuggle and Tuggle (1997) authored a synthesis of cultural resource studies conducted on the 'Ewa Plain. Although the manuscript was prepared for the Barbers Point Naval Air Station, it examines the prehistory and history, the previous archaeology, and the natural resources found on the 'Ewa Plain. Their manuscript was used in the preparation of this document and proved to be invaluable. It is highly recommended for anyone planning to work in the region.

Paul H. Rosendahl conducted three archaeological data recovery projects (1988, 1989, and 1990) at West Loch Estates Residential Increment I, Golf course and Shoreline Park located in Honouliuli, 'Ewa District, Island of O'ahu (Wolforth et al. 1998). This "work included excavations at Sites 3319, 3320, and 3321; backhoe trenching at Sites 3322 (buried fishpond) and 3324 (extensive pondfield system); and monitoring of construction activities" (Wolforth et al. 1998:ii). The other sites identified were an artifact concentration, human skeletal remains and temporary habitations. Excavations uncovered ash lenses, midden deposits, possible postholes, rock alignments, and a segment of the OR&L railway. Radiocarbon dates obtained from test excavations indicates that the pondfields were in use between 10th and 17th A.D.

2.5 SITE PREDICTABILITY

Due to the impacts of residential and road development, ranching, sugarcane cultivation, and military activities, prehistoric surface remains were not expected within the project area. However, it is possible that excavations will expose sinkholes that have been filled in by alluvium moving downslope, numerous cultivation activities and by various residential and commercial developments. These sinkholes often contain archaeological deposits (i.e. human remains, hearths and extinct bird bones). Numerous sinkholes have been recorded on Barbers Point Naval Air Station and at other areas in 'Ewa. Human burials may also be uncovered during the course of pipeline excavations. Sinkholes and human burials are the most probable site types that may be encountered during the course of the project.

3.0 METHODS

The archaeological survey was conducted on May 17, 2001. Paul L. Cleghorn, Ph.D., served as

principal investigator and main point of contact while James McIntosh, B.A. and Bonnie Whitehead, B.A., conducted the field survey.

A vehicular survey was conducted around the outer edges of the project area. When areas of interest were identified the archaeologists conducted a pedestrian survey. Given the vast amount of visibility in the area, spacing between archaeologists was between 25-35 m. The project area was photo documented using a digital camera.

4.0 RESULTS

The archaeological survey determined that the entire project area had undergone significant impacts from agricultural and developmental use. In fact, evidence of irrigation lines were still present in a large portion of the project area (Figure 2). The entire project area was devoid of any natural features or contours. No archaeological resources were present within the project area.

The area south of the Coral Creek Golf Course contains a large drainage area (Figure 3). This drain apparently serves for runoff purposes of the golf course. The drainage consists of an excavated area approximately 40 m wide and 3-4 m deep. The entire face of the drain is coral and limestone. A check of the wall of the drain failed to identify any exposed subsurface features.

The survey also determined that parcels adjacent to the current project area are currently being developed for residential housing (Figure 4). This area located along the far eastern end of the project area was previously surveyed by Jayatilaka et al. (1992). See Appendix for additional photographs of the modified nature of the project area.

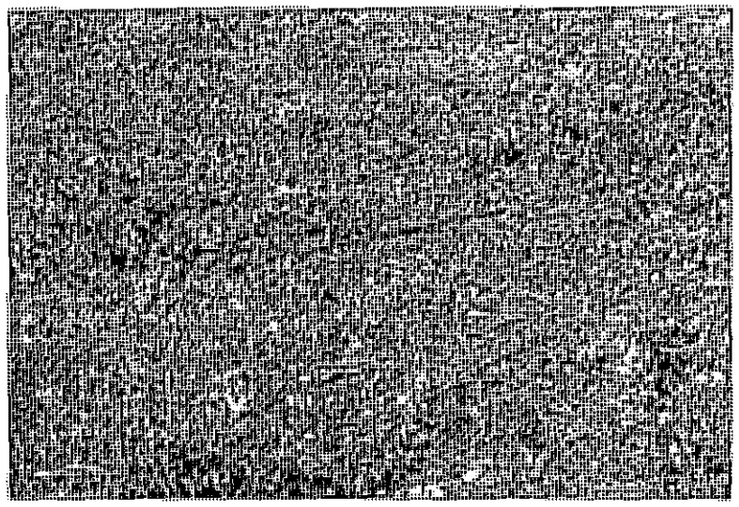

Figure 2. Drip irrigation lines still visible in project area.

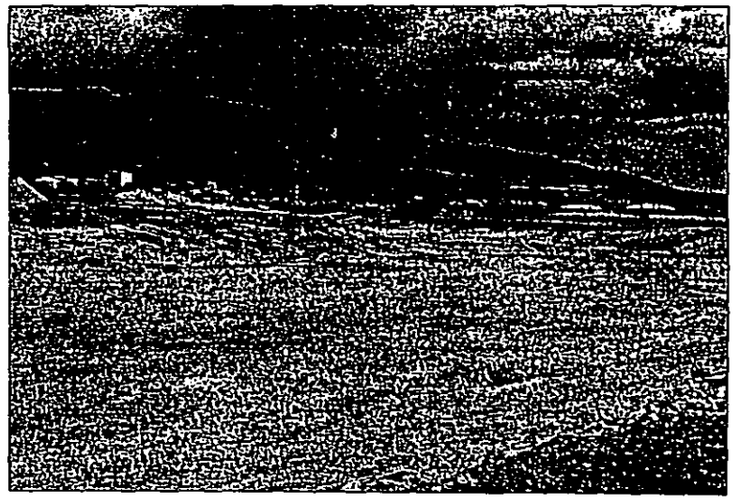

Figure 3. Photo showing drainage extending south from Coral Creek Golf Course. View to north.

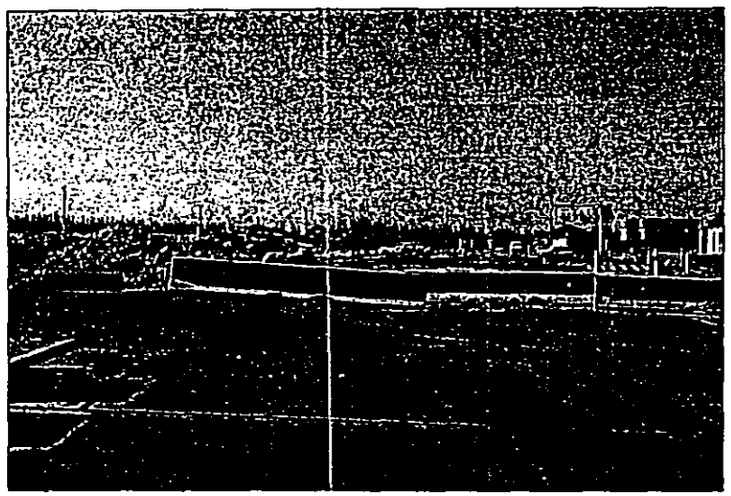

Figure 4. View of on-going development to the northeast of the project area.

5.0 SUMMARY AND DISCUSSION

The archaeological survey determined that no archaeological sites are present within the current project area. The archival research and a review of previous archaeological studies on the #Ewa Plain demonstrate that the area has undergone dramatic and extensive alterations over its long land use history. A review of the previous archaeology for the area indicated that the project area was previously surveyed by Davis (1988) Jayatilaka et al. (1992) and Goodman and Cleghorn (1991) and Goodman (1993). None of these surveys identified any cultural resources within the project area. This fact was confirmed when the current survey also failed to locate any cultural resources within the current project area (See Appendix for photographs).

Given that the project area was under sugar cane cultivation for approximately 100 years, it seems unlikely that any subsurface cultural materials are still present within the project area. While there are no surface archaeological sites, there is the possibility of encountering subsurface resources in the form of sinkholes containing cultural materials and possibly human burials. These features could be as deep as 3 feet below ground surface. It is recommended that an archaeologist be retained on an on-call basis to assist the contractor in the event that subsurface archaeological resources are encountered.

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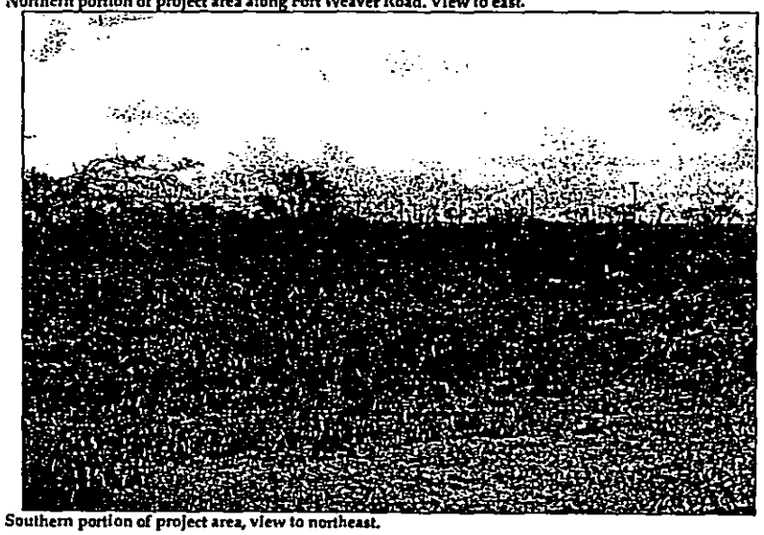
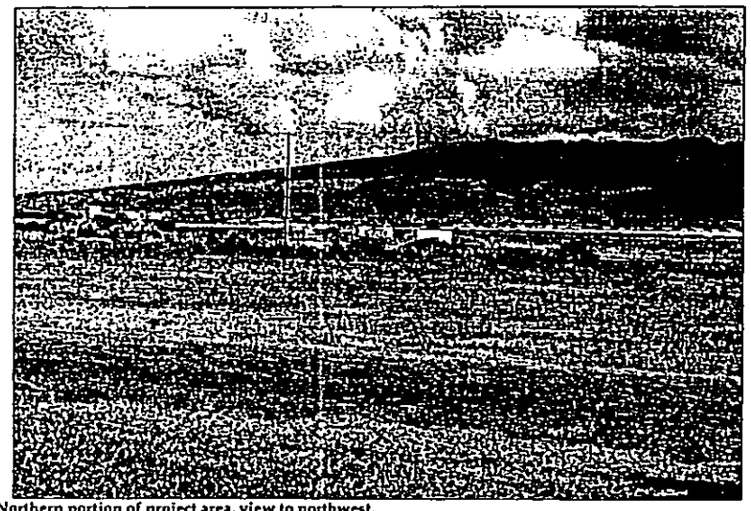
APPENDIX

PHOTOGRAPHS

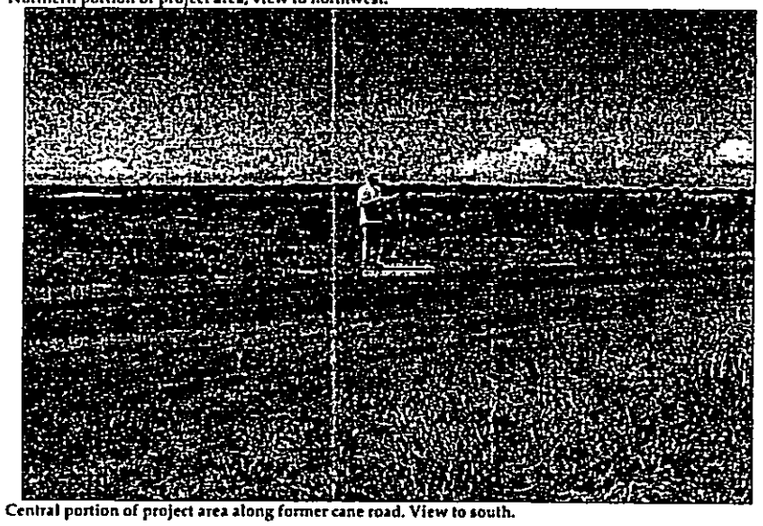
Northern portion of project area along Fort Weaver Road. View to east.



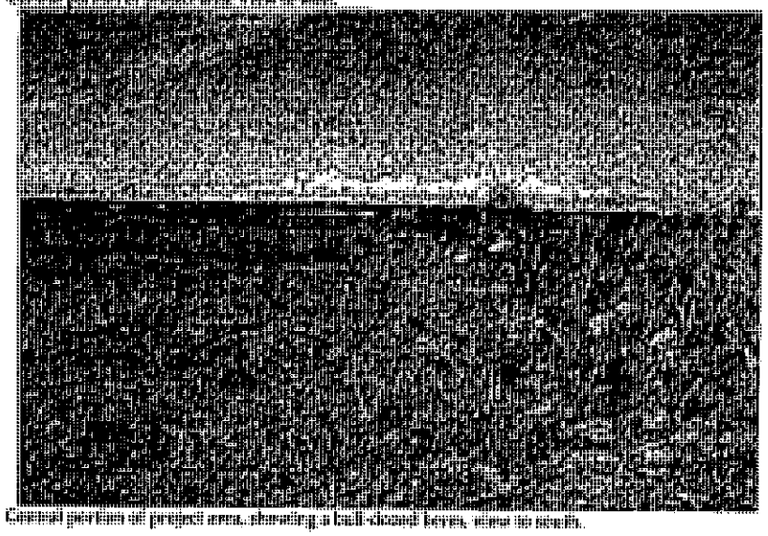
Southern portion of project area, view to northeast.



Northern portion of project area, view to northwest.



Central portion of project area along former cane road. View to south.



Central portion of project area, showing a tall closed kiawe, view to south.

APPENDIX I

A CULTURAL IMPACT ASSESSMENT FOR THE PROPOSED `EWA GENTRY MAKAI DEVELOPMENT PROJECT `EWA, O`AHU

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ABSTRACT

Gentry Properties is proposing a development project named `Ewa Gentry Makai, located in `Ewa on the island of O`ahu. As part of the Environmental Impact Statement process, a Cultural Impact Assessment was conducted and is reported upon in this document. This assessment consists of archival and oral historical research.

The research conducted indicates that this area has a long and rich cultural and legendary history. The area was an important thoroughfare for travelers to settlements on the western coastline. Oral history information gathered indicates that a traditional trail existed between nearby Pu`u o Kapolei and Pu`u o Palailai. The area was also noted as a place of mischievous wandering spirits or *ao kuewa*.

Importance is also ascribed to certain landmarks of the area. In particular, Pu`u o Kapolei was a sighting point for the summer solstice.

The area, however, has been subjected to extensive major land alterations associated with cattle raising and sugar cane cultivation. These agricultural activities have destroyed the material evidence of the traditional activities that took place in this area. It does not appear that the proposed development will have any adverse effect to traditional cultural activities in the area.

TABLE OF CONTENTS

FIGURES

TABLE

1.0 INTRODUCTION

Gentry Properties is proposing a development project named `Ewa Gentry Makai, located in `Ewa on the island of O`ahu. As part of the Environmental Impact Statement process, Pacific Legacy, Inc., at the request of Environmental Communications, conducted a Cultural Impact Assessment for the proposed `Ewa Gentry Makai development project.

The following cultural impact assessment investigations are intended to satisfy Act 50, required by law as of April 26, 2000. Act 50 requires that information concerning traditional cultural practices and features that might be affected by the proposed development be identified, and that any potential impact is assessed.

The development project will include residential housing, commercial and industrial use facilities. The project area is a 283-acre parcel located in the district of `Ewa (TMK 9-1-10:7 and 9-1-69:5), on the `Ewa Coral Plain in Honouliuli *ahupua`a*, island of O`ahu (Figure 1). The proposed project area is currently zoned for agriculture and presently consists of fallow agricultural land formerly used for sugar cane production and limited grazing activities

2.0 KUPUNA INFORMANTS

Individuals and organizations knowledgeable about the area and/or cultural practices or features relating to the area were identified and contacted. Table 1 summarizes the knowledgeable individuals and organizations that were consulted. Oral history interviews and consultations were conducted. In addition, archival research was undertaken to identify additional cultural features in the area and traditional practices that may have been conducted in the area. The following individuals were contacted:

Van Diamond is chairman of the O`ahu burial council, and was initially contacted to assist in locating knowledgeable traditional and historic informants and possible descendents of past residents of the project area. He suggested that we contact two knowledgeable *kupuna*—Shad Kane and Arline Eaton.

Shad Kane serves as chairman of the Committee of Historic Sites and Cultural Properties for the Hawaiian Civic Club. He is a retired policeman who worked in the `Ewa District from the Kapolei to Pu`uloa area, and including much of Honouliuli. He is a long time resident of the area, and currently lives in Kapolei.

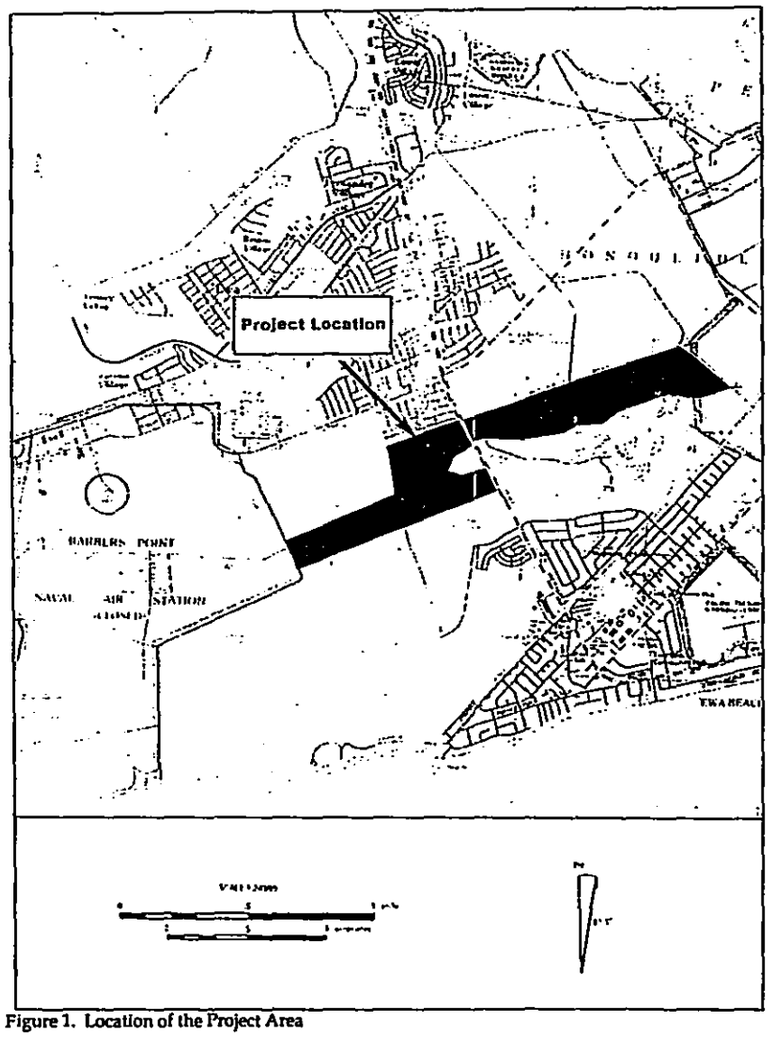

Figure 1. Location of the Project Area

Arline Wainaha Pu'ulei Brede-Eaton (born 1927) works for the Department of Education. Her family has a long history in the area, spanning four generations. She has been active in numerous cultural preservation projects.

Ms. Eaton states that to the best of her knowledge her family was the first family to move into the area in the early post contact years. She is the *hānai* (adoptive) daughter of Papa (William E.) Brede [III] and Jenny (Jane) Brede. Ms. Eaton's grandfather told her that her great grandfather, William E. Brede (I), lived on the land they were now living on since sometime after Kamehameha I. He told her that the land was not owned then, but that they had been given the right to live there. They had no amenities, and lived in a sort of lean-to house.

John Kaimikaua is a Kumu Hula active in Hawaiian cultural matters.

Pat Namaka Bacon is a noted Hawaiian Cultural Scholar who is the *hanai* (adopted) daughter of Kawena Pukui. The Bishop Museum currently employs Ms. Bacon as a Cultural Resource Specialist.

Dr. Bruce Carlson is director of the Waikiki Aquarium. He joined the staff in 1976 as a graduate student, served as Acting Director from 1986-1990, and as Director since 1990.

Table 1. Summary of Individuals and Organizations Consulted

Van Diamond	O'ahu Burial Council Chair	Referred to Shad Kane and Arline Eaton
Shad Kane	Hawaiian Civic Club: Committee of Historic Sites & Cultural Properties, Chair	Interview, referred to Arline Eaton and Kumu John Kaimikaua
Arline Eaton	Department of Education	Interview, referred to Thelma Parish
Thelma G. Parish	Member of early resident family, Retired Nun	Referred to oral history given in 1997 with K. Maly
John Kaimikaua	Kumu Hula	Telephone consultation, referred to Pat Bacon
Pat Bacon	Bishop Museum, Cultural Resource Specialist	No knowledge of area, will locate source, no response at writing
Bruce Carlson	Waikiki Aquarium, Director	Discussion of Mahina'ona

3.0 TRADITIONAL HISTORY

Pre- and early post-contact histories of the research area convey a setting that usually refers to the entire 'Ewa Coral Plain as a unit rather than the individual *ahupua'a* of Honouliuli or Pu'uloa. The 'Ewa plain is relatively flat and inclines slightly to the coastline (south, east, and west), with topography varying little. Coral sinkholes and the volcanic cone Pu'u o Kapolei are the main topographic deviation.

Pu'u o Kapolei is a traditional landmark with a rich legendary history, noted from the time of the earliest of ancient settlements in Hawaii. Historic activities, however, have destroyed much of the area and its ancient Hawaiian cultural features. The numerous cultural coral sinkholes on the plain—which includes the project area—were filled-in and plowed over during the historic cattle-grazing and later sugarcane production.

Tuggle and Tomonari-Tuggle (1997) have provided a synthesis of the 'Ewa Plain cultural environment. This information will not be restated here, however, culturally informative themes within their synthesis include: environment, vegetation and fauna, landform subdivisions, archaeology, subsistence resources, cultivation potential, important places, traditions, resources, traditional themes and pre and post-historical documentation. The reader is directed to this report for additional information.

Fresh water on the barren coral plain has often been reported as being insufficient to support a permanent or substantial Hawaiian settlement during pre-contact years. Tuggle and Tomonari-Tuggle (1997:18-21), however, summarize their in-depth research on water availability on the 'Ewa Plain asserting that their findings may have made permanent Hawaiian settlement possible in at least a number of specific locales, if not generally across the entire area. Water was identified at various locales on the plain including: the watertable in sink holes, in the wetlands, sheet runoff, spring and creek water from now dry gulches, natural limestone water traps, a few ponds mapped and documented on the plain or along the coastline, and from the major Honouliuli Stream and various lesser Honouliuli *ahupua'a* streams. The streams provided fresh *mauka* (mountain) water at the more fertile inland and internal bay locales. Fresh water is documented at the spring Hoaka lei at Kualaka'i on the 'Ewa coastline, in oral history chant—"He Mo'olelo Ka'ao No Hi'iaka I Ka Poli O Pele"—translated by Kawena Pukui et al. (1974:119) and by Kep Maly (1999:31).

Important locales of the 'Ewa Plain are mapped and summarized in Tuggle and Tomonari-Tuggle (1997:21-24). A few of these locations are important to the traditional history of the project area. They include: Pu'u o Kapolei (a volcanic cone or hill), the plain of Kaupe'a (barren home for wandering spirits), Hoaka lei (legendary spring), Pu'uloa salt works, residence of chiefs at Pu'uloa and Lihu'e, Honouliuli Gulch and agricultural fields, Kalaeloa (Barbers Point) and its lighthouse, Kaihuopala'ai (West Lock Bay), and Ko'olina village the later residence of James Campbell "Lanikohonua" (Figure 2) Additional information concerning Pu'u o Kapolei and the Plain of Kaupe'a is documented below.

The extent of pre-contact settlement on the 'Ewa coral plains is debated. Early contact observations account for a marginal population on the plain, and two more populace settlements on the coastline within Kaihu o Pala'ai (West Lock Bay). Early Hawaiians in the 'Ewa Coral Plains area, as documented by oral histories and archaeological investigations, had access to various resources such as a rich variety of: marine fish, shellfish, and seaweed. These resources were found along the coastline, in cultural fishponds, and in Keawalau o Pu_uloa (Pearl Harbor). The upper stream gulches and the inland harbor coastline provided fertile grounds for irrigation and agricultural cultivation, predominately *taro*. Inland and plain sinkhole cultivation provided access to sweet potato, banana, coconut, *milo*, *noni*, sugar cane, breadfruit, ti, *koali`ai*, *'aheahea, and pai`hi`iha* vegetation, etc. (Fornander 1916-20,II: 400;

Kamakau 1991:110; Tuggle and Tomonari-Tuggle 1997:13,15).

The 'Ewa Plain was home to a variety of wild terrestrial plants and birds. In the legend—"He Mo'olelo Ka'ao No Hi'iaka I Ka Poli O Pele"—Hi'iaka travels through 'Ewa, noting important geographical locales as well as many trees, plants, and flowers. Flora mentioned include: *nene* grasses, *kupukupu* ferns, noni trees, *ma'o* (*Gossypium tomentosum*, yellow Hybiscus), varieties of *lehua, koai'a, 'ilima* (*Sida fallax*), *'ohai* (*Sesbania tomentosa*), *Kukui, Kauna'a* (*Cuscuta sandwichiana*), *'uala* (sweet potato), *pilipili-'ula* (*Chrysopogon aciculatus* [grass]), *wiliwili* trees (*Erythrina* sp.), and *noho* (*Tribulus cistoides*). This legend was first published in Hawaiian in the Hawaiian newspaper *Ka Hoku o Hawai`i* from September 18, 1924 -July 17, 1928. Emerson (1978:167) translated parts of this legend, and more recently Kepa Maly (1999:31) translated parts relating to 'Ewa. Maly paraphrases a portion of his translations within the Hi'iaka legend chant mentioned above:

> Descending to the flat lands of Honouliuli, Hi'iaka then turned and looked at Pu'uokapolei and Nawahineokama'oma'o who dwelt there in the shelter of the growth of the *'ohai* (*Sesbania tomentosa*), upon the hill...When Hi'iaka finished her chant, Pu'uoKapolei said...So it is that you pass by without visiting the two of us. Lo, we have no food with which to host you. Indeed, the eyes roll dizzily with hunger. So you do not visit us two elderly women who have cultivated the barren and desolate plain. We have planted the *'uwala* (sweet potato) shoots, that have sprouted and grown, and have been dedicated to you, our lord. Thus as you travel by, pull the potatoes and make a fire in the *imu*, so there will be relief from the hunger. For we have no food, we have no fish and no blanket to keep us warm. We have but one *Kapa* (covering)...in the time when the grasses dry, and none is left on the plain, we two are left to live without clothing. (Maly 1999:35)

The Hi'iaka chant—"He Mo'olelo Ka'ao No Hi'iaka I Ka Poli O Pele"—discussed above describes the travels of Hi'iaka through the plains of 'Ewa as she has been sent by her sister *Pele* (volcano goddess) to bring her desired lover from Kaua'i to Hawai'i Island; there are descriptions of a diverse area environment and reference to the natives of Pu'uloa, and persons living on Pu'u o Kapolei and the plains (Maly 1999:31-35). Pu'uokapolei and Nawahineokama'oma'o may refer to mythological persons or land features; Pu'uokapolei has long been the name of a hill on the 'Ewa Plain, however a physical association with the term Nawahineokama'oma'o has not yet been identified. The above reference clarifies that in ancient times, the plain was indeed considered marginal in regards to flora and subsistence during the dry seasons; it also shows that the plain usually had enough water to support grasses and other plants and trees. Habitation may have been difficult at many locations on the 'Ewa Plain, but references such as the selections above and below show that the variety of resources available were, although difficult and tedious, accessible.

Emma Metcalf-Nakuina notes that:

> Kamapuaa subsequently conquered most of the island of Oahu, and, installing his grandmother as queen, took her to Puuokapolei, the lesser of the two hillocks forming the southeastern spur of the Waianae mountain range, and made her establish her court

there. This was to compel the people who were to pay tribute to bring all the necessities of life from a distance, to show his absolute power over all,

Puuokapolei is some little distance from Sisal, towards Waianae, and is as desolate a spot as could be picked out on the whole island. It is almost equally distant from the sea, from which came the fish supplies; from the taro and potato patches of Ewa, and from the mountain ravines containing the banana and sugar cane plantations. (Emma Metcalf-Nakuina 1904:50)

The environment in the research area is documented in numerous historic descriptions as being barren, desolate, and generally unpopulated. Ancient oral histories also refer to the area as barren, however, in considering the flora and avifauna depicted in ancient chants and oral history accounts such as those above, the references to *barren* may have much to do with the relative comparative island environments. Archaeological investigations, reported in the next section, show that sinkholes on the plain were utilized for agricultural purposes. It is likely that any ancient and pre-contact permanent habitations were close to the coastline or stream outlets, at least for those who did not rely on tribute subsistence.

Following the contact years, the area attracted a minimal number of foreign settlers. Only those that could use the area as commercial investment desired land in this area. Initially, the salt-works and cattle (grazing) industries dominated the land, and later sugar cane agriculture extended *makai* into the plain beyond the current project area.

4.0 KUPUNA TESTIMONY

4.1 *Ahupua'a* Boundary

Ms. Eaton asserts that the current *ahupua'a* map is inaccurate (Figure 2). The boundaries as she knew them extended Pu'uloa some distance to the west and north from its current northern-western boundary with Honouliuli ', and further across Pearl Harbor to the eastern

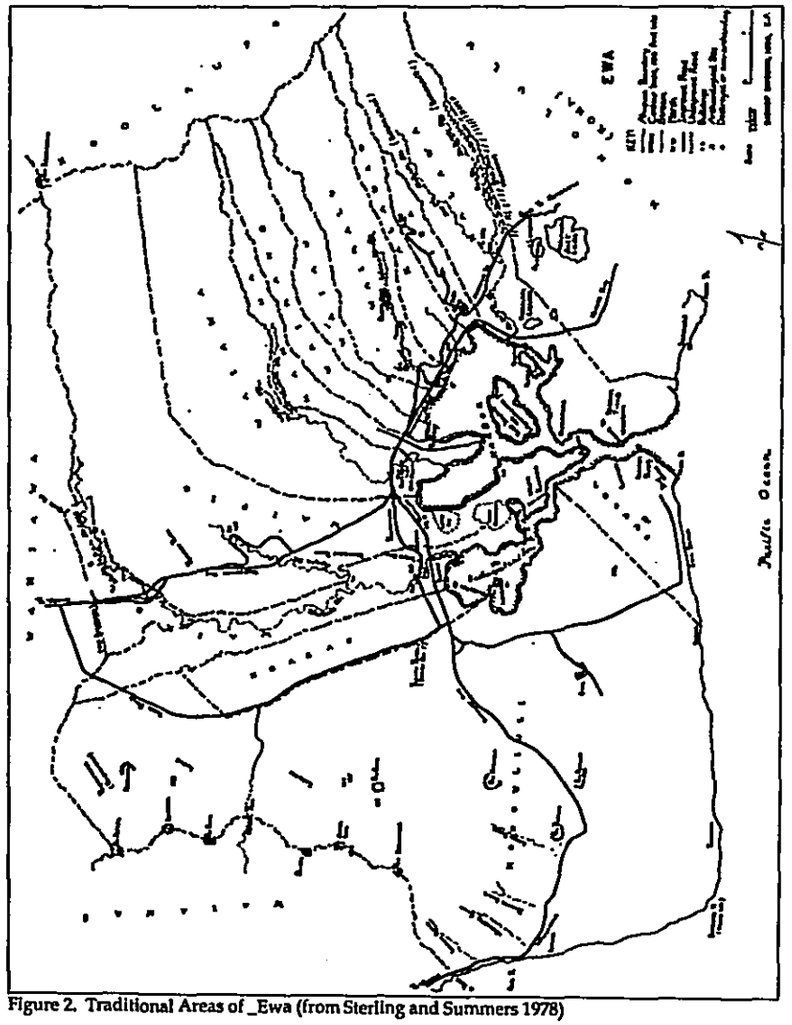

Figure 2. Traditional Areas of _Ewa (from Sterling and Summers 1978)

shore. She believes that the current project area is actually in the Pu'uloa *ahupua'a*, not in Honouliuli *ahupua'a*. She describes the project area as being desolate and uninhabited during her childhood prior to sugarcane production, and recalls it being referred to as Kealia. Sterling and Summers (1978) indicate Pu'uloa as a separate *ahupua'a*. On the other hand, Tuggle and Tomonari-Tuggle (1997) indicate that Pu'uloa was an *'ili* within the *ahupua'a* of Honouliuli. The Hawaiian Studies Institute (1987) seems to support Tuggle and Tomonari-Tuggle.

4.2 KAUPE'A AND THE *AO KUEWA* (REALM OF THE WANDERING SPIRITS)

Mr. Shad Kane conveyed the following insights into the history of the lands of Pu'uloa and Honouliuli; he believed that the 'Ewa inter-coastal plains remained fairly desolate during the pre and early post-contact years. He attributed this to two factors: the marginal environment, and ancient-traditional oral histories that identify the area as the "barren place for mischievous wandering spirits." Hawaiians, he states, believed in a concept called *wailua* (the dream spirit) that contained two energies within the body, one good and one bad. The concept held that one's *'aumakua* (deified deceased ancestors and family or personal gods) would help the spirit of a deceased Hawaiian descendent, when it left the body, to travel to a leaping point where the new spirit could leap into the next realm. Kaaena Point is the leaping point most often referred to near the project area (each island had its own geographical leaping points). Lanaakahuhani was the desired afterlife spirit realm where one's good *wailua* spirit energy experienced a favorable existence, as a result of the assistance received from one's *'aumakua*. If one did not conduct one's self in life to the satisfaction of their *'aumakua* they might not receive the assistance needed to reach Lanaakahuhani. This would cause the bad *wailua* spirit energy a type of banishment to a local *ao kuewa*—realm of the earthly wandering homeless and mischievous spirits. One such *ao kuewa* is on the 'Ewa plains in an area called Kaupeaa (crisscrossing, intermingled)—this area then is known as the "barren place for wandering mischievous spirits." Mr. Kane added that throughout his many years as a policeman in the area he saw many unexplainable situations that made him contemplate the undesirable *wailua* spirit in the *ao kuewa* of Kaupe'a, 'Ewa.

Martha Beckwith writes that Hawaiian teachings, according to *kahuna* pose that:

> ...death to the body (kino) does not entail death to the spirit (uhane [or wailua]) ...experiences of the soul after it leaves the body at death...follow traditional ideas...probably influenced by later development of the aumakua belief. There is a place of the dead, reached at some leaping place, with which is connected a branching tree as roadway of the soul. Elaborations enter...as a result of the part conceived to be played by the aumakua in protecting and sheltering the soul and leading it to its aumakua world. The worst fate that can befall a soul is to be abandoned by its aumakua and left to stray, a wandering spirit (kuewa) in some barren and desolate place, feeding upon spiders and night moths. Such spirits are believed to be malicious and to take delight in leading travelers astray; hence the wild places which they haunt on each island are feared and avoided. Such are the plains of...the rough country of Kaupea at Puuloa on Oahu...In these desolate places lost spirits wander until some friendly aumakua takes pity upon them.

> Other leaping places of the soul (Leina-ka-uhane) are named at different points...and Kaena on Oahu; (Beckwith 1976:154,156)

Sterling and Summers document two historical references to the wandering spirits and their O'ahu home Kaupe'a, which were spoken of by Mr. Kane. The first reference was translated from the Place Names – O'ahu stories in the Hawaiian newspaper *Ke Au Hou*, an edition dated July 12, 1911:

> The plain of Kaupea on the plain of Puuloa was where the ghosts wandered to catch night moths and spiders for food. It extended from the wiliwili trees of Kaupea to Kanehili. (Sterling and Summers 1978:44)

The second reference by Kamakau reveals that:

> On the plain of Kaupe'a, beside Puuloa, wandering souls would go to catch moths and spiders. However, wandering souls would not go far in the places mentioned earlier before they would be found...by [the] 'aumakua souls, and be helped to escape. Those souls who had no such help were indeed friendless, (Kamakau 1964:49)

There appears to be a possible discrepancy concerning the *ahupua'a* in which Kaupe'a lies. In the 1911 *Ke Au Hou* newspaper article, Kaupe'a is said to be on the plain of Pu'uloa, but extends west to Kanehili. Mr. Kane places the location of Kanehili within the boundaries of Honouliuli *ahupua'a*, to the west of the current project area. Kamakau's earlier reference (written in the mid-half of 19th century) places Kaupe'a beside Pu'uloa. It is not clear if Kamakau is referring to Pu'uloa as the *ahupua'a* or the locale area along the west coastline at the mouth of the harbor, but the *Ke Au Hou* reference clarifies that the Kaupe'a area extended west to Kanehili. Oral testimony documented above indicates that an error may exist for the current boundaries of the *ahupua'a* of Pu'uloa and Honouliuli. Nonetheless, both *ahupua'a* are relative to the history of the 'Ewa Coral Plain and the current project parcel. The location of the Kaupe'a *wili wili* trees was not clearly established, thus Kaupe'a perimeters could not be accurately mapped. The current project parcel, however, definitely lies within the traditional area of Kaupe'a, according to these descriptions.

4.3 THE LANDS OF 'EWA

The lands of 'Ewa are described by several early historical sources, with reference to the barren lands of Pu'uloa and Honouliuli; Vancouver, while anchored at the entrance to *Kaihu o Pala'ai* (West Lock Bay) in 1793, noted that:

> The part of the island opposite to us was low...forming a level country between the mountains that compose the east and the west ends of the island." (Vancouver 1883,v3: 361, 363)

The coral plains of Pu'uloa and Honouliuli lie west of Vancouver's location. He adds that:

> This tract of land was of some extent, but did not seem to be populous, nor to

> This tract of land was of some extent, but did not seem to be populous, nor to possess any great degree of natural fertility; although we were told that, at a little distance from the sea, the soil is rich, and all the necessaries of life are abundantly produced. (Vancouver 1883,v3: 361, 363)

The latter more fertile lands referred to are likely those, which lie to the northwest, inland of the inner bay coastline.

McAllister in referring to the `Ewa coral plains during his survey in 1930 (Site 146) states that there are remains of many sites throughout this area, and that

> It is probable that the holes and pits in the coral were formerly used by the Hawaiians. Frequently the soil on the floor of larger pits was used for cultivation...bananas and Hawaiian sugar cane still growing in them...I doubt if previous to the time of Cook there was ever a large population here. (McAllister 1933:109)

Mr. Shad Kane's oral testimony (above), in part, agrees with the observations of Vancouver in 1793 and McAllister in 1930, and with the historical sources of Beckwith (1940) and Sterling and Summers (1978). These sources support a similar pre-contact and early post-contact environment for the `Ewa Coral Plains of Pu`uloa and Honouliuli *ahupua`a*; the area supported a marginal early population and agricultural environment. Much of the land to the west of the harbor was barren in pre-contact years, gaining its reputation as the "barren place for wandering spirits."

Ms. Eaton discussed a collaboration interview that she and her good friend Sister Thelma Genevieve Parish had participated in with Kepa Maly, in May of 1997 (Maly 1999:44). Sister Parish was not available at the present time, but she had shared extensive information about the `Ewa plains with Maly in 1997. Portions of her testimony describe the early 20th century environment of the Honouliuli Pu`uloa area—the current project area—and include comments relating to historic cultural practices, place names of her childhood era, and the environmental settings of the area during her youth:

> ...the pasturage seems unlikely in our terms today, because it's not meadow-like, but it was just virgin country and the *pipi*, the cattle were turned loose. And then there were divisions (many of them were stone wall enclosures) so that you had one paddock [fattening grounds] following another paddock, following another paddock. So when we left Honouliuli, we were coming through the tail end of the cane lands, then we'd come to a gate, we'd have to stop and get out...and so we had to break or hack-hack at the branches of the *kiawe* trees that had grown over the road after our last visit. And we'd come down, and I'd have to jump out of the car again, and open the next gate, wait until he'd gone through and close that gate. I think we had to do that three or four times...There were coral stone walls and also many were wire fencing, the barbed wire...strung from one *kiawe* wood post to the next...And the gates were swung from larger posts, embedded in the coral.

> My grandmother's property was always...sort of located by the height of the windmill. She had the only windmill in the area and it was a landmark... Kupaka, as I knew it then, is now Parish Drive...And so we referred to that whole area...the area we went through, before reaching my grandmother's country home, was that of Mitsuyasu...[they had] a charcoal burning establishment...Mitsuyasu must have been here before 1925. I know, I found my grandmother's records, and she built her home in '25...So they had come around that time...could have been here before that.
>
> ...The salt works were the focal point of the ownership, of my great grandfather's ownership...[he] commercialized in salt, and sold it.
>
> The only other habitation, if I can refer to it as such, was my cousin's country home, and she was the daughter of Samuel Dowsett. And [he] had an old country home down in this area. And then beyond to the west of my grandmother's holdings was, where the holdings of my grand uncle Alika, that's Alexander Cartwright Dowsett. And his old home was visible from the beach area outside my grandmother's home.
>
> Ewa Village was the last plantation area of this whole locale, and Ewa Plantation was very much in the works, and they had their extensive cane fields, through Honouliuli and all the way around, along Farrington Highway, almost to Nanakuli...The changes have been tantamount, but they've come about primarily with the closing down of sugar. (Maly 1999:44)

Maly noted that "the aunties were talking about new place names in the `Ewa District, and how inappropriate they were, some not even of Hawaiian origins]" He asked their opinion on this and Sister Parish stated that "There's no excuse for them not to research and find names applicable to the area". Auntie Arline stated "That's what happened with that Gentry, they just...look at the names they have." Sister Parish added, "It reflects a good deal of the *po`e haole* [foreign] thinking...It's so stupid! To have to put up with these nonsensical names.".

Ms. Eaton provided the following information to us regarding the area of her childhood.

As a young child Ms. Eaton spent her weekdays at their home in Kalihi and weekends and holidays at the Pu`uloa residence, later making the Pu`uloa residence her full time home. She states that her childhood playmates at Pu`uloa roamed the area freely, and ventured as far as Kalaeloa (Barber's Point) to the west. Ms. Eaton and her childhood friends often visited the Robins family at their home near and a little inland of the lighthouse at Kalaeloa. The Robins were the third family to move into the area, as she recalls, because Mr. Robins was to be the lighthouse keeper. She and her friends explored the coral plains and the coastline, and came to know it well. She recalls that they often came upon individuals fishing along the beaches, who sometimes shared fish they were cooking with her and her friends. She recalls the meals as being very delicious, and often including lobster. Auntie Arline shared that although they were just small children, they had no fear of persons coming to utilize the beaches. "Anyway" she states "if they had tried any mischief we had just to run, because no one knew the area as we did. We often played in the wetlands, they are of particular importance to us then and now."

of her family the Brede's, the Dowsett-Parish families, and the Robins' family.

Papa Brede, Ms. Eaton's father, told her that sometime during the time of Kamehameha II or III, she was unsure—the king sold the Dowsett family most of Pu'uloa. Being the second permanent residents in the area, they established a home in Kupaka (the area of present day Parish Road), but their land ran from Iroquois point to Campbell high school and west through what is now called 'Ewa Beach and Pohakupuna Road to just before Oneula Beach. Ms. Eaton believes that the king, possibly being Liholiho, may have needed money at the time and thus deciding that the barren lands of Pu'uloa and Honouliuli were suitable for selling. Sometime after this land sale, the Dowsett-Parish family sold William Brede (I) the land on which they lived. The first ventures of the Dowsett's enterprises included the commercialized salt-works and the cattle business. Papa Brede began to work for the Dowsett's Ranch, overseeing operations.

4.4 *Mahina'ona*

Mr. Kane added that the term Kaupe'a also referred to the Hawaiian celebration of ancestors and their relationship and use of the Southern Cross Constellations.

Mr. Kane discussed a particular migration of very early inhabitants, sun-worshipers from Tahiti, who may have occupied or used for a time the area that includes the current project parcel. The construction of at least two *heiau*, one in Wai'anae and one in Waikiki are attributed to these early sun-worshipers. He did not recall the exact names of the two heiau, but knew that the Waikiki heiau was near Diamond Head. The *Opunaha Altar*, which stood on the grounds of the present day Waikiki Aquarium, is also attributed to these sun-worshipers; this site was the primary observation location for the traditional practice of viewing an event called the *Mahina'ona*. The *Mahina'ona*, he explains, refers to a vision of a bright glowing crown visible through sunset, which takes place at the beginning of *Kau* (or *Makali'i*) the warm season for the Hawaiian calendar. The date coincides with May 1 in the Western calendar. Near this date, from the area of the ancient *Opunaha Altar*, the sun sets in the west behind Pu'u o Palailai and Pu'u o Kapolei creating the vision of the glowing crown. The current project area lies in the direct path of the traditional viewing direction for the *Mahina'ona* Crown.

Tuggle and Tomonari-Tuggle also note the common associations between 'Ewa and Kahiki (the traditional homeland of Hawaiians). Kahiki is most often referred to as defining Tahiti.

Emma Metcalf-Nakuina states:

> There were sun-worshippers among the original arrivals in Hawai'i, and there were two temples dedicated to the sun on O'ahu—one at Kaneloa (a part of the present Kapiolani Park), and one at Kau'o Kala, Waianae. These temples were not for the whole population, but for only a few who claimed it as a privilege...(Nakuina 1904:8)

Dr. Bruce Carlson, director of the Waikiki Aquarium, published a historical informational flyer for the Aquarium in 1985 that details the traditional *Mahina'ona* viewing event. He stated that "Hawaiians watched the setting sun as a way of marking the seasons, and that the Wakiki

Aquarium grounds near the seal pool once contained the alter mentioned above; an important site for a significant cultural event called the *Mahina'ona*. When the sun moved north it would at one point in the year align in the west and set directly behind Pu'u o Kapolei and Pu'u o Palailai (two hills northwest of the project area). When the sun set behind these two hills at the particular alignment, a glowing crown was the result. This crown can be seen from the ancient altar site on the Aquarium grounds, which is in direct alignment. Carlson understood that this event was suppose to occur near May 1st, forty days after the spring equinox, and has personally viewed the event a few times on May 2nd.

Mr. Carlson stated that his main source was an article by Akin, Akin, and Scudder entitled "Puu o Kapolei":

> Pu'u o Kapolei is a small hill at the southern foot of the Waianae mountain range, also known more recently as Fort Barrett. Puu o Kapolei is an important cultural site and at one time contained a helau on its peak...we have found that...an observer at the stone enclosure at Queens Surf, Kapiolani Park sees the sun setting into a crown. The crown is actually Puu o Palailai, the hill directly behind Puu o Kapolei as viewed from Kapiolani Park. Thus, on Lei Day, May 1 (...the official beginning of Kau) the sun is seen to set into Puu o Palailai... (Akin, Akin, and Scudder 1985: volume IX, no.12)

Sterling and Summers cite a Kamakau reference to the *Mahina'ona* and Pu'u o Kapolei:

> ...and the Makali'i season when the sun set (kau) from Ka'ula to Kawaihoa was called Kau...When it set at Ka'ula and turned south the season was called Ho'oilo. In the same way the people of Oahu reckoned from the time when the sun set over Pu'uokapolei until it set in the hollow of Mahinaona and called this period Kau, and when it moved south again from Pu'uokapolei and it grew cold and the time when young sprouts started, the season was called from their germination (oilo) the season of Ho'oilo. There were therefore two seasons, the season of Makali'i [Kau] and the season of Ho'oilo. (Kamakau as cited in Sterling and Summers 1978:34)

Kamakau may be referring to the hollow of the *Mahina'ona* vision, however, another reading would attribute *Mahina'ona* as another name for Pu'u o Palailai. Pukui's translation of *mahina* is moon, moonlight, or glow; and *'ona* is intoxicating, etc. (Pukui 1986:219-220;288). An intoxicating glow or moonlight translation for *Mahina'ona* could refer to the vision of the crown itself, the frequent breathtaking moonlight views near the two hills, or a unique combination of the two.

4.5 Kelea, Surf-riding Chiefess from Hana, Maui

Ms. Eaton remembered being told by her grandmother, that at some point in traditional history the area of the project parcel was known as Kelea. The Kelea area, as Ms. Eaton states, acquired its name from an oral history about Kelea a famous female *ali'i* surfer from Hana, Maui, and Chief Lo Lale who abducted her from Maui and made her his wife at his court in Lihu'e, 'Ewa, O'ahu. Ms. Eaton distinguishes the project parcel with the geographical name Kelea. This oral history was conveyed to her by her kupuna:

> ...having heard of the famous Kelea, Chief Lo Lale of Lihue sent his men to Hana to surf with Kelea to Oahu. They enticed her into surfing with them in Hana, and they kept the ride going until they arrived on the beach in Puuloa. Kelea was confused when she saw her surroundings, but Chief Lo Lale was so kind and loving to her that she went to his home in Lihue to live with him, often coming down to the beaches of Ewa to surf. They were quite happy for a time, but eventually Kelea was homesick and the chief, although heartbroken, let her return to her home.

A different variation of this story is recorded in Thrum (1930:58-62) as translated from Kamakau's version. In this version, Kelea is a chiefess and the sister of Kawao who is the king of the Hamakuapoko and Kekaha sections of Maui. She is known for her beauty and expertise in surfing. Chief Lo Lale from Lihu'e, O'ahu sent a group of his attendants to find him a wife. After searching other islands they reached Maui and were told of the famous surfing Chiefess Kelea. They were told that they could find her "indulging in the rolling surf in the early morning," at Hamakuapoko. The bride delegation boarded their canoe and sailed for Hana. The delegation called to Kelea "O chiefess, make your landing on this canoe." Kelea agreed reluctantly, and "knew not that this was a woman-snatching canoe, into which she was enticed." The group rode the surf to shore and went out again, and again they landed successfully ashore. During the third trip the wind arose and the delegation stole away to sea, for their O'ahu home. They landed at Waialua, and Kelea was taken to Lo Lale in Lihu'e. He claimed her for his wife and they had three children "who became some of the ancestral chiefs of Hawaii nei." After close to ten years Kelea asked her husband for permission to go sightseeing down into 'Ewa, reluctantly he agreed.

The story continues with the trip through 'Ewa, and cites many place names. When Kelea reaches "the rumbling stream of Waipahu" she delights in "the view of the lochs of Puuloa", and they travel on through Halawa and Kawehewehe. The residents of Kawehewehe tell Kelea that "near by is the kou grove of Kahaloa from which to see the surf-riding of the chiefs, and the king, Kalamakua." Arriving at Kahaloa, Kelea secures a surfboard, and the beach crowd cheers her surfing ability and grace. At a distance King Kalamakua heard the cheers and asked what the noise was about. When told that a skilled woman chiefess caused the cheering the king guessed it was the famed Kelea of Maui. The king went to the shore and awaited Kelea. When she came in he asked if she was the Maui chiefess? "Yes," was the reply. The king then said: "Stand forth." And she did so, the king took off his kihei (mantle) and wrapped it around her as a skirt, to shield her...she became his willing spouse". They lived together as husband and wife and had a daughter, Laielohelohe.

There are several variations to this story. Most place Kelea in various 'Ewa locations. A few additional variations can be found in "Legends and Myths of Hawaii" by Kalakaua (1888:209-225,229-246), "Myths and Legends of Our New Possessions" by Skinner (1900:217-219), In The Path of The Trade Winds" by Thorpe (1924:3-12), and "More Hawaiian Folk Tales" by Thrum (1923:77-86).

Kumu Hula John Kaimikaua was contacted, and stated that he was not familiar with any cultural practices in the area in question, and that there were no chants that he knew of which referred to the area of the proposed development. He referred us to Pat Bacon.
Ms. Bacon said she was not familiar with the area, but that she would try to find someone to contact. At the time of writing, she had not yet responded.

5.0 DISCUSSION

The archival and oral historical research conducted indicates that the project parcel is located on the 'Ewa Coral Plain within an area traditionally referred to as the plain of Kaupe'a—the barren place for mischievous wandering spirits called *ao kuewa*. Further distinction places the project parcel in an area named Kelea.

This area is documented as having been a main thoroughfare for travelers to the settlements on the western coastline. A trail is documented in oral history as having passed between Pu'u o Kapolei and Pu'u o Palailai.

Any permanent Hawaiian residents of the coral plains, during both pre- and post-contact years, would have had an arduous time of acquiring subsistence resources, particularly during drought. Resources within the *ahupua'a* of Honouliuli and Pu'uloa included access to marine resources, and fertile coastline and stream gulch area agricultural lands. The abundant forest resources, mentioned above, were located north of the Honouliuli *Ahupua'a*. Avifauna was also available on the plain.

Although the project parcel and surrounding area did not support a large human settlement area, it has a rich cultural history and legendary fame. The area is referred to in many chants and oral histories. The importance of Pu'u o Kapolei as a seasonal solstice landmark related to an ancient cultural viewing event, of which the project area lies in the direct path, is of particular cultural importance. The traditional place name Kaupe'a, and its cultural significance as the "earthly place for wandering mischievous *ao kuewa*" who did not make it to the desired afterlife realm, identifies the area as an important part of the ancient Hawaiian belief system.

The only archaeological sites documented in the project parcel area thus far are the coral sinkholes, which were used for agriculture. The traditional surface for these sites have long been destroyed, with in-fill during the cattle grazing years and plowing during clearing for sugarcane agriculture.

It does not appear that the proposed development will have any adverse effect to traditional cultural activities in the area.

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Debbie Luning

From: Randy_Moore/LILI/HIDOE@notes.k12.hi.us
Sent: Tuesday, April 06, 2010 2:28 PM
To: Debbie Luning
Cc: Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us; Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us
Subject: Re: Fw: Community Meeting on April 26th, Campbell HS cafe, 7pm

Hi Debbie,

Thanks for this reminder of your Decision and Order condition.

I spoke today with Clyde Namu`o's secretary at OHA and left a message for Mr. Nauo`o that:
a) Gentry's decision & order from LUC says what it says below.
b) We want to honor Gentry's condition.
c) DOE is having a community meeting at Campbell H.S. on April 26 at 7 p.m. in the cafeteria to discuss a name for the new school.
d) Would OHA like to have a representative attend this meeting?
e) If the proposed name of the school will be Hawaiian, we will check with OHA before making a final decision.

I expect Mr. Namu`o will call me back.

Randy

Randolph G. Moore
Assistant Superintendent
Office of School Facilities and Support Services
phone (808) 586-3488
fax (808) 586-3445

From: Edward Oshiro/EWAMAKAI/HIDOE
To: Randy Moore/LILI/HIDOE@HIDOE
Cc: debbieL@gentryhawaii.com, Gail Awakuni/CAMPBELL/HIDOE@HIDOE
Date: 04/05/2010 11:39 AM
Subject: Fw: Community Meeting on April 20th, Campbell HS cafe, 7pm

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Randy, I received this e-mail from Debbie Luning, from Gentry Homes. Please read and respond to her. I appreciate it. Thanks. Ed

----- Forwarded by Edward Oshiro/EWAMAKAI/HIDOE on 04/05/2010 11:36 AM -----

"Debbie Luning" <debbiel@gentryhawaii.com>

04/05/2010 11:01 AM

To Edward_Oshiro/EWAMAKAI/HIDOE<Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us>, Stanley_Tamashiro/EWA/HIDOE<Stanley_Tamashiro/EWA/HIDOE@notes.k12.hi.us>, Gail_Awakuni/CAMPBELL/HIDOE<Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us>, Jon_Kitabayashi/ILIMA/HIDOE<Jon_Kitabayashi/ILIMA/HIDOE@notes.k12.hi.us>, Gary_Yasui/HOLOMUA/HIDOE<Gary_Yasui/HOLOMUA/HIDOE@notes.k12.hi.us>, Stacie_Kunihisa/POHAKEA/HIDOE<Stacie_Kunihisa/POHAKEA/HIDOE@notes.k12.hi.us>, Debra_Hatada/KAIMILOA/HIDOE<Debra_Hatada/KAIMILOA/HIDOE@notes.k12.hi.us>, Heidi_Armstrong/IROQUOIS/HIDOE<Heidi_Armstrong/IROQUOIS/HIDOE@notes.k12.hi.us>, Eileen_Hirota/OCEANPT/HIDOE<Eileen_Hirota/OCEANPT/HIDOE@notes.k12.hi.us>, Sherry_Kobayashi/EWABEACH/HIDOE<Sherry_Kobayashi/EWABEACH/HIDOE@notes.k12.hi.us>, Anthony_Chun/LEEDO/HIDOE<Anthony_Chun/LEEDO/HIDOE@notes.k12.hi.us>, Jamie_M_Dela_Cruz/CAMPBELL/HIDOE<Jamie_M_Dela_Cruz/CAMPBELL/HIDOE@notes.k12.hi.us>

EXHIBIT "10"

cc Gail_Awakuni/CAMPBELL/HIDOE <Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us>, Stanley_Tamashiro/EWA/HIDOE <Stanley_Tamashiro/EWA/HIDOE@notes.k12.hi.us>, Gail_Awakuni/CAMPBELL/HIDOE <Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us>, Jon_Kitabayashi/ILIMA/HIDOE <Jon_Kitabayashi/ILIMA/HIDOE@notes.k12.hi.us>, Gary_Yasui/HOLOMUA/HIDOE <Gary_Yasui/HOLOMUA/HIDOE@notes.k12.hi.us>, Stacie_Kunihisa/POHAKEA/HIDOE <Stacie_Kunihisa/POHAKEA/HIDOE@notes.k12.hi.us>, Debra_Hatada/KAIMILOA/HIDOE <Debra_Hatada/KAIMILOA/HIDOE@notes.k12.hi.us>, Heidi_Armstrong/IROQUOIS/HIDOE <Heidi_Armstrong/IROQUOIS/HIDOE@notes.k12.hi.us>, Eileen_Hirota/OCEANPT/HIDOE <Eileen_Hirota/OCEANPT/HIDOE@notes.k12.hi.us>, Sherry_Kobayashi/EWABEACH/HIDOE <Sherry_Kobayashi/EWABEACH/HIDOE@notes.k12.hi.us>, Anthony_Chun/LEEDO/HIDOE <Anthony_Chun/LEEDO/HIDOE@notes.k12.hi.us>, <stam@haseko.com>, Brenda_Lowrey/FACILITIES/HIDOE <Brenda_Lowrey/FACILITIES/HIDOE@notes.k12.hi.us>, Nick_Nichols/FACILITIES/HIDOE 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Subject RE: Community Meeting on April 20th, Campbell HS cafe, 7pm

Ed,

One of the requirements in our State Land Use Decision & Order is that the "Petitioner shall coordinate and discuss with the Office

of Hawaiian Affairs the incorporation of Hawaiian cultural elements such as trail alignments, if deemed appropriate, and the use of proper place names for the proposed development." Would you be please confer with the Office of Hawaiian Affairs prior to making any decision on the naming of the school?
Thank you,
Deb

From: Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us [mailto:Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us]
Sent: Monday, April 05, 2010 10:45 AM
To: Stanley_Tamashiro/EWA/HIDOE@notes.k12.hi.us; Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us; Jon_Kitabayashi/ILIMA/HIDOE@notes.k12.hi.us; Gary_Yasui/HOLOMUA/HIDOE@notes.k12.hi.us; Stacie_Kunihisa/POHAKEA/HIDOE@notes.k12.hi.us; Debra_Hatada/KAIMILOA/HIDOE@notes.k12.hi.us; Heidi_Armstrong/IROQUOIS/HIDOE@notes.k12.hi.us; Eileen_Hirota/OCEANPT/HIDOE@notes.k12.hi.us; Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us; Sherry_Kobayashi/EWABEACH/HIDOE@notes.k12.hi.us; Anthony_Chun/LEEDO/HIDOE@notes.k12.hi.us; Jamie_M_Dela_Cruz/CAMPBELL/HIDOE@notes.k12.hi.us
Cc: Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us; Stanley_Tamashiro/EWA/HIDOE@notes.k12.hi.us; Gail_Awakuni/CAMPBELL/HIDOE@notes.k12.hi.us; Jon_Kitabayashi/ILIMA/HIDOE@notes.k12.hi.us; Gary_Yasui/HOLOMUA/HIDOE@notes.k12.hi.us; Stacie_Kunihisa/POHAKEA/HIDOE@notes.k12.hi.us; Debra_Hatada/KAIMILOA/HIDOE@notes.k12.hi.us; Heidi_Armstrong/IROQUOIS/HIDOE@notes.k12.hi.us; Eileen_Hirota/OCEANPT/HIDOE@notes.k12.hi.us; Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us; Sherry_Kobayashi/EWABEACH/HIDOE@notes.k12.hi.us; Anthony_Chun/LEEDO/HIDOE@notes.k12.hi.us; stam@haseko.com; Debbie Luning; Brenda_Lowrey/FACILITIES/HIDOE@notes.k12.hi.us; Nick_Nichols/FACILITIES/HIDOE@notes.k12.hi.us; Rowena_Martinez/CAMPBELL/HIDOE@notes.k12.hi.us; Dolores_White/KAIMILOA/HIDOE@notes.k12.hi.us; frivero@bgch.com; Rie_Kodama/LEEDO/HIDOE@notes.k12.hi.us; Heidi_Meeker/FacilDev/HIDOE@notes.k12.hi.us; Anthony_Chun/LEEDO/HIDOE@notes.k12.hi.us; Brian Chong; Christine_Braga/LEEDO/HIDOE@notes.k12.hi.us; Vanessa_Kealoha/AIEAE/HIDOE@notes.k12.hi.us; Ruby_Cantillo/AIEAE/HIDOE@notes.k12.hi.us; Jordan_Higa/AIEAE/HIDOE@notes.k12.hi.us; Robert_Yamakawa/WAIANAEHI/HIDOE@notes.k12.hi.us; Chinami_Yoshii/NIUVAL/HIDOE@notes.k12.hi.us; Tomoko_Feagles/ILIMA/HIDOE@notes.k12.hi.us; David_Wong/FARRINGTON/HIDOE@notes.k12.hi.us; senespero@Capitol.hawaii.gov; Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us; Ruby_Cantillo/AIEAE/HIDOE@notes.k12.hi.us; Chinami_Yoshii/NIUVAL/HIDOE@notes.k12.hi.us; Lydell_Acosta/ILIMA/HIDOE@notes.k12.hi.us; Brant_Ebisuya/ILIMA/HIDOE@notes.k12.hi.us; Jan_Takahashi/KAILUAI/HIDOE@notes.k12.hi.us; Vanessa_Kealoha/AIEAE/HIDOE@notes.k12.hi.us; Christine_Braga/LEEDO/HIDOE@notes.k12.hi.us; Joshua_Ching/ILIMA/HIDOE@notes.k12.hi.us; Boni_Webster/PCHIGH/HIDOE@notes.k12.hi.us; Javelyn_Wilson/ILIMA/HIDOE@notes.k12.hi.us; Barry_McCorkell/ILIMA/HIDOE@notes.k12.hi.us; Jenna_Skedeleski/ILIMA/HIDOE@notes.k12.hi.us; Joy_Nekomoto-Yamada/KAPOMID/HIDOE@notes.k12.hi.us; Shana_Lewis/ILIMA/HIDOE@notes.k12.hi.us; scienceruleskauai@yahoo.com; Randall_Shinn/ILIMA/HIDOE@notes.k12.hi.us; Tracy_Higa/ILIMA/HIDOE@notes.k12.hi.us; Scott_Saiki/KAPOMID/HIDOE@notes.k12.hi.us; David_Wong/FARRINGTON/HIDOE@notes.k12.hi.us; CHRISTINE_HERNANDEZ/MILILANH/HIDOE@notes.k12.hi.us; Ray_Taguchi/ILIMA/HIDOE@notes.k12.hi.us; Derik_Shimoda/HIGHLAND/HIDOE@notes.k12.hi.us; Ethan_Toyota/AIEAH/HIDOE@notes.k12.hi.us; Dana_Goldenson/HIGHLAND/HIDOE@notes.k12.hi.us; Debra_Maness/ILIMA/HIDOE@notes.k12.hi.us; John_Iyoki/HIGHLAND/HIDOE@notes.k12.hi.us; Nolan_Santa_Ana/EWA/HIDOE@notes.k12.hi.us; Scott_Yorimoto/ILIMA/HIDOE@notes.k12.hi.us; Gregg_Agena/MCKINLEY/HIDOE@notes.k12.hi.us; Peter_Celebre/ILIMA/HIDOE@notes.k12.hi.us; Gerianne_Fujihara/PCHIGH/HIDOE@notes.k12.hi.us; Helen_Shima/BARBERS/HIDOE@notes.k12.hi.us; tfeagles@gmail.com; Loan_Lim/AIEAI/HIDOE@notes.k12.hi.us; Robert_Yamakawa/WAIANAEHI/HIDOE@notes.k12.hi.us; Jordan_Higa/AIEAE/HIDOE@notes.k12.hi.us; reppine@capitol.hawaii.gov; Wayne_Guevara/CAMPBELL/HIDOE@notes.k12.hi.us; Edward_Oshiro/EWAMAKAI/HIDOE@notes.k12.hi.us; Randy_Moore/LILI/HIDOE@notes.k12.hi.us; Sandra_Goya/LILI/HIDOE@notes.k12.hi.us; plee@theavco.net; Milton Ebesu; wikiwikidriveinn@hotmail.com
Subject: Community Meeting on April 20th, Campbell HS cafe, 7pm

Hi everyone. I hope that all of you had a nice Easter!

Anyway, I have been getting a lot of calls on our **naming of our new middle school**. Since we have such a concerned community, it is prudent that we cover our basis to get more community input before making a decision. The process is fairly simple---the CAS/Principal gathers input from the community and makes a

recommendation (with supporting reasons) to the Superintendent. The Superintendent then recommends to the BOE for final approval. I will get more details from Eileen Hirota as she renamed Keoneula (originally Ocean Point).

An EMMS cadre has met to discuss this naming of the school and 2 names surfaced---Obama and Inouye. Along with these names, Puna'ike and Ewa Middle School emerged too. Vernon Young recently found out that Sen Akaka was the former Principal of Pohakea and a VP at Ewa Beach Elementary, so he said to consider his name also.

So, our Ewa Community Meeting is set for Tuesday, April 20th, at 7pm, at Campbell's cafeteria. Our school boundary process has taught me to be cognizant of PUBLICITY for any event like this one. Yes, we want to invite the **entire EWA COMMUNITY SO NO ONE GET'S LEFT OUT.** I am ccing Senator Esperas, Representative Pine, Haseko, Gentry Homes, school principals, community leaders and others to help get the word out to our community. Last time, some community people were concerned about the lack of publicity, so they suggested Senator Esperas and Representative Pine.

For your convenience, I have attached an announcement of this event.

(See attached file: EWA COMMUNITY MEETING.doc)

THE GENTRY COMPANIES

August 5, 2008

Mr. Clyde Namuo
Administrator
Office of Hawaiian Affairs
711 Kapiolani Blvd., Suite 1250
Honolulu, HI 96813

Dear Mr. Namuo:

RE: Condition 7 in SLUC Decision and Order for Ewa Makai
LUC Docket No. A03-738

I am writing to you about a condition imposed by the State Land Use Commission in LUC Docket No. A03-738 for the redesignation of lands in Ewa, Oahu from Agriculture to Urban. Condition 7 reads as follows:

> "**Condition 7: Historic Preservation Mitigation Plan.** Petitioner shall coordinate and discuss with the Office of Hawaiian Affairs the incorporation of Hawaiian cultural elements such as trail alignments, if deemed appropriate, and the use of proper place names for the proposed development."

I left several phone messages for someone at your agency to call me back so that we could schedule a meeting to discuss this condition; however, it was not until yesterday that I finally was able to speak with Mr. Jerome Yasuhara. He informed me that I should write a letter requesting such a meeting. Would you please call me at 599-8370 or my assistant, Nita Gomez, at 599-8367 so that we can schedule a meeting to discuss Condition 7? Or, you can email us at DebbieL@gentryhawaii.com or NitaG@gentryhawaii.com, respectively.

Thank you very much.

Sincerely,

GENTRY HOMES, LTD.

Debra M. A. Luning
Director of Governmental Affairs &
Community Relations

EXHIBIT "11"

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

September 2, 2003 2002/ED-11 (TH)

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Leiopapa A Kamehameha Building
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

Acceptance Notice for the Final Environmental Impact Statement
for the Gentry Ewa Makai (Residential Development) Project,
Tax Map Key: 9-1-069: 005 and 9-1-010: 007 Ewa, Oahu, Hawaii

We are notifying you of our acceptance of the subject Final Environmental Impact Statement (FEIS) for the Gentry Ewa Makai (Residential Development) Project. The Department of Planning and Permitting has determined that the subject FEIS is acceptable under the procedures established in Chapter 343 of the Hawaii Revised Statutes.

Pursuant to the procedures contained in Section 11-200-23(c), Chapter 200, Title 11 (Environmental Impact Statement Rules), Department of Health Administrative Rules, we request that this acceptance notice be published in the September 23, 2003 Environmental Notice.

Attached is a copy of our acceptance report. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely yours,

ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:js
236955
Attachment
cc: Ms. Debra Luning, Gentry Investment Properties
Mr. Taeyong Kim, Environmental Communications
The Estate of James Campbell

EXHIBIT "12"

2003- Oahu- FEIS -
Gentry Ewa Makai

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

July 2003

GENTRY
Gentry Investment Properties

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

Accepting Authority:

City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Applicant:

Gentry Investment Properties
P.O. Box 295
Honolulu, Hawai'i 96809-0295

EIS Consultant:

Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawai'i 96813

This Environmental Impact Statement and all ancillary documents were prepared under my direction or supervision, and the information submitted, to the best of my knowledge, fully addresses EIS content requirements as set forth in Section 11-200-17, Hawai'i Administrative Rules.

_____ _____

Taeyong M. Kim
Principal
Environmental Communications, Inc.

Date

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

of the project, total construction expenditures are projected to exceed $432 million or an average of $48 million annually.

Employment will also be positively impacted by the creation of 857 construction and construction related jobs during the building period. Long-term operational employment will also be significantly and positively affect by the creation of approximately 1,500 new full-time, part-time and self-employed jobs created by the industrial/commercial component of the project.

Tax revenue generation will also be significant with projected collections during the construction period of: $16.6 million in construction general excise tax, $13.2 million in industrial/commercial sales, $8.5 in construction employment income tax, and $1.25 million in annual operational employment income tax revenues.

5.8 Infrastructure

5.8.1 Water Supply

A long-term water supply study titled Potable Water Mater Plan for 'Ewa by Gentry was prepared by Tom Nance Water Resource Engineering. The study is discussed in Section 4.6 and is also included in this document as Appendix D. This report was reviewed ~~for~~ in January of 2003 for applicability with the proposed 'Ewa Makai plan (Appendix D attachment) by Tom Nance Water Resource Engineering and found to remain valid.

The proposed average demand of potable water was estimated at .5026 MGD by the above referenced report prepared in year 2000. This quantity is based on the proposed scope of development which represents a relatively small portion of the 4.2274 MGD average demand of the entire 'Ewa by Gentry community upon final build out.

Water allocations are determined by the Board of Water Supply on a first come – first served basis. Correspondence the Board of Water Supply has confirmed that an adequate water supply for the 'Ewa region exists. Sources to accommodate this demand will be available through the 'Ewa Shaft, new wells at the Waipahu II and IV Stations, and the proposed desalination facility at Kalaeloa (Appendix E).

5.8.2 Wastewater Collection

Sewer Master Plans for the 'Ewa Makai-East and 'Ewa Makai-West sites were previously accepted by the City and County of Honolulu in 1999. Under these previously accepted plans, wastewater from the project will be accommodated by two separate pump systems that were specifically designed to serve the 'Ewa Makai project. These independent systems are identified as Gentry 'Ewa Makai-

portions of the development adjoin the east side of Fort Weaver Road conveyed, by underground piping, into the Hawaii Prince Golf Course (the drainage report for the golf course takes into account the runoff from the 255 acres located between Iroquois Point Road and the golf course in designing the golf course retention basin).

Since the acceptance of the 1997 report, the 'Ewa Makai project has been ~~programmed and the additional contribution of drainage waters was been provided for in a revised drainage master plan which was completed in March of 2003.~~ redesigned, necessitating a revised drainage master plan for Ewa Makai-East, the concept of which is currently being reviewed by the City.

In general, the overall drainage concept for the project remains the same. However, the proposed revisions call for reducing the area of the project that will drain via piping into the golf course and reconfigure the onsite sump, in size and location.

Under the revised drainage plan, a smaller portion of the 'Ewa Makai-East site will continue to drain into the golf course in one or more of the coordinated points of discharge. Areas immediately adjacent to the golf course will flow either by sheet flow or by small pipes into the golf course.

The existing drainage sumps will provide an opportunity to route stormwater from the post development areas through a series of detention ponds such that the discharge onto the downstream property will be equal or less than the pre-development runoff.

Phasing of the drainage improvements for the 'Ewa Makai-East section will be constructed in phases. The master planned drainage sumps will be constructed into their ultimate configuration with the development of the remainder of 'Ewa East, Phase II and 'Ewa Makai-East. During the interim, sufficient sump volume will ~~must~~ be maintained to keep the outflow at the downstream boundary equal to or less than the pre-development flow.

Figure 22 shows the revised drainage master plan concept for the 'Ewa Makai-East portion of the project.

5.8.4 Solid Waste

~~Sold~~ *Solid* waste handling and disposal will be coordinated with the City Department of Environmental Services, Refuse Division, with written notification submitted in advance of when the refuse service is expected to begin. The design of residential communities with ''Ewa Makai will comply with the Division's requirements in order to enable refuse pick-up.

Currently, the City's Waimanalo Gulch Sanitary Landfill will have capacity to May 2008. The City has indicated in a letter dated June 25, 2003, that it will be able to satisfy the solid waste collection and disposal requirements of the 'Ewa Makai project.

At full build-out, the residential homes will generate an estimated 3,728 tons of solid waste per year, based on a projected population of 6,061 persons at build-out. (Sources: City Department of Environmental Services, June 2003, and 'Ewa Makai Social Impact Assessment, September 20020.Solid waste handling and disposal will be coordinated with the City Department of Environmental Services, Refuse Division, with written notification submitted in advance of when the refuse service is expected to begin. The design of residential communities within 'Ewa Makai will comply with the Division's requirements in order to enable refuse pick-up. Refuse collection will be provided by either automated collection for single-family and duplex homes or front-end loading collection for multi-family homes. The site improvement construction drawings for any non-city standard improvements will be forwarded to the City's Department of Environmental Services for review and approval if City service is expected.

Construction Waste Management and Recycling of Materials: The large quantities of waste and construction by-products that will be generated by the project will be stored, handled, and disposed of properly so as to prevent adverse impacts to the surrounding area and the environment. Chapter 11-58, Solid Waste Management Control, Title 11, State Administrative Rules, requires that the property owner/ developer be responsible for ensuring that grub material, demolition waste and construction waste generated by the project are disposed of in a manner or at a site approved by the DOH. Gentry will continue to comply with these rules, and has developed and implemented a trash management and recycling program to maintain clean construction sites, maximize material recycling, minimize disposal truck traffic impacts, and minimize impacts to the local landfill. All grub material is hauled to the permitted landfill area. Excess concrete is crushed and reused for gravel and deep fill. Some coral boulders are used for walls and landscape rocks, while other boulders are crushed and reused for gravel and deep fill. Wooden pallets are mulched by Hawaiian Earth Products for reuse. Gentry will continue to work with recycling companies like Hawaiian Earth Products so that framing lumber cut-offs and other wood scraps can be reused. All of Gentry's waste goes to a DOH-approved site.

5.8.5 Electrical Service

Electrical service lines are presently located along Fort Weaver Road. It is anticipated that service will be available for the proposed project and the Hawaiian Electric Company will be kept informed of the project requirements to ensure that appropriate service and infrastructure development is provided.

5.8.6 Telephone/Communications

Telephone and cable service are also located along Fort Weaver Road. Communication service providers will be kept informed of project developments and will be coordinated as early as practicable in the project design process to ensure timely infrastructure development and service are provided to the project.

Anticipated Impacts and Mitigative Measures

It is not anticipated that significant adverse impacts on infrastructure systems will be experienced. Demand for water service has been determined to be adequate. Wastewater facilities are available nearby and are expected to have adequate capacity to accommodate the project's Wastewater demands. Drainage will continue to use planned drainageways and natural detention areas to minimize runoff while providing visual amenities.

Solid wastes are expected to be served by municipal systems without adverse effect. *The City has begun the procedure to find a replacement landfill site, and is also expanding its H-POWER (Honolulu Program of Waste Energy Recovery) facility to increase capacity and improve reliability. The City is also investigating alternate technologies such as the plasma arc process to handle solid waste and to reduce the need for landfill space. Materials that can be reused onsite will be recycled wherever possible and other recyclables will be disposed of in DOH-approved sites.*

Electrical and communications systems are also expected to be available to serve the community. In each case, appropriate agencies will be contacted early in the project design process to ensure that appropriate plans and facilities are made available for the 'Ewa Makai project.

5.9 Public Services

Existing Services

5.9.1 Schools

Public schools in the vicinity of the project site include 'Ewa Beach Elementary, 'Ewa Elementary, Holomua Elementary, Pohakea Elementary, Ilima Intermediate and the James Campbell High School.

Recognizing that the growing community will create additional demand, the applicant and the developer of the adjacent Ocean Pointe planned community have reserved sites for future school use. The Gentry 'Ewa Makai program allots 18 acres of land along the Kapolei Parkway extension for a Department of Education middle school. This facility will be built as need arises and as State funding permits. Further east, within easy walking distance, a future elementary

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2002/ED-11 (TH)

September 2, 2003

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Leiopapa A Kamehameha Building
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

Acceptance Notice for the Final Environmental Impact Statement
for the Gentry Ewa Makai (Residential Development) Project,
Tax Map Key: 9-1-069: 005 and 9-1-010: 007 Ewa, Oahu, Hawaii

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Pursuant to the procedures contained in Section 11-200-23(c), Chapter 200, Title 11 (Environmental Impact Statement Rules), Department of Health Administrative Rules, we request that this acceptance notice be published in the September 23, 2003 Environmental Notice.

Attached is a copy of our acceptance report. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely yours,

ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:js
236955
Attachment
cc: Ms. Debra Luning, Gentry Investment Properties
Mr. Taeyong Kim, Environmental Communications
The Estate of James Campbell

EXHIBIT "13"

2003- Oahu- FEIS -
Gentry Ewa Makai

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

July 2003

GENTRY
Gentry Investment Properties

FINAL ENVIRONMENTAL IMPACT STATEMENT
GENTRY 'EWA MAKAI
'EWA, O'AHU, HAWAI'I

Accepting Authority:

City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Applicant:

Gentry Investment Properties
P.O. Box 295
Honolulu, Hawai'i 96809-0295

EIS Consultant:

Environmental Communications, Inc.
1188 Bishop Street, Suite 2210
Honolulu, Hawai'i 96813

This Environmental Impact Statement and all ancillary documents were prepared under my direction or supervision, and the information submitted, to the best of my knowledge, fully addresses EIS content requirements as set forth in Section 11-200-17, Hawai'i Administrative Rules.

_____ _____

Taeyong M. Kim
Principal
Environmental Communications, Inc.

Date

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

5.3.6 Construction Noise

Audible construction noise will probably be unavoidable during the entire project construction period. During periods of construction, it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. The noise sensitive properties which are predicted to experience the highest noise levels during construction activities on the project site are the existing residences north and adjacent to the project site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work and due to the administrative controls available for its regulation. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site.

Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 feet distance), and due to the exterior nature of the work (grading and earth moving, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site, and heavy truck and equipment staging areas should be located away from the existing residences to the north. The incorporation of State Department of Health construction noise limits and curfew times, which are applicable on the island of O'ahu, is another noise mitigation measure which can be applied to this project. Noisy construction activities are not allowed during the nighttime hours, or on Sundays and holidays under the DOH permit procedures.

5.4 Air Quality

A study titled *Air Quality Study for the Proposed 'Ewa by Gentry Makai Development* was conducted for the proposed development by B.D. Neal and Associates. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate. Potential impacts on the project from nearby industrial sources are also examined. The air quality study can be found in Appendix L.

Existing Conditions

5.4.1 Ambient Air Quality Standards

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate

matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawai'i air quality standards are more stringent than the comparable national standards except for those pertaining to sulfur dioxide and particulate matter.

5.4.2 Regional and Local Climatology

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the 'Ewa Plain area is very much affected by its Leeward and coastal situation. Winds are predominantly trade winds from the east-northeast except for occasional periods when Kona storms may generate strong winds from the south or when the trade winds are weak and landbreeze-seabreeze circulations may develop. Wind speeds typically vary between about 5 and 15 miles per hour providing relatively good ventilation much of the time. Temperatures in the Leeward O'ahu area are generally very moderate with average daily temperatures ranging from about 65°F to 84°F. The extreme minimum temperature recorded at the nearby (former) 'Ewa Plantation is 47°F, while the extreme maximum temperature is 93°F. This area of O'ahu is one of the drier locations in the state with rainfall often highly variable from one year to the next. Monthly rainfall has been measured to vary from as little as a trace to as much as 15 inches. Average annual rainfall amounts to about 21 inches with summer months being the driest.

5.4.3 Present Air Quality

The present air quality of the project area appears to be reasonably good based on nearby air quality monitoring data. Air quality data from the nearest monitoring stations operated by the Hawai'i Department of Health suggest that all national air quality standards are currently being met, although occasional exceedances of the more stringent state standard for ozone may occur. It is also possible that the more stringent state standards for carbon monoxide are exceeded at times near congested roadway intersections.

5.4.4 Short-Term Air Quality Impacts

If the proposed project is given the necessary approvals to proceed, it may be inevitable that some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations. Fugitive dust emissions

can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

5.4.5 Long-Term Air Quality Impacts

After construction, motor vehicles coming to and from the proposed development will result in a long-term increase in air pollution emissions in the project area. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current ambient concentrations of carbon monoxide at intersections in the project vicinity and to predict future levels both with and without the proposed project. During worst-case conditions, model results indicated that present 1-hour and 8-hour carbon monoxide concentrations are within both the state and the national ambient air quality standards. In the year 2010 without the project, carbon monoxide concentrations were predicted to increase at some locations and decrease at others, but concentrations would likely remain within the national and state standards at all locations studied. With the project in the year 2010, carbon monoxide concentrations were estimated to either remain unchanged or increase slightly at some locations compared to the without-project case; worst-case concentrations should remain within both national and state standards. Due to the small impact the project is expected to have, implementing mitigation measures for traffic-related air quality impacts is probably unnecessary and unwarranted.

At this time, the specific tenants of the commercial/industrial area associated with the project have not been identified, but the types of facilities that are expected to locate there are not significant sources of air pollution. Before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application.

5.4.6 Impacts from Local Sources

In evaluating the proposed project, it may be appropriate to consider not only impacts created by the project but also potential impacts on the project from nearby industrial sources. ~~Due to the relatively close proximity of industries located at Campbell Industrial Park (CIP), occasional impacts on the project from emissions emanating from these facilities may occur in conjunction with coincidental~~

~~occurrences of industry malfunctions and westerly winds, both of which are relatively infrequent events.~~ Increased scrutiny by the Department of Health, an air quality task force mandated by the state legislature, and the modernization by some industrial park tenants should help to mitigate future impacts on the proposed project.

Anticipated Impacts and Mitigative Measures

5.4.7 Air Quality Conclusions and Recommendations

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of windscreens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic should be small. Worst-case concentrations of carbon monoxide should remain within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

Any long-term impacts on air quality due to indirect emissions from supplying the project with electricity and from the disposal of waste materials generated by the project will likely be insignificant based on the relatively small magnitudes of

these emissions. Nevertheless, indirect emissions from project electrical demand could likely be reduced somewhat by incorporating energy-saving features into project design requirements. This might include the use of solar water heaters; designing building space so that window positions maximize indoor light without unduly increasing indoor heat; using landscaping where feasible to provide afternoon shade to cut down on the use of air conditioning; installation of insulation and double-glazed doors to reduce the effects of the sun and heat; providing movable, controlled openings for ventilation at opportune times; and possibly installing automated room occupancy sensors. Solid waste related air pollution could likely be reduced somewhat by the promotion of conservation and recycling programs within the proposed development. This could reduce solid waste volumes, which would in turn reduce any related air pollution emissions proportionately.

At this time, sufficient detail is not available describing the facilities that may be located within the commercial/industrial area included in the project to perform any quantitative impact assessments. However, the types of facilities currently being considered do not emit significant amounts of air pollution. In any case, before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. If deemed necessary, the Department of Health may require the applicant to assess the air quality impact of the proposed emissions.

Due to the relatively close proximity of industries located at CIP, occasional impacts on the project from emissions emanating from these facilities will probably be unavoidable. Such impacts may occur in conjunction with the coincidental occurrences of industry malfunctions and westerly winds, both of which are relatively infrequent events. Increased scrutiny by the Department of Health, a special task force mandated by the state legislature to assess and monitor emissions in the area, and the upgrade of some of the industries located at CIP, such as Chevron, should help to mitigate future impacts on areas adjacent to CIP.

5.5 Visual Resources

Existing Conditions

The project area presently consists of fallow lands that are clear of any structures or significant landscape. Various weedy species are found throughout the project site. The western project area is offers views of the Waianae Range towards Makakilo from Fort Weaver Road. While open in character, the site is not considered characteristic of the surrounding communities which provide extensive landscaping along Fort Weaver Road. View in the western direction could be considered unsightly due to the overgrowth of weedy species.

APPENDIX L

AIR QUALITY STUDY

FOR THE PROPOSED

EWA BY GENTRY MAKAI DEVELOPMENT

EWA, OAHU, HAWAII

Prepared for:

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January 2003

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CONTENTS

FIGURES

TABLES

TABLES (cont.)

Table

1.0 SUMMARY

Gentry Homes, Ltd. is proposing to develop the Ewa by Gentry Makai Project at Ewa, Oahu. The proposed project will consist of a total of 1865 residential units, a 30-acre commercial/ industrial area, and associated community and support facilities. Development of the project is not expected to be completed and fully occupied until sometime after 2010. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate. Potential impacts on the project from nearby industrial sources are also examined.

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawaii air quality standards are more stringent than the comparable national standards except for those pertaining to sulfur dioxide and particulate matter.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Ewa Plain area is very much affected

by its leeward and coastal situation. Winds are predominantly trade winds from the east northeast except for occasional periods when kona storms may generate strong winds from the south or when the trade winds are weak and landbreeze-seabreeze circulations may develop. Wind speeds typically vary between about 5 and 15 miles per hour providing relatively good ventilation much of the time. Temperatures in the leeward Oahu area are generally very moderate with average daily temperatures ranging from about 65°F to 84°F. The extreme minimum temperature recorded at the nearby (former) Ewa Plantation is 47°F, while the extreme maximum temperature is 93°F. This area of Oahu is one of the drier locations in the state with rainfall often highly variable from one year to the next. Monthly rainfall has been measured to vary from as little as a trace to as much as 15 inches. Average annual rainfall amounts to about 21 inches with summer months being the driest.

The present air quality of the project area appears to be reasonably good based on nearby air quality monitoring data. Air quality data from the nearest monitoring stations operated by the Hawaii Department of Health suggest that all national air quality standards are currently being met, although occasional exceedances of the more stringent state standard for ozone may occur. It is also possible that the more stringent state standards for carbon monoxide are exceeded at times near congested roadway intersections.

If the proposed project is given the necessary approvals to proceed, it may be inevitable that some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

After construction, motor vehicles coming to and from the proposed development will result in a long-term increase in air pollution

emissions in the project area. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current ambient concentrations of carbon monoxide at intersections in the project vicinity and to predict future levels both with and without the proposed project. During worst-case conditions, model results indicated that present 1-hour and 8-hour carbon monoxide concentrations are within both the state and the national ambient air quality standards. In the year 2010 without the project, carbon monoxide concentrations were predicted to increase at some locations and decrease at others, but concentrations would likely remain within the national and state standards at all locations studied. With the project in the year 2010, carbon monoxide concentrations were estimated to either remain unchanged or increase slightly at some locations compared to the without-project case; worst-case concentrations should remain within both national and state standards. Due to the small impact the project is expected to have, implementing mitigation measures for traffic-related air quality impacts is probably unnecessary and unwarranted.

At this time, the specific tenants of the commercial/industrial area associated with the project have not been identified, but the types of facilities that are expected to locate there are not significant sources of air pollution. Before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application.

In evaluating the proposed project, it may be approprlate to consider not only impacts created by the project but also potential impacts on the project from nearby industrial sources. Due to the relatively close proximity of industries located at Campbell Industrial Park, occasional impacts on the project from emissions emanating from these facilities may occur in conjunction with coincidental occurrences of industry malfunctions and westerly winds, both of which are relatively infrequent events. Increased scrutiny by the Department of Health, an air quality task force mandated by the state legislature, and the modernization by some industrial park tenants should help to mitigate future impacts on the proposed project.

2.0 INTRODUCTION

Gentry Homes, Ltd. is proposing to develop the Ewa by Gentry Makai Project on 283 acres of land at Ewa, Oahu (see Figure 1 for project location). The development will include 550 single-family residential units, 675 cluster residential units, 640 multi-family homes, a 30-acre commercial/industrial area, and associated educational, community and support facilities. The site of the proposed development is bordered on the north by the existing Ewa by Gentry subdivision and on the south by the Ocean Pointe development and by Ewa Beach. Fort Weaver Road intersects the property. Construction of the project is expected to commence during 2003, and full development and occupancy is planned for sometime after 2010.

The purpose of this study is to describe existing air quality in the project area and to assess the potential short- and long-term direct and indirect air quality impacts that could result from construction and use of the proposed facilities as planned. Potential impacts on the project from nearby air pollution sources are also discussed. Measures to mitigate impacts either by the project or on the project are suggested where possible and appropriate.

3.0 AMBIENT AIR QUALITY STANDARDS

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, national and state AAQS have been established for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. The state has also set a standard for hydrogen sulfide. National AAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. National primary standards are designed to protect the public health with an "adequate margin of safety". National secondary standards, on the other hand, define levels of air quality necessary to protect the public welfare from "any known or anticipated adverse effects of a pollutant". Secondary public welfare impacts may include such effects as decreased visibility, diminished comfort levels, or other potential injury to the natural or man-made environment, e.g., soiling of materials, damage to vegetation or other economic damage. In contrast to the national AAQS, Hawaii State AAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality".

Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time. The AAQS specify a

maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1- to 24-hour) AAQS, both national and state standards allow a specified number of exceedances each year.

The Hawaii AAQS are in some cases considerably more stringent than the comparable national AAQS. In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit, and the state 1-hour limit for ozone is more than two times as stringent as the national 1-hour standard. The U.S. Environmental Protection Agency (EPA) is currently working on a plan to phase out the national 1-hour ozone standard in favor of the new (and more stringent) 8-hour standard.

The Hawaii AAQS for sulfur dioxide were relaxed in 1986 to make the state standards essentially the same as the national limits. In 1993, the state also revised its particulate standards to follow those set by the federal government. During 1997, the federal government again revised its standards for particulate, but the new standards were challenged in federal court. A Supreme Court ruling was issued during February 2001, and at this time, it is expected that the new standards for particulate will be

implemented by 2005. To date, the Hawaii Department of Health has not updated the state particulate standards.

4.0 REGIONAL AND LOCAL CLIMATOLOGY

Regional and local climatology significantly affects the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the state, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the state are caused by the mountainous topography.

Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. On the island of Oahu, the Koolau and Waianae Mountain Ranges are oriented almost perpendicular to the trade winds, which accounts for much of the variation in the local climatology of the island. The site of the proposed project is located on the broad Ewa Plain leeward of the Koolau Mountains.

The nearest and most representative long-term wind data available for the site were collected at the Barbers Point Naval Air Station located about 3 miles to the west. Data available from the Honolulu International Airport, located about 8 miles to the east, may also

be at least semi-representative. Wind frequency data given in Table 2 for Barbers Point show that the annual prevailing wind direction for this area of Oahu is east northeast (the same as at Honolulu International Airport). On an annual basis, 38.1 percent of the time the wind is from this direction, and more than 80 percent of the time the wind is in the northeast quadrant. Winds from the south are infrequent occurring only a few days during the year and mostly in winter in association with kona storms. Wind speeds average about 10 knots (12 mph) and mostly vary between about 5 and 15 knots (6 and 17 mph). Surface winds at the project site are very similar to those recorded at Barbers Point.

Air pollution emissions from motor vehicles, the formation of photochemical smog and smoke plume rise all depend in part on air temperature. Colder temperatures tend to result in higher emissions of contaminants from automobiles but lower concentrations of photochemical smog and ground-level concentrations of air pollution from elevated plumes. In Hawaii, the annual and daily variation of temperature depend to a large degree on elevation above sea level, distance inland and exposure to the trade winds. Average temperatures at locations near sea level generally are warmer than those at higher elevations. Areas exposed to the trade winds tend to have the least temperature variation, while inland and leeward areas often have the most. The project's near coastal, leeward location results in a relatively moderate temperature profile compared to other locations around Oahu and the state. Based on more than 50 years of data collected at Ewa Plantation, average

annual daily minimum and maximum temperatures in the project area are 65°F and 84°F, respectively [1]. The extreme minimum temperature on record is 47°F, and the extreme maximum is 93°F.

Small scale, random motions in the atmosphere (turbulence) cause air pollutants to be dispersed as a function of distance or time from the point of emission. Turbulence is caused by both mechanical and thermal forces in the atmosphere. It is oftentimes measured and described in terms of Pasquill-Gifford stability class. Stability class 1 is the most turbulent and class 6 the least. Thus, air pollution dissipates the best during stability class 1 conditions and the worst when stability class 6 prevails. In the Ewa area, stability class 5 or 6 is generally the highest stability class that occurs, developing during clear, calm nighttime or early morning hours when temperature inversions form due to radiational cooling. Stability classes 1 through 4 occur during the daytime, depending mainly on the amount of cloud cover and incoming solar radiation and the onset and extent of the sea breeze.

Mixing height is defined as the height above the surface through which relatively vigorous vertical mixing occurs. Low mixing heights can result in high ground-level air pollution concentrations because contaminants emitted from or near the surface can become trapped within the mixing layer. In Hawaii, minimum mixing heights tend to be high because of mechanical mixing caused by the trade winds and because of the temperature moderating effect of the

surrounding ocean. Low mixing heights may sometimes occur, however, at inland locations and even at times along coastal areas early in the morning following a clear, cool, windless night. Coastal areas also may experience low mixing levels during sea breeze conditions when cooler ocean air rushes in over warmer land. Mixing heights in Hawaii typically are above 3000 feet (1000 meters).

Rainfall can have a beneficial affect on the air quality of an area in that it helps to suppress fugitive dust emissions, and it also may "washout" gaseous contaminants that are water soluble. Rainfall in Hawaii is highly variable depending on elevation and on location with respect to the trade wind. The Ewa Plain is one of the driest areas on Oahu due to its leeward and near sea level location. Average annual rainfall amounts to about 21 inches but may vary from about 10 inches during a dry year to more than 40 inches during a wet year [1]. Most of the rainfall usually occurs during the winter months. Monthly rainfall may vary from as little as a trace to as much as 15 inches or more.

5.0 PRESENT AIR QUALITY

Present air quality in the project area is mostly affected by air pollutants from motor vehicles, industrial sources, agricultural operations and to a lesser extent by natural sources. Table 3 presents an air pollutant emission summary for the island of Oahu for calendar year 1993. The emission rates shown in the table

pertain to manmade emissions only, i.e., emissions from natural sources are not included. As suggested in the table, much of the particulate emissions on Oahu originate from area sources, such as the mineral products industry and agriculture. Sulfur oxides are emitted almost exclusiveiy by point sources, such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources, although area sources (mostly motor vehicle traffic) also contribute a significant share. The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic), while hydrocarbons are emitted mainly from point sources. Based on previous emission inventories that have been reported for Oahu, it appears that emissions of particulate and nitrogen oxides have increased during the past ten years, while emissions of sulfur oxides, carbon monoxide and hydrocarbons have declined.

Fort Weaver Road, which intersects the project site, is a major arterial roadway that presently carries moderate to heavy levels of vehicle traffic during peak traffic hours. Emissions from motor vehicles using this roadway, primarily nitrogen oxides and carbon monoxide, will tend to be carried over portions the project site by the prevailing winds.

Several sources of industrial air pollution are located in the Campbell Industrial Park, which is located about 4 miles to the west at Barbers Point. Industries currently operating there include the Chevron and BHP refineries, H-Power, Kalaeloa

Partners, Applied Energy Services, Hawaiian Cement and others. Hawaiian Electric Company's Kahe Generating Station is located about 7 miles to the northwest at Kahe Point. These industries emit large amounts of sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide and other air pollutants. Prevailing winds from the east or northeast will carry these emissions away from the site most of the time.

Until recently, air pollution in the project area originating from agricultural sources could mainly be attributed to sugar cane operations near the project site. Emissions from both the mill and the canefield operations in the area have now been eliminated with the closure of the Oahu Sugar Company and much of the former sugarcane lands are currently being used as pastureland or for diversified agriculture. Long-range uses for the land have not yet been determined.

Natural sources of air pollution emissions that also could affect the project area but cannot be quantified very accurately include the ocean (sea spray), plants (aero-allergens), wind-blown dust, and perhaps distant volcanoes on the island of Hawaii.

The State Department of Health operates a network of air quality monitoring stations at various locations on Oahu. Each station, however, typically does not monitor the full complement of air quality parameters. Table 4 shows annual summaries of air quality measurements that were made nearest to the project area for several of the regulated air pollutants for the period 1997 through 2001. These are the most recent data that are currently available.

During the 1997-2001 period, sulfur dioxide was monitored by the State Department of Health at an air quality station located at Kapolei. Concentrations monitored were consistently low compared to the standards. Annual second-highest 3-hour concentrations (which are most relevant to the air quality standards) ranged from 17 to 64 $\mu g/m^3$, while the annual second-highest 24-hour concentrations ranged from 5 to 16 $\mu g/m^3$. Annual average concentrations were only about 1 to 2 $\mu g/m^3$. There were no exceedances of the state/national 3-hour or 24-hour AAQS for sulfur dioxide during the 5-year period.

Particulate matter less than 10 microns in diameter (PM-10) is also measured at the Kapolei monitoring station. Annual second-highest 24-hour PM-10 concentrations ranged from 26 to 129 $\mu g/m^3$ between 1997 and 2001. Average annual concentrations ranged from 13 to 19 $\mu g/m^3$. All values reported were within the state and national AAQS.

Carbon monoxide measurements were also made at the Kapolei monitoring station. The annual second-highest 1-hour concentrations ranged from 1.2 to 1.9 mg/m^3. The annual second-highest 8-hour concentrations ranged from 0.6 to 1.3 mg/m^3. No exceedances of the state or national 1-hour or 8-hour AAQS were reported.

Nitrogen dioxide is also monitored by the Department of Health at the Kapolei monitoring station. Annual average concentrations of this pollutant ranged from 6 to 9 µg/m^3, safely inside the state and nationai AAQS.

The nearest available ozone measurements were obtained at Sand Island (about 12 miles east of the project area). The second-highest 1-hour concentrations for each year from 1997 to 2001 ranged from 96 to 110 µg/m^3. Up to 13 exceedances of the state AAQS per year were recorded during the monitoring period, but there were no exceedances during the last two years of the five-year period.

Although not shown in the table, the nearest and most recent measurements of ambient lead concentrations that have been reported were made at the downtown Honolulu monitoring station between 1996 and 1997. Average quarterly concentrations were near or below the detection limit, and no exceedances of the state AAQS

were recorded. Monitoring for this parameter was discontinued during 1997.

Based on the data and discussion presented above, it appears likely that the State of Hawaii AAQS for sulfur dioxide, nitrogen dioxide, particulate matter and lead are currently being met at the project site. It is likeiy, however, that the state AAQS for ozone may be exceeded on occasion based on the Sand Island measurements for this parameter. While carbon monoxide measurements at the Kapolei monitoring station suggest that concentrations are within the state and national standards, local "hot spots" may exist near traffic-congested intersections.

6.0 SHORT-TERM IMPACTS OF PROJECT

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project sites, from a temporary increase in local traffic caused by commuting construction workers, and from the disruption of normal traffic flow caused by lane closures of adjacent

roadways.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately. This is because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA [2] has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions at the three project sites would likely be somewhere near that level, depending on the amount of rainfall that occurs. In any case, State of Hawaii Air Pollution Control Regulations [3] prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures

such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project property line could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Project construction activities will also likely obstruct the normal flow of traffic at times to such an extent that overall

vehicular emissions in the project area will temporarily increase. The only means to alleviate this problem will be to attempt to keep roadways open during peak traffic hours and to move heavy construction equipment and workers to and from construction areas during periods of low traffic volume. Thus, most potential short-term air quality impacts from project construction can be mitigated.

7.0 LONG-TERM IMPACTS OF PROJECT

7.1 Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic in the project area, potentially causing long-term impacts on ambient air quality. Motor vehicles with gasoline-powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminates.

Federal air pollution control regulations require that new motor vehicles be equipped with emission control devices that reduce emissions significantly compared to a few years ago. In 1990, the President signed into law the Clean Air Act Amendments. This legislation requires further emission reductions, which have been phased in since 1994. More recently, additional restrictions were signed into law during the Clinton administration, which will begin to take effect during the next decade. The added restrictions on emissions from new motor vehicles will lower average emissions each

year as more and more older vehicles leave the state's roadways. It is estimated that carbon monoxide emissions, for example, will go down by an average of about 30 to 40 percent per vehicle during the next 10 years due to the replacement of older vehicles with newer models.

To evaluate the potential long-term indirect ambient air quality impact of increased roadway traffic associated with a project such as this, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways leading to and from the project. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles. Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single new development.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2002 with present conditions, (2) year 2010 without the project, and (3) year 2010 with the project. To begin the modeling study of the three scenarios, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing.

For this study, the four key intersections identified in the traffic study were also selected for air quality analysis. These included the following intersections:

- Fort Weaver Road at Geiger Road/Iroquois Road;
- Kapolei Parkway at Geiger Road;
- Kaahupahau Street at Geiger Road;
- Keaunui Drive at Iroquois Road.

The traffic impact assessment report for the project [4] describes the projected future traffic conditions and laneage configurations of these intersections in detail.

The main objective of the modeling study was to estimate maximum 1-hour average carbon monoxide concentrations for each of the three scenarios studied. To evaluate the significance of the estimated concentrations, a comparison of the predicted values for each scenario can be made. Comparison of the estimated values to the national and state AAQS was also used to provide another measure of significance.

Maximum carbon monoxide concentrations typically coincide with peak traffic periods. The traffic impact assessment report evaluated morning and afternoon peak traffic periods. These same periods were evaluated in the air quality impact assessment.

The EPA computer model MOBILE6 [5] was used to calculate vehicular carbon monoxide emissions for each year studied. One of the key inputs to MOBILE6 is vehicle mix. Unless very detailed information is available, national average values are typically assumed, which is what was used for the present study. Based on national average vehicle mix figures, the present vehicle mix in the project area was estimated to be 46.4% light-duty gasoline-powered automobiles, 40.9% light-duty gasoline-powered trucks and vans, 3.6% heavy-duty gasoline-powered vehicles, 0.2% light-duty diesel-powered vehicles, 8.3% heavy-duty diesel-powered trucks and buses, and 0.6% motorcycles. For the future scenarios studied, the vehicle mix was estimated to change slightly with fewer light-duty gasoline-powered automobiles and more light-duty gasoline-powered trucks and vans.

Ambient temperatures of 59 and 68 degrees F were used for morning and afternoon peak-hour emission computations, respectively. These are conservative assumptions since morning/afternoon ambient temperatures will generally be warmer than this, and emission estimates given by MOBILE6 generally have an inverse relationship to the ambient temperature.

After computing vehicular carbon monoxide emissions through the use of MOBILE6, these data were then input to an atmospheric dispersion model. EPA air quality modeling guidelines [6] currently recommend that the computer model CAL3QHC [7] be used to

assess carbon monoxide concentrations at roadway intersections, or in areas where its use has previously been established, CALINE4 [8] may be used. Until a few years ago, CALINE4 was used extensively in Hawaii to assess air quality impacts at roadway intersections. In December 1997, the California Department of Transportation recommended that the intersection mode of CALINE4 no longer be used because it was thought the model has become outdated. Studies have shown that CALINE4 may tend to over-predict maximum concentrations in some situations. Therefore, CAL3QHC was used for the subject analysis.

CAL3QHC was developed for the U.S. EPA to simulate vehicular movement, vehicle queuing and atmospheric dispersion of vehicular emissions near roadway intersections. It is designed to predict 1-hour average pollutant concentrations near roadway intersections based on input traffic and emission data, roadway/receptor geometry and meteorological conditions.

Although CAL3QHC is intended primarily for use in assessing atmospheric dispersion near signalized roadway intersections, it can also be used to evaluate unsignalized intersections. This is accomplished by manually estimating queue lengths and then applying the same techniques used by the model for signalized intersections. Currently, two of the study intersections are unsignalized. These include Kapolei Parkway at Geiger Road and Keaunui Drive at Iroquois Road. In the future, in accordance with

the traffic report, these two intersections were assumed to be signalized.

Input peak-hour traffic data were obtained from the traffic study cited previously. This included vehicle approach volumes, saturation capacity estimates, intersection laneage and signal timings (where applicable). All emission factors that were input to CAL3QHC for free-flow traffic on roadways were obtained from MOBILE6 based on assumed free-flow vehicle speeds corresponding to the posted speed limits (25 to 45 mph depending on location).

Model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Concentrations predicted by air quality models generally are not considered valid within the roadway-mixing zone. The roadway-mixing zone is usually taken to include 3 meters on either side of the traveled portion of the roadway and the turbulent area within 10 meters of a cross street. Model receptor sites were thus located at the edges of the mixing zones near all intersections that were studied for all three scenarios. This implies that pedestrian sidewalks either already exist or are assumed to exist in the future. All receptor heights were placed at 1.5 meters above ground to simulate levels within the normal human breathing zone.

Input meteorological conditions for this study were defined to provide "worst-case" results. One of the key meteorological inputs is atmospheric stability category. For these analyses, atmospheric stability category 5 was assumed for the morning cases, while atmospheric stability category 4 was assumed for the afternoon cases. These are the most conservative stability categories that are generally used for estimating worst-case pollutant dispersion within suburban areas for these periods. A surface roughness length of 100 cm and a mixing height of 1000 meters were used in all cases. Worst-case wind conditions were defined as a wind speed of 1 meter per second with a wind direction resulting in the highest predicted concentration. Concentration estimates were calculated at wind directions of every 5 degrees.

Existing background concentrations of carbon monoxide in the project vicinity are believed to be at low levels. Thus, background contributions of carbon monoxide from sources or roadways not directly considered in the analysis were accounted for by adding a background concentration of 0.5 ppm to all predicted concentrations for 2002. Although increased traffic is expected to occur within the project area within the next several years with or without the project, background carbon monoxide concentrations may not change significantly since individual emissions from motor vehicles are forecast to decrease with time. Hence, a background value of 0.5 ppm was assumed to persist for the future scenarios studied.

Predicted Worst-Case 1-Hour Concentrations

Table 5 summarizes the final results of the modeling study in the form of the estimated worst-case 1-hour morning and afternoon ambient carbon monoxide concentrations. These results can be compared directly to the state and the national AAQS. Estimated worst-case carbon monoxide concentrations are presented in the table for three scenarios: year 2002 with existing traffic, year 2010 without the project and year 2010 with the project. The locations of these estimated worst-case 1-hour concentrations all occurred at or very near the indicated intersections.

As indicated in the table, the highest estimated 1-hour concentration within the project vicinity for the present (2002) case was 8.7 mg/m^3. This was projected to occur during the morning peak traffic hour near the intersection of Fort Weaver Road and Geiger Road/Iroquois Road. Concentrations at other locations and times studied were 7.2 mg/m^3 or lower. All predicted worst-case 1-hour concentrations for the 2002 scenario were within both the national AAQS of 40 mg/m^3 and the state standard of 10 mg/m^3.

In the year 2010 without the proposed project, the highest worst-case 1-hour concentration was again predicted to occur during the morning at the intersection of Fort Weaver Road and Geiger

Road/Iroquois Road. A value of 6.1 mg/m^3 was predicted to occur at this location. Peak-hour worst-case values at the other locations and times studied for the 2010 without project scenario ranged between about 3 and 5 mg/m^3. Although concentrations in the vicinity of Fort Weaver Road and Geiger Road/Iroquois Road decreased compared to the existing case, concentrations at the other locations studied remained about the same or increased somewhat due both to higher traffic volumes and to the assumed installation of traffic signals at two of the intersections. All projected worst-case concentrations for this scenario remained within the state and national standards.

Predicted 1-hour worst-case concentrations for the 2010 with project scenario were essentially unchanged compared to the 2010 without project scenario, with the project showing only a small impact in the worst-case concentrations at the intersections of Fort Weaver Road at Geiger Road/Iroquois Road and Kapolei Parkway at Geiger Road. All predicted worst-case 1-hour concentrations for the 2010 with project scenario were within both the national and the state AAQS.

Predicted Worst-Case 8-Hour Concentrations

Worst-case 8-hour carbon monoxide concentrations were estimated by multiplying the worst-case 1-hour values by a persistence factor of 0.5. This accounts for two factors: (1) traffic volumes averaged over eight hours are lower than peak 1-hour values, and (2) meteorological conditions are more variable (and hence more favorable for dispersion) over an 8-hour period than they are for a single hour. Based on monitoring data, 1-hour to 8-hour persistence factors for most locations generally vary from 0.4 to 0.8 with 0.6 being the most typical. One study based on modeling [9] concluded that 1-hour to 8-hour persistence factors could typically be expected to range from 0.4 to 0.5. EPA guidelines [10] recommend using a value of 0.7 unless a locally derived persistence factor is available. Recent monitoring data for locations on Oahu reported by the Department of Health [11] suggest that this factor may range between about 0.2 and 0.6 depending on location and traffic variability. Considering the location of the project and the traffic pattern for the area, a 1-hour to 8-hour persistence factor of 0.5 will likely yield reasonable estimates of worst-case 8-hour concentrations.

The resulting estimated worst-case 8-hour concentrations are indicated in Table 6. For the 2002 scenario, the estimated worst-case 8-hour carbon monoxide concentrations for the four locations studied ranged from 0.9 mg/m^3 at the Keaumui Drive at Iroquois Road intersection to 4.4 mg/m^3 at the Fort Weaver Road at Geiger

Road/Iroquois Road intersection. The estimated worst-case concentrations were within both the state standard of 5 mg/m^3 and the national limit of 10 mg/m^3.

For the year 2010 without project scenario, worst-case concentrations ranged between 1.6 and 3.0 mg/m^3, with the highest concentration at Fort Weaver Road and Geiger Road/Iroquois Road decreasing substantially compared to the existing case. All predicted concentrations were within the standards.

For the 2010 with project scenario, worst-case concentrations remained nearly unchanged compared to the without project case, indicating minimal project impact. All predicted 8-hour concentrations for this scenario were within both the national and the state AAQS.

Conservativeness of Estimates

The results of this study reflect several assumptions that were made concerning both traffic movement and worst-case meteorological conditions. One such assumption concerning worst-case meteorological conditions is that a wind speed of 1 meter per second with a steady direction for 1 hour will occur. A steady wind of 1 meter per second blowing from a single direction for an hour is extremely unlikely and may occur only once a year or less. With wind speeds

of 2 meters per second, for example, computed carbon monoxide concentrations would be only about half the values given above. The 8-hour estimates are also conservative in that it is unlikely that anyone would occupy the assumed receptor sites (within 3 m of the roadways) for a period of 8 hours.

7.2 Commercial/Industrial Mixed Uses

Air pollution emissions from industrial sources locating within the proposed commercial/industrial mixed-use area of the project could potentially result in direct impacts on air quality. While the specific industrial residents of the proposed project have not yet been identified, it is expected these will not have the potential to emit significant amounts of air pollution.

Without specific information concerning stack heights and stack gas temperatures, exit velocities and emission rates, air quality impacts from the potential industrial facilities locating within the proposed industrial park cannot be quantitatively estimated. At the present time, such detailed information is not available. However, Hawaii air pollution control rules [3] require that any activity that causes air pollution must obtain written approval from the director of the Hawaii Department of Health. This written approval generally involves applying for both a permit to construct and a permit to operate. At the time of application, detailed information must be provided by the applicant concerning the type and nature of any air pollution emissions and the emission control technology that would be utilized. Depending on the magnitudes of the project emissions and other factors, air quality impact

analyses and/or air quality monitoring may be required before the application to construct/operate is approved. Thus, even though an assessment of potential direct impacts from project air pollution emissions cannot be done at this time, state rules may require that such analyses be performed at a later date when specific businesses apply to locate at the proposed industrial park.

8.0 IMPACTS ON PROJECT FROM CAMPBELL INDUSTRIAL PARK

In addition to assessing the air quality impacts of the project on the surrounding area, the reverse problem of impacts of air pollution sources located in the surrounding area on the residents of the project is also of concern. For the this project, the issue of primary concern is the Campbell Industrial Park (CIP) located about 4 miles west of the project site. Several large industrial sources of air pollution are located at CIP including Applied Energy Systems (AES) Generating Station, Kalaeloa Partners Cogeneration Plant, the Chevron and BHP Refineries, H-Power and Hawaiian Cement. During the past few years, several incidents of acute air pollution levels have occurred in areas within and adjacent to CIP. Some of these incidents have been caused by upset conditions at the BHP and Chevron Refineries, while the source or sources of other incidents have never been identified.

As indicated in Section 4, the prevailing winds are in the northeast quadrant, which will carry emissions from CIP away from the project site more than 80 percent of the time. Winds from the west, which

could carry emissions toward the site, occur less than about 5 percent of the time. While estimating specific air pollution levels at the project site is beyond the scope of the present study, it is unlikely that concentrations exceed air quality standards during normal operations. Emissions during normal operations are regulated by the Hawaii Department of Health, and industry operators are required to demonstrate compliance with state and national air quaiity standards. Perhaps the greatest concern is the coincidence of industry malfunctions and in conjunction with westerly-wind periods. Even if industry operators are very diligent in operating and maintaining their facilities, occasional malfunctions that result in air pollution incidents in nearby areas are probably unavoidable.

After several incidents over the past few years, the Department of Health has increased scrutiny of industries at CIP. Also, a task force mandated by the state legislature was formed to investigate recent air pollution incidents and to reduce future occurrences. In response to plant malfunctions that have caused the excessive release of air contaminants, several industries have begun modernization programs which are intended to improve operations.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction.

Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at ieast twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soii stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic should be small. Worst-case concentrations of carbon monoxide should remain within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

At this time, sufficient detail is not available describing the facilities that may be located within the commercial/industrial area included in the project to perform any quantitative impact assessments. However, the types of facilities currently being considered do not emit significant amounts of air pollution. In any case, before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. If deemed necessary, the Department of Health may require the applicant to assess the air quality impact of the proposed emissions.

Due to the relatively close proximity of industries located at CIP, occasional impacts on the project from emissions emanating from these facilities will probably be unavoidable. Such impacts may occur in conjunction with the coincidental occurrences of industry malfunctions and westerly winds, both of which are relatively infrequent events. Increased scrutiny by the Department of Health, a special task force mandated by the state legislature to assess and

monitor emissions in the area, and the upgrade of some of the industries located at CIP, such as Chevron, should help to mitigate future impacts on areas adjacent to CIP.

REFERENCES

1. "Climatic Summary of the United States, Supplement for 1951 through 1960, Hawaii and Pacific", U.S. Department of Commerce, Weather Bureau, Washington, D.C., 1965.

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3. State of Hawaii. Hawaii Administrative Rules, Chapter 11-60, Air Pollution Control.

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5. User's Guide to MOBILE6.0, Mobile Source Emission Factor Model, U.S. Environmental Protection Agency, Office of Transportation and Air Quality, Assessment and Standards Division, Ann Arbor, Michigan, January 2002.

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7. User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, U.S. Environmental Protection Agency, November 1992.

8. CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways, FHWA/CA/TL-84/15, California State Department of Transportation, November 1984 with June 1989 Revisions.

9. "Persistence Factors for Mobile Source (Roadway) Carbon Monoxide Modeling", C. David Cooper, Journal of the Air & Waste Management Association, Volume 39, Number 5, May 1989.

10. Guideline for Modeling Carbon Monoxide from Roadway Intersections, U.S. Environmental Protection Agency, EPA-454/R-92-005, November 1992.

11. Annual Summaries, Hawaii Air Quality Data, 1997-2001, State of Hawaii Department of Health.

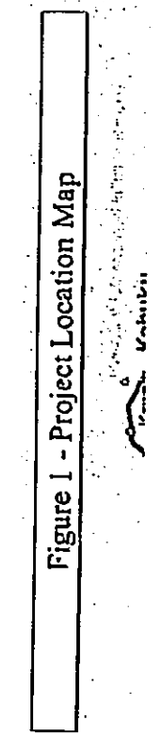


Figure 1 - Project Location Map

Table 1

SUMMARY OF STATE OF HAWAII AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration		
			National Primary	National Secondary	State of Hawaii
Particulate Matter (<10 microns)	µg/m³	Annual	50[a]	50[a]	50
		24 Hours	150[b]	150[b]	150[c]
Particulate Matter (<2.5 microns)	µg/m³	Annual	15[a]	15[a]	-
		24 Hours	65[d]	65[d]	-
Sulfur Dioxide	µg/m³	Annual	80	-	80
		24 Hours	365[c]	-	365[c]
		3 Hours	-	1300[c]	1300[c]
Nitrogen Dioxide	µg/m³	Annual	100	100	70
Carbon Monoxide	mg/m³	8 Hours	10[c]	-	5[c]
		1 Hour	40[c]	-	10[c]
Ozone	µg/m³	8 Hours	157[e]	157[e]	-
		1 Hour	235[f]	235[f]	100[c]
Lead	µg/m³	Calendar Quarter	1.5	1.5	1.5
Hydrogen Sulfide	µg/m³	1 Hour	-	-	35[c]

[a] Three-year average of annual arithmetic mean.

[b] 99th percentile value averaged over three years.

[c] Not to be exceeded more than once per year.

[d] 98th percentile value averaged over three years.

[e] Three-year average of fourth-highest daily 8-hour maximum.

[f] Standard is attained when the expected number of exceedances is less than or equal to 1.

Note: Standards for particulate matter (<2.5 microns) and for 8-hour ozone have not yet been implemented.

Table 2

ANNUAL WIND FREQUENCY FOR HONOLULU INTERNATIONAL AIRPORT (%)

Wind Direction	Wind Speed (knots)									Total
	0-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	>40	
N	0.5	2.5	1.3	0.5	0.0	0.0	0.0	0.0	0.0	4.8
NNE	0.3	1.2	1.6	1.5	0.2	0.0	0.0	0.0	0.0	4.7
NE	0.3	2.1	6.1	11.0	3.2	0.3	0.0	0.0	0.0	23.0
ENE	0.2	2.5	10.9	16.6	4.1	0.3	0.0	0.0	0.0	34.7
E	0.1	1.0	2.5	2.8	0.5	0.0	0.0	0.0	0.0	7.0
ESE	0.0	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	1.1
SE	0.0	0.3	0.8	1.0	0.1	0.0	0.0	0.0	0.0	2.2
SSE	0.1	0.4	1.2	0.7	0.1	0.0	0.0	0.0	0.0	2.4
S	0.1	0.5	1.4	0.6	0.1	0.0	0.0	0.0	0.0	2.7
SSW	0.0	0.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	1.5
SW	0.0	0.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	1.5
WSW	0.0	0.3	0.5	0.4	0.0	0.0	0.0	0.0	0.0	1.2
W	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1
WNW	0.2	1.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	2.0
NW	0.4	2.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0	3.8
NNW	0.5	2.3	0.8	0.2	0.0	0.0	0.0	0.0	0.0	3.8
Calm	2.5									2.5
Total	5.4	18.3	30.6	36.5	8.5	0.7	0.0	0.0	0.0	100.0

Source: Climatography of the United States No. 90 (1965-1974), Airport Climatological Summary, Honolulu International Airport, Honolulu, Hawaii, U.S. Department of Commerce, National Climatic Center, Asheville, NC, August 1978.

Table 3

AIR POLLUTION EMISSIONS INVENTORY FOR ISLAND OF OAHU, 1993

Air Pollutant	Point Sources (tons/year)	Area Sources (tons/year)	Total (tons/year)
Particulate	25,891	49,374	75,265
Sulfur Oxides	39,230	nil	39,230
Nitrogen Oxides	92,436	31,141	123,577
Carbon Monoxide	28,757	121,802	150,559
Hydrocarbons	4,160	421	4,581

Source: Final Report, "Review, Revise and Update of the Hawaii Emissions Inventory Systems for the State of Hawaii", prepared for Hawaii Department of Health by J.L. Shoemaker & Associates, Inc., 1996

Table 4

ANNUAL SUMMARIES OF AIR QUALITY MEASUREMENTS FOR
MONITORING STATIONS NEAREST EWA BY GENTRY MAKAI DEVELOPMENT

Parameter / Location	1997	1998	1999	2000	2001
Sulfur Dioxide / Kapolei					
3-Hour Averaging Period:					
No. of Samples	2845	2723	2710	2505	2511
Highest Concentration ($\mu g/m^3$)	61	69	30	23	24
2nd Highest Concentration ($\mu g/m^3$)	52	64	17	18	15
No. of State AAQS Exceedances	0	0	0	0	0
24-Hour Averaging Period:					
No. of Samples	361	343	360	362	359
Highest Concentration ($\mu g/m^3$)	20	17	6	6	7
2nd Highest Concentration ($\mu g/m^3$)	16	16	6	5	6
No. of State AAQS Exceedances	0	0	0	0	0
Annual Average Concentration ($\mu g/m^3$)	2	2	2	1	2
Particulate (PM-10) / Kapolei					
24-Hour Averaging Period:					
No. of Samples	269	359	362	356	352
Highest Concentration ($\mu g/m^3$)	41	34	129	148	121
2nd Highest Concentration ($\mu g/m^3$)	26	34	39	129	104
No. of State AAQS Exceedances	0	0	0	0	0
Annual Average Concentration ($\mu g/m^3$)	13	15	15	17	19
Carbon Monoxide / Kapolei					
1-Hour Averaging Period:					
No. of Samples	8649	8044	8395	8595	8515
Highest Concentration (mg/m^3)	1.8	1.9	1.5	2.5	2.3
2nd Highest Concentration (mg/m^3)	1.7	1.5	1.2	1.6	1.9
No. of State AAQS Exceedances	0	0	0	0	0
8-Hour Averaging Period:					
No. of Samples	1085	1044	1048	1076	1073
Highest Concentration (mg/m^3)	0.7	0.6	0.6	1.0	1.6
2nd Highest Concentration (mg/m^3)	0.7	0.6	0.6	0.8	1.3
No. of State AAQS Exceedances	0	0	0	0	0
Nitrogen Dioxide / Kapolei					
Annual Average Concentration ($\mu g/m^3$)	8	8	7	9	6
Ozone / Sand Island					
1-Hour Averaging Period:					
No. of Samples	8702	8688	8566	8482	8448
Highest Concentration (mg/m^3)	106	114	110	98	104
2nd Highest Concentration (mg/m^3)	106	110	106	96	100
No. of State AAQS Exceedances	13	7	8	0	0

Source: State of Hawaii Department of Health, "Annual Summaries, Hawaii Air Quality Data, 1997 - 2001"

Table 5

ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR
EWA BY GENTRY MAKAI DEVELOPMENT
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario					
	2002/Present		2010/Without Project		2010/With Project	
	AM	PM	AM	PM	AM	PM
Fort Weaver Road at Geiger/Iroquois Roads	8.7	7.2	6.1	5.0	6.7	5.5
Kapolei Parkway at Geiger Road	3.4	2.3	4.3	3.8	4.7	4.1
Kaahupahau Street at Geiger Road	3.9	3.2	3.7	3.1	3.7	3.2
Keaunui Drive at Iroquois Road	1.8	1.5	3.2	2.6	3.2	2.6

Hawaii State AAQS: 10
National AAQS: 40

Table 6

ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR
EWA BY GENTRY MAKAI DEVELOPMENT
(milligrams per cubic meter)

Roadway Interaection	Year/Scenario		
	2002/Present	2010/Without Project	2010/With Project
Fort Weaver Road at Geiger/Iroquois Roads	4.4	3.0	3.4
Kapolei Parkway at Geiger Road	1.7	2.2	2.4
Kaahupahau Street at Geiger Road	2.0	1.8	1.8
Keaunui Drive at Iroquois Road	0.9	1.6	1.6

Hawaii State AAQS: 5
National AAQS: 10

LETTER AGREEMENT

This letter agreement ("Agreement") made and entered into as of this 16th day of July, 2003, by and between HAWAII PRINCE HOTEL WAIKIKI CORP., dba Hawaii Prince Golf Club ("Hawaii Prince") and GENTRY INVESTMENT PROPERTIES ("Gentry");

WITNESSETH THAT:

WHEREAS, on March 21, 2003, Gentry filed a Petition with the Land Use Commission for an amendment to the land use district boundary to reclassify approximately 283 acres at Ewa, Island of Oahu, State of Hawaii, from the Agricultural district to the Urban District ("Property"), in Docket No. A03-738;

WHEREAS, Hawaii Prince is the owner of the Hawaii Prince Golf Club, which is adjacent to a portion of the Property;

WHEREAS, Gentry and Hawaii Prince have a longstanding business relationship and desire to work together to address drainage issues that affect the Hawaii Prince golf course and the Property;

NOW, THEREFORE, in consideration of the premises hereinabove and the mutual covenants, terms, and conditions hereinafter contained, the parties hereto agree as follows:

1 On July 18, 1997, the City and County of Honolulu accepted a Drainage Master Plan for two tracts of land in Ewa by Gentry and Ewa Makai totaling 255 acres. The Ewa by Gentry-East Phase II parcel is part of the existing Ewa by Gentry community. The Ewa Makai-East parcel is bounded by Fort Weaver Road, the old Puuloa Road, U.S. Navy lands, and the Hawaii Prince Golf Club.

2 The approved 1997 Drainage Master Plan called for seventy (70) acres of Gentry's development adjacent to Fort Weaver Road in addition to areas immediately adjacent to the Hawaii Prince Golf Club to drain into the Hawaii Prince golf course.

3. Gentry, its successors, and assigns, shall submit a revised Drainage Master Plan for Ewa by Gentry East, Phase II and Ewa Makai to the City and County of Honolulu for approval ("Revised Drainage Master Plan")

4. The Revised Drainage Master Plan provides that approximately ten (10) acres (as compared to the 70 acres in the 1997 Drainage Master Plan) of Gentry's development and areas immediately adjacent to the Hawaii Prince Golf Club may drain into the Hawaii Prince golf course.

5. Gentry, its successors and assigns, agrees to keep Hawaii Prince apprised of changes to and the status of the Revised Drainage Master Plan prior to its approval; and Gentry shall work with Hawaii Prince to coordinate remaining drainage issues in the Revised Drainage Master Plan prior to approval as it affects the Hawaii Prince golf course.

6. Gentry shall provide Hawaii Prince with a copy of the Revised Drainage Master Plan once it is approved by the City and County of Honolulu

It is understood that the master plan conceptually delineates the drainage areas and the disposition of the storm runoff from these areas and does not address the specifics on the means and method to which the storm waters cross the mutual property line. To the extent the Revised Drainage Master Plan provides for drainage from Gentry's development into the Hawaii Prince golf course, during the design phase, Gentry shall work with Hawaii Prince regarding the discharge rates and the location and placement of drainage devices at mutually acceptable locations along the property line between their properties.

8. Gentry does not object to the submission of the following conditions in the Findings of Fact, Conclusions of Law and Decision and Order, or similar document in Docket No. A03-738:

a. Drainage solutions for Gentry's development shall be consistent with the policies and principles in the `Ewa Development Plan;

b. Drainage solutions for Gentry's development shall conform to applicable Federal, State, and City laws, rules, regulations and standards;

c. Gentry shall enter into a Letter Agreement with Hawaii Prince to mutually address the drainage issues as it pertains to the Hawaii Prince golf course.

The letter agreement referred to in subsection c above is this Letter Agreement.

9. This Letter Agreement does not supercede the terms of the Acquisition

Agreement dated effective May 28, 1997, as amended by Master Side Letter Agreement dated December 29, 1988, or the Trustees' Limited Warranty Deed dated December 29, 1988, filed as Land Court Document No. 1604418.

HAWAII PRINCE HOTEL WAIKIKI CORP., dba Hawaii Prince Golf Club

By: ~~[name]~~
Title: President

GENTRY INVESTMENT PROPERTIES
By Gentry-Pacific, Ltd., its general partner

By: Dawn Suyenaga
Its Senior Vice President

October 26, 2010

Mr. Michael D. Formby
Interim Director of Transportation
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Avigation and Noise Easement
Ewa by Gentry Makai

Dear Mr. Formby

This letter confirms that Gentry Homes, Ltd. and Gentry Investment Properties (collectively, Gentry) will grant an avigation and noise easement to the State of Hawaii, Department of Transportation, Airports Division ("Airports"), over the properties shown on the attached Exhibit "A". This grant is being made pursuant to the provisions of the State of Hawaii Land Use Commission Findings of Fact, Conclusions of Law, Decision and Order dated and entered January 2, 2004 in Docket No. A03-738 (the "2004 LUC Order"). The properties covered by the Grant include some properties that lie within the area subject to noise levels equal to or greater than 55 Day Night Level (Dnl) as delineated on the 2003 (Existing) Base Year Noise Exposure Map of the Honolulu International Airport Master Plan (the "55 plus Dnl Area"), and some properties that lie outside of the 55 plus Dnl Area. The Grant does not include all of the properties that lie within the 55 plus Dnl Area. Gentry and Airports agree that the grant covering the properties shown on Exhibit "A" will satisfy the requirements of the 2004 LUC Order relating to the granting of an avigation and noise easement, and that no other grants of avigation or noise easements in favor of Airports will be required under the provisions of the 2004 LUC Order.

The grant will be made by way of a series of grants, each covering portions of the properties shown on Exhibit "A". Gentry and Airports will use their best efforts to expedite the recordation of the series of grants.

We would appreciate your confirmation of this understanding by acknowledging in the space provided below. Thank you for your cooperation. Please call me if you have any questions.

Very truly yours,
GENTRY HOMES, LTD.

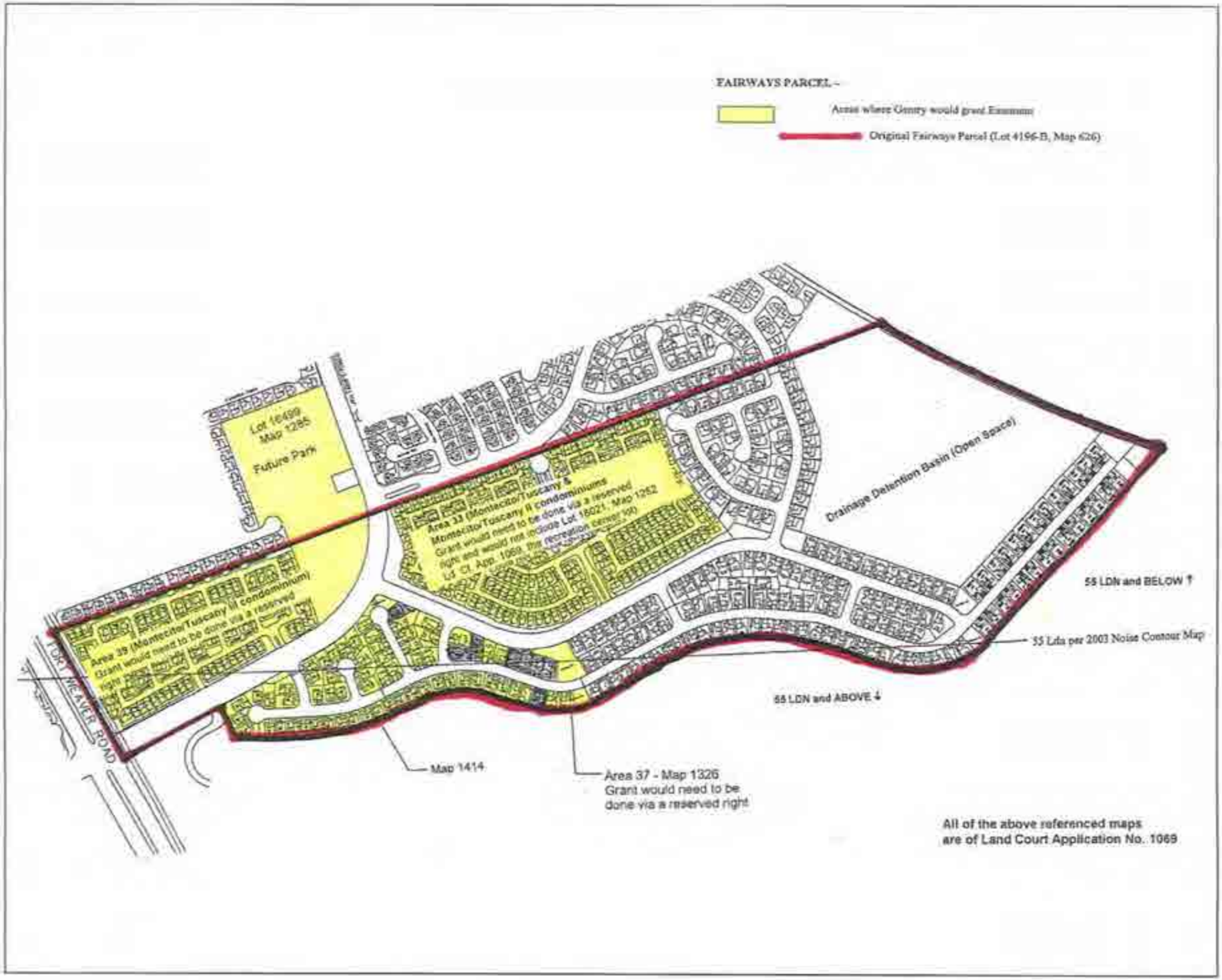
Dawn Suyenaga
General Counsel

Acknowledged and agreed:
DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

By _____
Its
Date:

C: Office of Planning, Attorney General Office (Laura Kim-Nugent)

EXHIBIT "A"


FAIRWAYS PARCEL –
Areas where Gentry would grant Easements
Original Fairways Parcel (Lot 4196-B, Map 626)
Lot 16499
Map 1285
Future Park
Area 39 (Montecito/Tuscany III condominium)
Grant would need to be done via a reserved
Area 33 (Montecito/Tuscany II condominiums
Montecito/Tuscany I &
Grant would need to be done via a reserved
Drainage Detention Basin (Open Space)
55 LDN and BELOW ↑
55 Ldn per 2003 Noise Contour Map
55 LDN and ABOVE ↓
TORY WEAVER ROAD
Map 1414
Area 37 - Map 1326
Grant would need to be
done via a reserved right
All of the above referenced maps
are of Land Court Application No. 1069

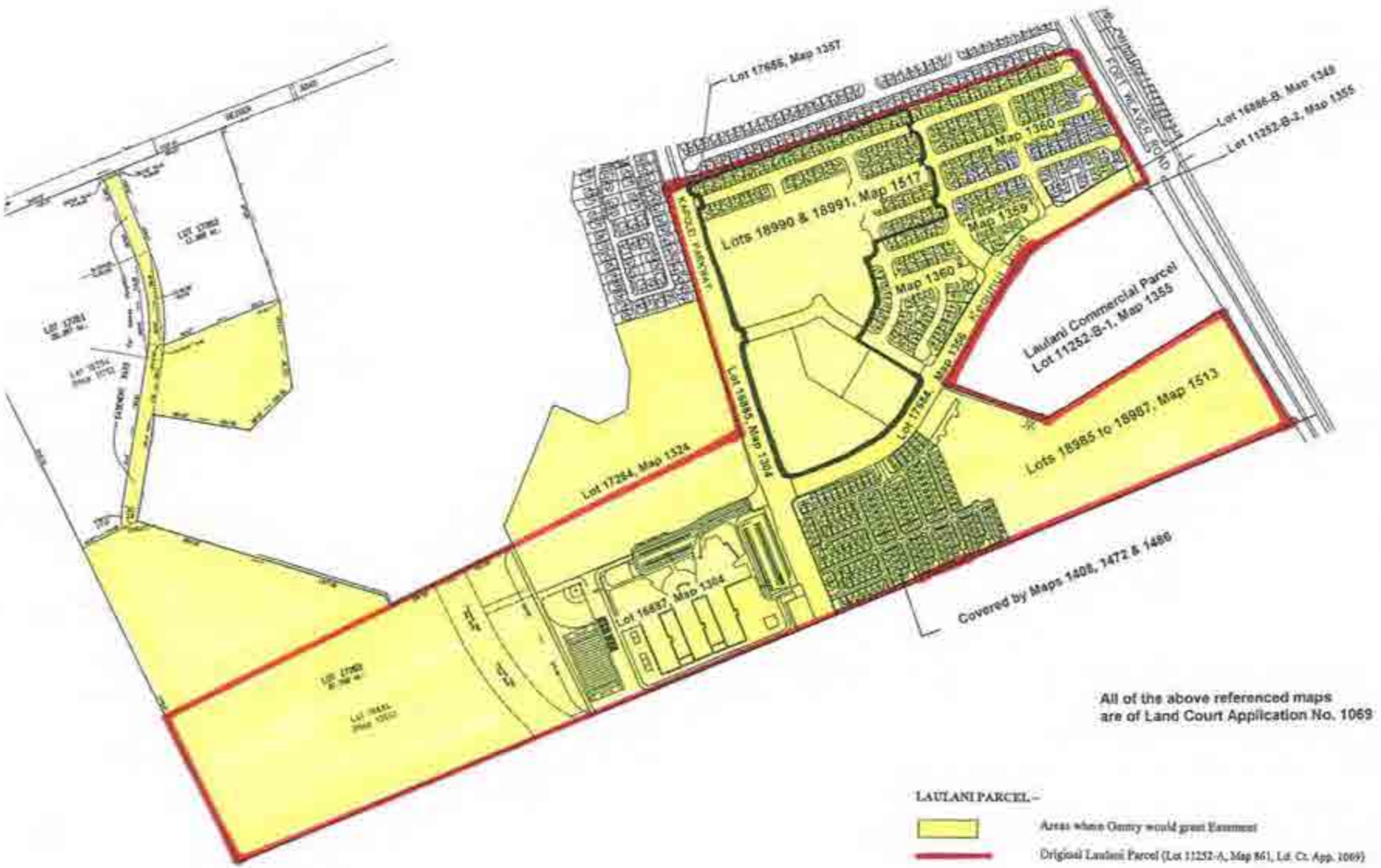


EXHIBIT "A" – Page 2 of 2

I hereby certify that this is
a true copy from the records
of the Bureau of Conveyances,

Doc 4014373
CTN AS LISTED HEREIN
OCT 28, 2010 08:01 AM

as

Registrar of Conveyances
Assistant Registrar, Land Court
State of Hawaii

Return by Mail ( ) Pickup ( ) To:

ITC 341806

Total No. Pages: 13

Document Title:	GRANT OF AVIGATION AND NOISE EASEMENT
Parties:	Gentry Investment Properties Gentry Homes, Ltd. State of Hawaii
Property Affected:	Lot 16499, Map 1285, Ld. Ct. App. 1069 Lots 16885, 16887 and 16888, Map 1304, Ld.Ct.App. 1069 Lots 17263 and 17264, Map 1324, Ld.Ct.App. 1069 Lots 17265 to 17273, Map 1326, Ld. Ct. App. 1069 Lot 16886-B, Map 1349, Ld.Ct.App. 1069 Lot 17684, Map 1356, Ld.Ct.App. 1069 Lot 17686, Map 1357, Ld. Ct. App. 1069 Lots 17687 to 17698, inclusive and 17703, Map 1359, Ld.Ct.App. 1069 Lots 17795, 17796, 17803 to 17839, inclusive and 17841, Map 1360, Ld.Ct. App. 1069 Lots 18212 to 18246, inclusive, Map 1414
CT Nos.:	892,179; 881,477; 881,478; 889,446; 889,447; 904,203; 938,290

Tax Map No. 9-1-69:005 and 9-1-10:007

GRANT OF AVIGATION AND NOISE EASEMENT

THIS INDENTURE, made this 8th day of October, 2010, by GENTRY INVESTMENT PROPERTIES, a Hawaii limited partnership, by its general partner NTM LLC, whose address is 560 N. Nimitz Highway, Honolulu, Hawaii 96817, and GENTRY HOMES, LTD., a Hawaii corporation, whose address is 560 N. Nimitz Highway (hereinafter collectively referred to as "Grantor"), and the STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION, whose address is 400 Rodgers Boulevard, Suite 700, Honolulu, Hawaii 96819 (hereinafter referred to as "Grantee");

WITNESSETH THAT:

WHEREAS, Grantor holds title to portions of that certain real property situated in Ewa, Oahu, Hawaii, identified as Tax Map Key Nos: 9-1-10:7 and 9-1-69:5, more fully described in Exhibit "A", and shown in the map marked as Exhibit "B", both exhibits attached hereto and by reference made a part hereof (hereinafter referred to as the "Property"); and

WHEREAS, Grantee is the owner and operator of the Honolulu International Airport and Kalaeloa Airport (hereinafter collectively referred to as "the Airport"), which are in close proximity to the Property; and

WHEREAS, the Property is located within an area exposed to aircraft noise and will be subject to day-night average sound levels (Dnl) as delineated by the 2003 (Existing) Base Year Noise Exposure Map of the Honolulu International Airport Master Plan and all applicable assumptions regarding the future operations of the Airport underlying such map, attached hereto as Exhibit "C" and by reference incorporated herein (hereinafter referred to as the "Noise Exposure Map"); and

WHEREAS, Grantor acknowledges that the Noise Exposure Map may be amended, replaced or superseded from time to time, and Grantor therefore agrees that, for purposes of this grant of easement, any such amendment(s) or replacement or superseding map(s) shall be deemed incorporated herein upon official adoption by Grantee; and

WHEREAS, Grantor will develop the Property for residential, industrial and commercial uses, which could potentially subject users of the Property to various adverse impacts as a result of existing and future use and operations of the Airport; and

WHEREAS, Grantor acknowledges that the Property is located in an area impacted by Aircraft noise and that present and future Aircraft noise may interfere with the unrestricted use and enjoyment of the Property in its intended use; that the Aircraft noise may change over time by virtue of greater number of Aircraft, louder Aircraft, seasonal variations and time-of-day variations; that changes in Airport, Aircraft , and air traffic control operating procedures or in Airport layout and boundaries could result in increased noise; and

WHEREAS, Grantor acknowledges the potential for noise, fumes, smoke, vibrations, odors, fuel particles and other effects, substances and phenomena from Aircraft as well as the operations of the Airport, as it currently exists or as it will be developed in the future, which may exceed normal levels for residential, industrial or commercial uses; and

WHEREAS, Grantor acknowledges that although portions of the Property lie within the area subject to noise levels equal to or greater than 55 Dnl as delineated on the Noise Exposure

Map, such map may be amended or replaced upon official adoption by Grantee which may subject different portions of or the entire Property to noise levels equal to or greater than 55 Dnl; and

WHEREAS, pursuant to certain conditions as stated in the State of Hawaii Land Use Commission Findings of Fact, Conclusions of Law, Decision and Order dated and entered January 2, 2004 in Docket No. A03-738, Grantor is required to grant and record an Avigation Easement and a Noise Easement affecting the Property.

NOW THEREFORE, in consideration of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration, the receipt and adequacy whereof is hereby acknowledged, and in acknowledgment of the potential for noise, fumes, smoke, vibrations, odors, fuel particles and other effects, substances and phenomena from Aircraft as well as the operations of the Airport, as it currently exists or as it will be developed in the future, and in fulfillment of the conditions stated in the aforementioned Land Use Commission Decision and Order, the following grants, agreements and covenants are made and imposed:

1. Recitals: The foregoing recitals are incorporated into this grant of easement.

2. Grant of Easement: Grantor, for itself, its successors and assigns, does hereby grant and convey unto Grantee, its successors and assigns, a perpetual avigation and noise easement with respect to the Property as follows:

(a) Avigation Easement. A perpetual avigation easement and right of way, appurtenant to the Airport, for the free and unobstructed flight and passage, and operations and effects thereof, all types of Aircraft ("Aircraft" being defined for the purposes of this instrument as any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air) by whomsoever owned and operated, in and through all the airspace above and over, or in the airspace of, the Property to an infinite height above said Property, including but not limited to, the right to cause in such airspace and at the Airport such noise, fumes, smoke, vibrations, odors, fuel particles and any and all other effects, substances and phenomena as may be incident to or caused by Aircraft, and for the use of said airspace by Aircraft for approaching, landing upon or taking off from, or operating at or on, the Airport, and for all other uses allowed or authorized at the Airport.

(b) Noise Easement. A perpetual easement allowing Grantee, its successors and assigns, to discharge, emit or otherwise transmit Aircraft noise at levels not exceeding the day-night average sound levels (Dnl) as delineated by the Noise Exposure Map, as such map may be amended, replaced or superseded, any such amendment(s), or replacement or superseding map(s) shall be deemed incorporated herein upon official adoption by Grantee, and also all noise, fumes, smoke, vibrations, odors, fuel particles and any and all other effects, substances and phenomena as may be incident to or caused by Aircraft and the operations of the Airport, as it currently exists or as it will be developed in the future, including but not limited to, any change or increase in Airport layout or boundaries or operations, runway length or location, volume or pattern of Aircraft traffic or noise, air traffic control procedures, or characteristics or type or category of Aircraft using the Airport.

3. Benefits and Burdens Run with the Land: This grant of easement shall be recorded with the Bureau of Conveyances and, if appropriate, the Office of the Assistant Registrar of the Land Court of the State of Hawaii, and all provisions of this instrument, including any benefits and burdens hereunder shall: (a) be intended to and run with the land in perpetuity and be appurtenant to and for the benefit of all the real property comprising and known as the Airport and such other additional property or interest therein as shall be subsequently acquired or designated from time to time by Grantee or its successors and assigns as constituting a part of the said Airport; (b) be included in any conveyance or disposition of the Property or portions thereof by the Grantor or its successors and assigns; and (c) be binding upon and shall inure to the benefit of the successors, assigns and those claiming under or through the parties hereto.

4. Interference with Air Navigation: Grantor, for itself, its successors and assigns, covenants that Grantor shall not build, construct, cause or permit to be built or constructed, or permit to remain on the Property any building or structure that would interfere with the rights conveyed by this instrument or that would violate any county, state or federal law or regulation regarding the operation of Aircraft or the Airport. Grantor further covenants that Grantor shall not use or permit the use of the Property in such a manner as to create any electronic, electromagnetic, smoke, light emissions or other interference with radio, radar or other similar means of Aircraft communications and navigation, or make it difficult for pilots to distinguish between airfield navigation lights and visual aids and other lights, or to result in glare or other conditions that would impair the vision of pilots, or to otherwise endanger the operation of Aircraft.

5. Release From Suits: By this grant of easement, Grantor, for itself, its successors and assigns, does hereby fully waive, remise, discharge and release any right or cause of action which it may now have or which it may have in the future, and agrees not to file any claim, action or lawsuit for any kind of relief, legal or equitable, including but not limited to claims, known or unknown, for nuisance, trespass, damages for physical or emotional injuries, discomfort, inconvenience, property damage, death, interference with use and enjoyment of property, diminution of property values, or inverse condemnation against the State of Hawaii, its successors and assigns, or any agency or employee thereof, or any other users of the Airport, for costs or damages resulting from noise, fumes, smoke, vibrations, odors, fuel particles and any and all other effects, substances and phenomena as may alleged to be incident to or caused by Aircraft and the operations of the Airport, as it currently exists or as it will be developed in the future regardless of any change or increase in Airport layout or boundaries or operations, runway length or location, volume or pattern of Aircraft traffic or noise, air traffic control procedures, or characteristics or type or category of Aircraft using the Airport.

6. Notice: Grantor, for itself, its successors and assigns, shall provide conspicuous, plainly written notice to any prospective purchaser, lessee, tenant, operator or other user of the Property, that said Property is located within an area of exposure to Aircraft noise, fumes, smoke vibrations, odors, fuel particles and other effects, substances and phenomena from Aircraft as well as from the operation of the Airport, as it currently exists or will be developed in the future, which may exceed normal levels for urban, residential or commercial use. Such notice shall inform any prospective purchaser, lessee, tenant, operator or other user that airport authorities do not expect that noise levels can be further reduced.

7. Indemnification: Grantor, for itself, its successors and assigns, shall include in any instrument conveying an interest or right to use the Property or any portion thereof an

indemnification provision under which the purchaser, lessee, tenant, operator, user, their heirs, personal representatives, employees, sublessees, invitees, visitors, successors and assigns, agrees to release, indemnify, hold harmless and defend Grantee, its officers and employees, successors and assigns from any and all liability claimed by any such purchaser, lessee, tenant, operator, user, their heirs, personal representatives, employees, sublessees, invitees, visitors, successors and assigns, resulting from said noise, fumes, smoke, vibrations, odors, fuel particles and any and all other effects, substances and phenomena as may be alleged to be incident to or caused by Aircraft and the operation of the Airport, as it currently exists or as it will be developed in the future, including but not limited to any change or increase in Airport layout or boundaries or operations, runway length or location, volume or pattern of Aircraft traffic or noise, air traffic control procedures, or characteristics or type or category of Aircraft using the Airport.

8. Changes: Grantor, for itself, its successors and assigns, acknowledges and agrees that this grant of easement, covenant not to sue, indemnities and other agreements herein contemplate and include all existing and future operations at the Airport; that future Aircraft numbers and types will most likely increase and noise levels may also increase; and that the rights, obligations and covenants herein set forth shall not terminate or vary in the event of any change or increase in the Airport layout or boundaries or operations, runway length or location, volume or pattern of Aircraft traffic or noise, air traffic control procedures or characteristics or type or category of Aircraft using the Airport.

9. Release of Easement: Grantee or its successors and assigns may terminate this grant of easement by recording a release with the Bureau of Conveyances or the Office of the Assistant Registrar of the Land Court of the State of Hawaii, as appropriate, whereupon all rights, duties and liabilities created by this grant of easement shall terminate.

10. Grantor does hereby covenants that it is lawfully seized in an indefeasible estate in the herein described Property; and it has the right to grant and convey the estate, interest and easement herein conveyed; and that it will specially warrant and defend unto the Grantee and its successors and assigns, forever, the quiet and peaceable use and enjoyment of the herein granted easement.

11. Severability: In the event that one or more of the provisions contained in this instrument or any part thereof or any application thereof shall be held invalid, illegal, or unenforceable in any respect by a court of competent jurisdiction, the validity, legality and enforceability of the remaining provisions shall not be affected or impaired and shall remain in full force and effect.

12. Interpretation of agreement: This grant of easement shall be interpreted to achieve the intents and purposes of the parties, without any presumption against the party responsible for drafting any part of this grant of easement. The language hereof, and in all parts of this grant of easement shall, in all cases, be construed simply according to its fair meaning, and not strictly for or against either Grantor or Grantee.

13. Joint and Several Liability: The obligations, covenants, promises, liabilities, warranties, and representations of Grantor(s) under this grant of easement shall be joint and several, by and among any and all entities and persons comprising Grantor.

14. Governing Law: This grant of easement shall be governed by, interpreted and construed in accordance with the laws of the State of Hawaii.

IN WITNESS WHEREOF, the parties hereto have executed these presents on the day and year first above written.

GENTRY INVESTMENT PROPERTIES,
a Hawaii limited partnership
By NTM LLC
Its general partner

By _____
Norman Gentry
Member

By _____
Mark T. Gentry
Member

GENTRY HOMES, LTD.,
a Hawaii corporation

By _____
~~Robert W. Brant~~ Toshimasa Hosoda
Its ~~President~~ Senior Vice President

By _____
Dawn Suyenaga
Its Vice President/Secretary

"Grantor"

DEPARTMENT OF TRANSPORTATION
State of Hawaii

By _____
Name: Michael D. Formby
Title: Interim Director of Transportation

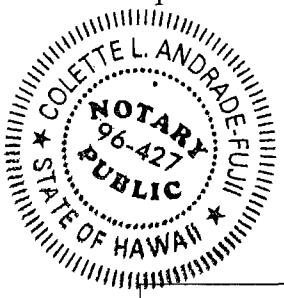
"Grantee

APPROVED AS TO FORM:

_____
Deputy Attorney General

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

On OCT - 8 2010, before me appeared **TOSHIMASA HOSODA** and **DAWN SUYENAGA**, to me personally known, who, being by me duly sworn or affirmed, did say that such persons executed the foregoing instrument as the free act and deed of such persons, and if applicable in the capacities shown, having been duly authorized to execute such instrument in such capacities.

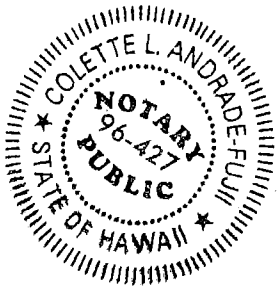


Notary Public, State of Hawaii
Printed Name of Notary: Colette L. Andrade-Fujii
My commission expires: July 7, 2012

Doc. Date: Undated at time of Notarization #Pages: 13

Name: Colette L. Andrade-Fujii First Circuit

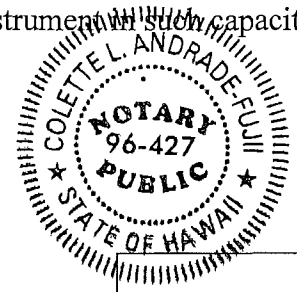
Doc. Description: Grant of Avigation and Noise Easement:



OCT - 8 2010
Signature Date
NOTARY CERTIFICATION (Stamp or Seal)

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

On OCT - 8 2010, before me personally appeared **NORMAN GENTRY and MARK T. GENTRY** to me personally known, who being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.



Notary Public, State of Hawaii
Printed Name of Notary: Colette L. Andrade-Fujii
My commission expires: July 7, 2012

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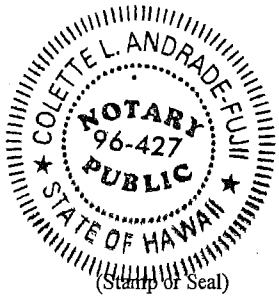


OCT - 8 2010
Signature Date
NOTARY CERTIFICATION (Stamp or Seal)

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

On _____, before me personally appeared _____ to me personally known, who being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.

_____

Printed Name of Notary:_____
Notary Public, State of Hawaii
My Commission Expires:_____

Doc Dated: _____ # Pages: _____

Name: _____ First Circuit

Doc. Description: _____
_____

_____
Signature Date

NOTARY CERTIFICATION

EXHIBIT "A"

FIRST:

Those certain parcels of land situate at Honouliuli, District of Ewa, City and County of Honolulu, Island of Oahu, State of Hawaii, described as follows:

Lot 17686, Map 1357;
Lots 17263 and 17264, Map 1324, both of said maps being filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1069 of the Trustees under the Will and of the Estate of James Campbell, deceased.

Being land described in Certificate of Title Nos. **892,179; 881,477** and **881,478** issued to Gentry Investment Properties. a Hawaii limited partnership.

SECOND:

Those certain parcels of land situate at Honouliuli, District of Ewa, City and County of Honolulu, Island of Oahu, State of Hawaii, described as follows:

Lot 16499, Map 1285
Lots 16885, 16887 and 16888, Map 1304;
Lots 17265 to 17273, Map 1326;
Lot 16886-B, Map 1349;
Lot 17684, Map 1356;
Lots 17687 to 17698, inclusive, and 17703, Map 1359;
Lots 17795, 17796, 17803 to 17839, inclusive, and **17841**, Map 1360;
Lots 18212 to 18246, Map 1414, all of said maps being filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1069 of the Trustees under the Will and of the Estate of James Campbell, deceased.

Being land described in Certificate of Title Nos. **904,203**; **938,290** and **889,446** and **889,447** issued to Gentry Homes, Ltd., a Hawaii corporation.

End of Exhibit "A

EXHIBIT "B"

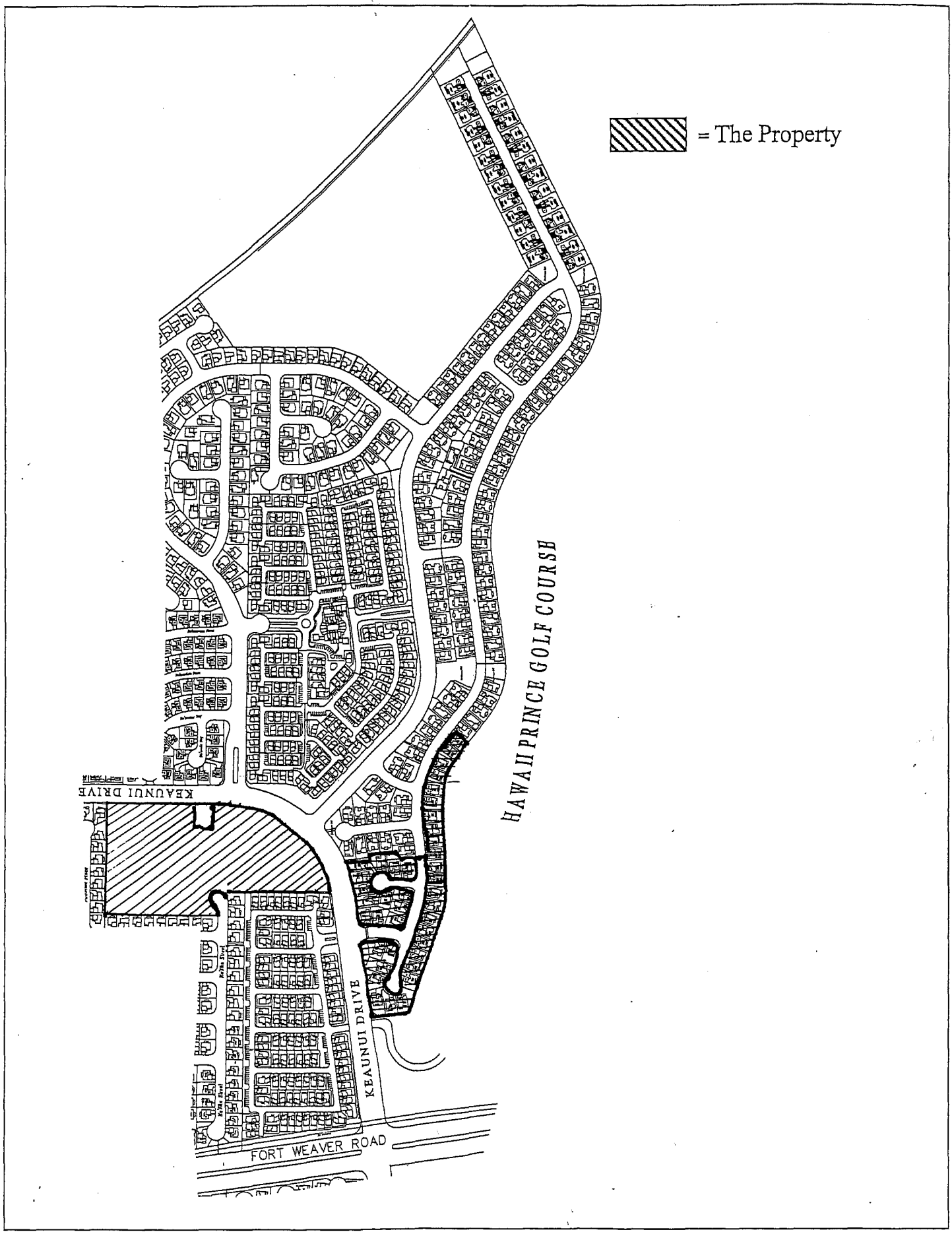

= The Property
KEAUNUI DRIVE
HAWAII PRINCE GOLF COURSE
KEAUNUI DRIVE
FORT WEAVER ROAD

EXHIBIT "B"

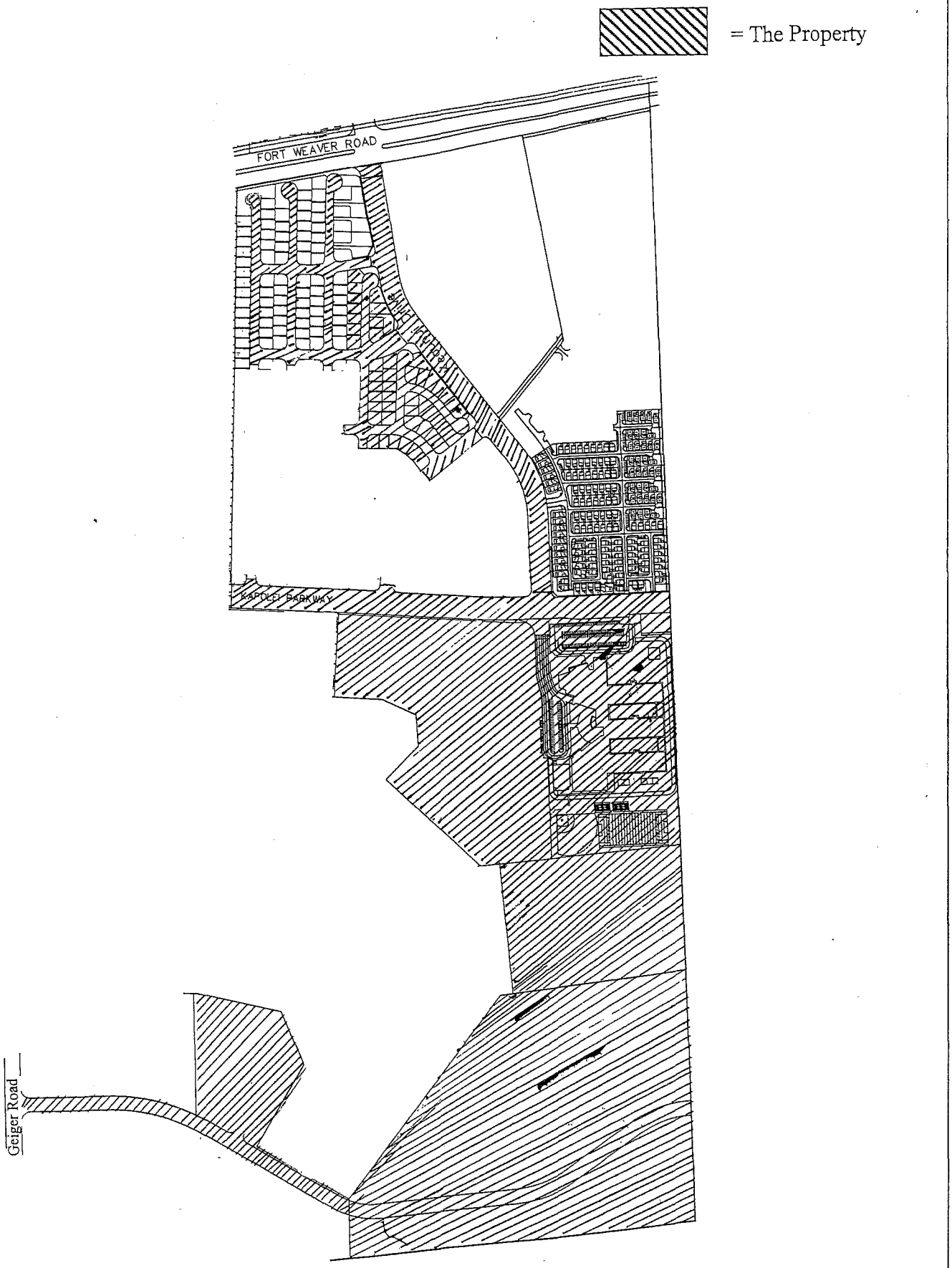
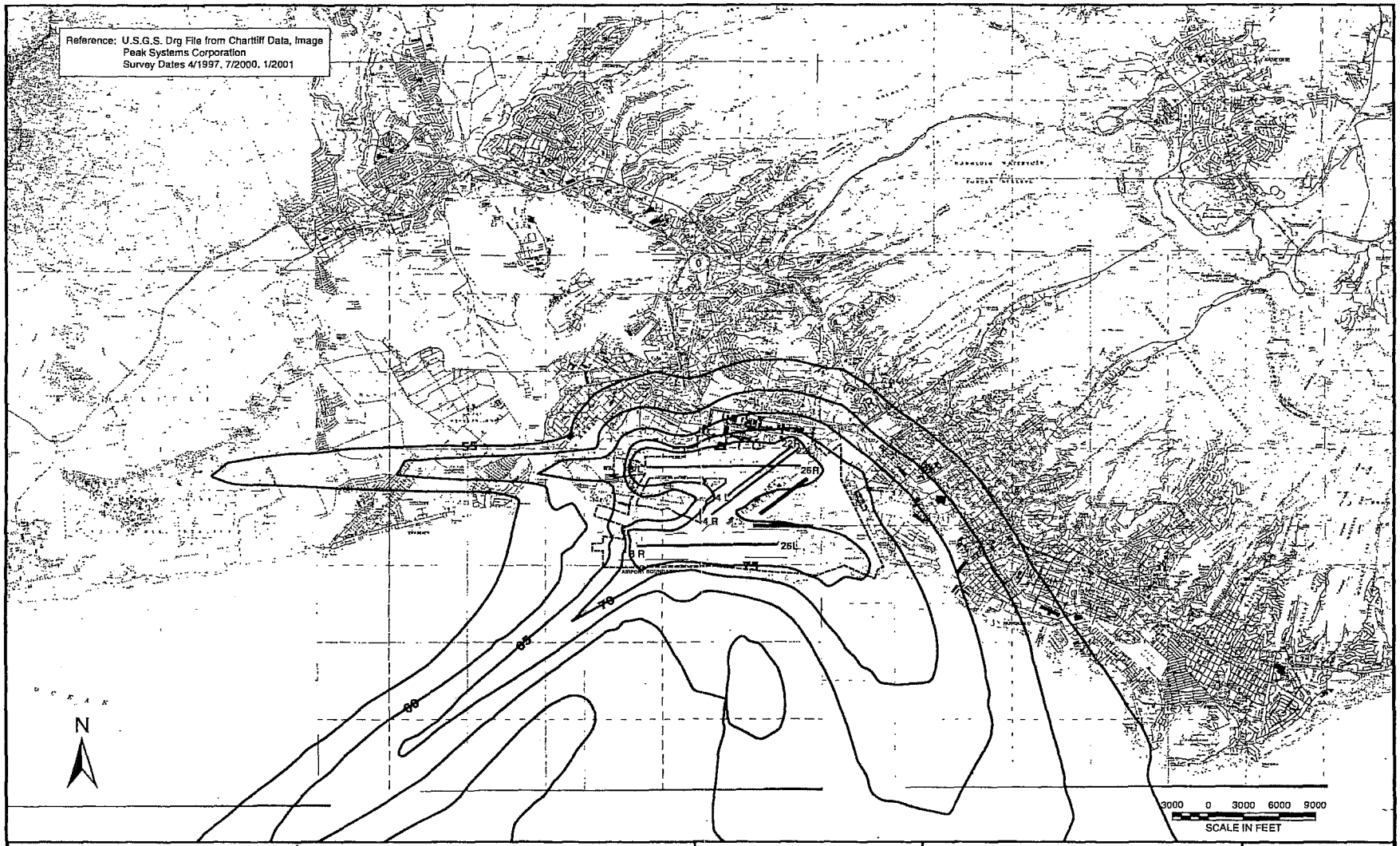


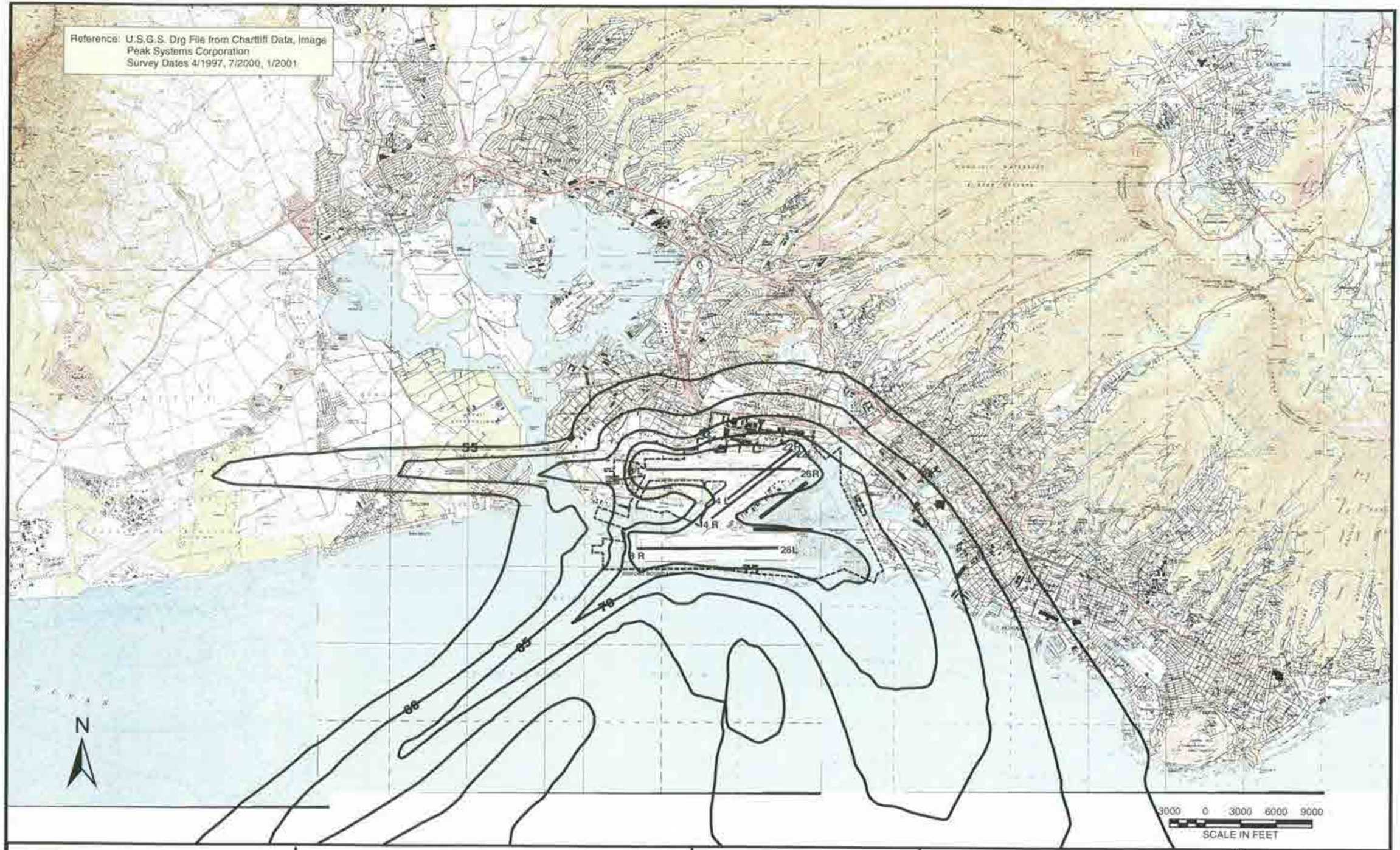
EXHIBIT "C"



AIRPORTS DIVISION DEPARTMENT OF TRANSPORTATION STATE OF HAWAII	HONOLULU INTERNATIONAL AIRPORT MASTER PLAN UPDATE AND NOISE COMPATIBILITY PROGRAM	Edward K. Noda and Associates,Inc	2003 (EXISTING) BASE YEAR NOISE EXPOSURE MAP	FIGURE 4 –1

EXHIBIT "C"

Reference: U.S.G.S. Drg File from Chartliff Data, Image
Peak Systems Corporation
Survey Dates 4/1997, 7/2000, 1/2001



AIRPORTS DIVISION DEPARTMENT OF TRANSPORTATION STATE OF HAWAII	HONOLULU INTERNATIONAL AIRPORT MASTER PLAN UPDATE AND N0ISE COMPATIBILITY PROGRAM	Edward K. Noda and Associates,Inc	2003 (EXISTING) BASE YEAR NOISE EXPOSURE MAP	FIGURE 4 –1

EXHIBIT "17"

442.D101/018-1 12.21.98

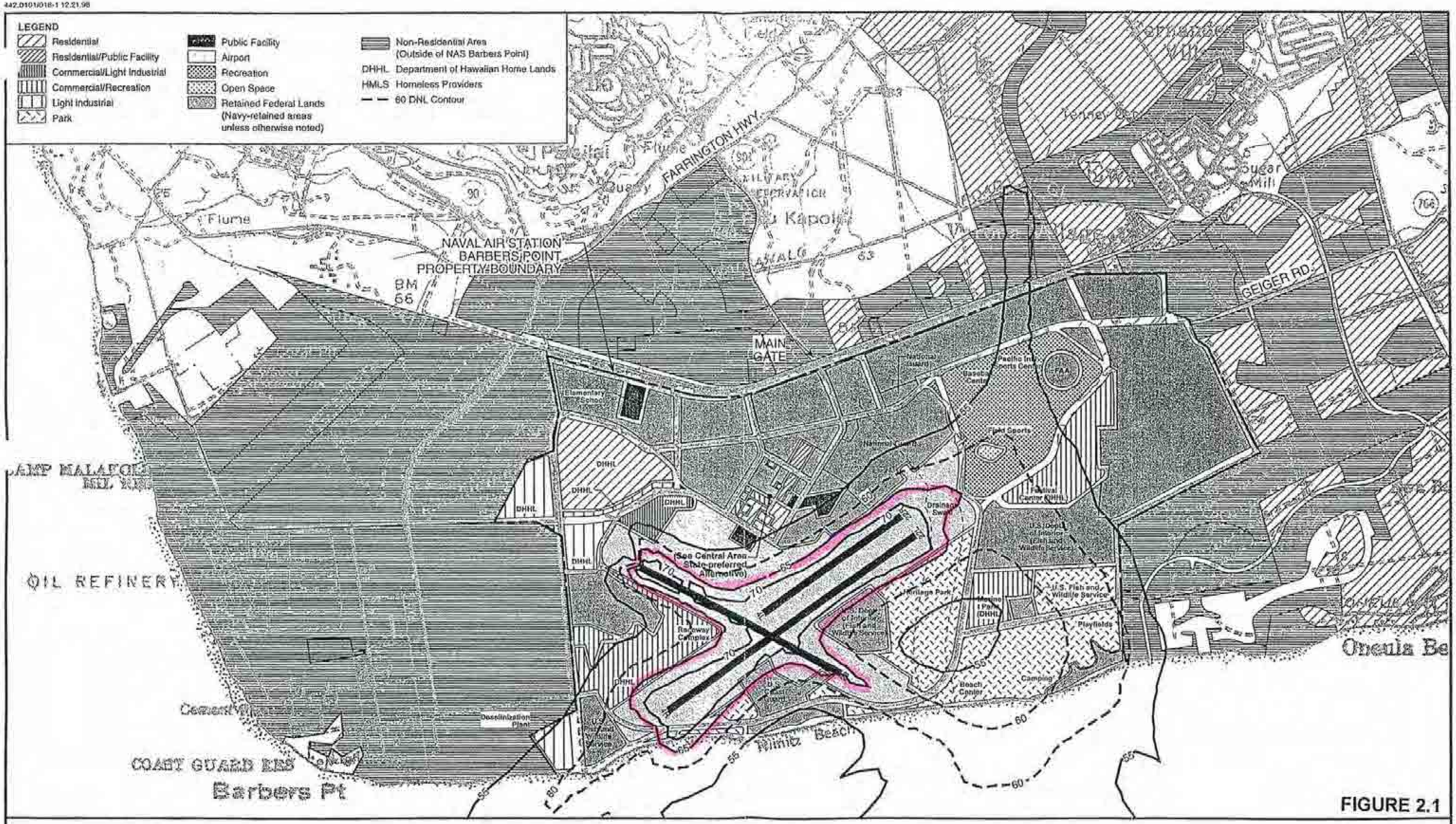


FIGURE 2.1

0 300 600 1200
SCALE IN METERS
0 1200 2400 4800
SCALE IN FEET
NORTH

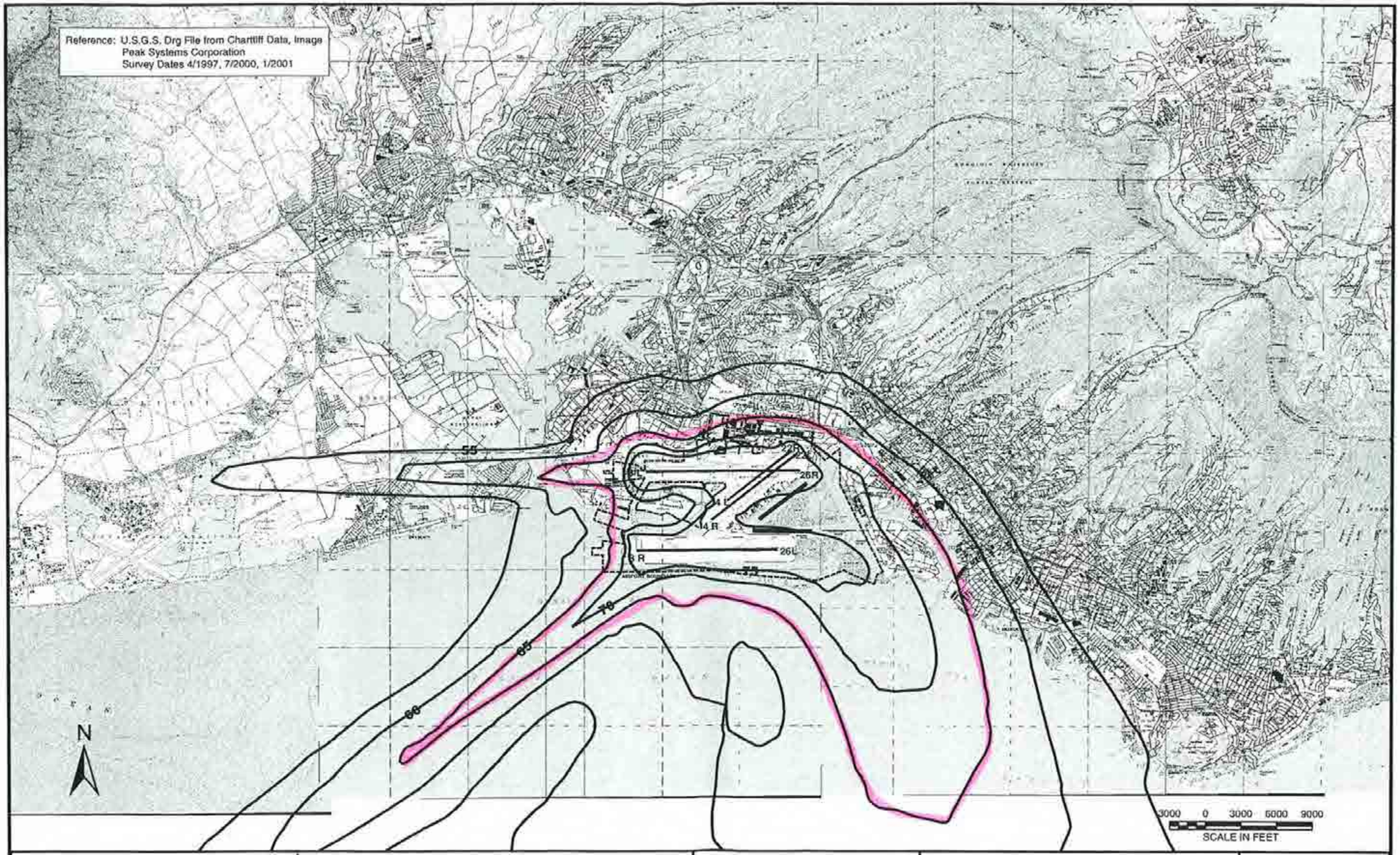
Sources: NASBP Land Use: Helber Hastert & Fee Planners (December 1997);
Federal Retention Areas: PACNAVFACENGCOM (September 28, 1998);
Land Use Outside of NASBP: The Estate of James Campbell, Kapolei Area Long Range Master Plan, October 1997;
Noise Contours: Aries Consultants Ltd. (March 1998);
Base Map: USGS Topographic Map of the Island of Oahu (1970).

NOISE CONTOURS:
2020 STATE-PREFERRED ALTERNATIVE

EIS for the Disposal and Reuse of
Naval Air Station Barbers Point, Hawaii

EXHIBIT "18"

Reference: U.S.G.S. Drg File from Chartliff Data, Image
Peak Systems Corporation
Survey Dates 4/1997, 7/2000, 1/2001



AIRPORTS DIVISION DEPARTMENT OF TRANSPORTATION STATE OF HAWAII	HONOLULU INTERNATIONAL AIRPORT MASTER PLAN UPDATE AND N0ISE COMPATIBILITY PROGRAM	Edward K. Noda and Associates, Inc	2003 (EXISTING) BASE YEAR NOISE EXPOSURE MAP	FIGURE 4 –1

LINDA LINGLE
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

PHONE (808) 733-4300
FAX (808) 733-4287

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

August 10, 2005

Mr. Darian Chun
Project Engineer
Gentry Homes, Ltd.
560 N. Nimitz Highway, Suite 210
Honolulu, Hawaii 96817

Dear Mr. Chun:

Final Inspection, Gentry Homes, Ltd., Area 19 Siren

The inspection of Gentry Homes, Ltd., Area 19 siren was conducted on August 5, 2005, by Norman Ogasawara, State Civil Defense (SCD), Guy Miyashiro, Federal Signal (FS), and Mr. Chun, representing Gentry Homes.

The results of the inspection are as follows:

Site:	EWA Gentry, Area 19, address 312B, siren model UVTDH, Serial No. 0021025, with 119 Dbc Omni directional MOD-3024 speaker array and Hawaii solar panel mount.
Status:	Acceptable.
Problems found:	None.
Time:	1:15 p.m.
Conditions:	Mostly sunny.
Batteries:	Fully charged, used Public Address feature to test power output and put a partial drain on the batteries to start and check the solar regulator. Over the air, quiet. Test, good.

If there are any questions, please contact Mr. Norman Ogasawara at (808) 733-4300, ext. 531.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Oahu Civil Defense Agency
Guy Miyashiro and Company
Radio Shop, SCD

FEATURES

Energy Savings Features

- Low-E dual paned vinyl windows
- Central air conditioning with 18.5 SEER2 rating
- Solar water heating system with 80-120 gallon tank
- Sprayfoam Insulation
- LED lighting package
- Insulated roll up garage door with remotes

Interior Appointments

- Plush wall to wall carpet
- Luxury vinyl plank flooring in entry, kitchen and baths
- Designer laminate cabinets
- Solid surface kitchen countertops
- GE Stainless steel appliance package including:
  - Ceramic top range/oven
  - Dishwasher
  - Vented microwave/hood
- Stainless steel kitchen sinks
- Kohler plumbing fixtures
- Walk-in closets (except Plan A)
- Mirrored closet doors in selected rooms
- Solid surface vanity countertops
- Sterling – Vikrell tub and shower surrounds
- Cable in all bedrooms and living area
- Ceiling lights in all bedrooms
- Fiber optic cable to the home and CAT-6 wiring in all living areas
- USB outlets in bedrooms and kitchen

Exterior/Structural Appointments

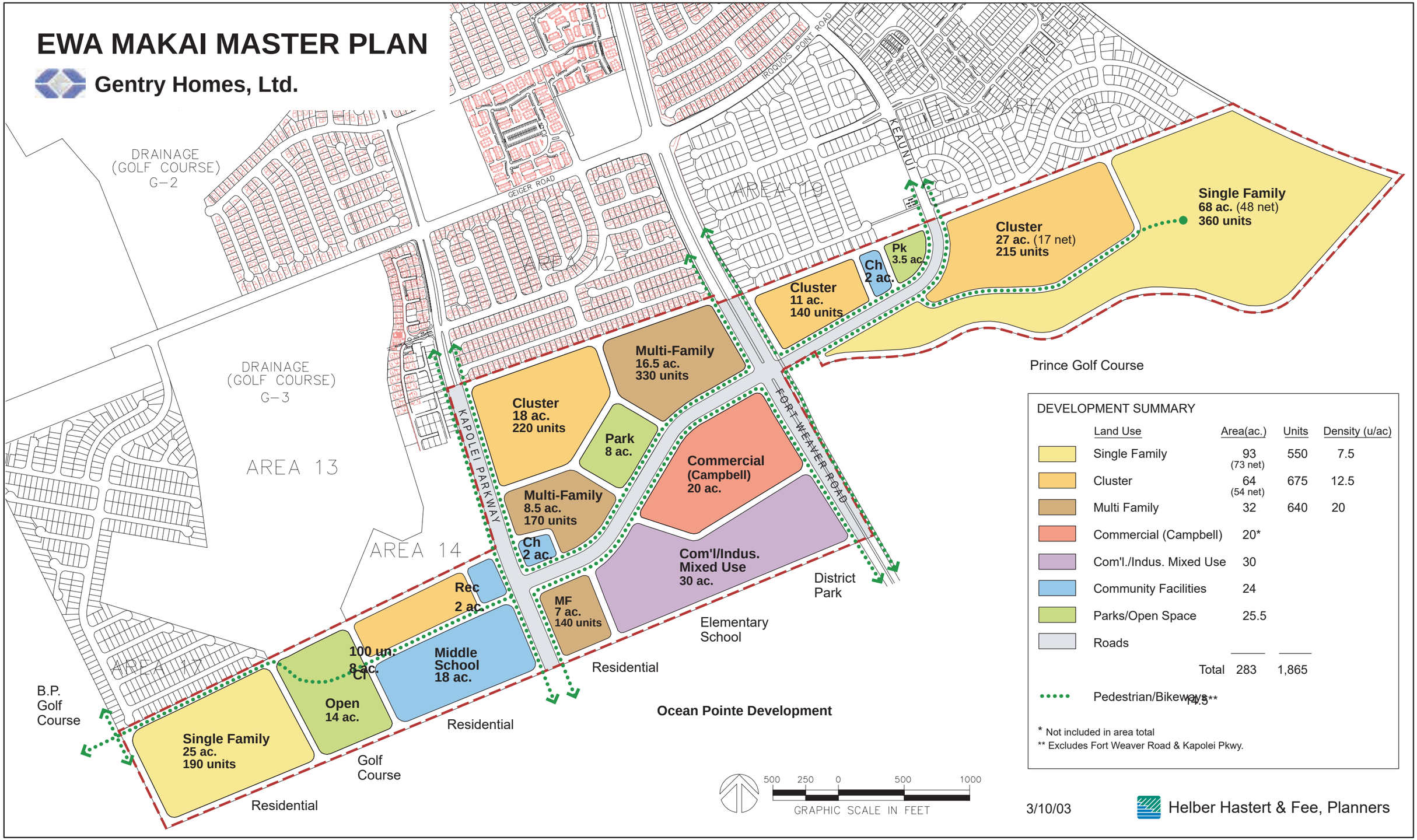
- Elegant raised panel front doors
- Rear yard vinyl fencing with gate
- Utility sink in garage
- Silent truss joist flooring system
- Borate treated lumber with 30 year warranty
- Composite roof with limited lifetime warranty
- James Hardi siding with 30 year limited warranty
- Front Yard landscaping-includes irrigation and grass
- Gravel edging
- Rain Gutters

Optional Upgrades

- Designer flooring selections
- Covered lanais
- Stainless steel refrigerator
- Washer/dryer
- Ceiling fans

EWA MAKAI MASTER PLAN

Gentry Homes, Ltd.



DEVELOPMENT SUMMARY

Land Use	Area(ac.)	Units	Density (u/ac)
Single Family	93 (73 net)	550	7.5
Cluster	64 (54 net)	675	12.5
Multi Family	32	640	20
Commercial (Campbell)	20*		
Com'l./Indus. Mixed Use	30		
Community Facilities	24		
Parks/Open Space	25.5		
Roads			
Total	283	1,865	
Pedestrian/Bikeways	4.5**		

* Not included in area total
** Excludes Fort Weaver Road & Kapolei Pkwy.

3/10/03

Helber Hastert & Fee, Planners

EXHIBIT "21"

EWA MAKAI BY GENTRY
Land Use Plan

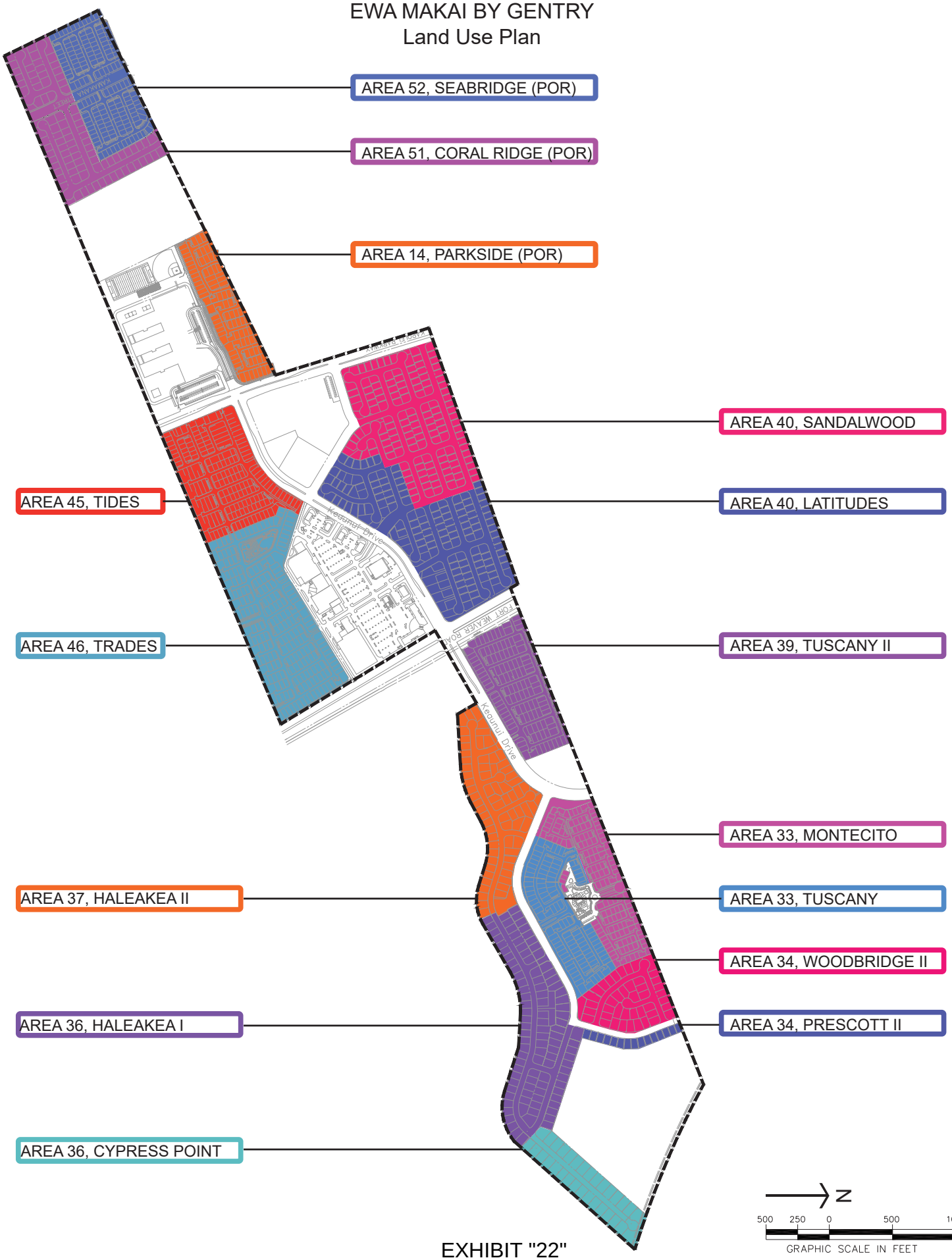


EXHIBIT "22"

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Petition Of	)	DOCKET NO. A03-738
	)	
GENTRY INVESTMENT PROPERTIES,	)	CERTIFICATE OF SERVICE
A Hawai`i Limited Partnership	)	
	)	
To Amend The Agricultural Land Use District	)	
Boundary Into The Urban Land Use District	)	
For Approximately 282.614 Acres Of Land At	)	
`Ewa, O`ahu, Hawai`i, Tax Map Key Nos:	)	
9-1-10: 7 And 9-1-69:5	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that an e-timestamp copy of the foregoing document was duly served upon the following AS INDICATED BELOW on August 6, 2025.

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U.S. CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

DATED: Honolulu, Hawai`i, August 1, 2025.

Of Counsel:
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