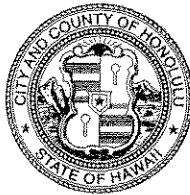


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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527
5369

MUFU HANNEMANN
MAYOR



RECEIVED

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR
2006/ED-18(TC)

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January 4, 2007

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Chapter 343, HRS, Final Environmental Assessment (FEA)
Finding of No Significant Impact (FONSI)
DPP Project Reference No. 2006/ED-18
Project: Allure Waikiki Condominium
Landowner: Hawaii Land LP
Applicant: Fifield Companies
Agent: Kusao & Kurahashi, Inc.
Location: 1837, 1855, 1867, 1879, 1881, 1883, 1887, and 1891
Kalakaua Avenue; 478 and 484 Pau Lane; 466, 467, 472,
475, and 479 Makaoe Lane; 491 Ena Road; Pau Lane;
and Makaoe Lane
Request: Waikiki Special District Permit (Major)
Proposal: 35-Story, 315-Unit High-Rise Residential Condominium
and 2-Story Restaurant
Tax Map Keys: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12; and Pau and Makaoe
Lanes

The Department of Planning and Permitting has reviewed the comments received during the 30-day public comment period, which began on September 23, 2006. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four (4) copies of the FEA, and the project summary on disk. If you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Very truly yours,

for Henry Eng, FAICP, Director
Department of Planning and Permitting

2007-01-23-0A-FEA-WAIKIKI ALLURE CONDOMINIUM VOL 1

JAN 23 2007

**Final
ENVIRONMENTAL ASSESSMENT
VOLUME I OF II**

**ALLURE WAIKIKI CONDOMINIUM
MIXED USE DEVELOPMENT**

WAIKIKI, OAHU, HAWAII

**TAX MAP KEY 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12 and
Pau Lane and Makaoe Lane**

**FIFIELD COMPANIES
1990 MacArthur Blvd., Ste. 655
Irvine, California 92612**

APPLICANT

**Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822**

AGENT

December 2006

**Final
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VOLUME I OF II**

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AGENT

December 2006

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

**Final
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AGENT

December 2006

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FINAL ENVIRONMENTAL ASSESSMENT

**ALLURE WAIKIKI CONDOMINIUM
MIXED USE DEVELOPMENT
HONOLULU, OAHU, HAWAII**

Tax Map Key: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12 and Makaoe Lane and Pau Lane

I. INTRODUCTION

The applicant, Fifield Companies, proposes to develop the Allure Waikiki Condominium Mixed Use Development (Allure), including a 320-foot high, 35-story structure with approximately 300 condominium units, a parking structure, and recreational amenities and a one story dining/retail complex on a 2.29 acre lot situated on Kalakaua Avenue one lot east of Ala Wai Boulevard and extending to Ena Road. The project site, which was previously occupied by a variety of uses and structures, is currently vacant. The new Allure Waikiki mixed-use development will have driveway access off of Kalakaua Avenue as indicated in plans provided in Appendix II.

This Final Environmental Assessment Report for the development of the Allure Waikiki condominium and mixed use project is prepared pursuant to and in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 200 of Title 11, Hawaii Administrative Rules - Environmental Impact Statement Rules. The action that triggers this assessment is the proposed development is in the Waikiki Special District.

The proposed development of the Allure Waikiki development is a permitted use in the Resort Commercial Precinct of the Waikiki Special District for these specific parcels.

II. GENERAL INFORMATION

- A. APPLICANT : Fifield Companies
19900 MacArthur Blvd., Ste. 655
Irvine, California 92612

- B. RECORDED FEE OWNER : FRC Waikiki LLC
19900 MacArthur Blvd., Ste. 655
Irvine, California 92612

- C. APPROVING AGENCY : Department of Planning & Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

- D. TAX MAP KEY : 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12 and
Makaoe and Pau Lanes

- E. AGENT : Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

- F. LOCATION : 1837, 1855, 1867, 1877, 1879, 1881,
1883, 1887, and 1891 Kalakaua
Avenue; 478 and 484 Pau Lane; 466,
467, 475, 472, and 479 Makaoe Lane;
491 Ena Road; Pau Lane; and
Makaoe Lane Honolulu, Hawaii
(Exhibit 1)

- G. LOT AREA : 99,741 square feet or 2.29 acres

Final Environmental Assessment Waikiki Allure

- H. ZONING : Resort Commercial Precinct
(Exhibit 1)
- I. STATE LAND USE : Urban
- J. DEVELOPMENT PLAN
- Land Use Map : Resort and Medium and Higher-Density Residential/Mixed Use
(Exhibit 2)
- Public Infrastructure Map : Road widening improvement along
Kalakaua Avenue (Exhibit 3)
- K. SPECIAL DISTRICT : Waikiki Special District (Exhibit 1)
- L. EXISTING USE : Uses on property terminated,
however, formerly contained
Apartment and Commercial (The
Wave Nightclub) uses
- M. CONSULTED AGENCIES : Department of Land and Natural
Resources
State Historic Preservation Division
University of Hawaii Environmental
Center
State Department of Health
State Department of Education
Office of Hawaiian Affairs
State Department of Transportation
U.H Environmental Center
Representative Ann Stevens
Senator Gordon Tremble
Board of Water Supply

Department of Planning and
Permitting
Department of Parks and Recreation
Department of Design and
Construction
Department of Environmental
Services
Department of Facilities Maintenance
Honolulu Police Department
Honolulu Fire Department
Department of Transportation
Services
Office of Economic Development -
Waikiki
Neighborhood Board - Waikiki
The Outdoor Circle
Hawaiian Electric Company

III. DESCRIPTION OF PROPOSED ACTION

A. GENERAL DESCRIPTION

1. History

Two 3-story, 24-unit apartment buildings (Nanea Apartments) and a 2-story mixed use structure with 8 apartment units and the Wave Nightclub formerly occupied the site for about the last 45 years. These structures have been removed.

The "Archaeological Literature Review and Field Inspection for a 2.29-Acre Project Area, Waikiki Ahupuaa, Kona District,

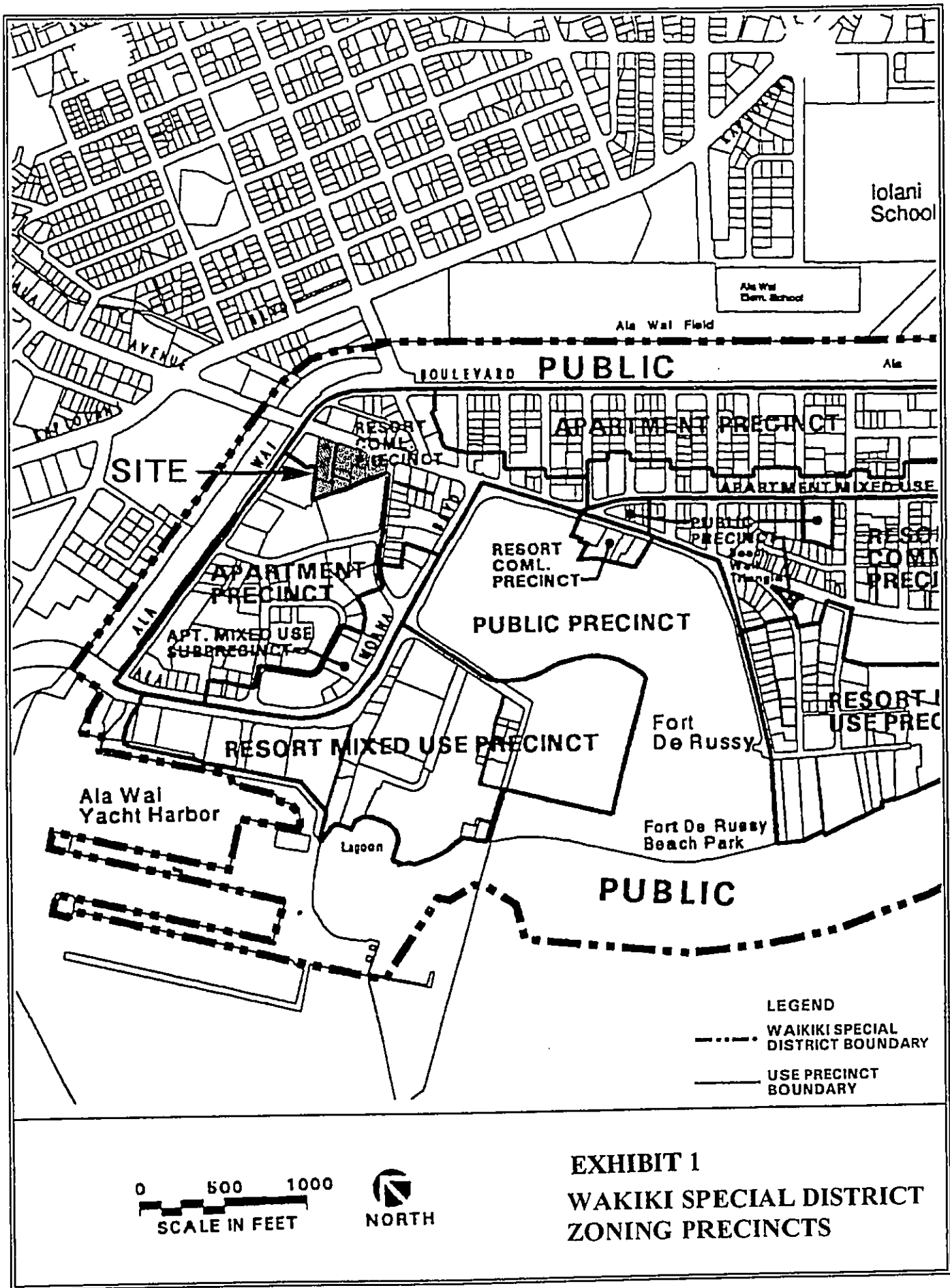
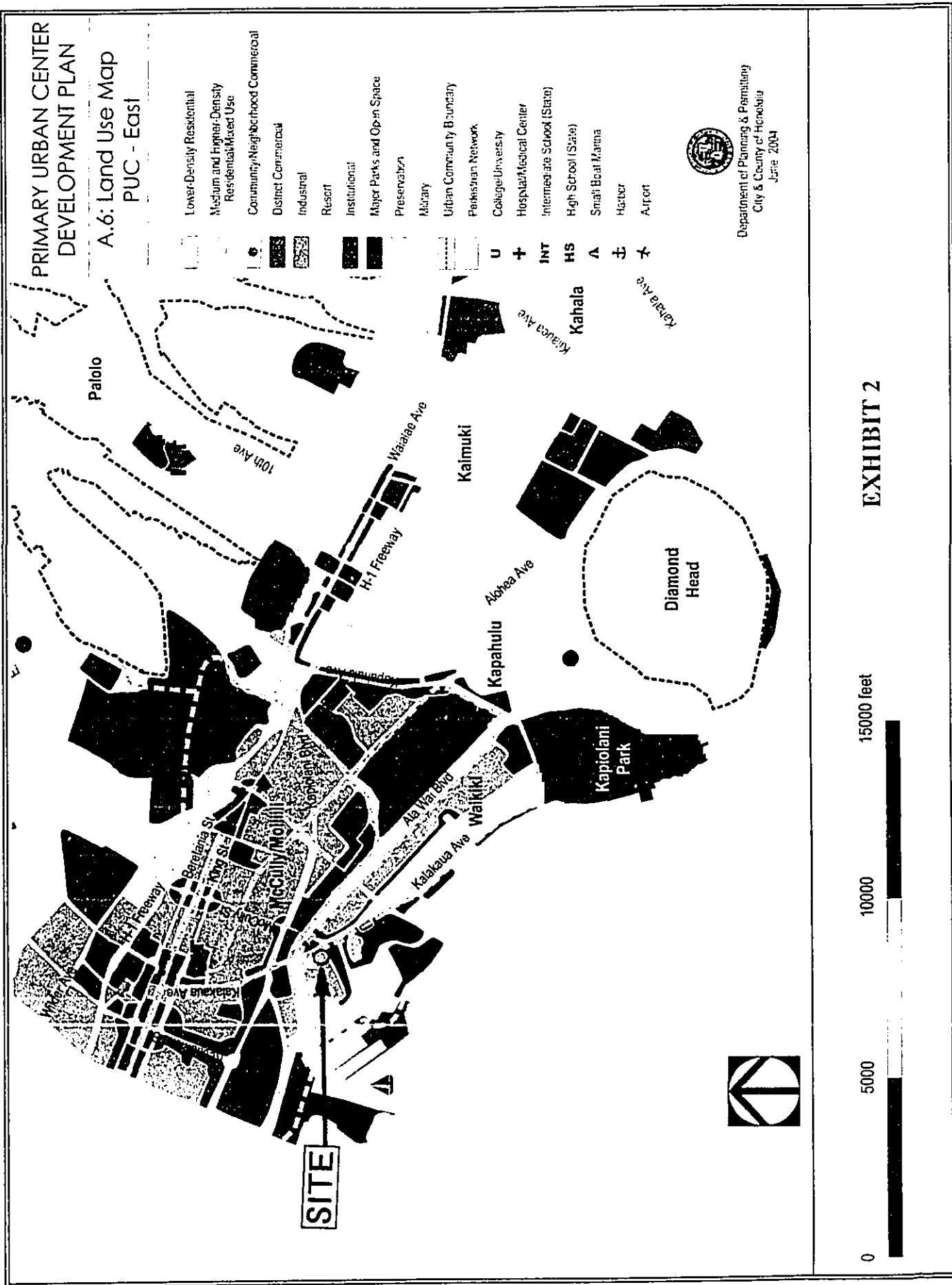


EXHIBIT 1
WAIKIKI SPECIAL DISTRICT
ZONING PRECINCTS



Oahu” prepared in May 2006 provided the following information on the historical use of the property:

- a. In an 1881 Hawaiian Government survey map by S.E. Bishop represented the project area as a dryland environment elevated about the surrounding fishponds and wetland fields, which would have provided a base for habitation, work, and recreational activities of the Hawaiian population.
- b. A 1927 Sanborn Fire Insurance Map depicted 10 dwellings on the property.
- c. A 1951 Sanborn Fire Insurance Map notes that the dwellings away from Kalakaua Avenue remained in dwelling use. However, of four dwellings that fronted on Kalakaua Avenue two dwellings were converted to commercial uses (a massage parlor and a store); one has been demolished and a furniture store and warehouse have been constructed in its place; one dwelling was demolished with the lot left vacant; and the former vacant lot at the corner of Kalakaua Avenue and Ena Road has been developed with a bar and store.

2. Existing Conditions

The project site consists of 8 parcels and two roadway lots. The two 3-story, 24-unit apartment buildings (Nanea

Apartments), 2-story mixed use structure, which had 8 apartment units, and the Wave Nightclub which remained on the property earlier this year have been removed and the property is currently vacant. A survey showing the site and the previously existing structures is provided in Appendix I.

3. Proposed Development

The proposed Allure Waikiki development will include a 320-foot, 35-story structure with approximately 300 condominium units, a parking structure, and recreational amenities and a one story dining/retail complex on a 2.29 acre property situated on Kalakaua Avenue one lot east of Ala Wai Boulevard and extending to Ena Road. The proposed development will occur on a 2.29 acre site. The various parcels that comprise the site will be consolidated. A subdivision application to consolidate these properties has been submitted to the Department of Planning and Permitting.

4. Location

The project site is located in the Primary Urban Center of Honolulu. More specifically, it is located in the Waikiki Special District as indicated on the Site Plan, Exhibit I.

The project is located on Kalakaua Avenue, one lot east of Ala Wai Boulevard and extends to Ena Road. West of the project site is a 10-story office tower (Pacific Business News Building) and a 30-story, 283-unit condominium (1717 Ala Wai) and beyond that are the

Ala Wai Canal and the Hawaii Convention Center. South of the project site is a 3-story commercial building and the 38-story, 406-unit Waipuna Condominium. To the east are commercial developments, including a 7 Eleven convenience store located on Kalakaua Avenue, across Ena Road from the project site. North of the project site is the Waikiki Landmark Development, a 35-story, 217-unit mixed use condominium development with retail and dining on the ground floor and offices on the second floor with parking and condominium units above.

5. Surrounding Area

The project site is located on the western end of Waikiki. The surrounding area includes the Hawaii Convention Center, condominium and apartment developments to the west. More condominium and apartment developments are located to the south with Ala Moana Boulevard, the Hawaii Prince Hotel, the Ilikai Marina and the Ilikai condominium hotel development, the Ala Wai Yacht Harbor and the Pacific Ocean beyond. East are commercial and resort developments with Fort DeRussy beyond. North of the project site beyond the Waikiki Landmark development are the Ala Wai Canal and more apartment and condominium developments with some commercial centers.

6. Land Use Approvals

a. State Land Use

The project site is designated Urban under State land use regulations. The proposed Allure development is consistent with this Urban designation.

b. Development Plan

The Primary Urban Center Development Plan Land Use Map designates the site as Resort and Medium and Higher-Density Residential/Mixed Use. The proposed Allure Waikiki development is consistent with this designation.

A road widening improvement along Kalakaua Avenue fronting the project site is indicated on the Development Plan Public Infrastructure Map. The applicant is working with the Department of Planning and Permitting to determine the widening improvement to be constructed for this project.

c. Zoning

The project site is currently zoned Resort Commercial Precinct with a 320-foot height limit. The proposed Allure Waikiki development is consistent with this zoning precinct, which allows dwelling use on these parcels, since the project site is located Between Ala Wai Boulevard and Kuamoo Avenue in the Resort Commercial Precinct. The proposed

structures will comply with the height limit for the site.

B. TECHNICAL CHARACTERISTICS

1. Use Characteristics

The proposed Allure Waikiki development will include a condominium tower, parking structure, recreational amenities and commercial structure on a 2.29 acre lot situated on Kalakaua Avenue one lot east of Ala Wai Boulevard and extending to Ena Road. The Allure Waikiki tower structure will provide approximately 300 residential condominium units and about 500 parking stalls. The ground floor of the tower structure will have accessory support areas including a lobby, security, mail, office, maintenance, mechanical, electrical, trash and loading areas. In addition to the residential tower, the Allure Waikiki development will include a one-story commercial component that is anticipated to be an eating and drinking establishment.

2. Physical Characteristics

The project site has been cleared of all structures to allow for the Allure Waikiki development.

The proposed condominium tower will be developed with 35 floors at a height of 320 feet. The ground floor of the tower will have a lobby, security office, mail room, elevator, stairs, parking and loading. Above that will be 4 floors of parking (floors 2 through 5) with about 500 parking stalls. A recreation deck with recreational

amenities and a pool will be located on the 6th floor. The applicant proposes about 300 residential condominium units on the floors 6 through 35. These will include a variety of unit types including one, two and three bedroom units with sizes ranging from about 837 square feet to 1,511 square feet. Conceptual floor plans for the condominium units are provided in Appendix II.

The project will comply with park dedication requirements. There will be significant open space recreational and public open space provided near the corner of Kalakaua Avenue and Ena Road. Proposed recreational amenities at this location include a water feature, hardscape (paving, planters, walls), walkways, bus shelter, including benches, drinking fountains, trash receptacles, landscaping and irrigation and area lighting.

The one story commercial component is currently planned as a eating and drinking establishment with about 9,000 square feet on the ground floor.

A site plan and elevations plans for the Allure development are included in Appendix II.

3. Construction Characteristics.

The development will be constructed over an 18 to 24 month period. Construction will begin as soon as the applicant is able to receive approval for the development by the City, including a Finding of No Significant Impact on a Final Environmental Assessment, a

Waikiki Special District Permit and building permit approvals.

IV. IMPACTS

The proposed development of approximately 300 condominium units in a 320-foot tower, will replace 56 units which have been removed from the project site. The net result will be a 244 units. The proposed commercial structure will also replace some of the commercial establishments which previously occupied the site.

A. DEMOGRAPHIC IMPACTS

1. Residential Population

The proposed Allure Waikiki development will provide approximately multi-family dwelling units resulting in a net increase of 244 units which will provide for additional residential population in the Waikiki area. Based on Department of Planning and Permitting standards for dwellings in Waikiki, the average household size is estimated at 1.72 which translates to an increase of 420 residents on the property. Based on the Department of Planning and Permitting's "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2002", the Year 2000 population for the Primary Urban Center is approximately 419,300 which is approximately 47.9% of the Year 2000 island-wide population. Although the 419,300 population is only a little over the 46% General Plan Benchmark for 2025, and the Department

of Planning and Permitting projects that the Primary Urban Center will grow by approximately 37,500 persons by the Year 2010. The proposed approximately 300 multi-family dwelling units will provide for some of this projected population increase to the Year 2010. The population increase based on the net increase related to the 300 units will probably be less than a typical 300 unit condominium development, since a certain percentage of buyers are expected to use these apartments only part of the year and not on a full time basis.

2. Visitor Population

The proposed development will have no impact on the visitor population as no visitor units will be added or removed.

3. Character or Culture of the Neighborhood

The proposed condominium development will conform to the character of the existing neighborhood and the surrounding condominium, apartment and mixed-use developments. This development will replace the multi-family dwellings and commercial uses that were formerly on the site and provide an additional 244 units.

4. Displacement

The project site's apartment units have been vacant for some time due to safety concerns in the aged structures. The lease and operation of The Wave Nightclub ended in April.

B. ECONOMIC IMPACTS

1. Economic Growth

As a condominium and restaurant/retail development the Allure Waikiki development will impact economic growth by providing short-term construction jobs. The development will also provide long-term, full time employment for a resident manager and secondary employment for typical condominium services, including landscape maintenance and security and jobs in the restaurant and retail sector. The residents of the project are expected to patronize the surrounding businesses providing *additional economic activity for the area.*

2. Employment

As mentioned earlier, the development will provide short-term construction jobs and a long-term job in the form of a resident manager and secondary employment for typical condominium services, including landscape maintenance and security and jobs in the restaurant and retail sector.

3. Government Revenues/Taxes

Tax revenues will be generated by the short-term construction work and some revenue will be provided by the projected long-term employment.

In addition, property tax revenues to the City will go up as a result of the anticipated increase in value on the project site with the new buildings versus no improvements or the aged improvements that will be demolished.

C. HOUSING IMPACTS

1. Increase Supply

As mentioned earlier, the proposed approximate 300-unit condominium development replaces the 56 units formerly on the project site. The proposed condominium development would add to the housing market in Waikiki and provide opportunities to live, work and play in the vibrant Waikiki Resort community. With relatively quick sales recently experienced in Waikiki, it is evident that there is a pent up demand for condominium units in Waikiki.

2. Affordable Units

No affordable units are planned for this development.

Development of the Allure Waikiki will contribute to the tax base of both the City and State. And in that manner will indirectly support the affordable housing development efforts of those entities.

D. PUBLIC SERVICES

1. Access and Transportation

Wilson Okamoto Corporation, has prepared a "Traffic Impact Report for the Waikiki Allure Condominium" and dated June 2006. Please refer to Appendix III - Traffic Impact Report.

The project site is located along Kalakaua Avenue which originates as a two-way roadway west of Waikiki and transitions to a one-way (eastbound) roadway in Waikiki at Kuhio Avenue. Ala Wai

Boulevard and Kalakaua Avenue form a couplet system that provides vehicular circulation and access through most of Waikiki.

The Traffic Impact Report recognizes that the proposal will generate traffic and makes the following mitigation measures in the "Recommendation" section:

"Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project implementation:"

- "1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress."
- "2. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes."
- "3. Maintain adequate sight distances for motorist to safely enter and exit all project driveways."
- "4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations."
- "5. Restrict traffic movements at the project driveways along Kalakaua Avenue to right-turn-in and right-turn-out movements only."
- "6. Restrict traffic movements at the project driveway along Ena Road to right-turn-out movements only." (This recommendation is no longer applicable because this exit-

right-turn only driveway has been deleted from the proposal.)

- “7. Widen Kalakaua Avenue along the project frontage to provide an exclusive eastbound right-turn lane at the intersection with Ena Road. The dimensions and layout of this lane should be determined during the design phase of the project.”

The Traffic Impact Report “Conclusion” section states as follows:

“The proposed Allure Waikiki Condominium is not expected to have a significant impact on traffic operations in the project vicinity. The total traffic volumes entering the Kalakaua Avenue/Ena Road, Lipepee Street/Ala Wai Boulevard, and Hobron Lane/Lipepee Street intersections are expected to increase by less than 2% during both peak hours of traffic with the development of the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along those roadways and represent a minimal increase in the overall traffic volumes. The increases in the total traffic volumes entering the Kalakaua Avenue/Ala Wai Boulevard and Ena Road/Hobron Lane intersections are higher, but the critical movements at these intersections are expected to continue operating at acceptable levels of service despite the anticipated increases in traffic. In addition, the provision of an exclusive right-turn lane along

Kalakaua Avenue at the intersection with Ena Road should help to minimize the existing queuing along Kalakaua Avenue at that intersection.”

In its letter of October 23, 2006 the State Department of Transportation noted that the TIAR did not discuss the traffic at the intersections with state highways. The traffic engineer for the project explained that available traffic data along Ala Moana Boulevard in the vicinity of the project site was reviewed and the total traffic volumes entering the intersections along Ala Moana Boulevard in the project vicinity are anticipated to increase by approximately 1% or less during the AM and PM peak periods due to the development of the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along Ala Moana Boulevard and represent a minimal increase in the overall traffic volumes. As such, these intersections were not assessed in the TIAR.

Section 4C of the TIAR discusses traffic generated by other developments in the vicinity. Since many of the projects in the vicinity are either anticipated to be completed after year 2009 or their schedule is unknown, a conservative, universal growth factor was applied to all the traffic movements at the study intersections to simulate ambient growth in traffic in the project vicinity. This ambient growth factor of 5.0% per year may absorb any variations

in the projected traffic patterns as a result of these other developments. Site-generated traffic from the closest on-going development, The Watermark, (formerly known as the Ala Wai Gateway) was also conservatively added to the street network in the project vicinity in addition to ambient traffic growth.

With regard to the proposed road widening, the Traffic Review Branch of the Department of Planning and Permitting has requested that a 10-foot road widening fronting the site be provided in conformance with city road widening plans. (We understand that this widening has currently been requested of the remainder of the block, fronting the Pacific News Building.) Because a 2-foot curb and gutter will be needed, the existing 12-12.5-foot wide side walk will be reduced to approximately 10 feet. Although, the overall side walk width will be reduced, this reduction maybe off-set and improved pedestrian circulation created when the existing bus stop which is currently located within the public side walk is moved on to the project site.

To further understand the impact on pedestrian movements, a pedestrian assessment was conducted on December 1-2, 2006 by Wilson Okamoto. This analysis provided in Appendix III. This study concluded the following:

“The proposed sidewalk width of ~10' adjacent to the project site for the Waikiki Allure Condominium is not

expected to have a significant impact on pedestrian operations in the vicinity. Pedestrian flows are expected to continue operating at LOS "A" during the PM hours. In addition, the relocation of the existing bus stop outside the sidewalk area to allow pedestrians to utilize the full sidewalk width should minimize the impact of the sidewalk narrowing."

2. Water

Upon reviewing the Draft Environmental Assessment for the project the Honolulu Board of Water Supply (BWS) provided a comment letter dated October 3, 2006 which indicated that it's comments of May 22, 2006 were still applicable. That letter stated the following:

"The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the BWS reserves the right to change any position or information stated herein up until the final approval of your building permit. The final decision on the availability of water will be confirmed when the building permit is submitted for approval.

The construction drawings shall be submitted for our review and approval.

When water is made available, the applicant will be required to

pay our Water System Facilities Charges for resource development, transmission and daily storage.

The project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit.”

Based on BWS records, there are only two active water meters on site which service one building at Tax Map Key: 2-6-13: 11 and several hose bibs at Tax Map Key: 2-6-13: 1.

The high rise building proposed for the Allure development will require an average of 90,900 gallons per day (GPD), and increase beyond which previously existed. With this increase in demand, the existing water meters and laterals will need to be upsized. A booster pump may also be required to avoid loss of pressure on the upper floors. A mechanical consultant will specify the appropriate size and demand of the domestic water system for the building during the design phase of this project.

There are no existing DC meters or water meters that provide fire protection to the existing site. A new fire protection system will be provided where all appurtenances, hydrant spacing and fire flow requirements will conform to BWS standards.

3. Wastewater

The project site is being serviced by several sewer laterals which discharge into a 12-inch main within Kalakaua Avenue and a 6-inch sewer main within Ena Road. The proposed development will be serviced by a new lateral which will connect to an existing manhole located at the intersection of Kalakaua Boulevard and Makaoe Lane. The applicant proposes to divert flows and replace the existing 18-inch sewer line in Kuhio Avenue, between Kalaimoku Street and Kaiolu Street, with a new 21-inch sewer line. In addition the applicant proposes to construct an 18-inch overflow line from the Fort DeRussy Sewer Pump Station into the existing 18-inch collector line along the mauka side of Kalakaua Ave. Sewer infrastructure improvement plans for these improvements have been submitted to the Department of Planning and Permitting. These are provided in Appendix V. The proposed work will be phase, as indicated in the construction phasing plan (Also included in Appendix V.) to alleviate potential impacts to traffic. This traffic phasing plan will be submitted to the Department of Planning and Permitting, Traffic Review Branch for review and approval. Localized construction dewatering may be required during construction of the sewer lines, depending on the construction methods used. If localized dewatering is needed the applicant will seek a National Pollutant Discharge Elimination System (NPDES) permit. The purpose of this permit is to protect water quality.

Mitigation measures that are typically required are the use of a filtration system to reduce sediments, water quality monitoring and other best management practices. The proposed off-site improvements are expected to be completed within a 4-6 month period.

The flows generated from the Allure Waikiki development are estimated to be about 72,600 GPD and will be collected with a network of new sewer pipes, which will then be connected to the existing sewer system within Kalakaua Avenue. On April 18, 2006 a Sewer Connection Application was approved by the Department of Planning and Permitting (Appendix V) subject to a condition that "sewer connection for this project will not be allowed until after the construction and completion of the proposed sewer replacement projects on Kuhio Avenue as stipulated in our June 5, 2005 letter".

The City currently has plans to upgrade the wastewater infrastructure in the area including the Fort Derussy Sewer Pump Station. If these improvements are completed, the improvements proposed by the developer will not be needed.

4. Drainage

Grading is expected to encompass the entire project site of approximately 2.29 acres. Temporary erosion control measures will be implemented as outlined in the City and County of Honolulu Soil Erosion Standards and Guideline, April 1999.

Since the site is more than 1 acre, a National Pollutant Discharge

Elimination System (NPDES) Permit for Discharge of Storm Water Associated with Construction Activity will be required and has been issued by the State.

Storm water from the existing site sheet flows towards Kalakaua Avenue and Ena Road. There are no existing underground drainage systems located onsite. There are no existing underground drainage systems within Kalakaua Avenue and Ena Road adjacent to the property aside from a drain inlet located at the north corner of Tax Map Key: 2-6-013: 4 and two box culverts in the City right-of-way sidewalk collecting the down spouts of the 3-story building on Tax Map Key: 2-6-13: 11. The box culverts discharge the runoff from the downspouts onto the street which carries the flow toward the drain inlet. The drain inlet appears to pick up the majority of runoff from the property while the remaining runoff flows towards Ena Road which is then picked up by the nearest catch basin within Ena Road.

The two existing on-site storm water box culverts will not be used. It is expected that they will be disconnected. The applicant may incorporate storm water containment on-site if needed.

The proposed development will have a greater landscape area compared to the existing site conditions, therefore it is expected that the surface runoff from the proposed development to the City and County drainage system will be equivalent to or less than the existing surface runoff from the project site. To accommodate the road widening

mentioned in the Access and Transportation section of this report, new catch basins will need to be installed and tie into the existing drain inlet at the corner of the property. The existing drain inlet may need to be changed to a standard drain manhole. The new catch basins will require installation of permanent best management practices (BMP) measures to prevent excess silt from flowing into the City drainage system.

5. Flood Plain Management

According to the Flood Insurance Rate Map of the City and County of Honolulu, Panel 365 of 395, Map Number 15003C0365 E, dated November 20, 2000 and Panel 370 of 395, Map Number 15003C0370 E, dated November 20, 2000, the project site is in Zone AO, an area determined to have an average flood depth of 2 feet.

The project will comply with flood hazard requirements for building in the AO flood zone. The applicant will provide a Flood Fringe District Certification to establish the Regulatory Flood Elevation.

6. Solid Waste Disposal

The solid waste generated by the proposed development will be collected by a private firm and will not impact municipal refuse services.

7. Schools

Based on the Department of Education estimates for calculating the demand for student services, the proposed condominium development will add to the student population as follows:

- a) Elementary (Kindergarten to 5th) - 35 students
- b) Middle (6th to 8th) - 13 students
- c) High (9th to 12th) - 22 students

This is the estimated student population for Honolulu developments. However, the student population increase based on the proposed 300 units maybe less than a typical 300-unit condominium development, since a some of the buyers are expected to be those purchasing second homes where there primary residence is elsewhere, as well as retirees without school age shildren. This mix of buyers are not expected to generate as many students as a typical condominium development.

The students generated by this development would attend Ala Wai Elementary School, Washington Middle School and Kaimuki High School. The following table provides the capacity, the actual 2005-2006 student enrollment, the projected enrollment for 2007-2008, 2010-2011, and the projected student population generated by the Allure development:

Student Population

School	Capacity	Act. '05-'06	'10-'11	Allure
Ala Wai Elementary	636	473	402	35
Washington Middle	1,008	1,066	876	13
Kaimuki High	1,478	1,297	1,263	22

The Department of Education (DOE) provided an October 3,

2006 letter stating that although the project will have an impact on student enrollment in neighboring schools, the DOE would not ask for a school fair-share contribution because the current zoning allows the proposed development.

8. Parks

The project will provide recreational amenities, including a swimming pool, on-site for the condominium residents.

The Allure Waikiki development will not have a significant impact on the existing parks or recreational facilities in the surrounding neighborhood. There are a variety of recreational opportunities located near the project site. Those are located at Ala Moana Beach Park, Waikiki Beach, Ala Wai Golf Course and Ala Wai Community Park. These facilities could provide additional recreational opportunities for the condominium residents.

In a September 26, 2006 letter the Department of Parks and Recreation (DPR) requested that the developer provide the department with a presentation of the proposed on-site park improvements. Subsequently a presentation describing the open space recreational areas and compliance with park dedication requirements was made to the Director and staff at the DPR. The DPR did not express objections to the applicant proposal to provide recreational opportunities for residents of the project as shown in the plans and describe below. The applicant will work with the Department of Planning to ensure compliance with the

park dedication requirements. A site plan showing the park dedication areas is provided in Appendix II.

In its November 8, 2006 letter the Department of Planning and Permitting requested a greater description of the proposed public open space at the corner of Kalakaua and Ena Road and compliance with park dedication. This area will include a water feature, historical story plaque about the site, landscaping (including tropical and native plants), irrigation, hardscape, including paving and walkways, planters and walls, area lighting, a drinking fountains, lawn furniture and trash receptacles. The existing bus stop shelter that is currently located within the 12-foot wide pedestrian sidewalk area will be relocated on the project site. A plan showing the park dedication areas is provided in Appendix II. Aside from the larger area at the corner of Kalakaua Avenue and Ena Road, open space recreational areas will be provided at other areas of the project site as indicated in the project plans. Amenities in these areas will include landscaping, (including tropical and native plants), irrigation, hardscape, including paving and walkways, benches, area lighting and open areas to accommodate recreational activities such as a bocci court.

On the 6th floor the applicant is proposing a swimming pool, spa/fitness, barbeque facilities, picnic areas, including benches and tables, a multi-purpose meeting room, equipped with a kitchenette, restroom, seating and an outdoor fire pit.

It is envisioned that the public open space and recreational areas

and amenities will be privately owned but maintained by the association of apartment owners.

9. Police

The Police Department's Alapai Headquarters is located approximately 2.0 miles away at the intersection of Alapai Street and Beretania Street. The Waikiki Substation is located approximately 1.7 miles away on Kalakaua Avenue and residents and visitors can expect a quick response time.

In its letter of September 20, 2006 the Honolulu Police Department indicated that the proposed project would not have a significant impact on the facilities or operations of the police department.

10. Fire

The Pawa Fire Station (Station 2) is located approximately 0.6 mile away on Makaloa Street. The Waikiki Fire Station (Station 7) is located approximately 1.6 miles away on Kapahulu Avenue.

The Honolulu Fire Department (HFD) responded to our request for pre-consultation review prior to preparation of Final Environmental Assessment with comments in a letter dated May 31, 2006. HFD instructed that a fire access road in accordance with the 1997 Uniform Fire Code, Section 902.2.1 shall be provided; a water supply for fire protection approved by the county shall be provided, in our case for all new structures on the property; and that we submit civil construction drawings to the HFD for review and approval. The applicant will work

with the HFD to ensure that its requirements are satisfied.

11. Utilities

a. Electric

The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate development of the Allure to ensure that the power lines will be adequate to support the proposed development.

b. Telephone

Hawaiian Telcom has existing utility service lines in the area. It is expected that these existing lines will be used to service this proposed condominium development. The applicant will coordinate with Hawaiian Telcom to determine if new lines will be required. No off-site work is expected.

E. ENVIRONMENTAL IMPACTS

1. Historical and Archaeological Resources

The archaeological literature review and field inspection report and cultural impact assessment for the project are provided in Appendix VI. These studies did not identify ongoing traditional cultural practices or concerns.

The Archaeological Inventory Survey Report for the Allure Waikiki Development, describes the historical and cultural resources of the site and the results of the extensive subsurface testing that was conducted as well as proposed mitigation measures. This report is

provided in Appendix VII.

The summary and interpretation section of this report indicates that three historic properties were found within the natural jaucas sand beach deposits. Two of these are traditional native Hawaiian burials. The remaining site consists of a subsurface cultural layer that appears to be residential in nature. Recommended mitigation measures include preparation of a burial treatment plan and archaeological monitoring as required by state law. These measures are described in Section 10 (page 76) of the archaeological inventory survey report.

A burial treatment plan is currently being prepared for the site. The developer is working vigorously with all parties including the Oahu Island Burial Council to address concerns related to burial treatment and develop an acceptable burial treatment plan. Thus far the developer has taken a proactive approach and made a conscientious effort from early on to work in close consultation with the local community and Native Hawaiian groups and individuals. This consultation will continue through the course of the implementation of project mitigation.

Of the two burials, "Burial 1" is located near Ena Road in an area that is planned as an open landscaped area and "Burial 2" is located at the west end of the property beneath the area of the proposed multi-story parking structure. The applicant proposes to preserve in place the burial located near Ena Road. Preservation in place of "Burial 2" does not appear to be compatible with the current site plan. Accordingly, the

applicant proposes to relocate the this burial to the proposed burial preserve area near "Burial 1". The applicant and it's consultants will work with the cultural and lineal descendants and the Oahu Island Burial Council (OIBC) to develop an acceptable burial treatment plan.

2. Natural Resources

a. Water Resources

There are no potable water resources within the project site. The project site is located 170 feet from the Ala Wai Canal and approximately 1,750 feet from the Ala Wai Yacht Harbor and will not have an impact on coastal resources.

b. Flood Plain Management

According to the Flood Insurance Rate Map of the City and County of Honolulu, Panel 365 of 395, Map Number 15003C0365 E, dated November 20, 2000 and Panel 370 of 395, Map Number 15003C0370 E, dated November 20, 2000, the project site is in Zone AO, an area determined to have an average flood depth of 2 feet.

The project will comply with flood hazard requirements for building in the AO flood zone. The applicant will provide a Flood Fringe District Certification to establish the Regulatory Flood Elevation.

c. Wetlands Protection

According to the archaeological literature review and field

inspection report, nineteenth and twentieth century documents indicate that the project site from traditional Hawaiian times to the modern era comprised a dryland environment elevated above surrounding fish ponds and wetland fields. The wetlands of Waikiki were filled long ago as the area was urbanized. Today there are no wetlands on or in the vicinity of the project site.

d. Coastal Zone Management

Although the project is within the State's Coastal Zone Management Area, it is not within the Special Management Area and is therefore not subject to permit requirements.

e. Unique Natural Features

The project site is relatively flat with elevations ranging from approximately 3 to 5 feet above mean sea level. There are no unique features such as sand dunes or sloped areas where erosion would be a concern.

f. Flora

Vegetation on the site consists of introduced species. Because the site has been urbanized for many years, native endangered or threatened species are not found in this environment.

A conceptual landscaped plan is provided in Appendix II.

g. Fauna

Native land and water birds are not expected to be found at

this site or at the surrounding properties because the area lacks any suitable habitat that could support these types of animals. Other recent avifaunal and feral mammal surveys done for projects within Waikiki and in relative close proximity to the project (International Market Place and Ala Wai Gateway) have found threatened and endangered species absent from this area.

h. Agricultural Lands

The project site is in an urban area where its use will not impact agricultural lands or lands with the potential for agricultural use.

i. Open Space

The project site is partially unimproved and zoned Resort Commercial Precinct. The proposed development is situated in an urbanized and developed area and development of this site will not affect any important open space features in the area.

F. TOPOGRAPHY

The project site is relatively flat with elevations ranging from approximately 3 to 5 feet above mean sea level. There are no unique features such as sand dunes or sloped areas where erosion would be a concern.

G. SOILS

The U.S. Department of Agriculture Soil Conservation Service Soil Survey Report for the Island of Oahu classifies the soils for this area as Fill land, mixed (F1) under the Fill land Series. This series consists of areas filled

with materials from excavation from adjacent sloping terrain, dredging, bagasse and slurry from sugar mills and garbage. This type of soil can be found on the islands of Kauai, Maui and Oahu.

Fill land, mixed (F1)-This soil occurs in area adjacent to the ocean near Pearl Harbor and in Honolulu. It consist of material dredged from the ocean, hauled from surrounding areas and garbage. This soil is used for urban development including: airports, industrial facilities and housing.

H. NOISE

D.L. Adams Associates, Ltd. (D.L. Adams), has prepared an environmental noise assessment for the Allure Waikiki Condominiums, for the applicant. The noise assessment is titled "Environmental Noise Assessment Report Allure Waikiki Condominiums Waikiki, Oahu, Hawaii", and dated June 2006. Please refer to Appendix VI - Environmental Noise Assessment.

The noise assessment "Executive Summary" section states as follows:

"1.1 The proposed high rise condominium development is approximately 99,741 square feet and located on the corner of Kalakaua Avenue and Ena Road in Waikiki, Hawaii. Approximately 300 residential units are planned for the 35 story condominium building. A commercial building with restaurant facilities is also planned and will be located adjacent to the residential building".

"1.2 The project area currently experiences high noise levels typical of an urban environment. Noise measurements taken on the existing

project property show a day-night level, L_{dn} , of 67 dBA. These noise levels are above both the current and the future EPA noise design goal of $L_{dn} \leq 65$ dBA and $L_{dn} \leq 55$ dBA.”

“1.3 During the project construction, the dominant noise sources will probably be pile drivers and earth moving equipment, such as bulldozers and diesel powered trucks. Noise from construction activities will occur on the project site. Noise from construction activities should be short term and must comply with State of Hawaii Community Noise Control Rules and a construction noise permit issued by the Department of Health.”

“1.4 The results of the vehicular traffic noise analyses show negligible increases in traffic noise levels due to the project. In addition, all existing and future predicted noise levels are expected to be below the FHWA/HDOT maximum noise limit of 67 dBA. Therefore, the project is not expected to produce a significant traffic noise impact.”

In order to mitigate construction noise, D.L. Adams notes that in cases where construction noise exceeds, or is expected to exceed the State’s “maximum permissible” property line noise levels, a permit must be obtained from the State Department of Health (DOH). The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc.

In order to mitigate project generated mechanical noise, D.L. Adams

recommends that the design of the proposed residential building should give consideration to controlling the noise emanating from stationary mechanical equipment, such as chillers, compressors, air conditioning units, etc. so as to comply with the State of Hawaii Community Noise Control rules. They further recommended that:

“Noisy equipment should be located away from neighbors and residential units, as much as is practical. Enclosed mechanical rooms may be required for some equipment.

“In order for the commercial building to be compatible with the adjacent residential areas, noise mitigation measures should be implemented. Typical noise mitigation for stationary equipment such as air-conditioning and ventilation equipment, refrigerators, compressors, etc., includes mufflers, silencers, acoustical enclosures, noise barrier walls, etc. However, other noise sources may include non-stationary equipment such as trucks loading and unloading supplies. Consideration could also be given to the layout of the commercial areas to meet DOH noise regulations and reduce the noise impact. For example, noisier activities, such as traffic access and loading areas, should be located away from nearby residential areas. Restrictions may need to be placed on all commercial uses allowed in the commercial area in order to strictly control development of potential noise producing industries within the commercial area. For example, sale and lease documents for the commercial property should disclose and emphasize the significance

of the DOH noise regulations with respect to the abutting residential areas.”

D.L. Adams noted that since the traffic analysis shows no significant noise impacts to the surrounding community or at the proposed Allure Waikiki Condominium, noise mitigation for vehicular noise is not required.

The applicant will comply with the Administrative Rules of the Department of Health, Chapter 11-46, related to Community Noise Control.

I. AIR QUALITY

B.D. Neal & Associates has prepared an air quality study for the Allure Waikiki Project. The air quality study is titled “Air Quality Study for the Allure Waikiki Project Waikiki, Oahu, Hawaii” and dated June 2006. Please refer to Appendix VII- Air Quality Study.

The Air Quality Study “Conclusions and Recommendations” section states as follows:

“8.0 CONCLUSIONS AND RECOMMENDATIONS

“The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction activities are estimated to amount to about 1.2 tons per acre per month, depending of 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 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 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 the 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 hours.”

“After construction of the proposed project is completed and it

is fully occupied, carbon monoxide concentrations in the project area due to motor vehicle traffic should remain nearly unchanged compared to both the existing case and the without-project scenario. Worst-case concentrations with or without the project through the year 2009 should continue to comply with state and federal standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.”

J. VISUAL IMPACT

The proposed structure will have a height of 320 feet which is within the 320-foot height limit of this Resort Commercial Precinct property. The proposed development will not affect any important view planes in the area of Waikiki. Public views are provided from the Ala Wai Canal Promenade on the north side of the Ala Wai Canal and from the sidewalk area on the south side of the canal. The 10-story office building (1833 Kalakaua Avenue) located west of the project site blocks views of the property from the Ala Wai Canal Promenade at the pedestrian level.

The potential visual impact on surrounding areas is further depicted in the Axonometric Views provided in Appendix XI, Photographs and Axonometric Views. A perspective illustration of the project site from the Ala Wai bridge is provided in Appendix XI. Although the proposed Allure Waikiki condominium tower appears relatively tall in that illustration, due to its nearness to the vantage point, the proposed tower will be no taller than the

Waipuna and 30 feet shorter than the Waikiki Landmark.

The orientation and location of the Allure Waikiki tower provides separation from the surrounding high rises and serves to mitigate the visual impact of the proposed structure. This coupled with a generally mauka-makai orientation helps to mitigate the visual impact in the mauka and makai directions.

As a result of comments received during the processing of the Draft EA, the applicant has made the following project modifications to mitigate potential visual impacts:

- stepped one of the tower forms to reduce the height.
- recessed a portion of the condominium tower
- provide a greater setback from Kalakaua Avenue
- provide hipped roofs at the garage top and breeze way at the entry to commercial and apartment structures.
- provided outdoor balconies at the 6th floor with trellises

The project is not near the major view corridors that are identified in the Waikiki Special District Design Guidelines or the Coastal View Study that was published in 1987 by the City and County of Honolulu.

K. HAZARDS

The project site does not contain any nuisances, airport clear zones, or other features which would jeopardize its development.

V. MAJOR IMPACTS AND ALTERNATIVES CONSIDERED

As mentioned throughout this report the proposed development of Allure Waikiki development will not have a significant impact on the surrounding area in terms of public services and the environment.

Positive socio-economic impacts are projected with the development of the mixed-use complex, with increases in short term employment and long term increased demand for retail services.

A. NO ACTION

This alternative was considered and rejected due to the continuing negative cash flow that would result from payment of property taxes, maintenance cost and liability expenses and the acquisition cost for the high value vacant land.

B. CONDOMINIUM DEVELOPMENT WITH 400 UNITS

This alternative was considered but would result in greater impacts to the surrounding neighborhood, primarily related to traffic.

This alternative was also eliminated due to the lack of sewer capacity to accommodate 400 multi-family dwelling units.

C. PROPOSED CONDOMINIUM DEVELOPMENT WITH 300 UNITS

The proposed condominium development with approximately 300 units was selected since it can be supported by the municipal sewer system with modest improvements. As indicated above, and in the attached plans, the

project has been modified from the proposal contained in the Draft EA to address concerns raised during the 30-day public comment period. The current proposal now better addresses visual impact, open space, encroachments into the public sidewalk and the "Hawaiian Sense of Place".

Of the two burials, "Burial 1" is located near Ena Road in an area that is planned as an open landscaped area and "Burial 2" is located at the west end of the property beneath the area of the proposed multi-story parking structure. The applicant proposes to preserve in place the burial located near Ena Road. Preservation in place of "Burial 2" does not appear to be compatible with the current site plan. Accordingly, the applicant proposes to relocate the this burial to the proposed burial preserve area near "Burial 1". The applicant and it's consultants will work with the cultural and lineal descendants and the Oahu Island Burial Council (OIBC) to develop an acceptable burial treatment plan.

Although relocation of "Burial 2" is the preferred applicant's preferred alternative, it is exploring a possible means of preserving "Burial 2" in place beneath the project area's parking structure. The proposed burial treatment plan which is currently being reviewed by the Oahu Island Burial Council and the State Historic Preservation Division identifies situations where native Hawaiian burials have been preserved in place beneath buildings. The proposed plan states the following: "Potential lineal and/or cultural descendants have related that having traffic or parking over the Burial 2 location is not preferred should Burial 2 be preserved in place. They indicated they might find preservation in place acceptable if the traffic flow were rerouted in such a way that "Burial 2"

would be outside the flow of traffic and within an area that would not be used for parked cars. This portion of the parking garage's ground floor could then be set aside as a burial preserve area."

As an alternative to relocating "Burial 2" the applicant has developed an alternative plan that would result in "Burial 2" remaining in place while maintaining the concept of the development. To accomplish this the applicant would modify the parking garage by rerouting the previous traffic through way location to avoid "Burial 2" and the building would be structurally engineered to maintain the physical integrity of "Burial 2". The applicant will continue to explore this option with the potential lineal and cultural descendants as a viable option which could allow "Burial 2" to be preserved in place but at the same time permit the development of the proposed parking structure.

VI. MITIGATION MEASURES

Although the impacts from the proposed development are not expected to be significant, the following mitigation measures are planned to minimize impact on the surrounding area:

A. TRAFFIC

The applicant plans to implement the following recommendations of the Traffic Impact Report:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress."

- “2. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.”
- “3. Maintain adequate sight distances for motorist to safely enter and exit all project driveways.”
- “4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.”
- “5. Restrict traffic movements at the project driveways along Kalakaua Avenue to right-turn-in and right-turn-out movements only.
- “6. Restrict traffic movements at the project driveway along Ena Road to right-turn-out movements only.” (This is no longer applicable because this driveway has been deleted from the proposal.)
- “7. Widen Kalakaua Avenue along the project frontage to provide an exclusive eastbound right-turn lane at the intersection with Ena Road. The dimensions and layout of this lane should be determined during the design phase of the project.”

If the City’s planned improvements to the Fort Derussy Sewer Pump station are not completed in a timely manner, the applicant will construct the off-site sewer improvements needed to support the proposed project. At that time a construction phasing plan will be implemented to mitigate impact to traffic.

B. ARCHAEOLOGICAL

The archaeological literature review and field inspection report and cultural impact assessment for the project are provided in Appendix VI. These

studies did not identify ongoing traditional cultural practices or concerns.

The Archaeological Inventory Survey Report for the Allure Waikiki Development, describes the historical and cultural resources of the site and the results of the extensive subsurface testing that was conducted as well as proposed mitigation measures. This report is provided in Appendix VII.

The summary and interpretation section of this report indicates that three historic properties were found within the natural jaucas sand beach deposits. Two of these have been determined by SHPD to be probable native Hawaiian burials. The remaining site consists of a subsurface cultural layer that appears to be residential in nature. Recommended mitigation measures include preparation of a burial treatment plan and archaeological monitoring as required by state law. These measures are described in Section 10 (page 76) of the archaeological inventory survey report. Proposed mitigation measures include preparation of a burial treatment plan and archaeological monitoring. This report has been submitted to the State Historic Preservation Division for review.

A burial treatment plan is currently being prepared for the site in close consultation with the potential cultural and lineal descendants. Once formulated, the burial treatment plan will be presented to the Oahu Island Burial Council for review and approval.

Of the two burials, "Burial 1" is located near Ena Road in an area that is planned as an open landscaped area and "Burial 2" is located at the west end of the property beneath the area of the proposed multi-story parking structure. The applicant proposes to preserve in place the burial located near Ena Road.

Preservation in place of "Burial 2" does not appear to be compatible with the current site plan. Accordingly, the applicant proposes to relocate the this burial to the proposed burial preserve area near "Burial 1" in the planned open park.

In it's November 8, 2006 letter commenting on the project the Department of Planning and Permitting requested that alternatives to the proposed action should include retaining significant historical discoveries in place. Pursuant to Chapter 6E of the Hawaii Revised Statutes, since the human remains are considered previously identified, Fifield and its cultural consultants are engaging in consultation with the OIBC, potential lineal and cultural descendants and other interested persons, to determine an appropriate mitigation and possible alternatives for the relocation of "Burial 2". Pursuant to law, the OIBC will determine the final disposition for Burials 1 and 2. The applicant is currently exploring measures that could be undertaken to allow "Burial 2" to remain in place while maintaining the current development plan.

C. NOISE

In order to mitigate construction noise, D.L. Adams notes that in cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from the State Department of Health (DOH). The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc.

In order to mitigate project generated mechanical noise, D.L. Adams recommends that the design of the proposed residential building should give

consideration to controlling the noise emanating from stationary mechanical equipment, such as chillers, compressors, air conditioning units, etc. so as to comply with the State of Hawaii Community Noise Control rules. They further recommended that:

“Noisy equipment should be located away from neighbors and residential units, as much as is practical. Enclosed mechanical rooms may be required for some equipment.

“In order for the commercial building to be compatible with the adjacent residential areas, noise mitigation measures should be implemented. Typical noise mitigation for stationary equipment such as air-conditioning and ventilation equipment, refrigerators, compressors, etc., includes mufflers, silencers, acoustical enclosures, noise barrier walls, etc. However, other noise sources may include non-stationary equipment such as trucks loading and unloading supplies. Consideration could also be given to the layout of the commercial areas to meet DOH noise regulations and reduce the noise impact. For example, noisier activities, such as traffic access and loading areas, should be located away from nearby residential areas. Restrictions may need to be placed on all commercial uses allowed in the commercial area in order to strictly control development of potential noise producing industries within the commercial area. For example, sale and lease documents for the commercial property should disclose and emphasize the significance of the DOH noise regulations with respect to the abutting residential areas.”

D. AIR QUALITY

Measures to mitigate potential impacts to air quality are discussed in the air quality study for the project attached as Appendix VII. These measures were addressed in a previous section addressing project impacts. Measures to mitigate short-term air quality impacts related to emissions of fugitive dust could include the following:

- watering active work areas and temporary unpaved work roads;
- use of wind screens;
- limiting the area that is disturbed at any given time;
- mulching or stabilizing the disturbed areas;
- covering dirt-hauling trucks;
- road cleaning and tire washing;
- paving parking areas; and
- establishing landscaping.

Proposed mitigation measures aimed at reducing emissions from engine exhausts include moving equipment and personnel to the site during off-peak hours.

VII. GOVERNMENT PERMITS AND APPROVALS REQUIRED

The development will require the following governmental permits or approvals:

- Finding of No Significant Impact for the Final Environmental Assessment
- Waikiki Special District Permit, Major

- Park Dedication
- Building Permits
- Trenching Permit
- Grading Permit
- Subdivision (For lot consolidation and for creation of the road widening area.)
- National Pollutant Discharge Elimination Permit (For construction activities and possibly for construction dewatering of the proposed sewer line.)

VIII. PHOTOGRAPHS

Photographs of the project site and adjoining land uses are provided in Appendix XI to provide a visual record of existing conditions. Also included in Appendix VIII are Axonometric Views that provided a sense of the visual impact of the proposed Allure Waikiki development.

IX. LAND USE ORDINANCE

The project's compliance with the development standards of the Land Use Ordinance (LUO), including the Resort Commercial Precinct Development Standards and parking and loading requirements is provided in Appendix IX.

As indicated in Appendix IX, the applicant will be seeking floor area bonuses for providing public open space. Those areas that are designated for public open space will meet the LUO definition of open space.

X. WAIKIKI SPECIAL DISTRICT

The proposed development will satisfy the objectives and standards of the Waikiki Special District as follows:

A. OBJECTIVES

1. Promote a Hawaiian Sense of Place

The proposed Allure Waikiki Condominium development will provide a tropical landscaped open space on about a third of its lot area, presenting an open and welcoming appearance at this gate way location.

The applicant's architectural consultant will continue to work with the Director and staff at the Department of Planning and Permitting to create the articulation and rich visual textures by contrasting light and shadows on surfaces of the building to further the Hawaiian sense of place at Allure development.

The applicant is considering some of the design elements discussed in the City's "Waikiki Special District Design Guidelines", including railing designs and building motifs to further promote a Hawaiian sense of place.

Some of the features that have been incorporated into the design of the building to achieve a Hawaiian sense of place are the following:

- stepped one of the tower forms to reduce the height
- recessed a portion of the condominium tower
- provide a greater setback from Kalakaua Avenue
- provide hipped roofs at the garage top and breeze way at the entry to commercial and apartment structures.
- provided outdoor balconies at the 6th floor with trellises
- bay windows
- eliminate the Ena Road driveway to provide more landscaped area
- provide a significant water feature in the large open space area
- wrap around balconies
- reduce the eight of the commercial structure

As indicated in the plans the building will be stepped back from the street to enhance the pedestrian experience along Kalakaua Avenue and Ena Road.

2. District Guidelines

a. Building Design

i. Orientation and Form

The building orientation has been sensitive to the need to protect public views by providing an angle toward a mauka-makai orientation to maximize natural ventilation.

The high rise tower has a generally mauka-makai

orientation as indicated in Appendix II. The proposed porch has been setback to allow a 5 foot clearance from the new property boundary along Kalakaua Avenue.

The design of the Allure Waikiki Condominium development steps in both plan and in elevation. In plan, in order to conform to all site setbacks, the building's units are staggered (with a double loaded wing breaking off into a single loaded wing), reducing the visual impact of the buildings mass. The building also steps as it rises. At the ground level a parking podium and one to two story restaurant/retail complex provides a lower base that steps up to the condominium tower. The restaurant/retail complex and the base element of the parking structure combine to provide a pedestrian scale element and some interest for pedestrians on Kalakaua Avenue. Note that due to the combination of plan stepping, elevational differentiation and façade articulation, the building's form is graduated, and scaled with the view from the pedestrian level in mind.

ii. **Open Space**

The open space on the project site has been focused on it's frontage on Kalakaua Avenue, providing an important and significant visual link to pedestrians on Kalakaua

Avenue as recommended by the "Waikiki Special District Design Guidelines". Another significant open space feature is the area at the corner of Kalakaua Avenue and Ena Road. The area of this landscaped focal point has grown with the elimination of the Ena Road exit driveway. Proposed landscaping in the open space areas will enhance the appearance of the building from public vantage points.

Projects within the Resort Commercial Precinct may provide open space area for bonus floor area to arrive at the maximum floor area ratio of 3.5.

The project will provide both public open space and open space as defined in the Land Use Ordinance. These areas are identified in plan provided in Appendix II.

iii. **Parking Facilities**

The impact of the parking structure is mitigated through a variety of means. The bulk of the parking structure is setback and follows along the rear property line. A portion of the parking structure will be screened by the planned one story restaurant/retail structure. The parking structure has been oriented so that the narrow dimension fronts on Kalakaua Avenue and the leg that turns at an angle is partially screened by the restaurant/retail complex and dense landscaping. As indicated in the conceptual

landscape plan, plantings are designed to partially screen the building from public vantage points.

In addition the applicant intends to use a type of building material to on the outer surface of the parking structure that will allow air to pass thru but will provide a appealing textured appearance to the structure.

iv. Articulation, Scale, Material and Color

The building facade will be articulated to soften the bulk of the structure. The applicant will utilize stepped roofs, lanais, trellises, recessed windows, wrap around balconies and a recessed central window wall to provide articulation and contrast.

The applicant will be utilizing articulated finishes and subdued colors to soften the building's exterior appearance and allow it to blend in with the surrounding environment and proposed landscaping. The developer plans plant motifs on the porch columns.

These elements of articulation, material and color are in keeping with the recommendation of the "Waikiki Special District Design Guidelines"

b. Ground Level Features

I. Entries, Lobbies and Arcades

The applicant plans a porch fronting the

condominium building on Kalakaua Avenue. Beyond that will be a secured lobby area for the benefit and safety of the residents. A number of walkways will provide easy access to both the condominium building and the proposed commercial building. These elements are in keeping with the recommendations of the "Waikiki Special District Design Guidelines".

ii. Visual Links

The proposed porch fronting the condominium building is anticipated to form a visual link with the lobby of the proposed condominium building.

c. Features in Required Yards

I. Porte Cocheres

The project includes a port cochere beyond the required front yard along Kalakaua Avenue between the proposed commercial tower condominium building as it's primary entrance. In addition, an open porch will be slightly elevated and recessed five feet from the front property line along Kalakaua Avenue to serve as the front door to the planned condominium tower. This feature introduces the building to the street scene and provides a modest step up from the public side walk to the lobby, parking structure and the proposed condominium. A

covered entry to the proposed commercial building is also planned to provide easy access for vehicular and pedestrian traffic. This feature will be provided with a hipped roof form.

ii. Walls and Fences

The applicant plans to utilize decorative fencing where appropriate as recommended by the “Waikiki Special District Design Guidelines”. The open space and landscaping are expected to soften the appearance of the building.

iii. Shading Devices

Shading devices such as trellises and eaves are proposed. These features will encroach into the required yards no more than the allowed amount permitted by the LUO.

iv. Roof Design and Equipment Screening

Rooftop machinery, equipment and utility installations may exceed the established height limit as permitted by the LUO, but will be screened as suggested by the Waikiki Special District Guidelines.

d. Landscaping

The applicant proposes a large landscaped open area along Kalakaua Avenue at Ena Road with a large open space and gathering place. The surrounding landscaping will provide a

tropical image with a relatively small portion of hardscape from the lobby area and tower development. A conceptual landscape plan is provided in Appendix II. As indicated in the plans, street trees and on-site vegetation will be provided to soften the visual impact of the building. It is anticipated that the landscape material will include a variety of ground cover, shrubs and trees. Some of the existing vegetation may have to be removed to implement the proposal. Polynesian, tropical and native Hawaiian plants are planned to be incorporated in the landscaping.

The applicant proposes to comply with the recommendation of the “Waikiki Special District Design Guidelines” related to landscaping.

I. Water Features and Artwork

A water feature will be provided in the open space area at the corner of Kalakaua Avenue and Ena Road. The porch facing Kalakaua Avenue provides opportunities for art work and building accent features to provide a “Hawaiian sense of place”. In addition the planned open landscaped space along Kalakaua Avenue and at the corner of Kalakaua Avenue and Ena Road are proposed to enhance the street scape with native and lush tropical plants as recommended in the “Waikiki Special District Design

Guidelines”.

ii. Sidewalks and Paving

Private walkways will be developed with patterned and/or textured paving materials to provide a sense of scale and rhythm appropriate to the surrounding buildings. We are proposing just one curb cuts over our extensive street frontage. This could improve the pedestrian experience along the frontage. Although the previous proposal called for a slightly meandering sidewalk, the current plan has been modified with the proposed walkway aligned as a linear sidewalk within the City property.

e. Signage

The applicant has not designed the proposed sign for the Allure Waikiki development. However, the ground sign will not exceed 12 square feet, as permitted by the LUO.

f. Lighting

Lighting will be utilized to contribute to public safety and to enhance the nighttime ambiance of the outdoor recreational and open space areas on the property. Outdoor lighting will be subdued or shielded so as not to provide spillage onto surrounding properties or public rights-of-way.

B. URBAN DESIGN CONTROLS

1. Waikiki Gateways

The Allure Waikiki development is located in the Waikiki Gateway at the east entry points of Kalakaua Avenue and McCully Street. The property is planned with a significant landscape element to provide a lush, tropical sense of arrival, in keeping with the recommendation of the "Waikiki Special District Design Guidelines". The applicant is now providing a greater setback for the proposed porch. The bus stop will be relocated from the public sidewalk to the private property. Landscaping, including proposed amenities and a significant water feature will enhance the appearance of the project.

2. Fort DeRussy

The Allure Waikiki development is located in close proximity to Fort DeRussy and a large landscaped, tropical open space element is planned at the intersection of Kalakaua Avenue and Ena Road to complement the large landscaped open space of Ft. DeRussy.

3. Major Streets

The Allure Waikiki development fronts on Kalakaua Avenue and will provide extensive landscaped open space along this frontage as a benefit to pedestrians along this roadway. The building orientation is sensitive to this major roadway and has provided a narrow building front along the Kalakaua Avenue and for the most part has setback the

bulk of the building along the rear property line.

4. Waikiki Promenade

The Allure Waikiki development does not front on Ala Wai Boulevard or the Ala Wai Canal, which is the closest portion of the Waikiki Promenade.

5. Coastal Height Setback

The Allure Waikiki development is not situated along the shoreline and is not subject to the coastal height setback.

6. Mini Parks

The Allure Waikiki development is planning a private garden open to the public at the corner of Kalakaua Avenue and Ena Road. The visual connection between this public rights-of-way and the Allure Waikiki development landscaped open space will provide a visual benefit to the public.

7. Significant Public Views

The Allure development will not have a significant effect on the view of Diamond Head from Kalakaua Avenue with adequate setbacks being provided and with the widening of Kalakaua Avenue the proposed development will improve the potential for a Diamond Head view along this major street.

8. Public Pedestrian Access

The Allure's location does not provide opportunities for public pedestrian access as encouraged in the "Waikiki Special District

Design Guidelines". The project will not obstruct public pedestrian access. The pedestrian study, provided in Appendix III indicated that pedestrian movements would not be adversely impacted by the proposal.

9. **Historic Structures, Significant Sites and Landmarks**

The Kalakaua Avenue Bridge and the Ala Wai Canal and Promenade are on the State Historic Register and are considered eligible for the National Historic Register. These important historic sites and features will not be adversely affected by the proposed Allure Waikiki development.

Cognizant of the historical significance of the area, the applicant is planning a historic placard at the planned garden park at Kalakaua Avenue-Ena Road corner, commemorating the history of the site or surrounding the area.

XI. COMMUNITY INPUT

A presentation of the project was made to the Waikiki Neighborhood Board No. 9 on November 14, 2006. At the conclusion of the presentation individuals in the audience expressed concern regarding impacts to private views, traffic congestion and the design of the project relative to "Hawaiian sense of place". The Neighborhood Board did not take a position on the project.

Project presentations were also made to the Waikiki Improvement Association, the Waikiki Residents' Association, the Board of Directors of 1717 Ala Wai, and the Villa on Eaton Square.

XII. SIGNIFICANCE CRITERIA

The following review of the significance criteria indicates that the development will not have a significant impact on the environment.

- **No irrevocable commitment to loss or destruction of any natural or cultural resource would result.**

A literature review and field inspection and archaeological inventory survey reports for the project site have been completed. These are attached in Appendices VI and VII. These reports identified historic and cultural resources on the site.

The Archaeological Inventory Survey Report for the Allure Waikiki Development, describes the historical and cultural resources of the site and the results of the extensive subsurface testing that was conducted as well as proposed mitigation measures. The summary and interpretation section of this report indicates that three historic properties were found within the natural jaucas sand beach deposits. Two of these are traditional native Hawaiian burials. The remaining site consists of a subsurface cultural layer that appears to be residential in nature. Recommended mitigation measures include preparation of a burial treatment plan and archaeological monitoring as required by state law. These measures are described in Section 10 (page 76) of the archaeological inventory survey report. The applicant proposes to comply with this recommendation to mitigate the potential impact to historic and cultural resources. Accordingly, potential impacts to

historic and cultural resources are expected to be mitigated.

The Allure Waikiki project will comply fully with all directives from the State Historic Preservation Division (SHPD/DLNR) including needed mitigation measures.

- **The action would not curtail the range of beneficial uses of the environment.**

The proposed development will not curtail, but will instead enhance the range of beneficial uses of the environment. The present vacant project site is partially covered in asphalt and overgrown shrubs is void of appealing landscaping, offering little beneficial use to anyone. The dilapidated structures which previously occupied the site have been removed in the interest of safety and with the development of the proposed Allure development, landscaping and an irrigation system will be installed where none exist at the present time. The project will provide an attractive and maintained public open space. Desirable housing units will be made available to meet a strong demand for these units. The additional residential units in Waikiki will help contribute to the economic activity of the area. The project will not curtail the beneficial uses of the environment.

- **The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.**

The State's environmental policies and guidelines are set forth in

Chapter 344, Hawaii Revised Statutes, "State Environmental Policy". The broad policies set forth include conservation of natural resources and enhancement of the quality of life. As discussed earlier, the project does not affect significant natural resources, and will provide an enhancement of the quality of life by filling the demand for additional dwelling units in Waikiki.

- **The economic or social welfare of the community or state would not be substantially affected.**

The development will give a temporary boost to the State's economy with the provision of short-term construction employment and related tax impacts, and long-term jobs in the form of a resident manager, maintenance and landscaping services for the condominium and jobs in the restaurant and retail sector from the commercial component planned.

The social welfare of the community would be positively affected by the development of this condominium complex. The Allure Waikiki development will offer attractive living conditions to those seeking to live in Waikiki. The development will offer an attractive living environment and in addition will offer lush landscaping and open spaces all for the benefit of residents and visitors alike.

The surrounding business and retail establishments would be expected to benefit from the patronage of the project residents.

- **The proposed action does not substantially affect public health.**

The proposed action will not affect public health. The proposed land uses are compatible with the surrounding condominium, resort and commercial developments.

- **No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.**

As mentioned earlier under "Residential Population" of our Final EA the General Plan Population Guidelines establish a population range for the Primary Urban Center Development Plan Area for the Year 2010 of between 450,800 and 497,800 persons. In 2000 the actual population for the Primary Urban Center was 419,339. The additional population supported by this development will help the Primary Urban Center in reaching the population range planned in the Year 2010.

The BWS, by letter dated May 26, 2006 (Appendix III), stated that "The existing water system is presently adequate to accommodate the proposed development."

A sewer connection permit application was approved for this development on April 18, 2006 by the Department of Planning and Permitting. (Appendix V) subject to conditions. The applicant proposes to comply with those conditions.

The Traffic Impact Report noted that "The proposed Waikiki

Allure Condominium is not expected to have a significant impact on traffic operations in the project vicinity.”

- **No substantial degradation of environmental quality is anticipated.**

The development will not result in a substantial degradation of the environment. Only minimal impact is projected during the construction phase. Noise and Air Quality impacts are expected to be short term, construction related and minimized through mitigation measures noted in the mitigation section of this Final EA.

- **The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effect on the environment.**

The proposed development does not involve a commitment to larger actions nor will it result in cumulative impacts to the environment. The proposed development of the Allure development will not generate future developments, creating a cumulative impact

- **No rare, threatened or endangered species or their habitats would be affected.**

No rare, threatened or endangered flora will be affected by the proposed development.

- **Air quality, water quality or ambient noise levels would not be detrimentally affected.**

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

Long term noise impact from the proposed development will be minimized by proper siting of mechanical and electrical equipment.

Water quality would not be detrimentally affected by the proposed development. The Honolulu Board of Water Supply (BWS) currently provides potable water for the project site. No off-site water improvements are needed to service the proposed development. The project is not in the vicinity of water resources.

- **The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically**

hazardous lands, estuaries, fresh waters or coastal waters.

The project site is in Zone AO, an area determined to have an average flood depths 2 feet. The proposed development will be designed to meet Land Use Ordinance standards for development in this flood zone.

The development will not affect tsunami zones, erosion-prone areas, geologically hazardous land, estuaries, fresh water nor coastal waters.

- **Substantially affects scenic vistas and view planes identified in county or state plans or studies.**

The proposed development will not impact on important coastal views described in the 1987 Department of Land Utilization Coastal View Study. No coastal views are available along this stretch of Kalakaua Avenue. The proposed development will not affect significant public views identified in Section 21-9.80-3 of the Land Use Ordinance.

- **Requires substantial energy consumption.**

The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate development to ensure that the power lines will be adequate to support the proposed condominium or timeshare development. The applicant will consider the use of energy saving appliances and fixtures in the design of the project.

XII. RECOMMENDATION

Based on this Final Environmental Assessment, a Finding of No Significant Impact (FONSI) for the proposed development of the Allure Waikiki Mixed Use Development is anticipated.

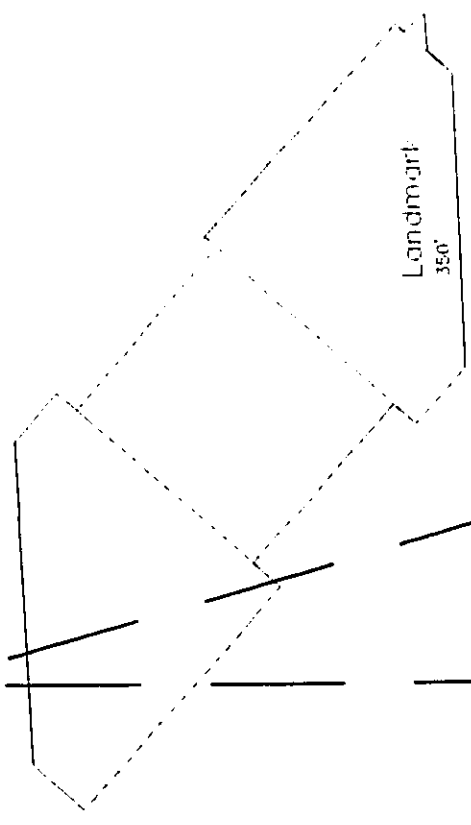
APPENDIX I

SITE SURVEY

APPENDIX II

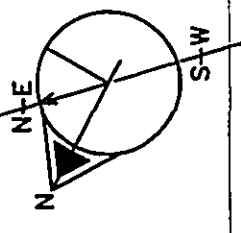
PLANS AND BUILDING ORIENTATION

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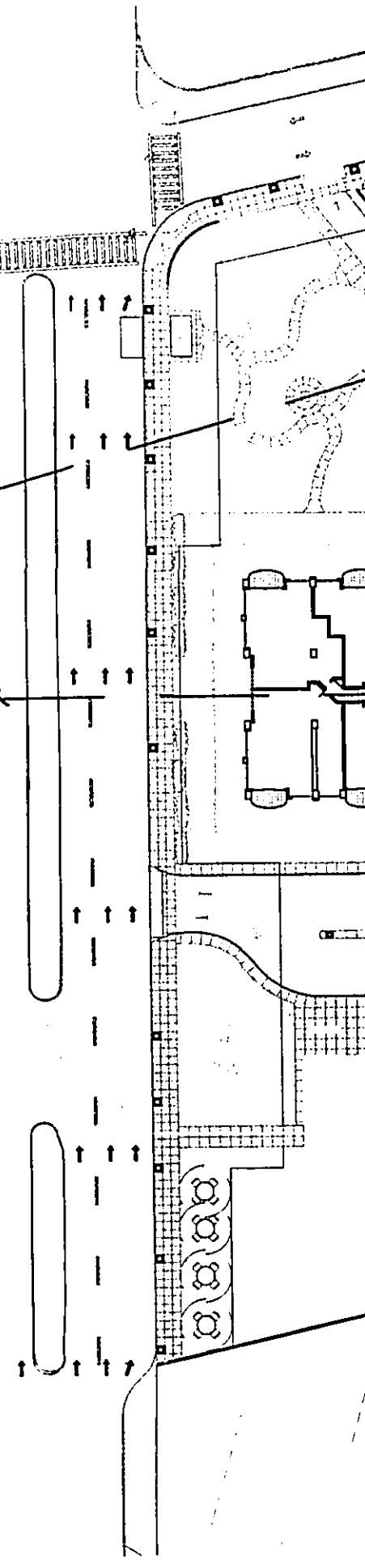


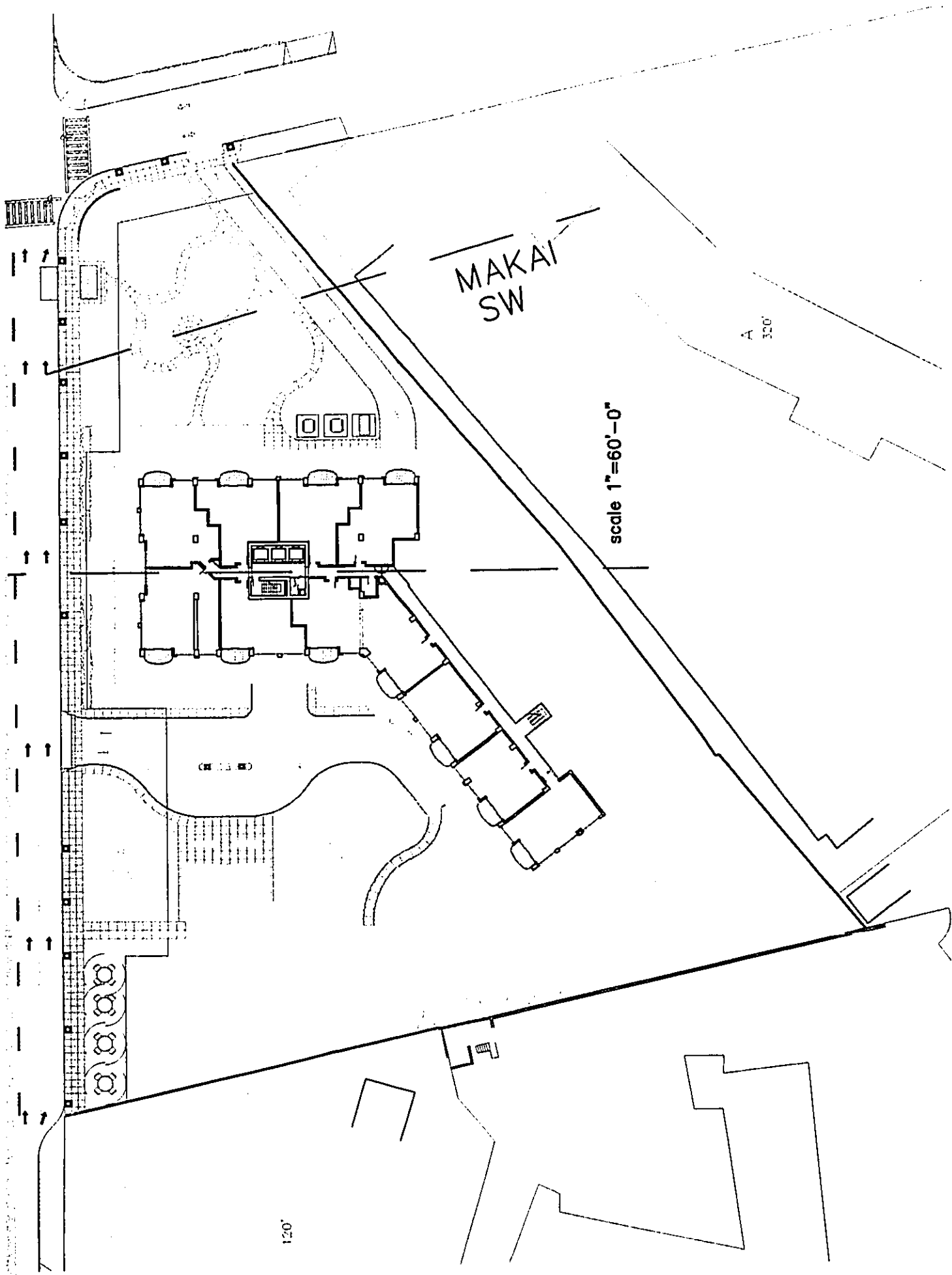
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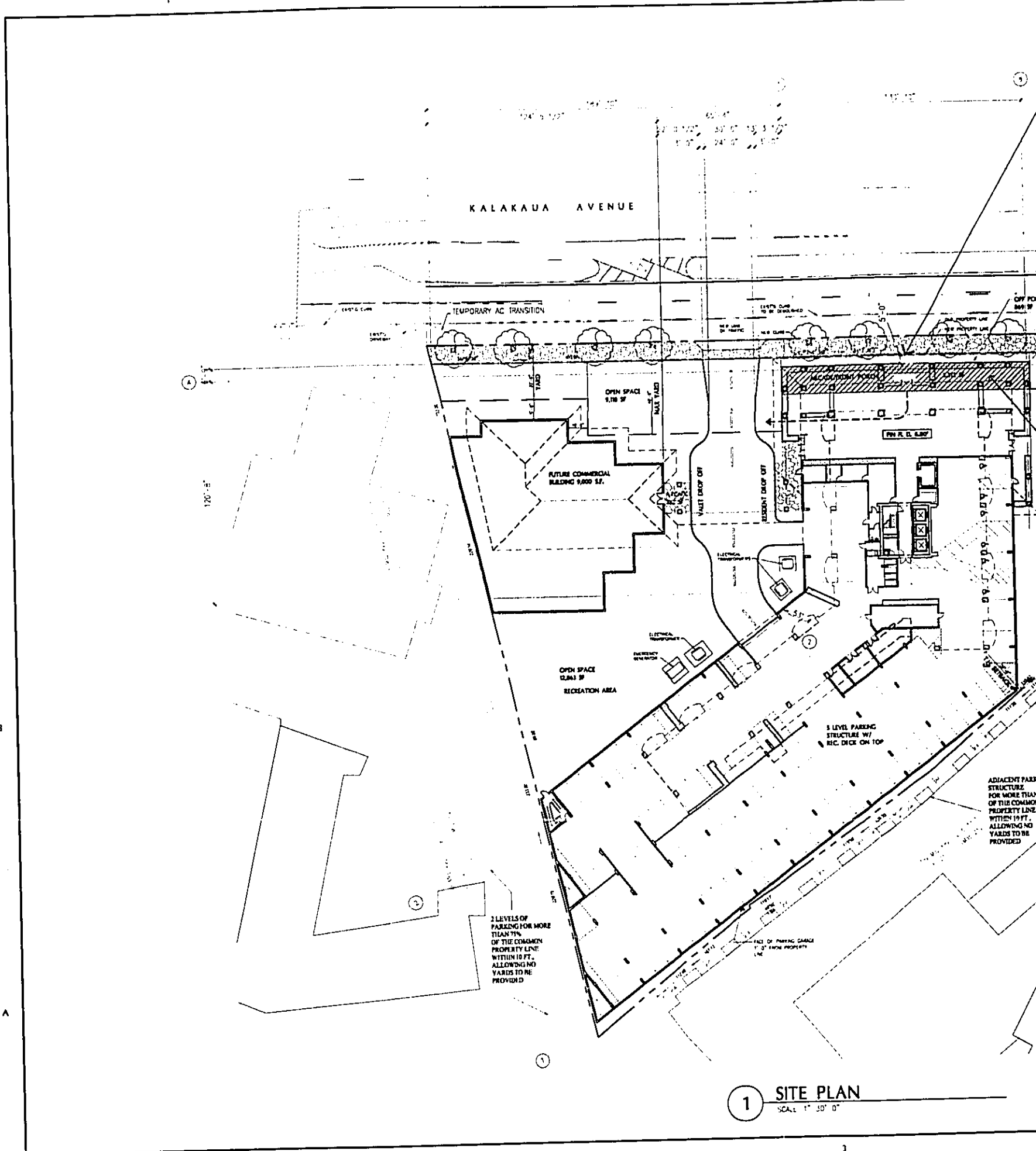
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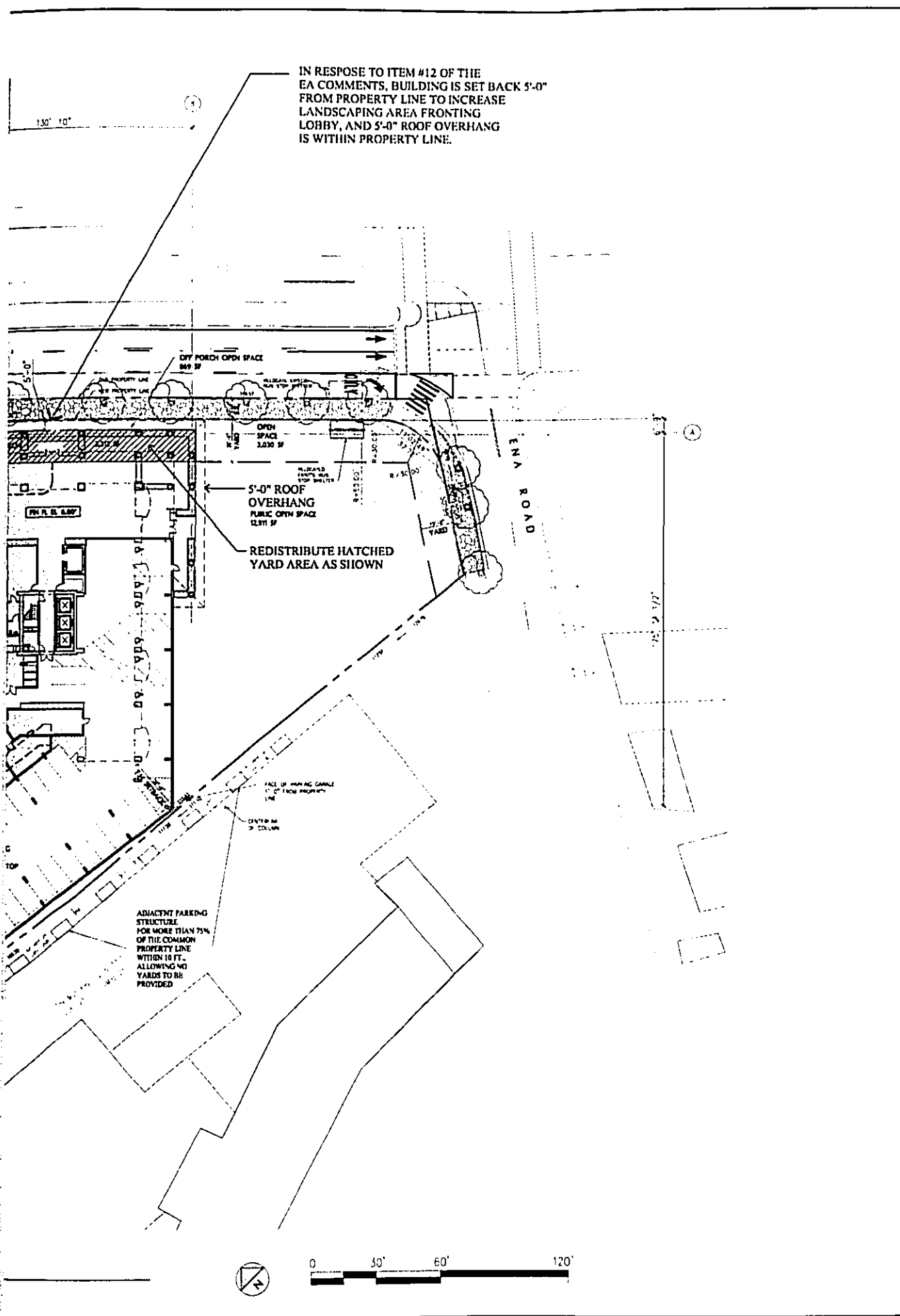
16'







1 SITE PLAN
SCALE 1" = 30' 0"



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FOR
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 COMPANIES**

SITE PLAN

The work was prepared by me or under my supervision and construction of this project will be under the observation (Verification of construction as defined in Chapter 16-115, Subchapter 1) of the Department of the Hawaii Administrative Services, Professional Engineers, Architects, Surveyors, and Landscape Architects.

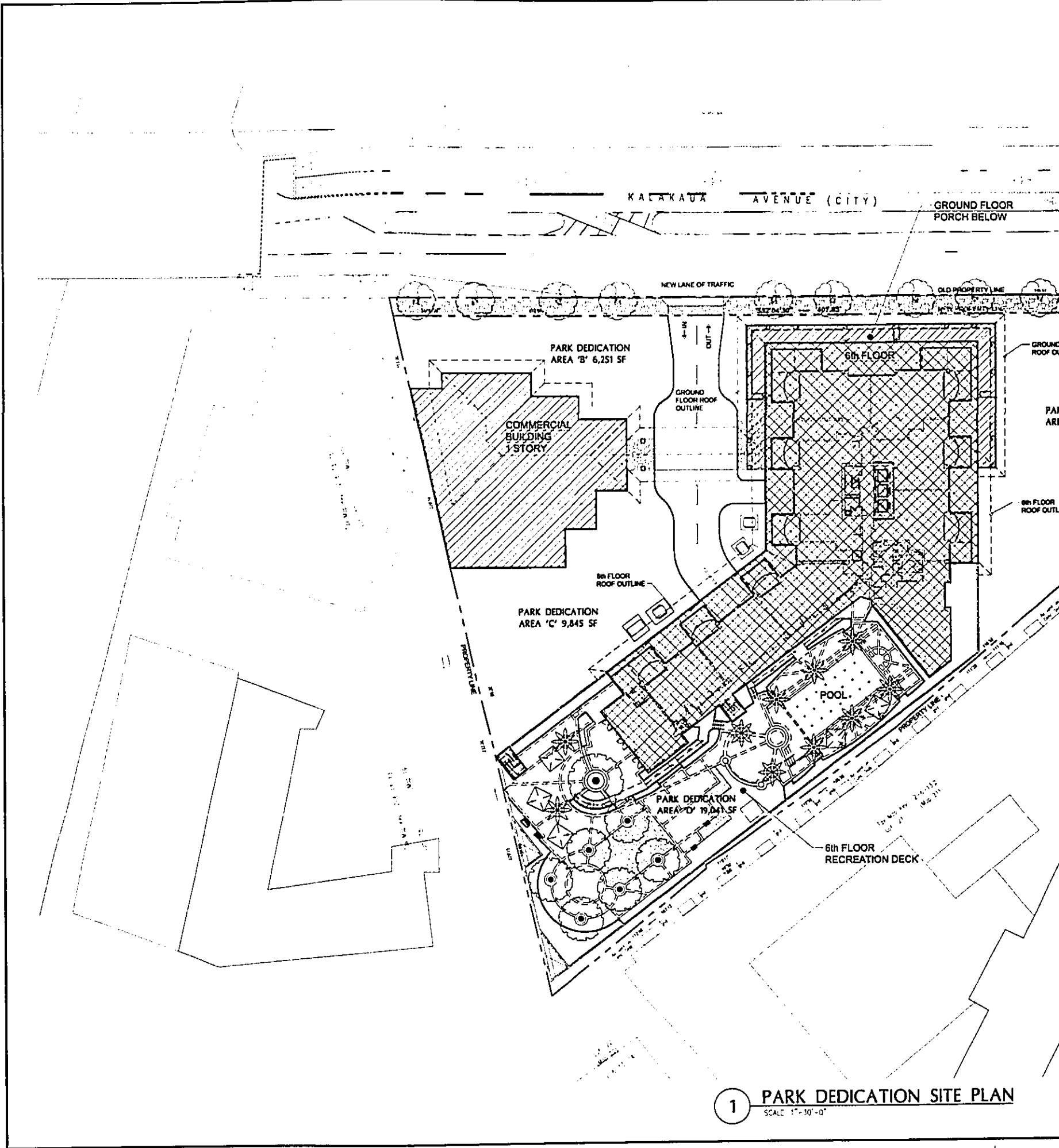
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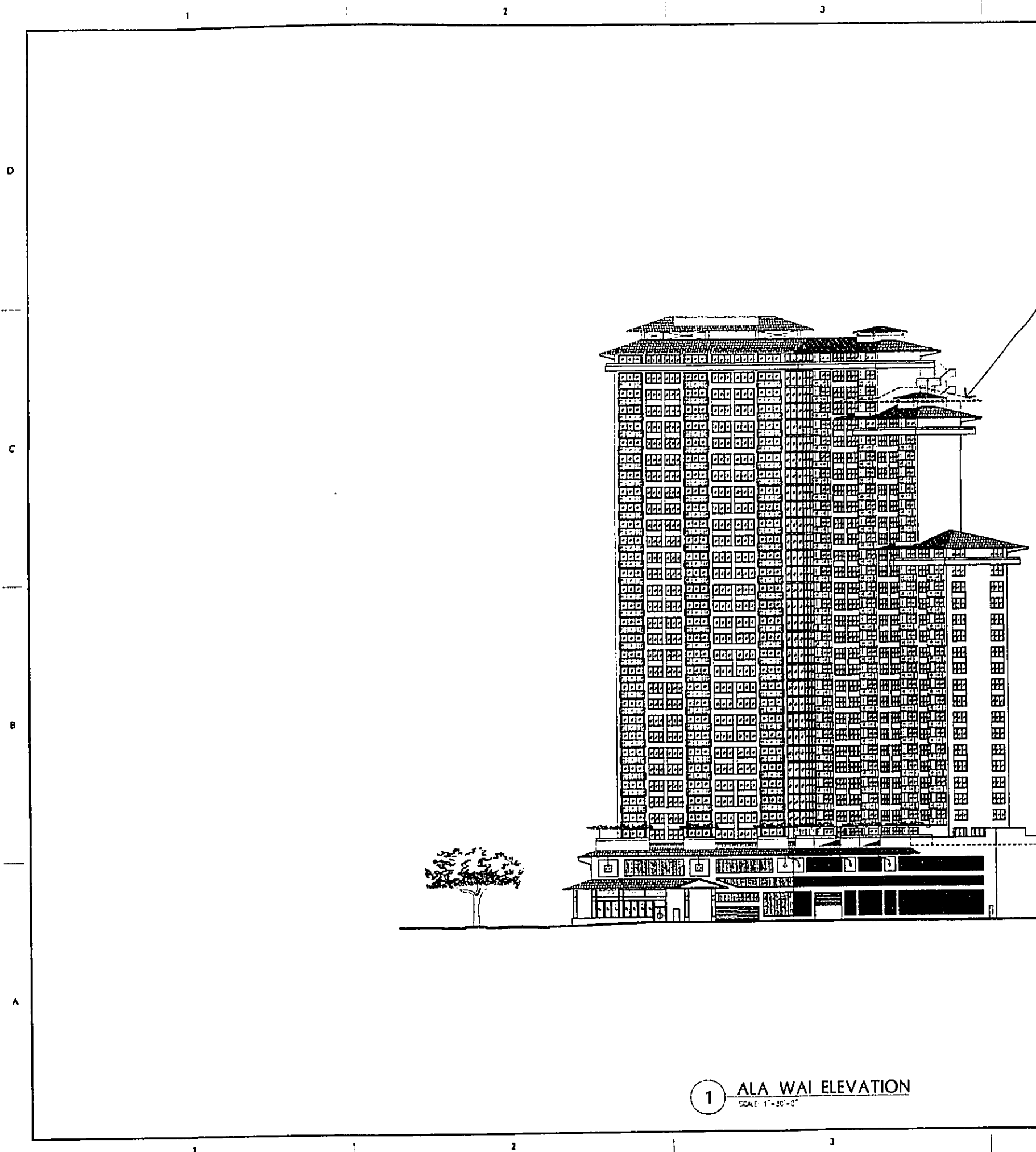
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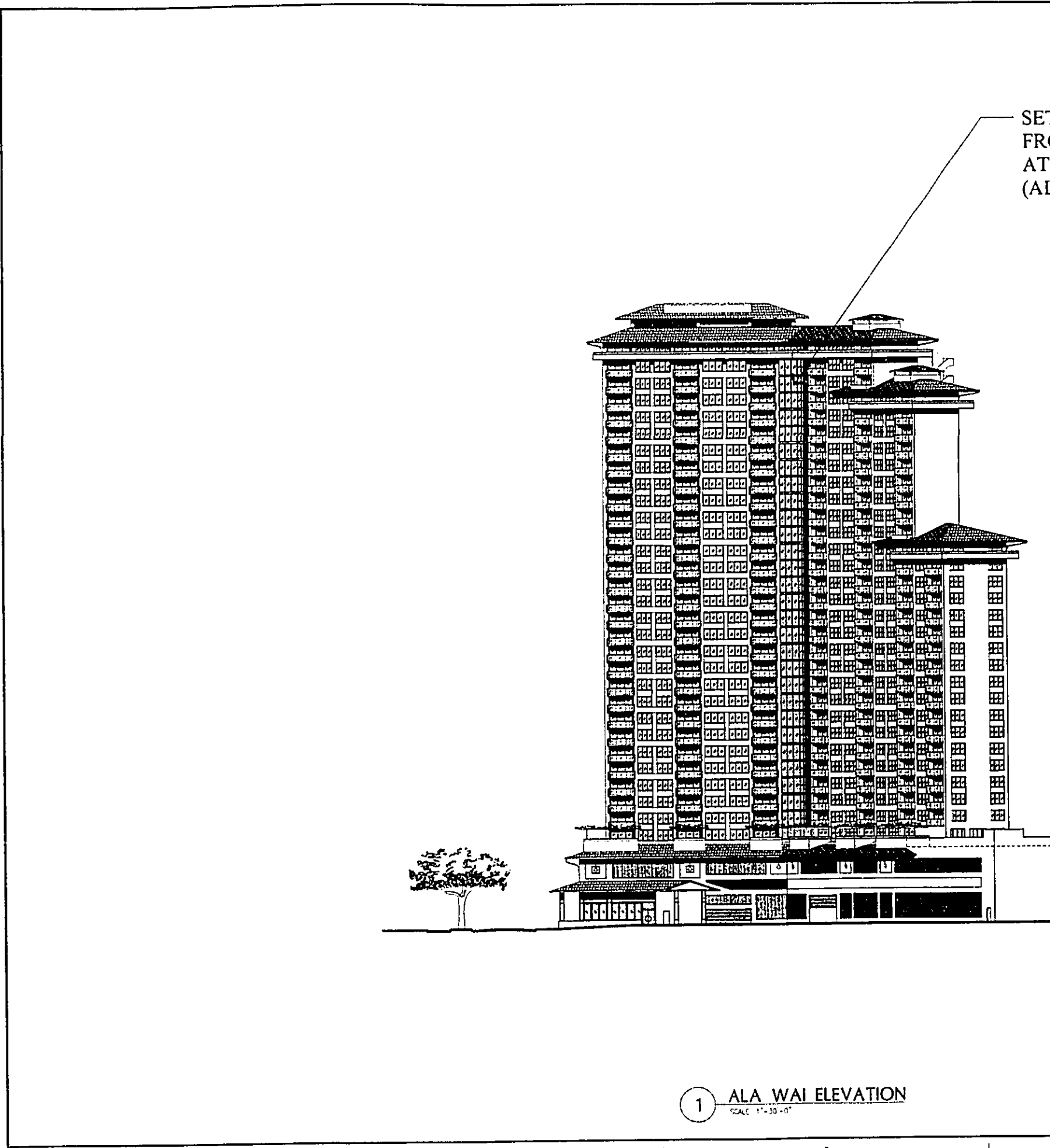
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ALA WAI ELEVATION

SCALE 1"=30'-0"



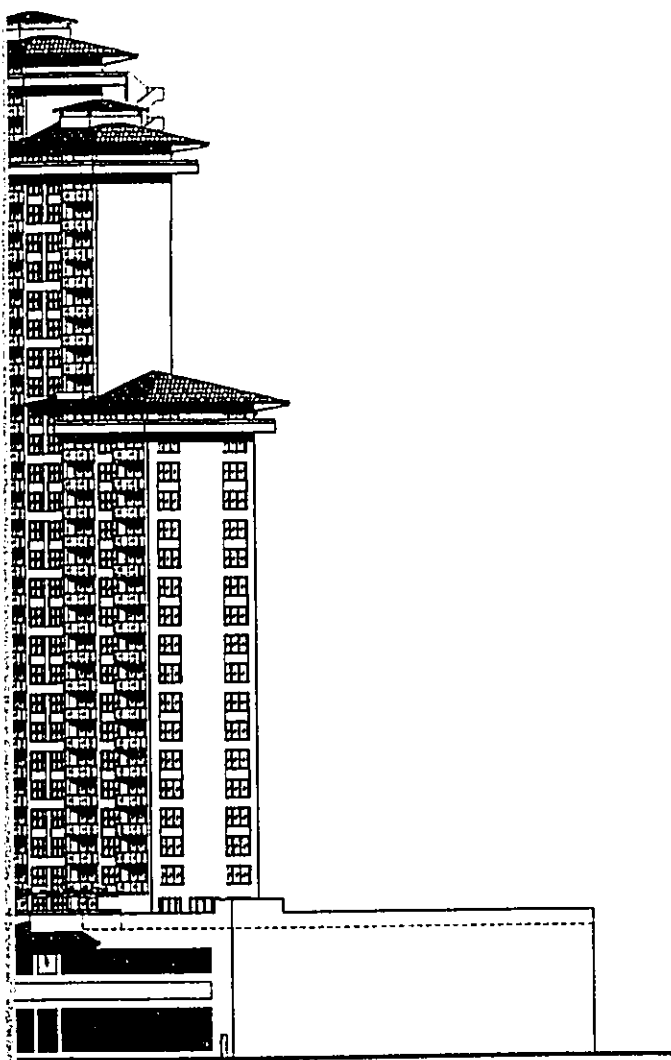
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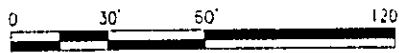
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5

SET WINDOW WALL IN 12"
FROM ORIGINAL POSITION
AT FACE OF COLUMN
(ALTERNATE #2)



SECTION



4

5



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FINAL E.A.
SUBMITTAL
RESPONSE
TO ITEM #12

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my supervision and construction of the
project will be under my observation.
(Construction of construction as defined
in Chapter 10-115, Subchapter
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Surveyors, and Landscape Architects.)

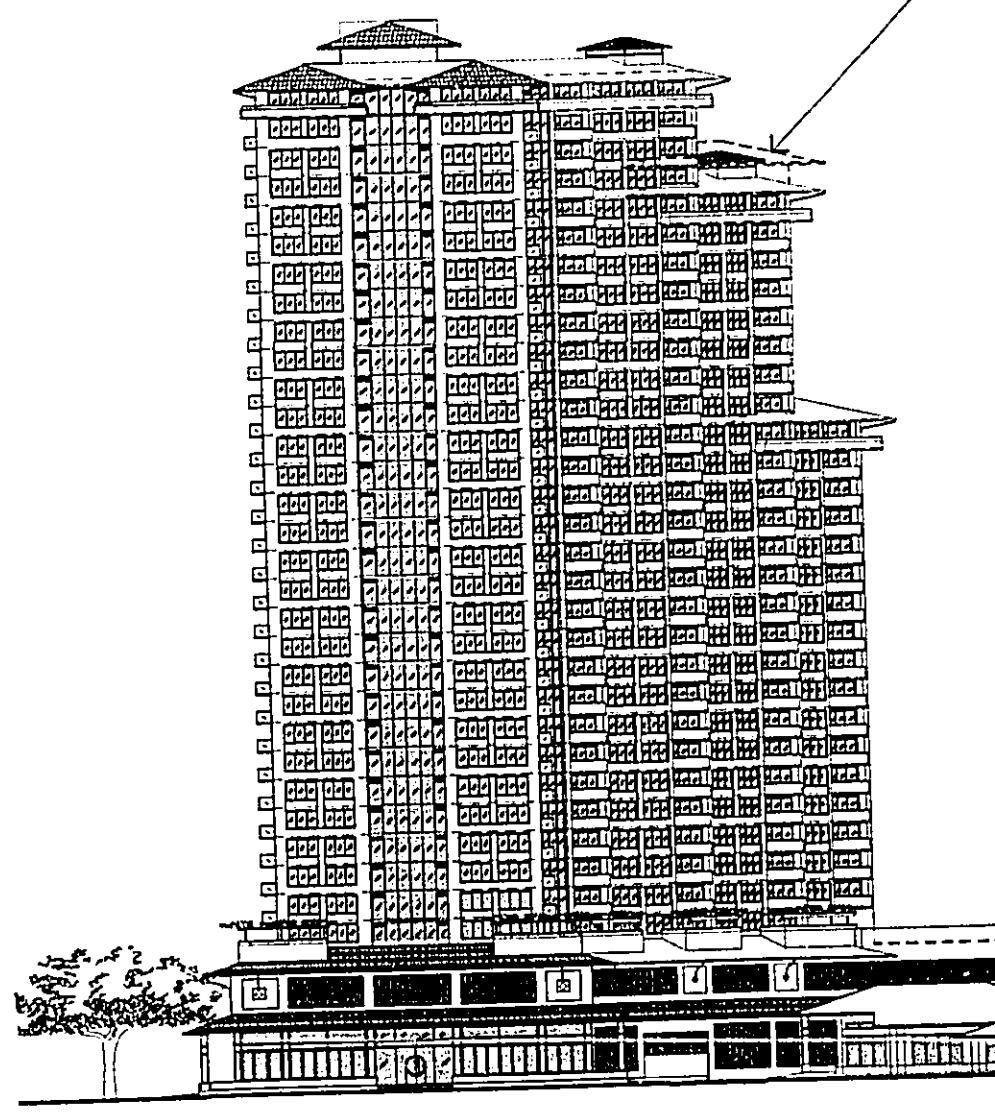
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1 KALAKAUA AVENUE ELEVATION
SCALE: 1" = 30'-0"



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TO ITEM #12**

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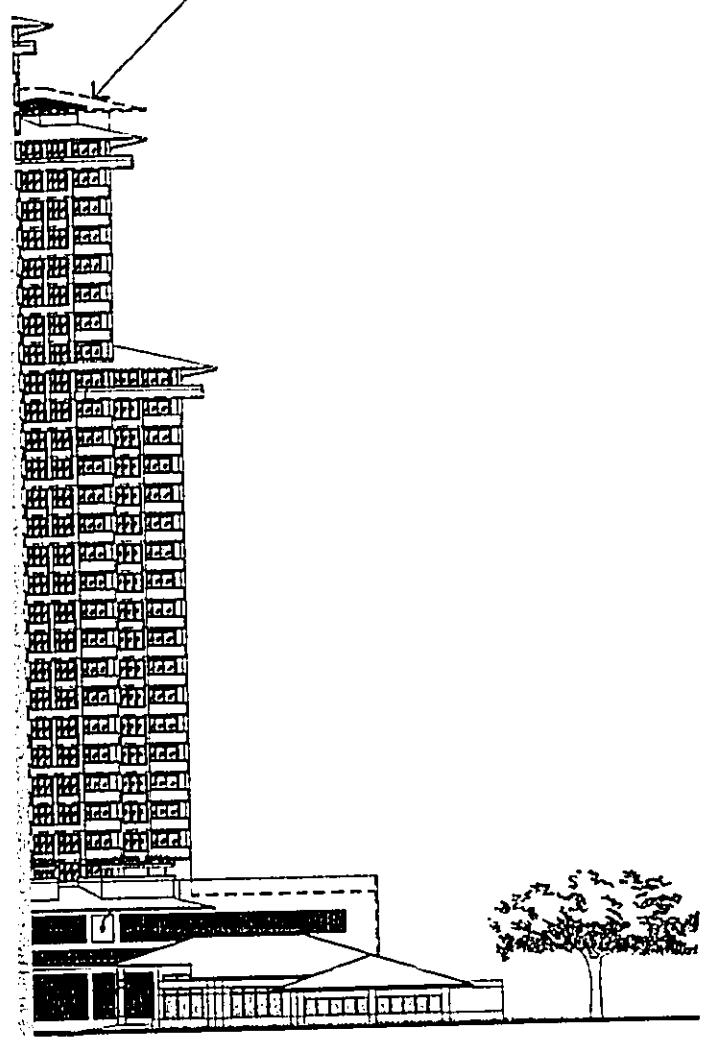
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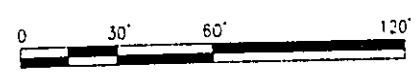
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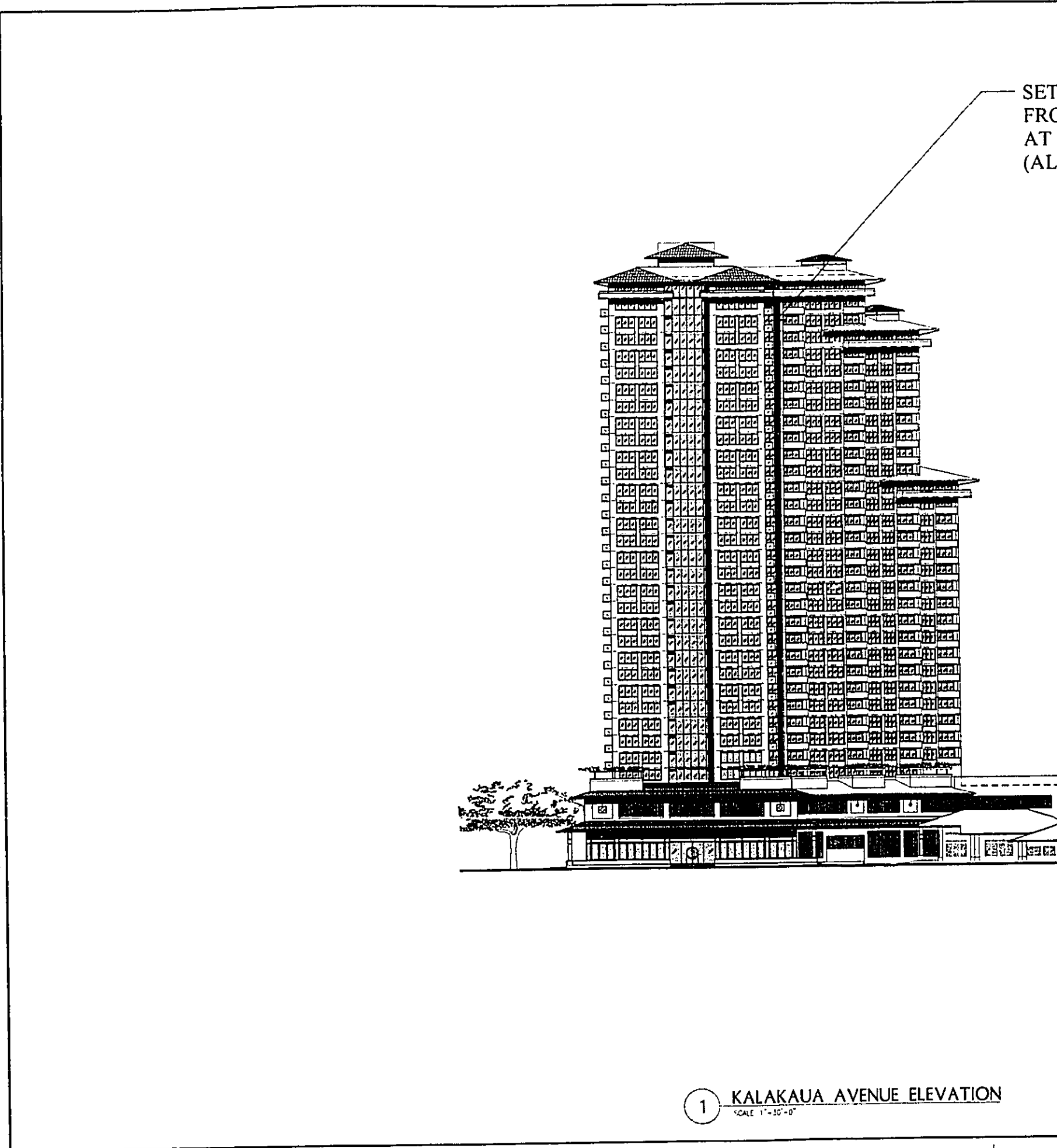
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UNIT 'J' REMOVED AT
32nd FLOOR, SHOWN DASHED
(ALTERNATE #1)



ELEVATION

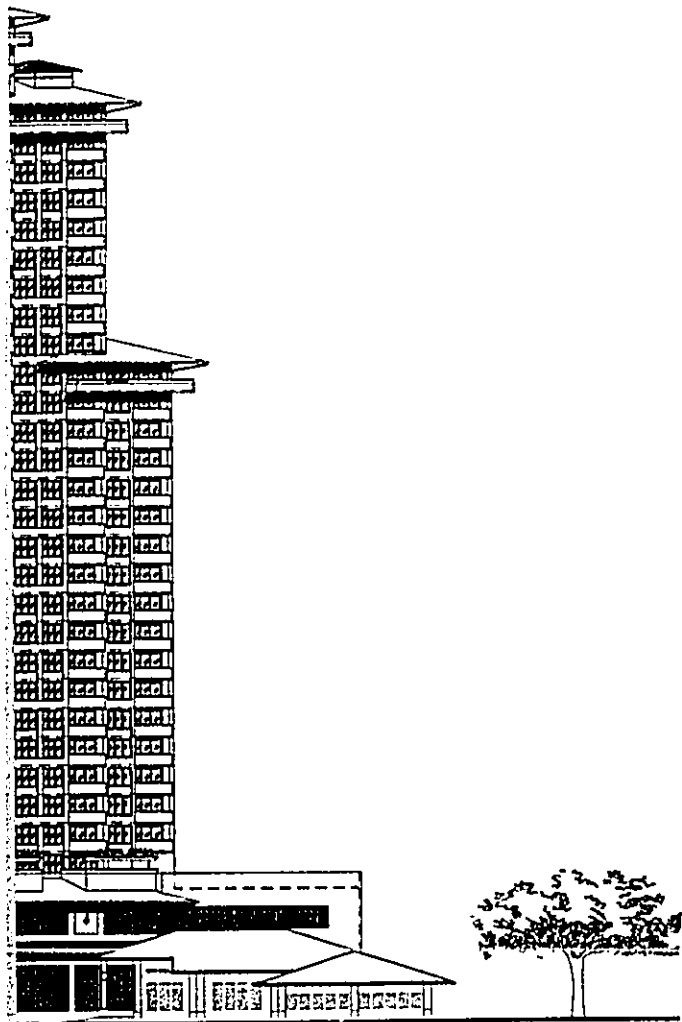




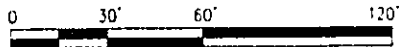
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1 KALAKAUA AVENUE ELEVATION
SCALE 1"=30'-0"

SET WINDOW WALL IN 12"
FROM ORIGINAL POSITION
AT FACE OF COLUMN
(ALTERNATE #2)



ALTERNATE ELEVATION



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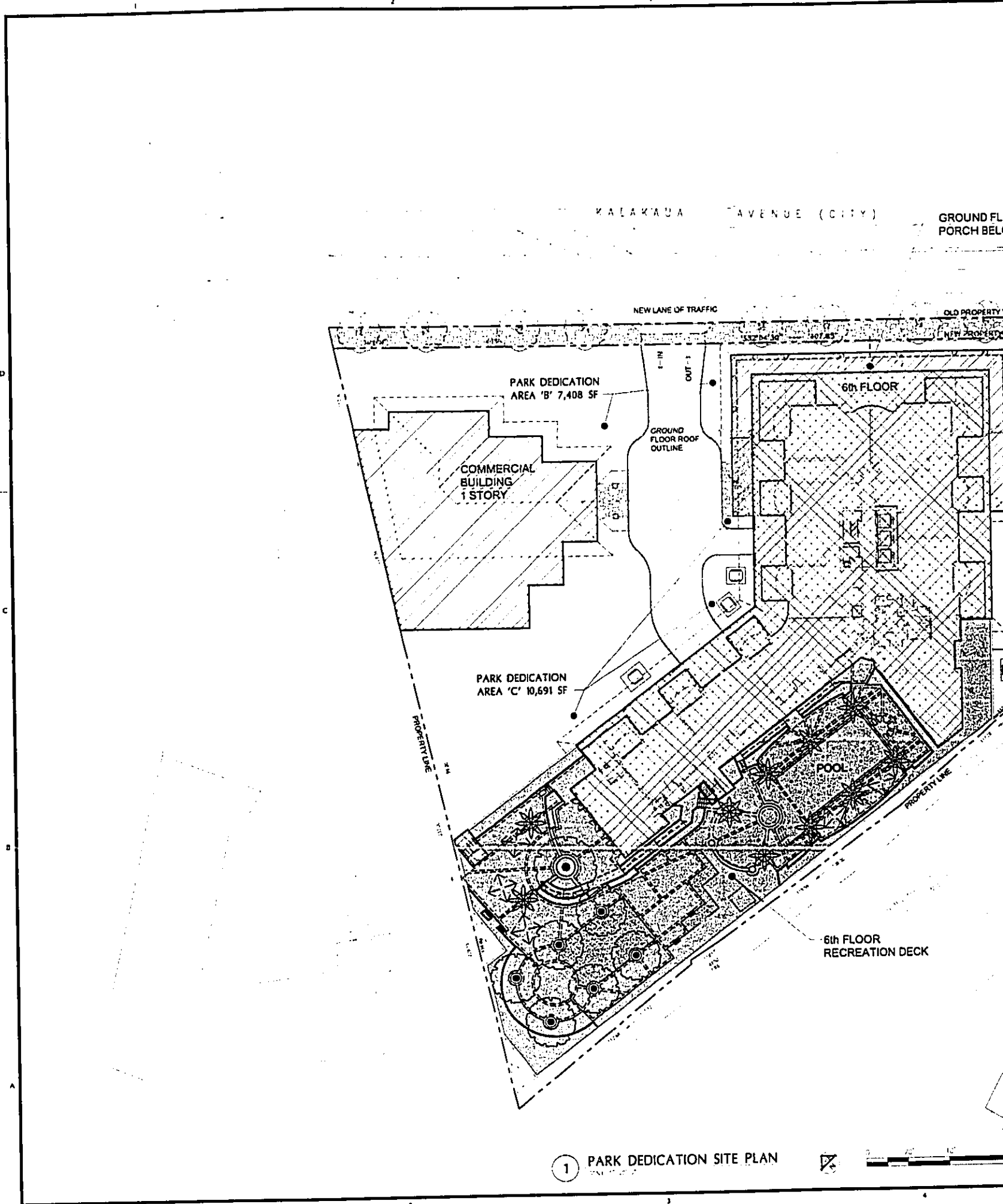
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my supervision and construction of the
project will be under my observation
(Observation of construction as defined
in Chapter 10-115, Subchapter 1,
Definitions of the Hawaii Administrative
Rules, Professional Engineers, Architects,
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Signature _____ signature date _____
of the Year _____
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dimensions of job before proceeding with work

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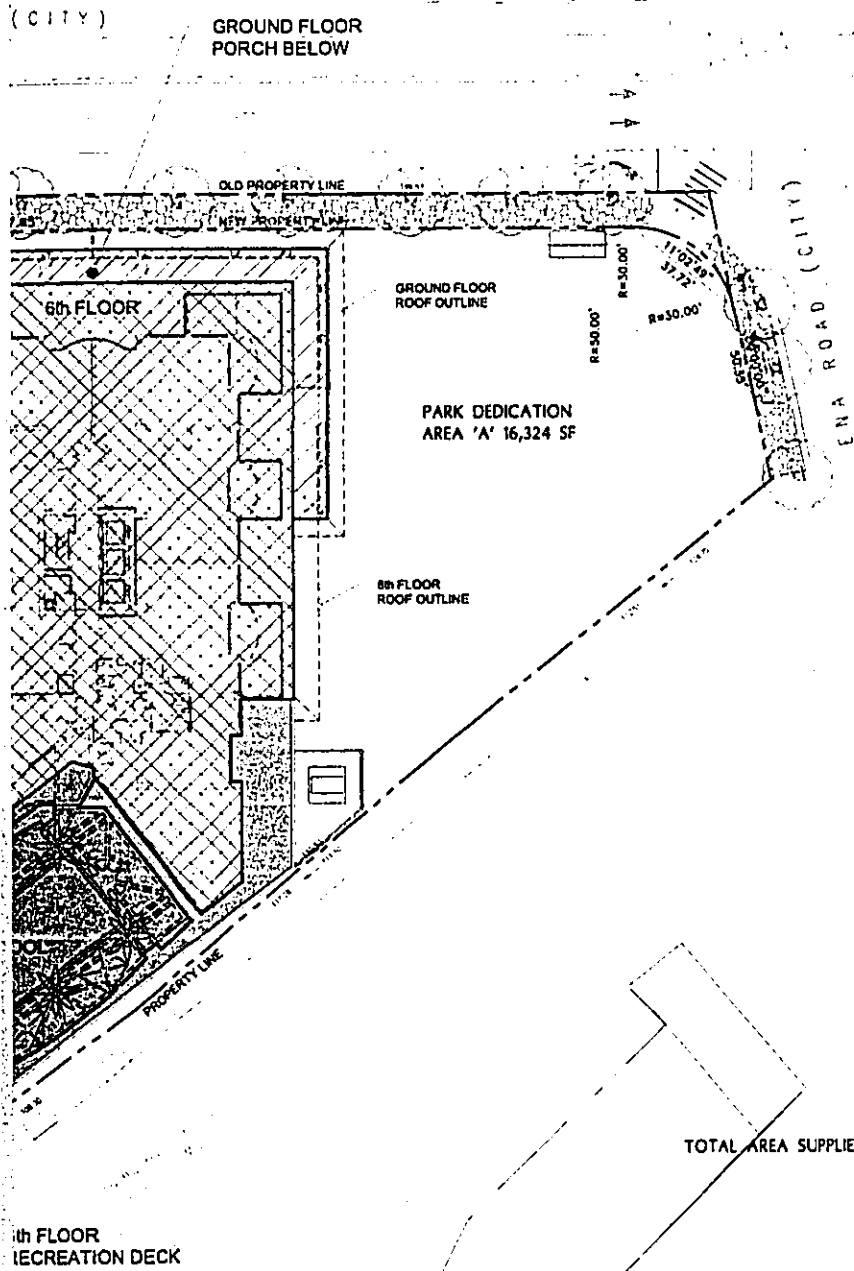
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COMPANIES

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**PARK DEDICATION
SITE PLAN**



PARK DEDICATION

REQUIRED: 33,000 SF

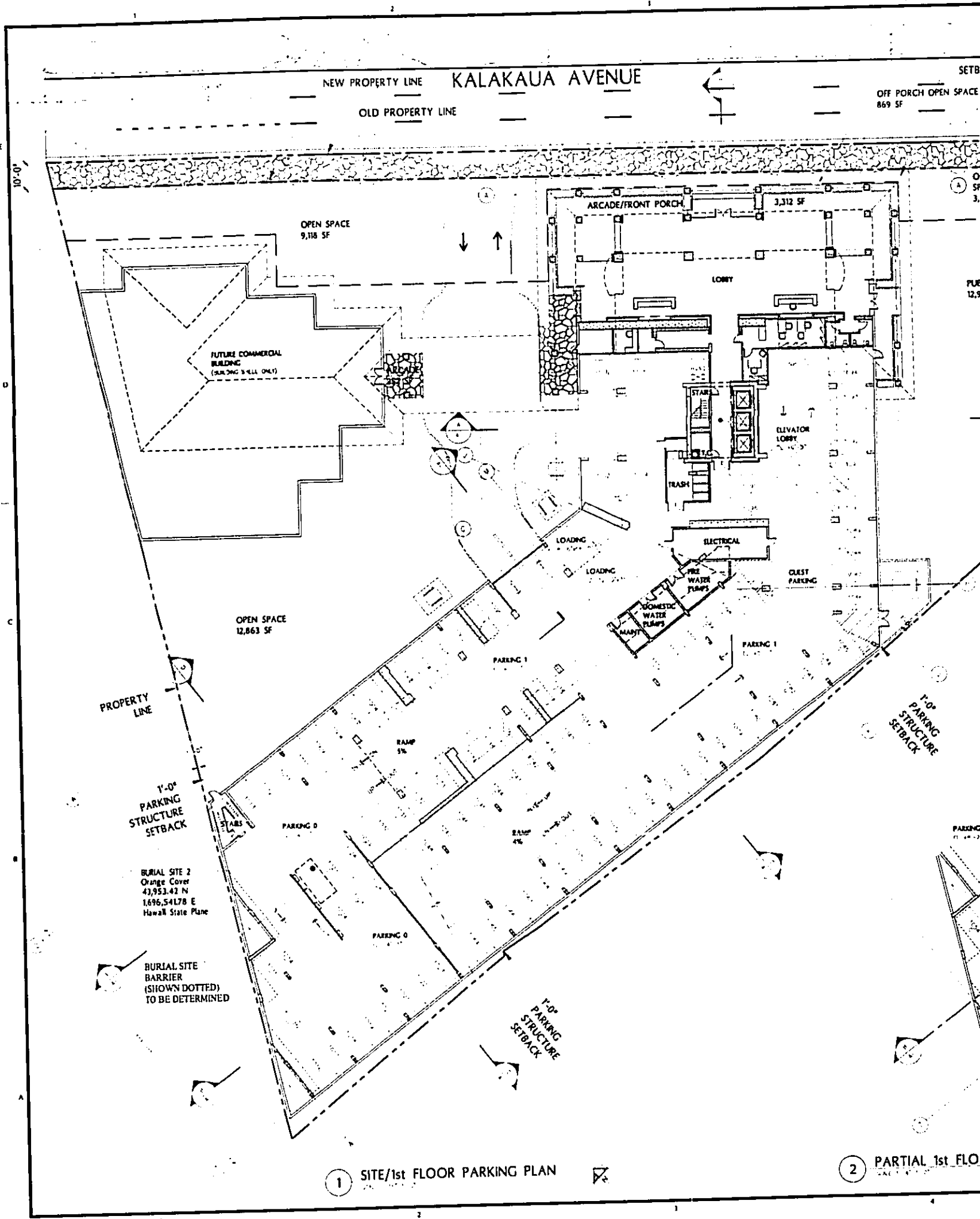
TOTAL AREA SUPPLIED (AREAS A, B, C): 34,423 SF

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PROJECT NO. 1619
DATE: 20 DECEMBER 2006
DRAWN BY: JH
CHECKED BY: JH
DATE: 20 DECEMBER 2006
DRAWING NO.

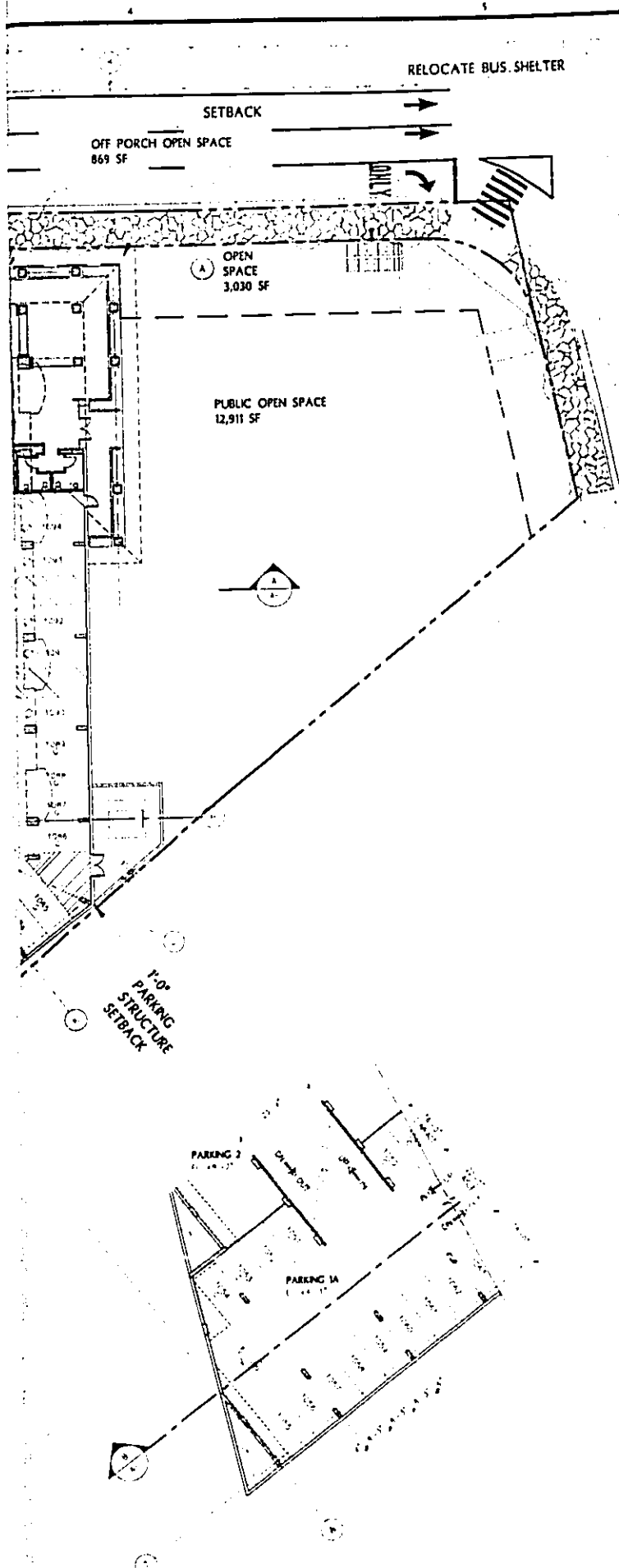
A-100






of Sheets
Sheet of 1



1 SITE/1st FLOOR PARKING PLAN

2 PARTIAL 1st FLOOR



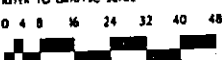
-  FLOOR AREA:
DENOTES FLOOR AREA USED FOR
L.U.O. AREA CALCULATIONS
-  ARCADE / PORCH:
DENOTES AREA USED FOR
L.U.O. AREA CALCULATIONS
-  OPEN SPACE
-  PUBLIC OPEN SPACE
-  HALF STREET

1st FLOOR PARKING PROVIDED:
 C DENOTES COMPACT STALL
 G DENOTES GUEST STALL
 ♿ DENOTES ACCESSIBLE STALL

LOADING:	8'-6" x 19'-0" x 10'-0"	12'-0" x 35'-0" x 14'-0"	TOTAL
LOADING STALLS:	1	2	3

PARKING PROVIDED:	STANDARD STALL	COMPACT STALL	TOTAL
GUEST STALL:	8	4	12
APARTMENT/COMMERCIAL STALL:	52	37	89
ACCESSIBLE PARKING:			5
TOTAL PARKING 1st FLOOR			106

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SCALE: 1/16"=1'-0"

2 PARTIAL 1st FLOOR PARKING PLAN



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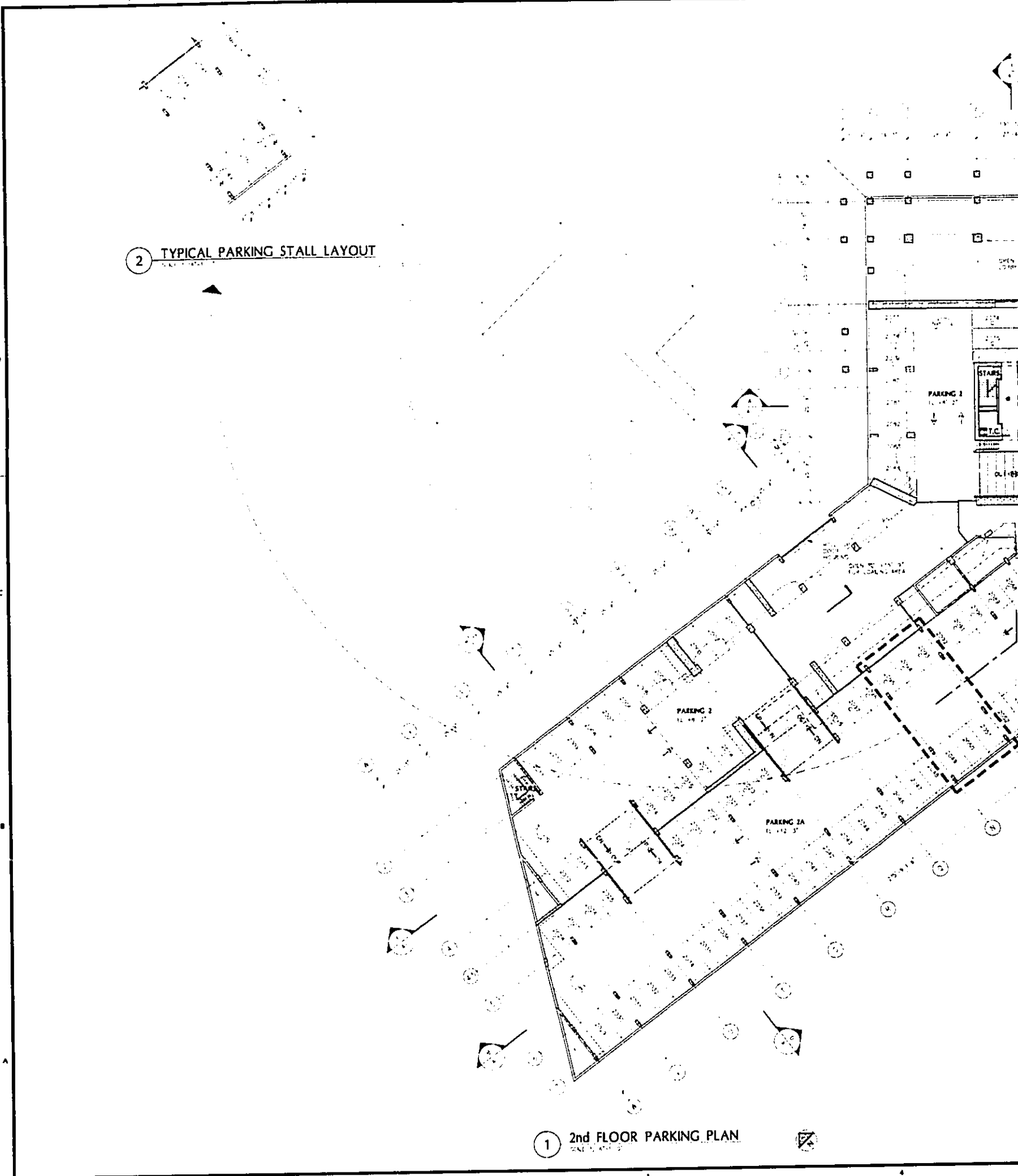
SITE/1st FLOOR
 PARKING PLAN
 PARTIAL 1st FLOOR
 PARKING PLAN

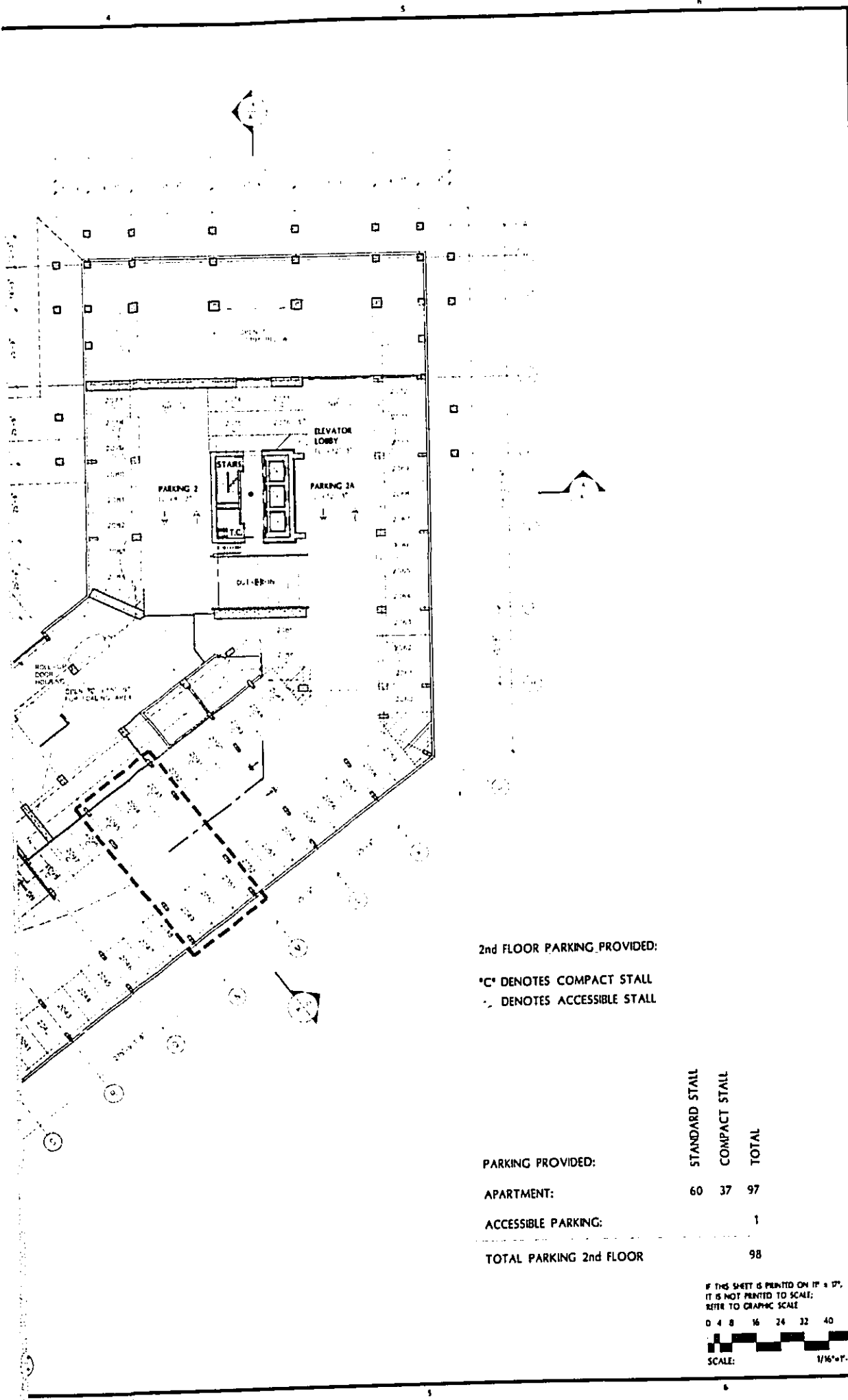
PROJECT NO: 1634
 DRAWING NO: A-101
 DATE: 20 DECEMBER 2006

A-101

2 TYPICAL PARKING STALL LAYOUT

1 2nd FLOOR PARKING PLAN





2nd FLOOR PARKING PROVIDED:
 C DENOTES COMPACT STALL
 - DENOTES ACCESSIBLE STALL

PARKING PROVIDED:	STANDARD STALL	COMPACT STALL	TOTAL
APARTMENT:	60	37	97
ACCESSIBLE PARKING:			1
TOTAL PARKING 2nd FLOOR			98

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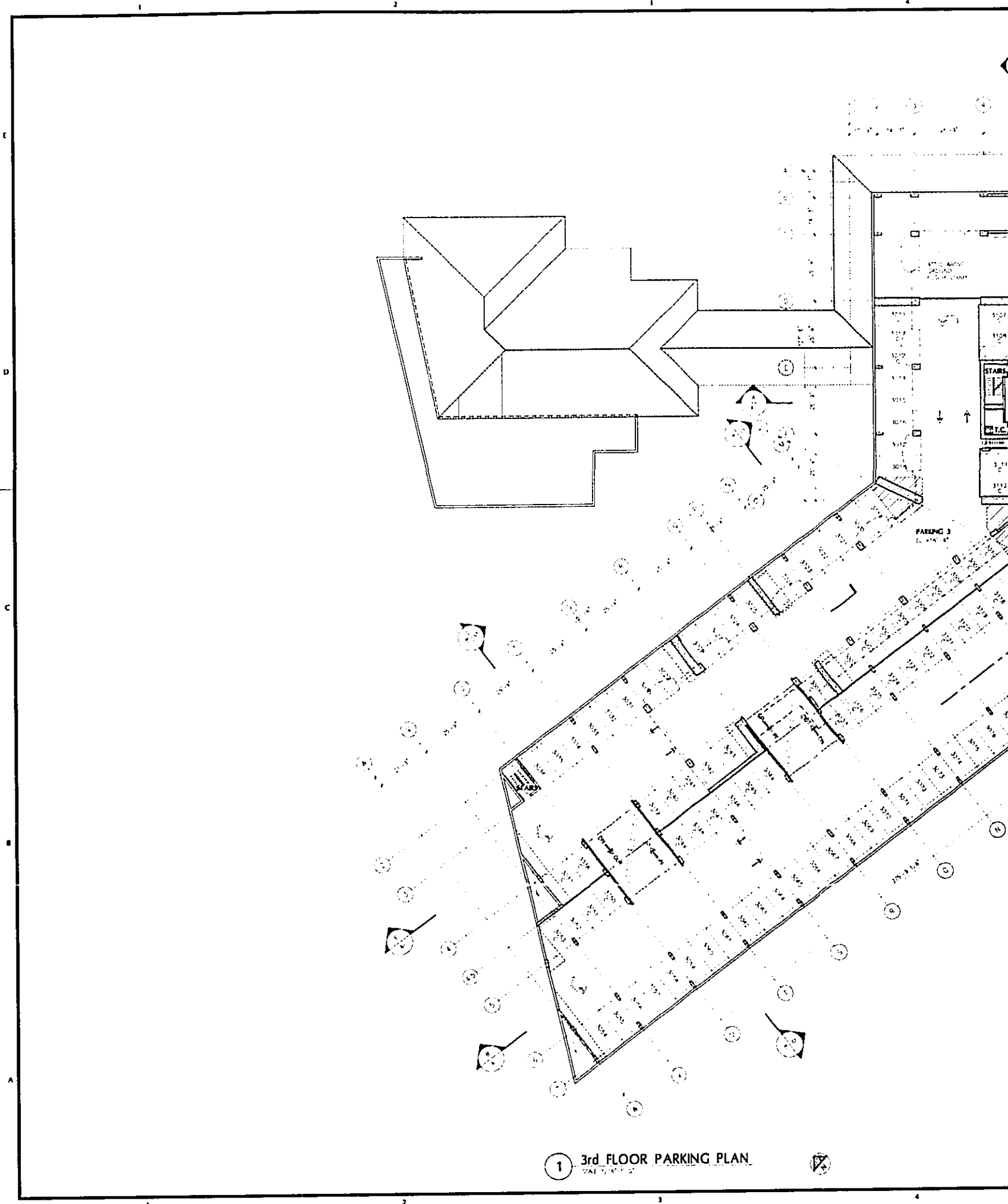
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**2nd FLOOR
 PARKING PLAN**

PROJECT NO. 16-97
 DATE: 01-11-01
 DRAWN BY: JAH
 DATE: 03-01-01
 CHECKED BY: JAH

A-102

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1 3rd FLOOR PARKING PLAN
SCALE: 1/4" = 1'-0"

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED. SEE SHEET 1 FOR DIMENSIONS OF THE MAIN BUILDING FOOTPRINT.



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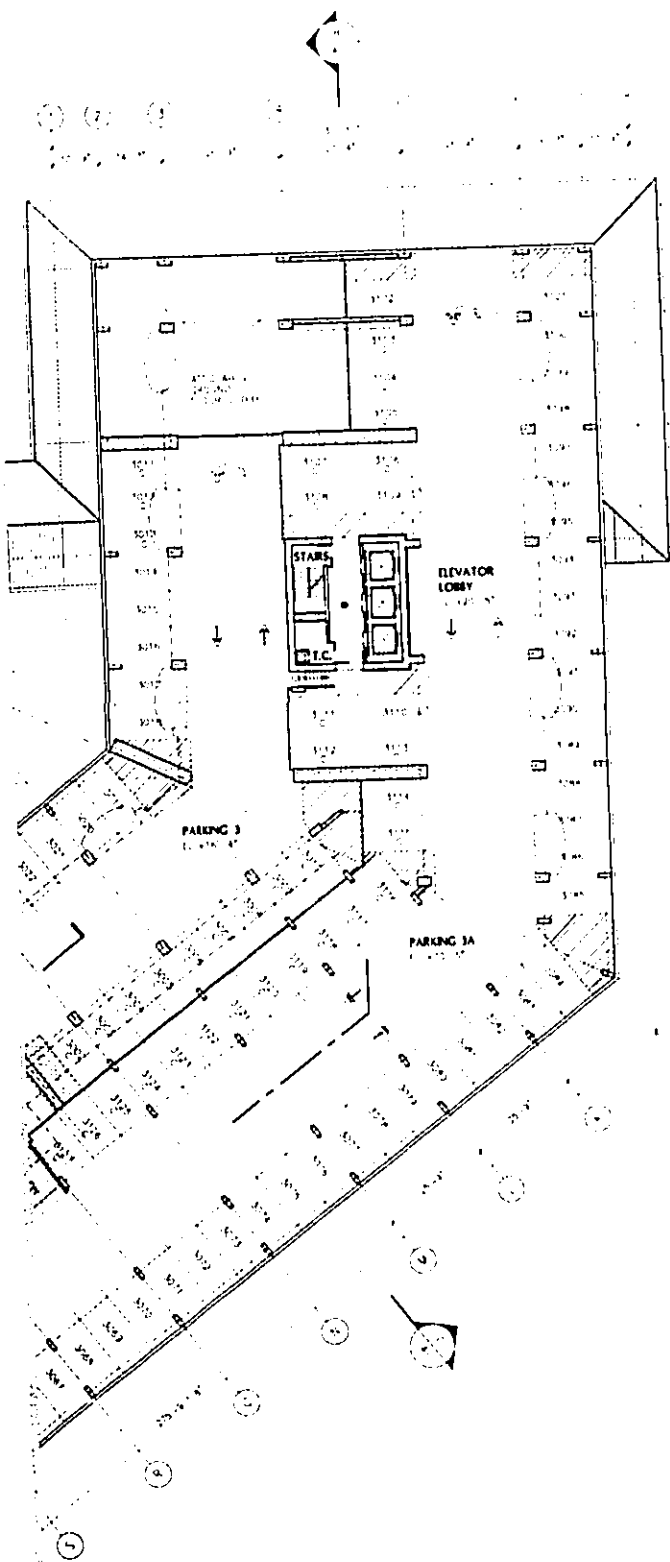
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**3rd FLOOR
PARKING PLAN**

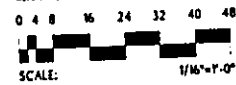


3rd FLOOR PARKING PROVIDED:

C DENOTES COMPACT STALL
A DENOTES ACCESSIBLE STALL

PARKING PROVIDED:	STANDARD STALL	COMPACT STALL	TOTAL
APARTMENT:	72	53	125
ACCESSIBLE PARKING:			2
TOTAL PARKING 3rd FLOOR			127

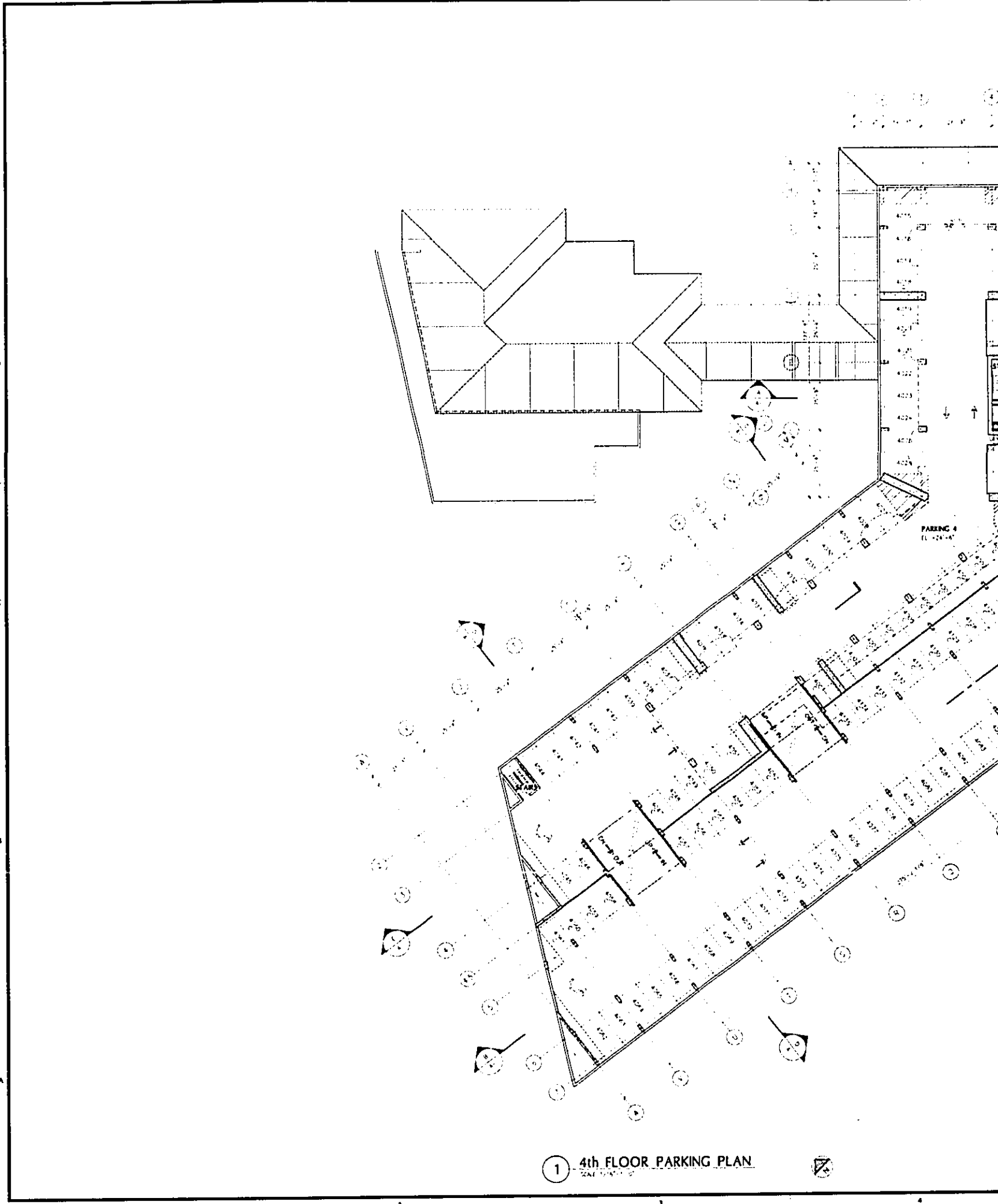
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PROJECT NO. 2009
DATE 20 DECEMBER 2009
DRAWING NO.

A-103

Sheet



① 4th FLOOR PARKING PLAN
SCALE: 1/8" = 1'-0"





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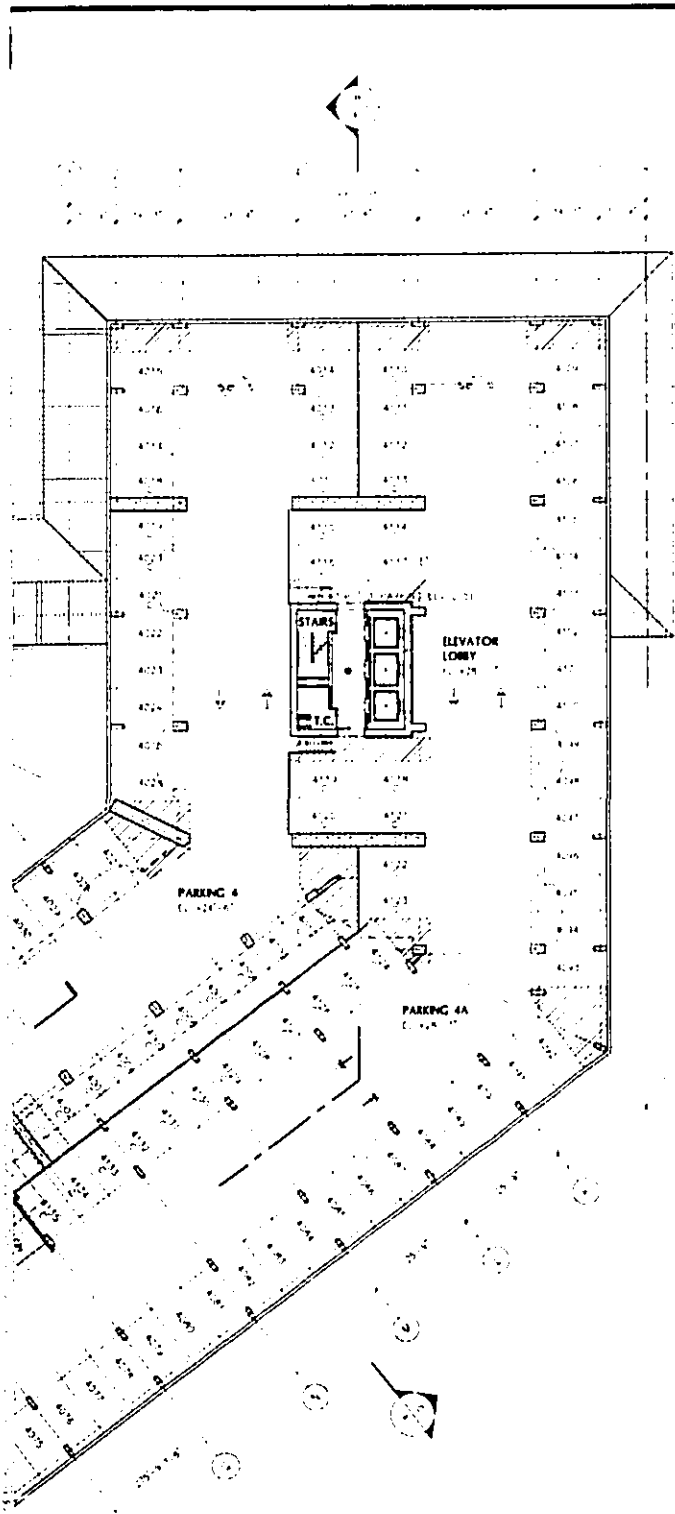
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**4th FLOOR
PARKING PLAN**



4th FLOOR PARKING PROVIDED:

'C' DENOTES COMPACT STALL
- DENOTES ACCESSIBLE STALL

	STANDARD STALL	COMPACT STALL	TOTAL
PARKING PROVIDED:			
APARTMENT:	74	60	134
ACCESSIBLE PARKING:			1
TOTAL PARKING 4th FLOOR			135

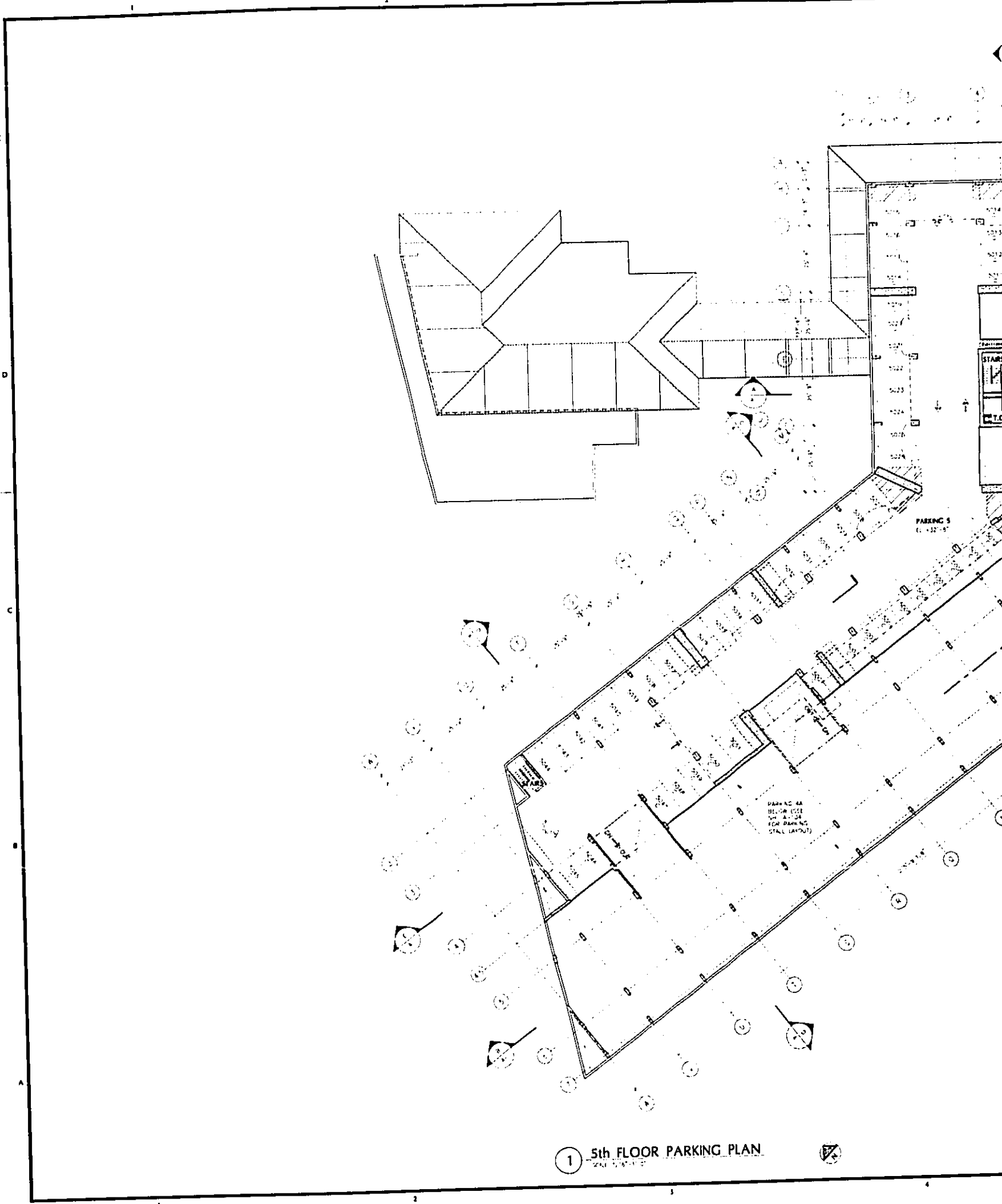
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DATE: 04/01/11
DRAWN BY: JAC
DATE: 20 DECEMBER 2010
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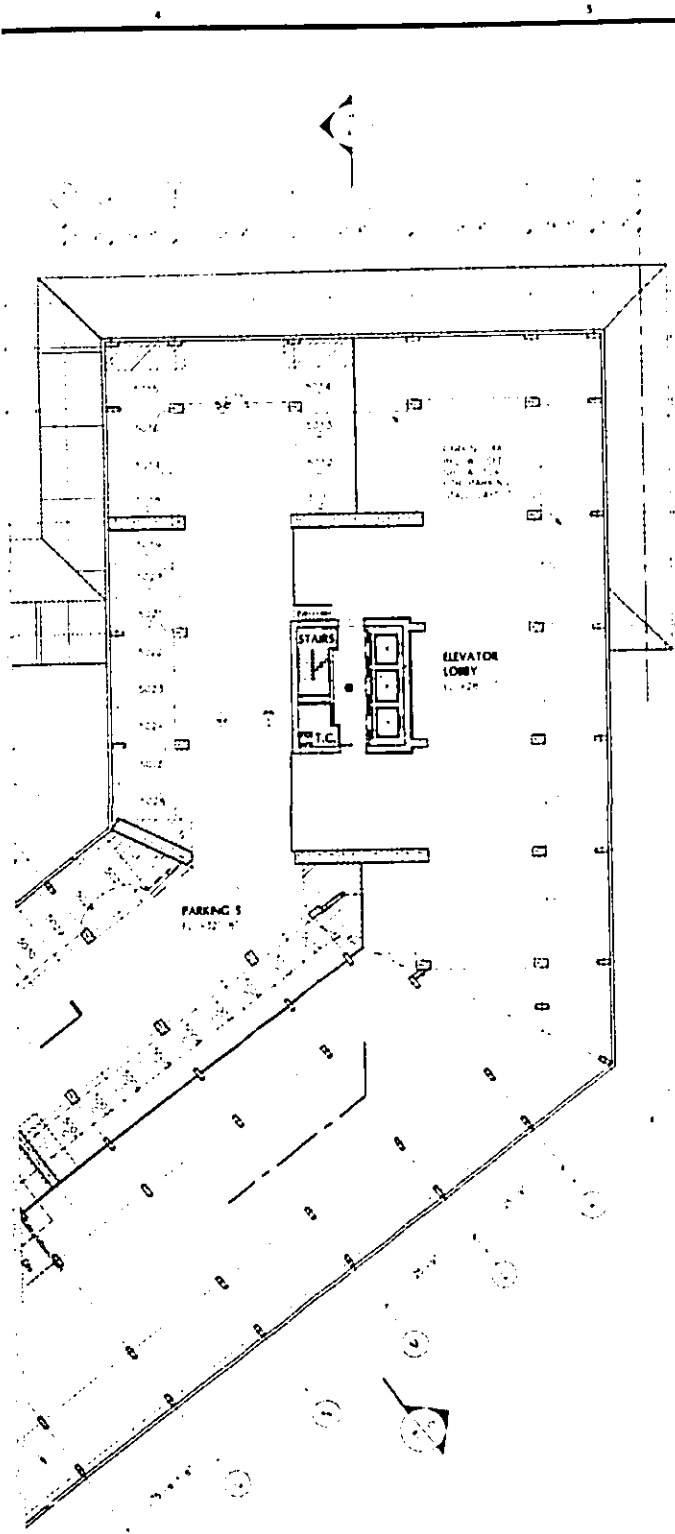
A-104

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1 5th FLOOR PARKING PLAN
SCALE: 1/8" = 1'-0"





5th FLOOR PARKING PROVIDED:
 C DENOTES COMPACT STALL

PARKING PROVIDED:	STANDARD STALL	COMPACT STALL	TOTAL
APARTMENT:	26	25	51
ACCESSIBLE PARKING:			0
TOTAL PARKING 5th FLOOR			51

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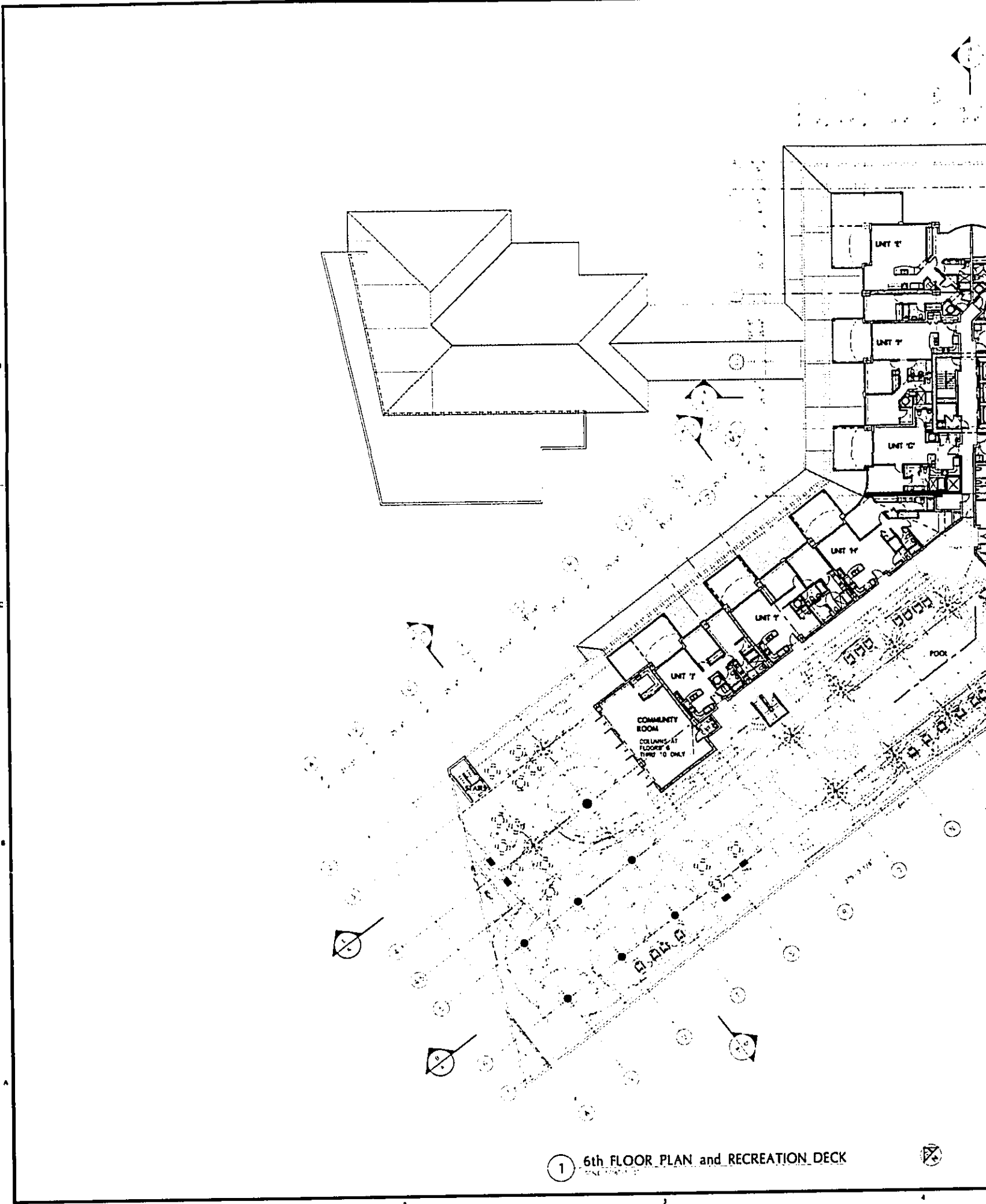
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**5th FLOOR
 PARKING PLAN**

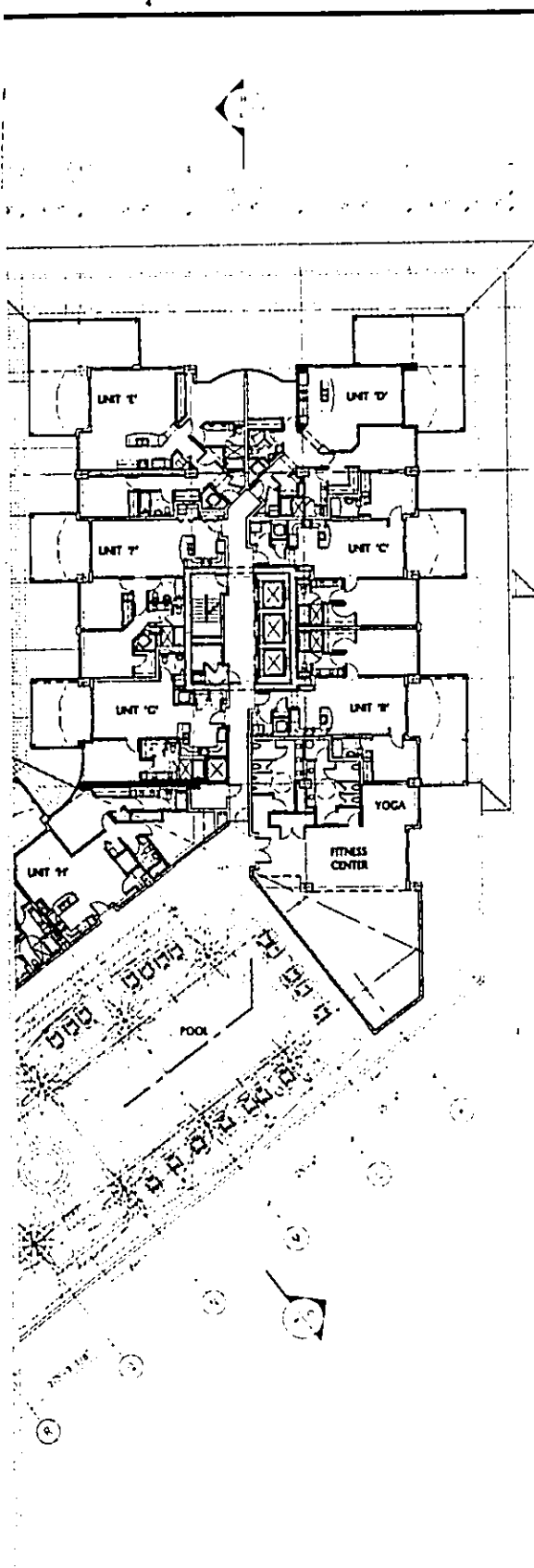
PROJECT NO: 1614
 DATE: 20 DECEMBER 2006


A-105

of sheets



1 6th FLOOR PLAN and RECREATION DECK



 DENOTES FLOOR AREA USED FOR
 L.U.O. AREA CALCULATIONS
 15,031 GSF



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6th FLOOR PLAN
 and
 RECREATION DECK

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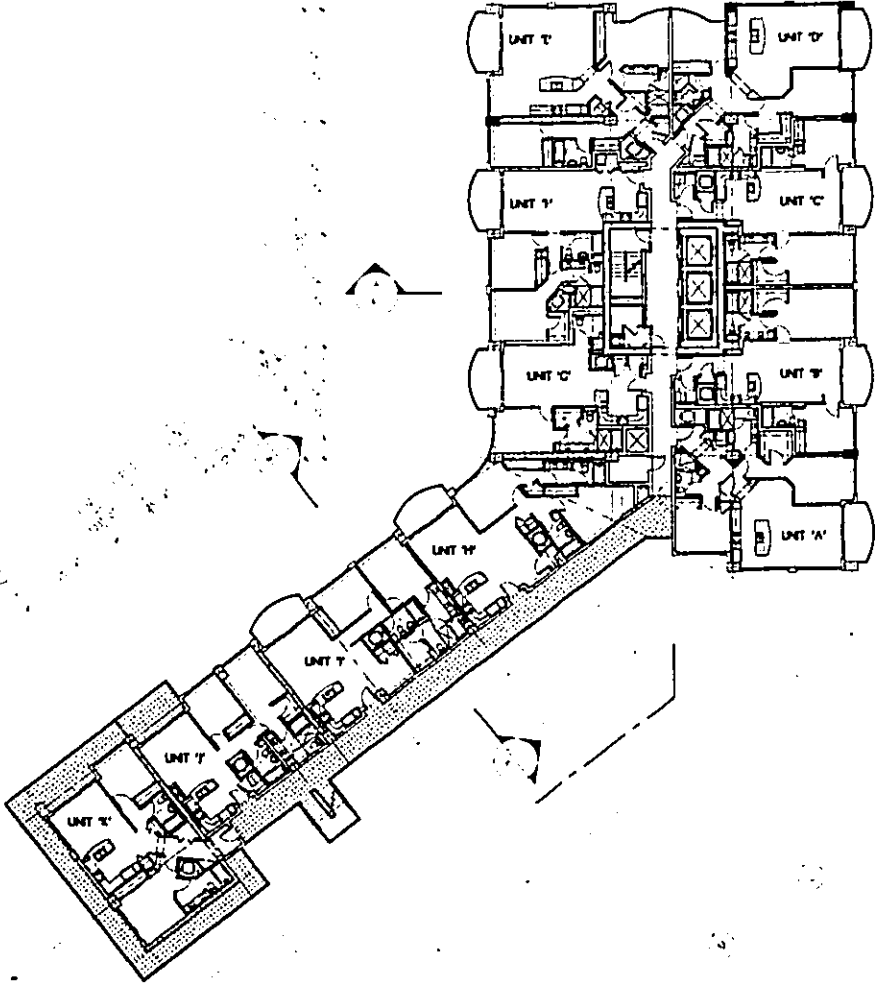
PROJECT NO.	10493
TITLE	A-106
DATE	20 DECEMBER 2006

A-106

CK



□ DENOTES FLOOR AREA USED FOR
L.U.O. AREA CALCULATIONS
14,088 GSF



2 23rd FLOOR PLAN

1 7th - 22nd FLOOR PLAN

 DENOTES FLOOR AREA USED FOR L.U.O. AREA CALCULATIONS
 14,088 GSF



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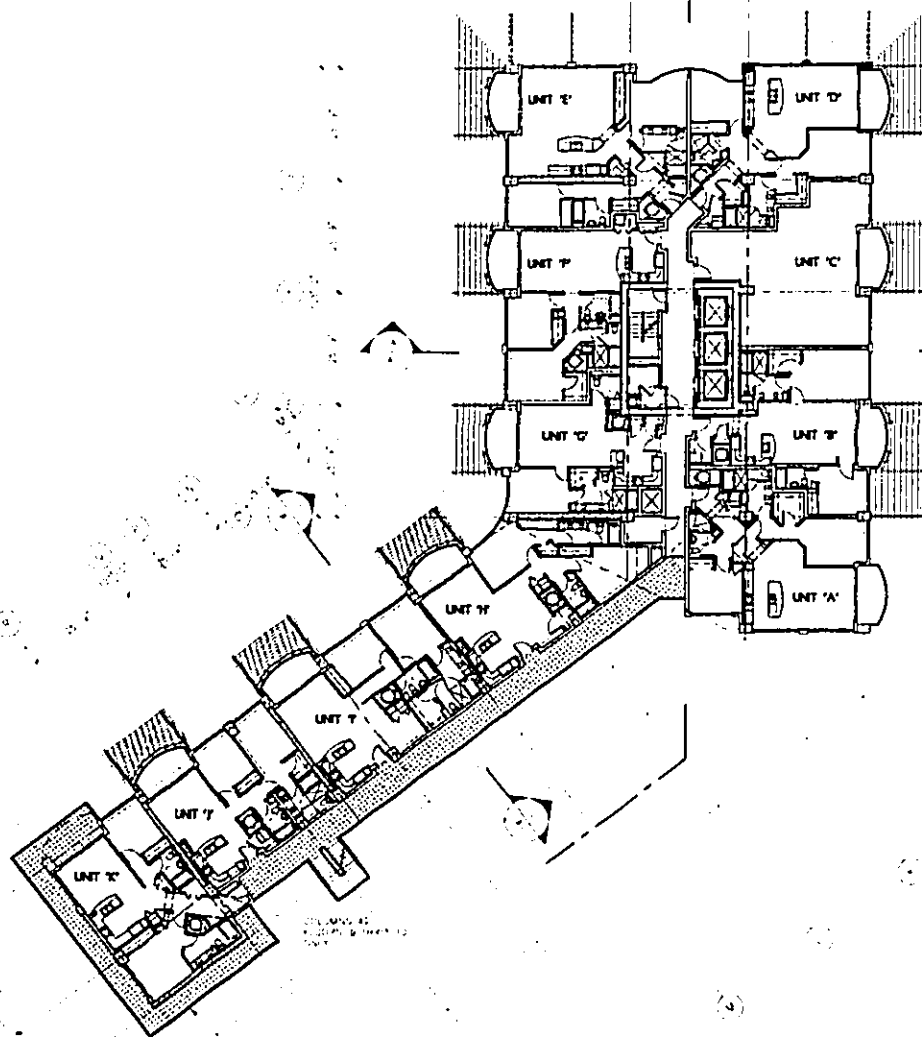
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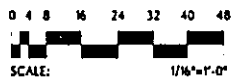
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7th - 22nd
 FLOOR PLAN
 23rd
 FLOOR PLAN



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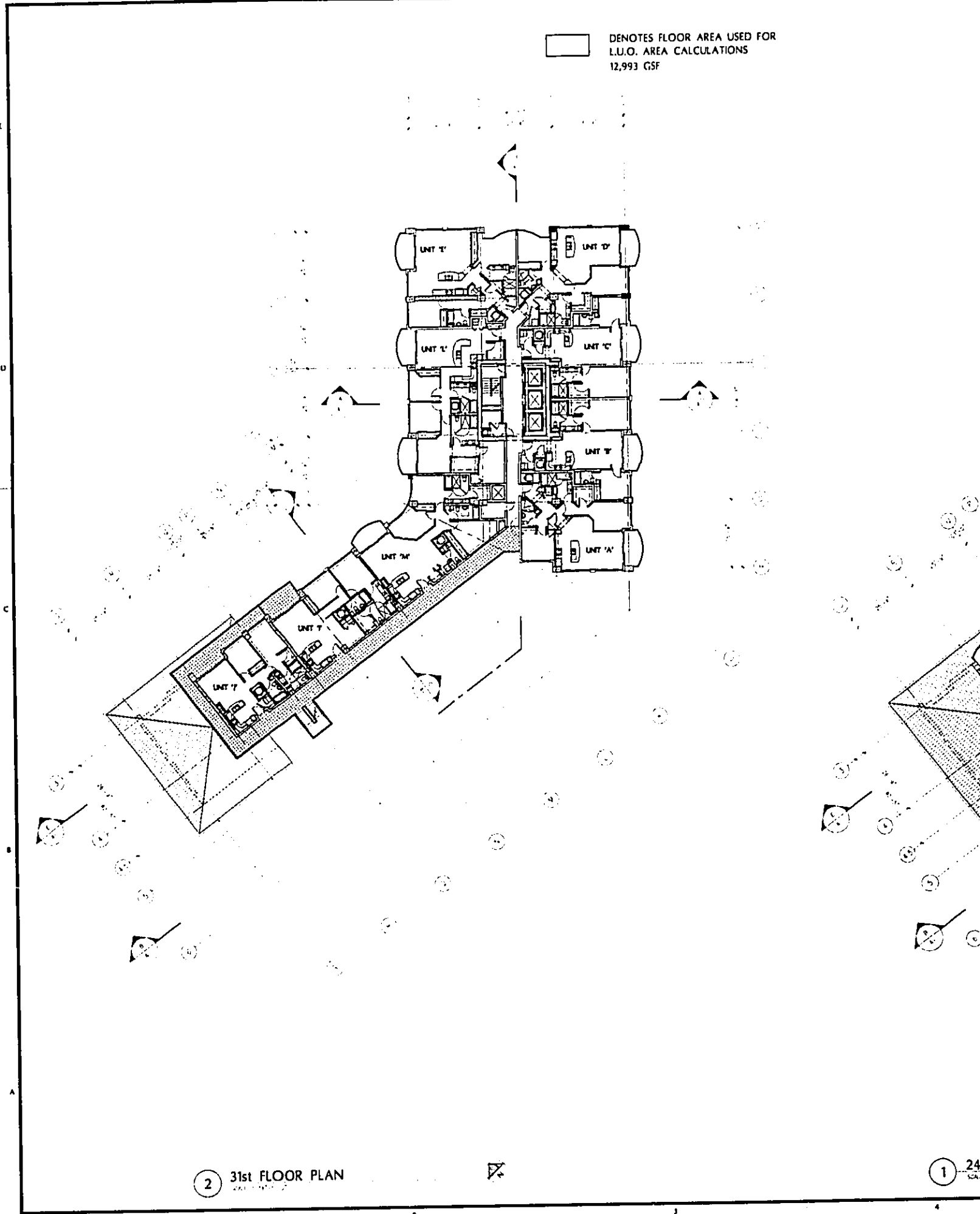
1 7th - 22nd FLOOR PLAN
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PROJECT NO. 0603
 SHEET NO. A-107
 DATE 22 DECEMBER 2006


A-107

01 Sheets
 01 of 01

DENOTES FLOOR AREA USED FOR
L.U.O. AREA CALCULATIONS
12,993 GSF



2 31st FLOOR PLAN

 DENOTES FLOOR AREA USED FOR L.U.O. AREA CALCULATIONS
 12,993 GSF



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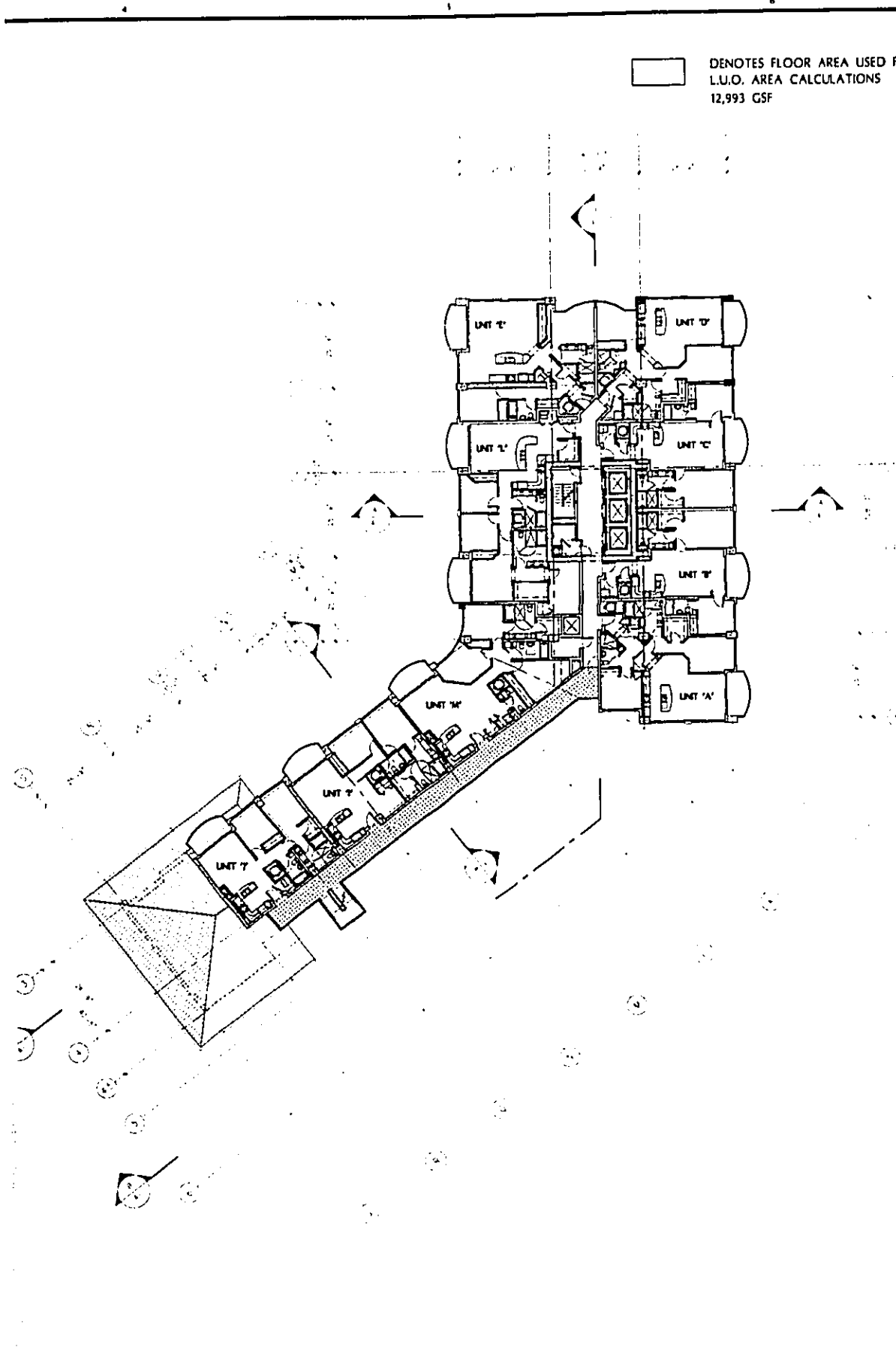
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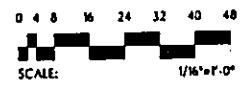
24th - 30th
 FLOOR PLAN

31st FLOOR PLAN



 **24th - 30th FLOOR PLAN**
SCALE: 1/16"=1'-0"

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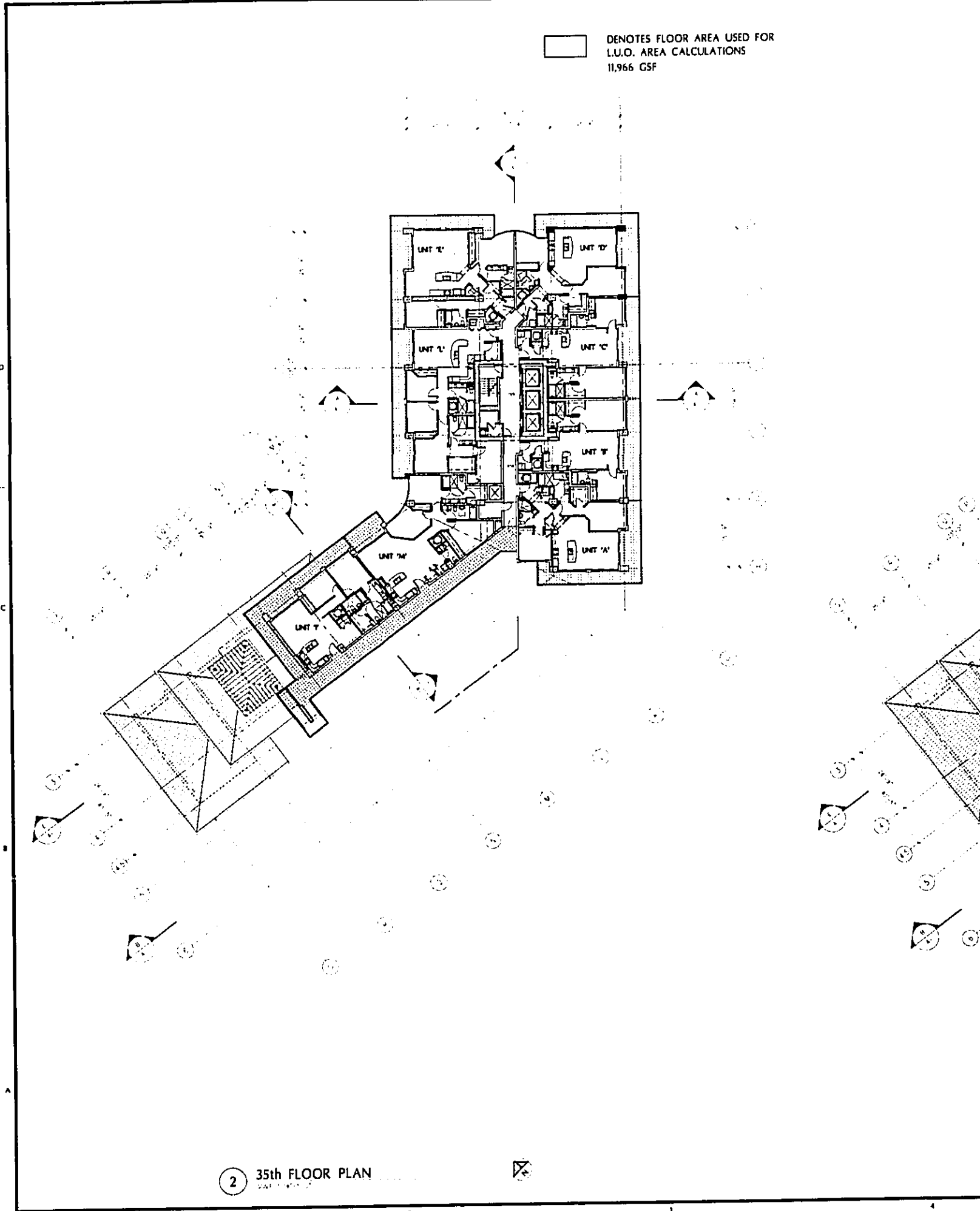


PROJECT NO.	1001
DRAWING NO.	A-108
DATE	24 DECEMBER 2005
DESIGNED BY	
CHECKED BY	

A-108

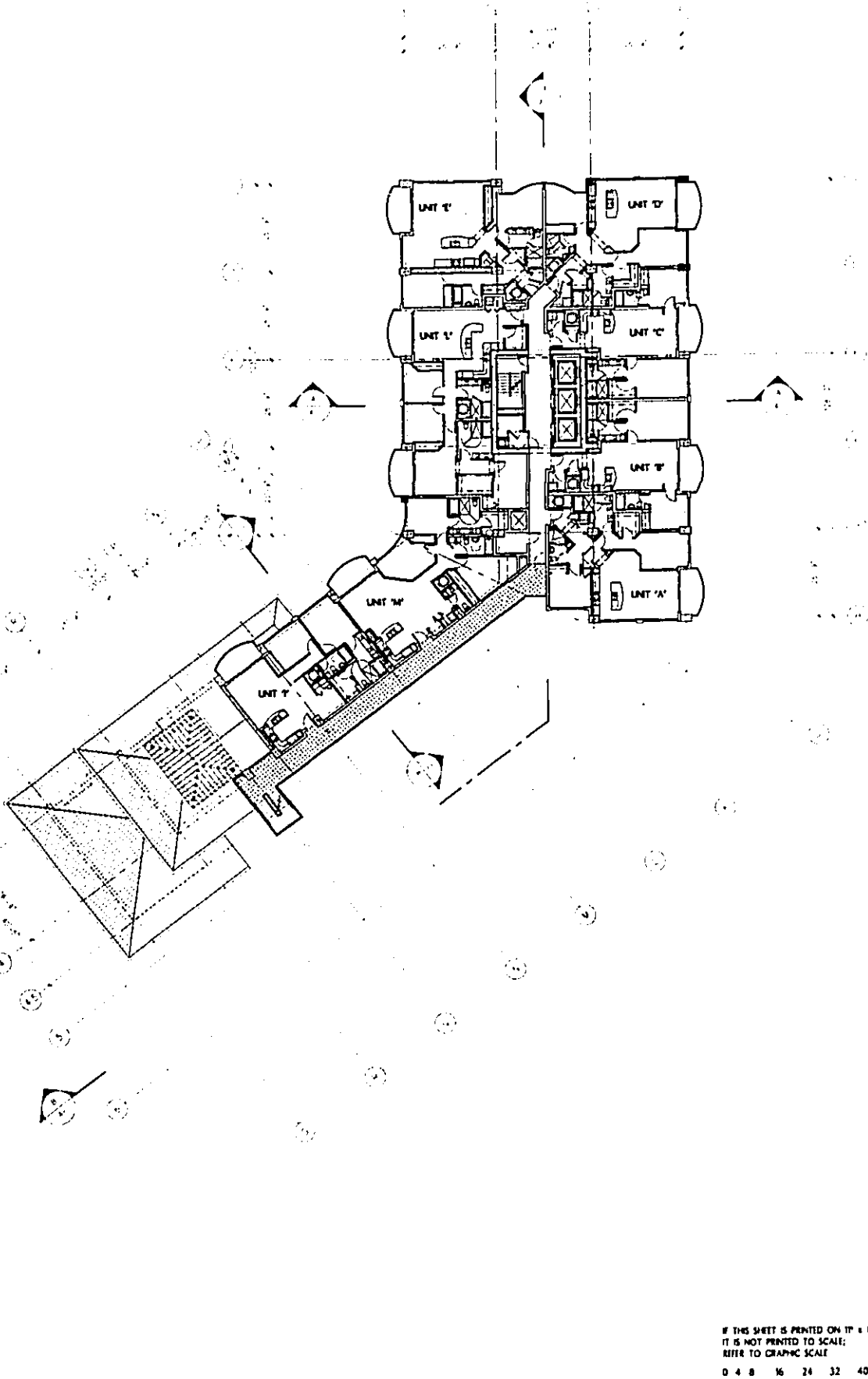
of _____ Sheets
 Sheet of _____

□ DENOTES FLOOR AREA USED FOR
L.U.O. AREA CALCULATIONS
11,966 GSF



2 35th FLOOR PLAN

 DENOTES FLOOR AREA USED FOR L.U.O. AREA CALCULATIONS
 11,966 GSF



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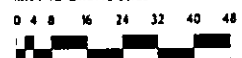
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32nd - 34th
 FLOOR PLAN
 35th FLOOR PLAN

 32nd - 34th FLOOR PLAN
DATE: 12/10/06

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 DATE 10 DECEMBER 2006
 CHECKED BY

A-109

of Sheets
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DENOTES FLOOR AREA USED FOR
L.U.O. AREA CALCULATIONS
815 X 2 LEVELS = 1,630 GSF



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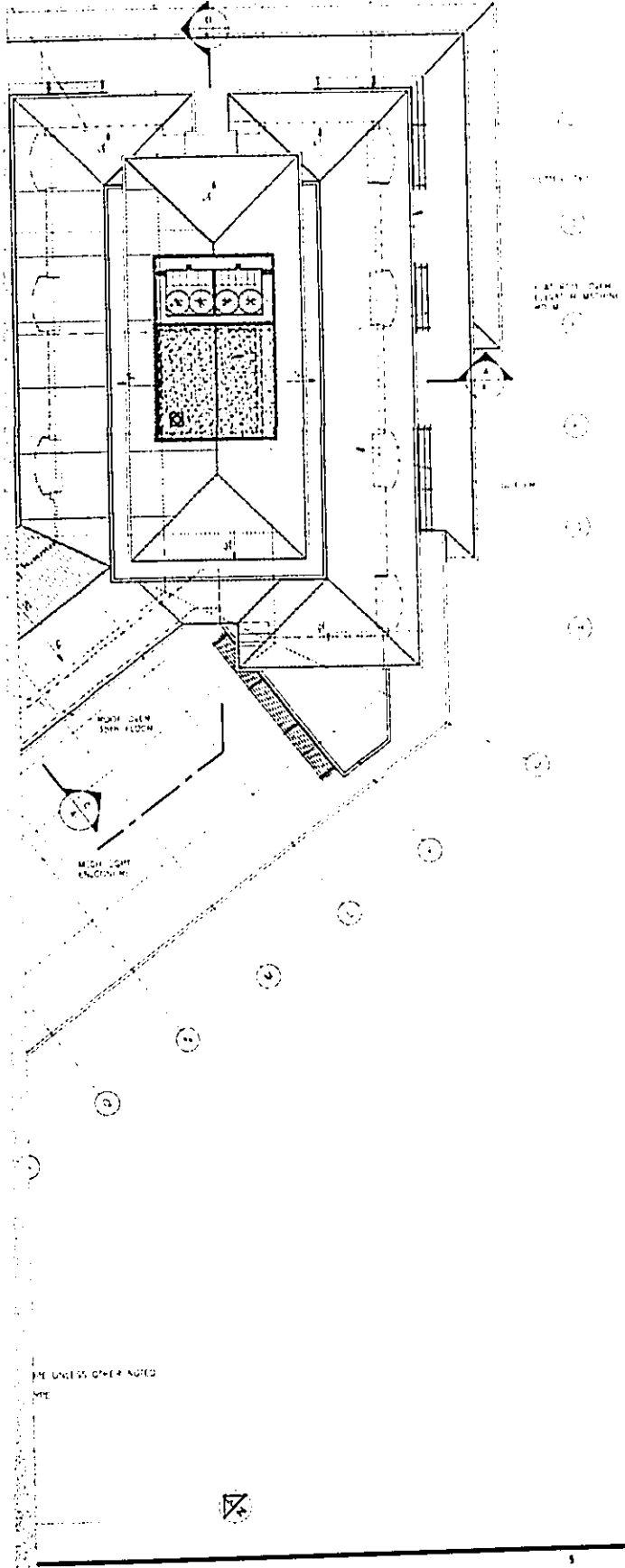
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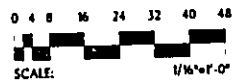
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ROOF PLAN



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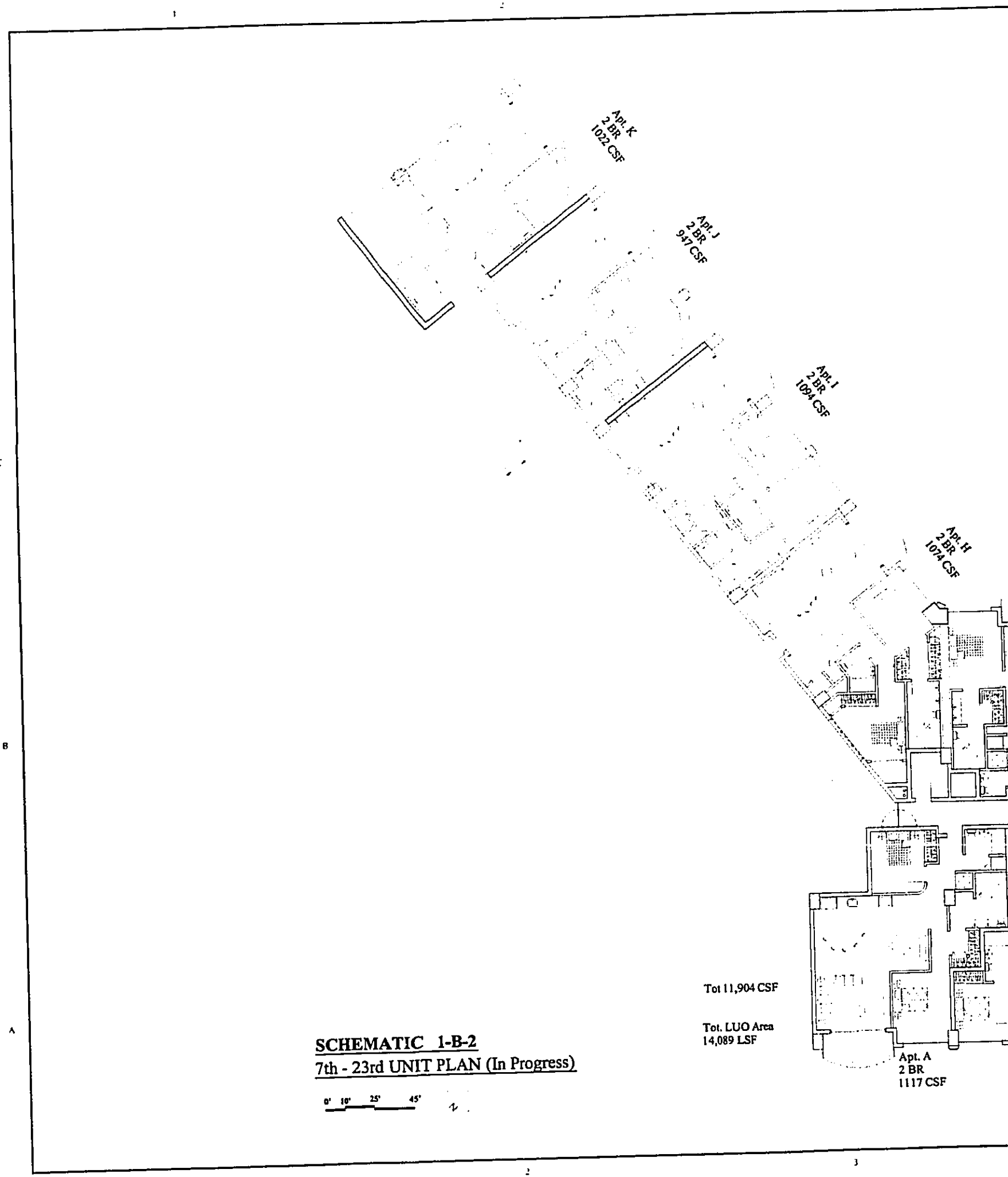


PROJECT NO. 2643
DRAWING FILE A-109
DRAWN BY JHT
DATE 27 OCTOBER 2006
DRAWING NO.

A-110

Sheet A-110

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SCHEMATIC 1-B-2
7th - 23rd UNIT PLAN (In Progress)

Tot 11,904 CSF

Tot. LUO Area
14,089 LSF

0' 10' 25' 45'

Apt. A
2 BR
1117 CSF



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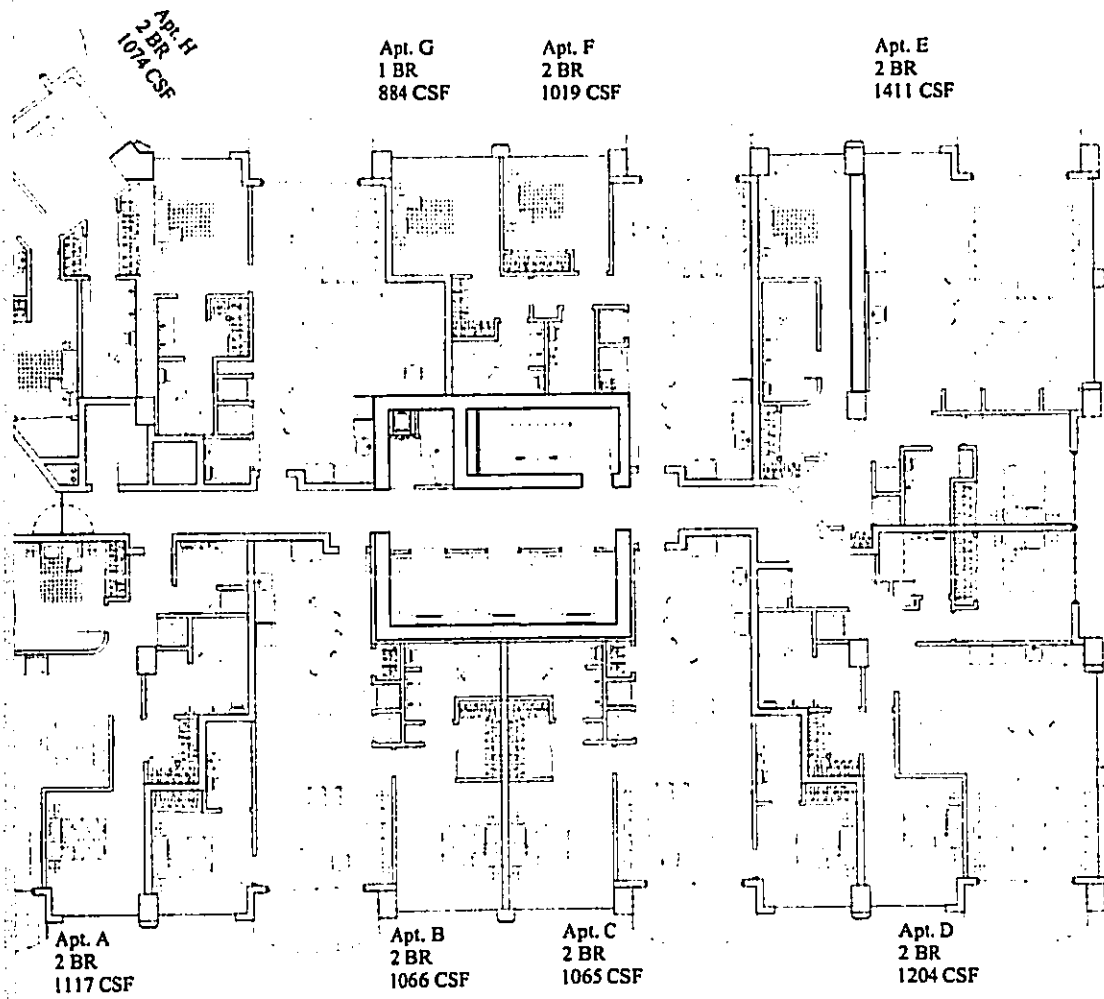
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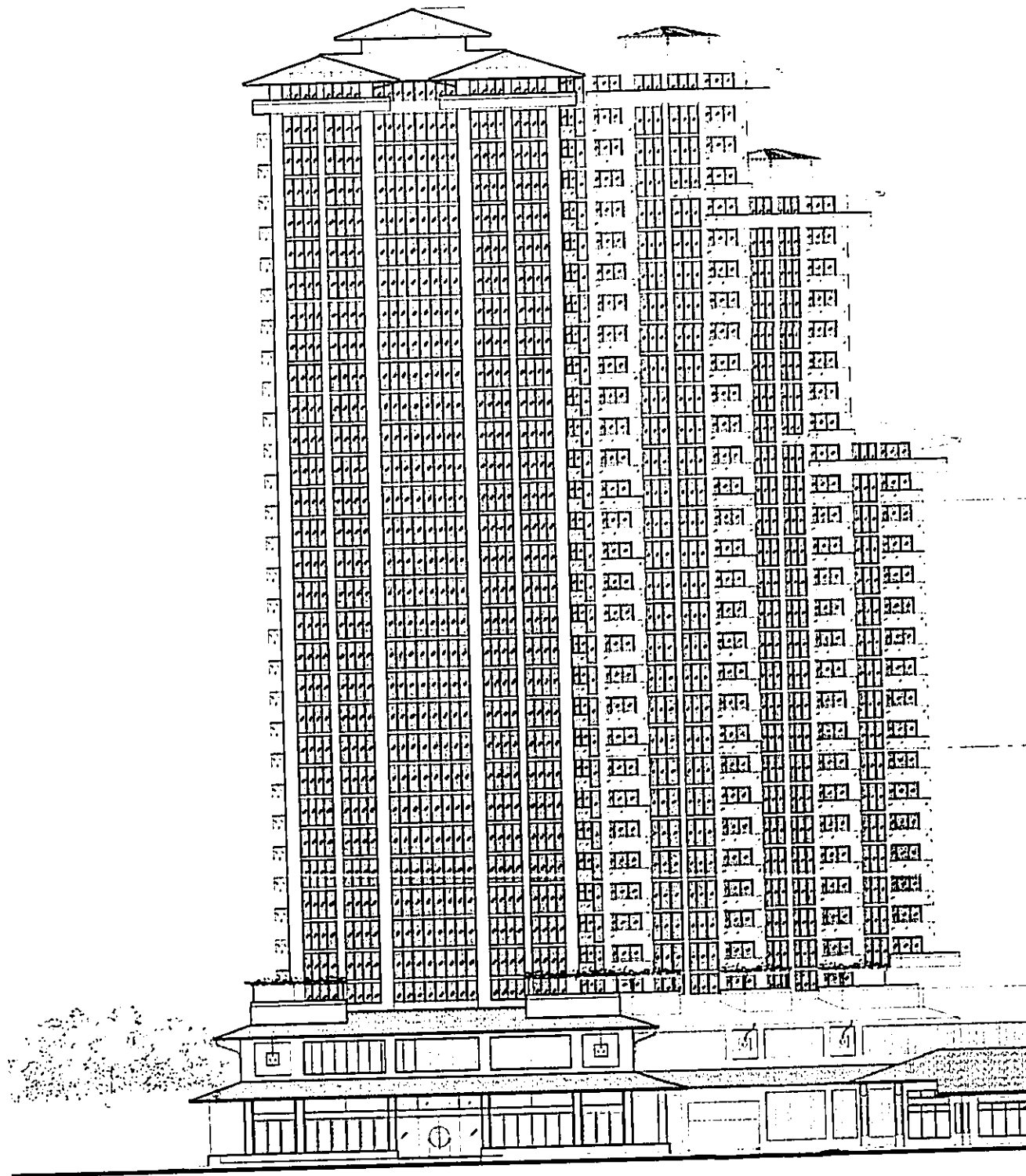
7th- 23rd

FLOORS PLAN

3/32"=1'-0"



A-112



1 KALAKAUA AVENUE ELEVATION



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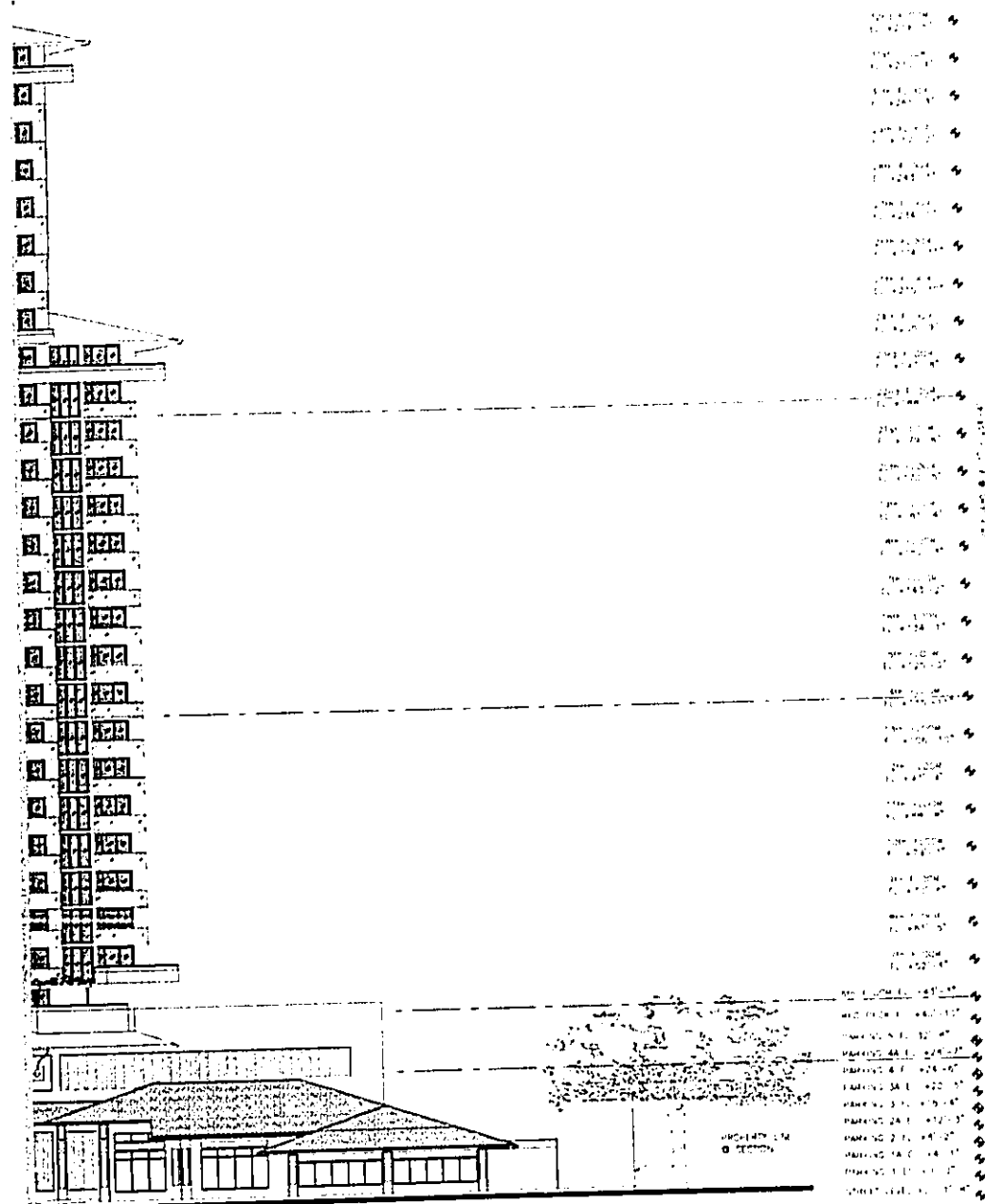
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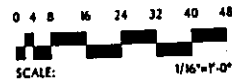
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EXTERIOR
ELEVATION



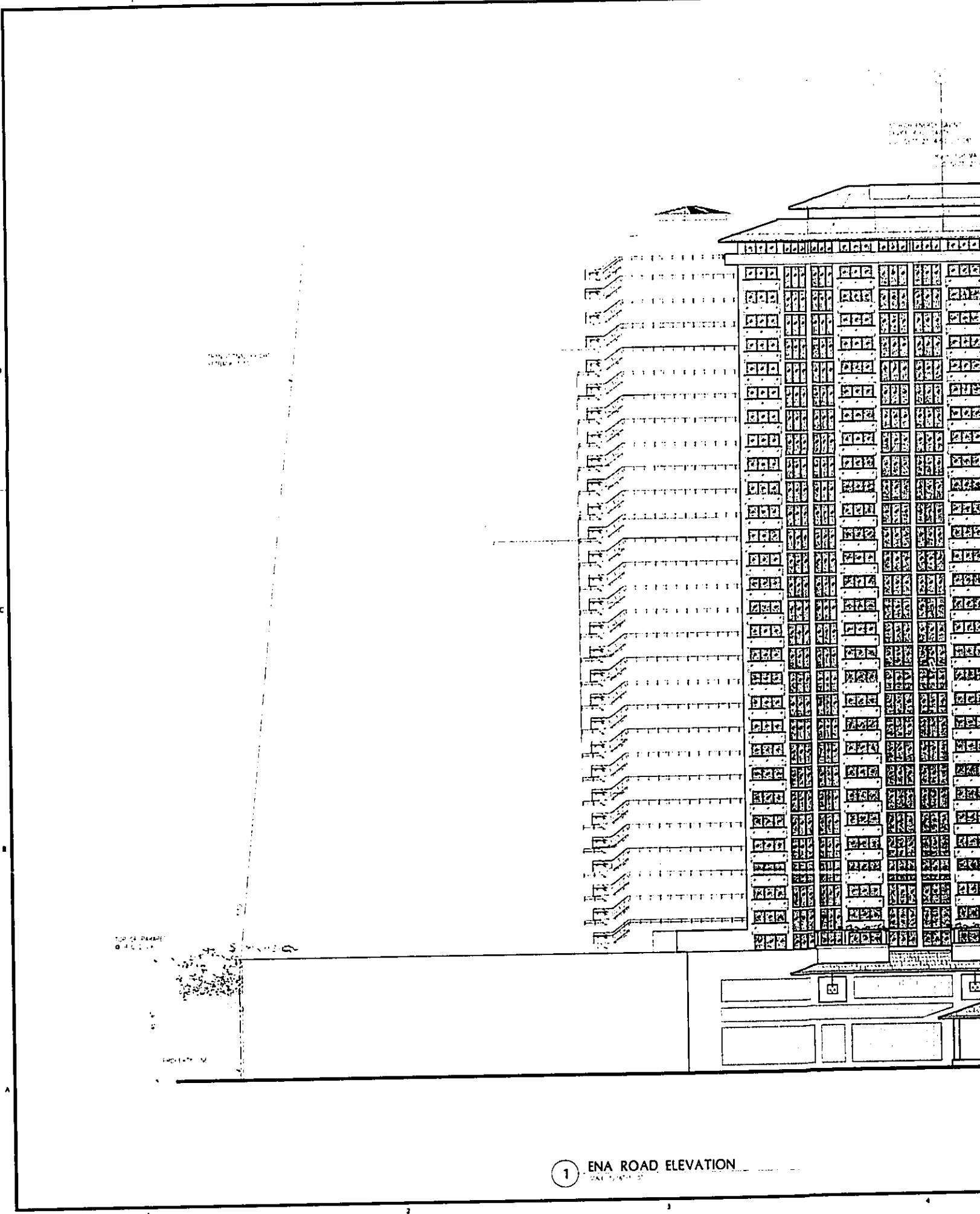
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DATE 22 DECEMBER 2006
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1 of 1



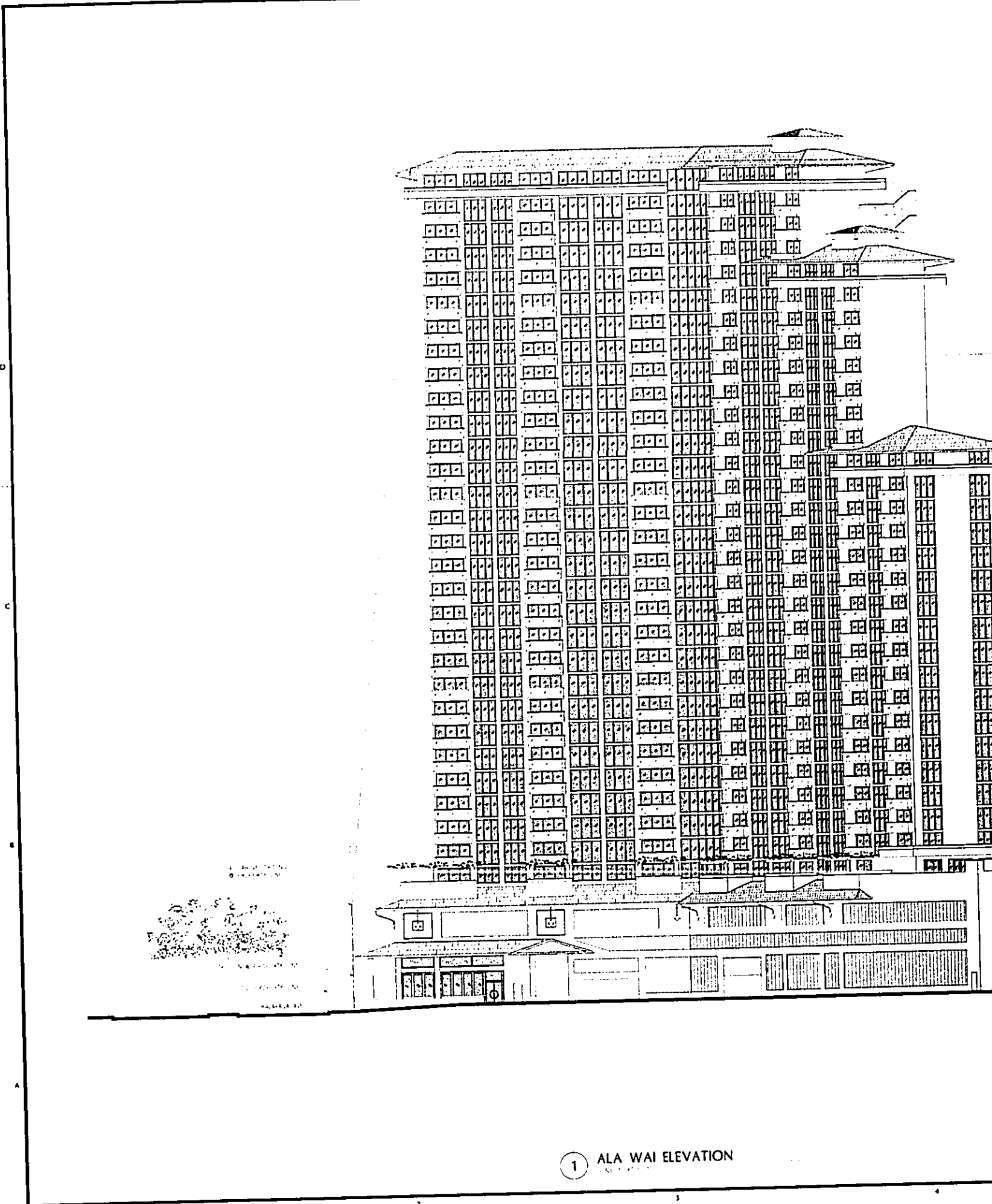
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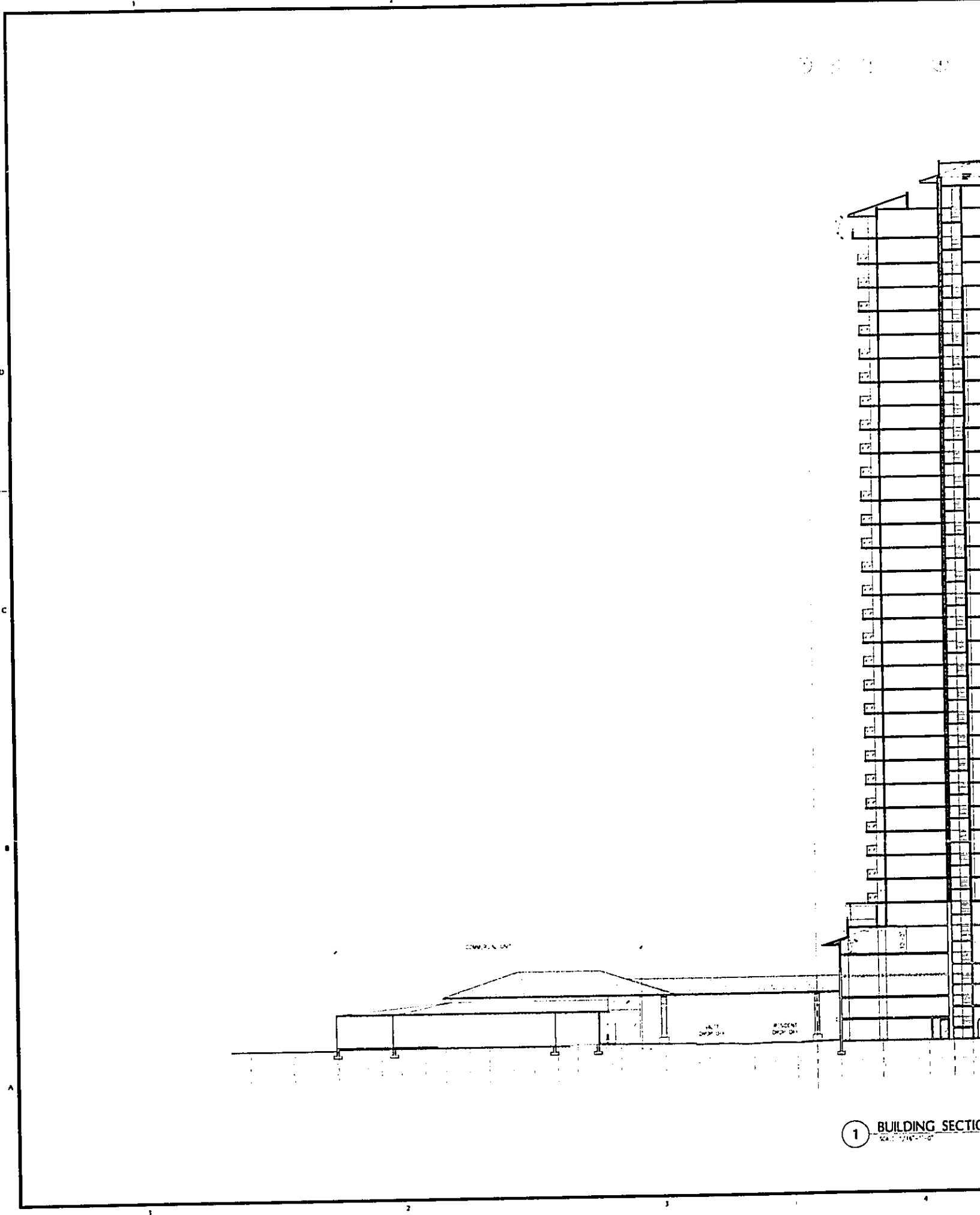
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1 ENA ROAD ELEVATION

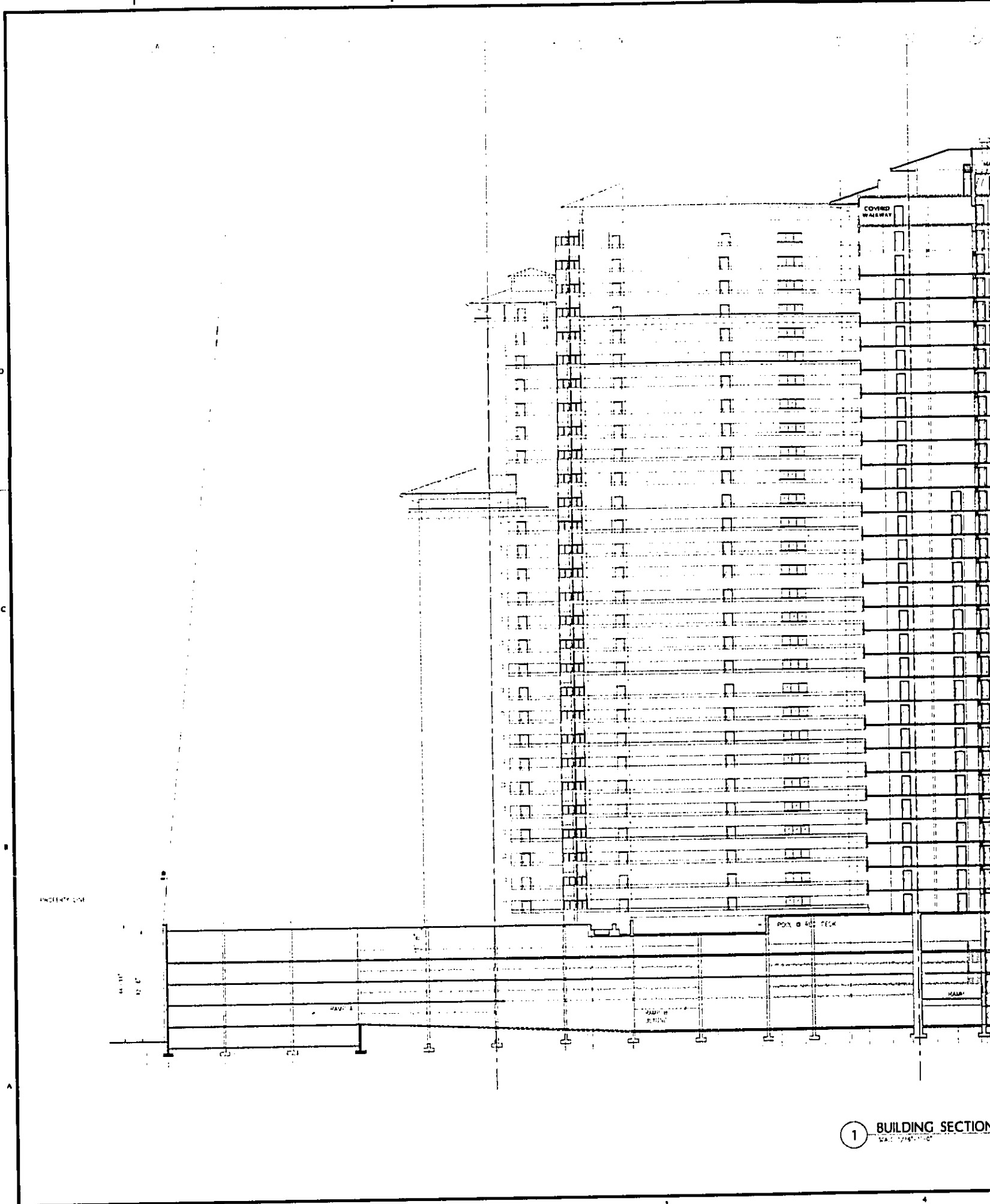


1 ALA WAI ELEVATION

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1 BUILDING SECTION
SCALE: 1/8" = 1'-0"





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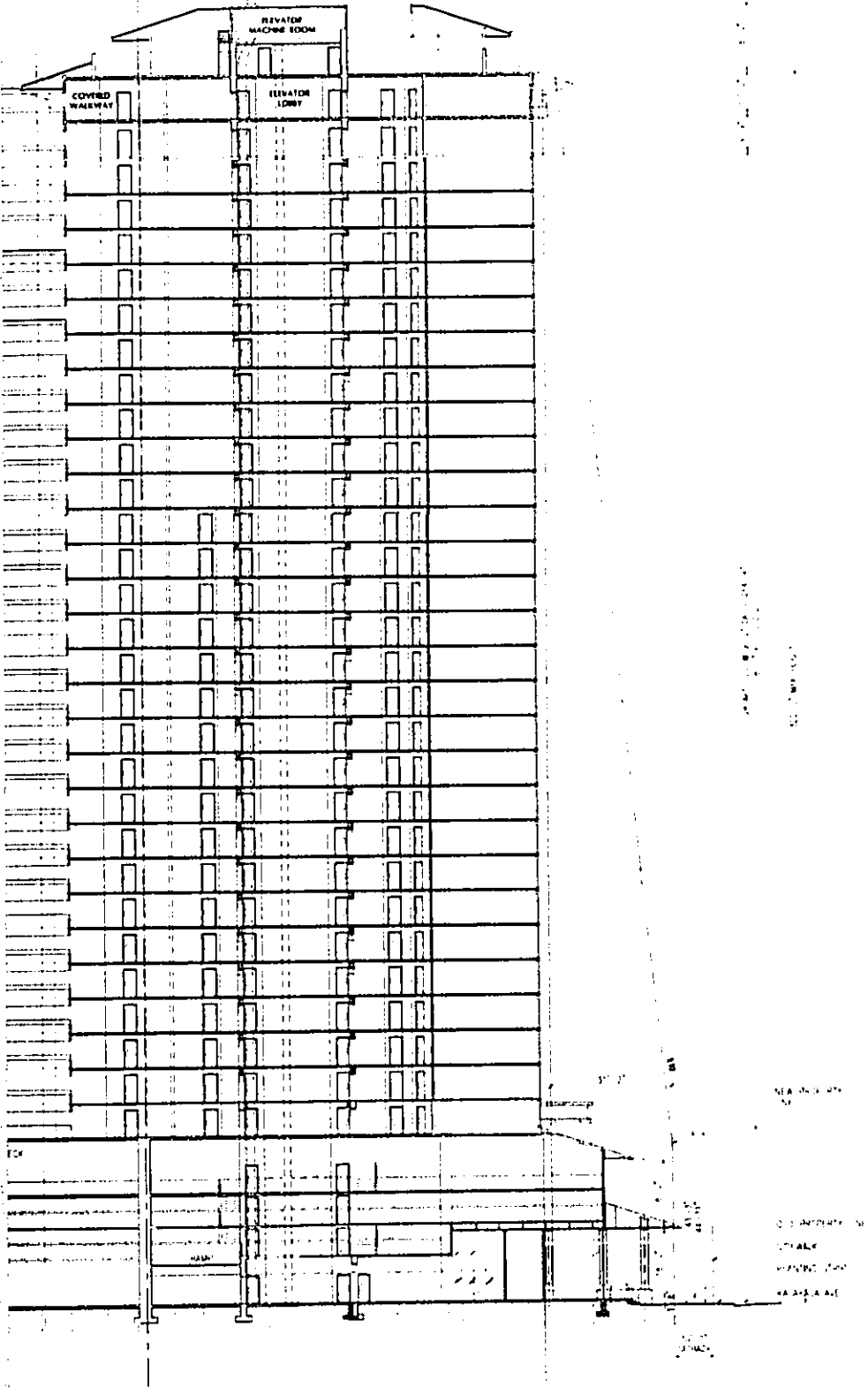
1001 BISHOP STREET, SUITE 500
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**ALLURE WAIKIKI
CONDOMINIUM**
OAHU, HAWAII

FOR
FIFIELD
COMPANIES

**WAIKIKI
SPECIAL DISTRICT
SUBMITTAL**

**BUILDING SECTION
B-B**



1 BUILDING SECTION B-B

IF THIS SHEET IS PRINTED ON 11" x 17",
IT IS NOT PRINTED TO SCALE,
REFER TO GRAPHIC SCALE

PROJECT NO. 16-83
DATE: 10/15/06
DRAWN BY: JH
CHECKED BY: JH
DATE: 10/15/06
DRAWING NO.

A-301

1 of 1 sheets

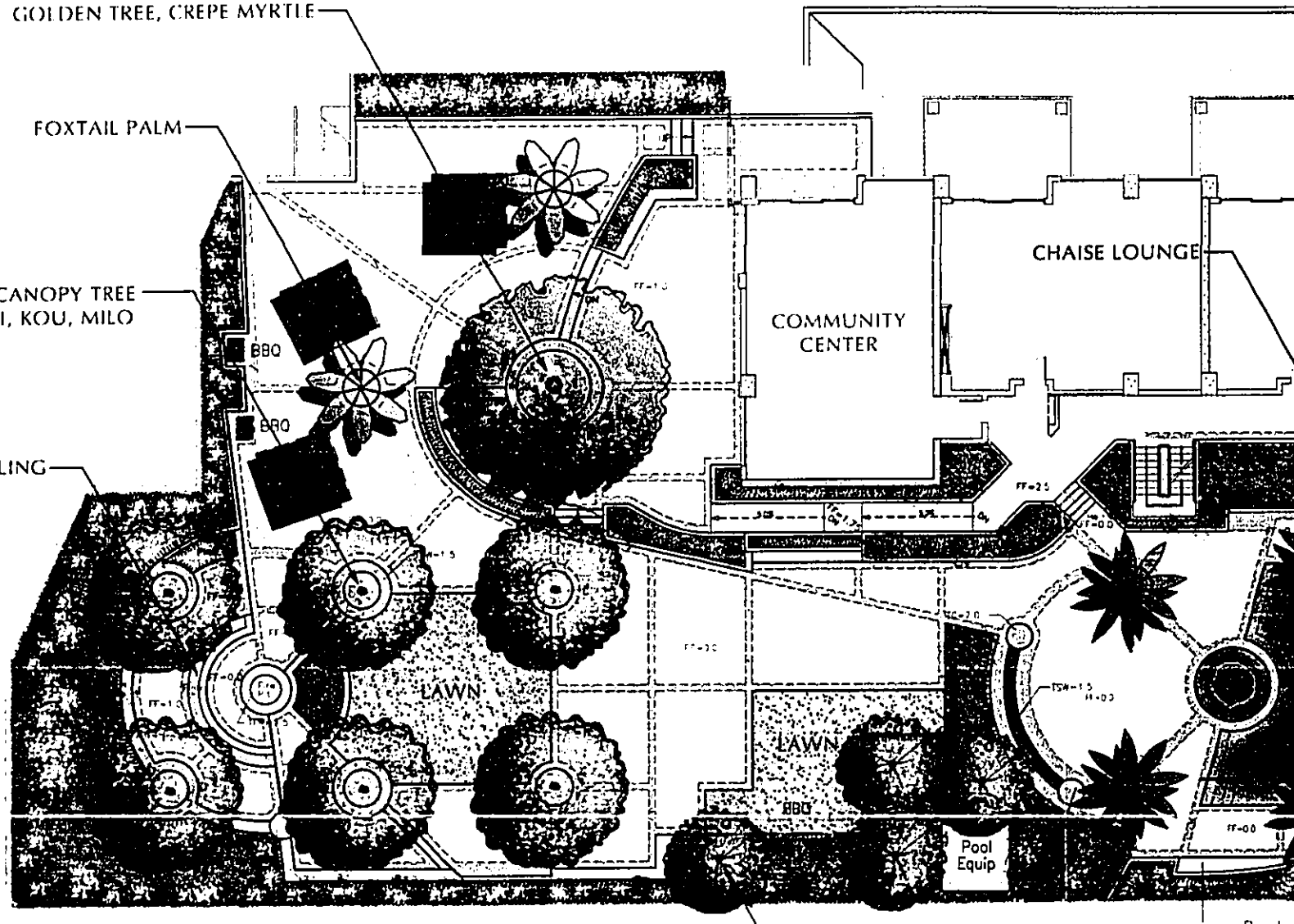


FLOWERING SPECIMEN TREE
EG. HONG KONG ORCHID,
GOLDEN TREE, CREPE MYRTLE

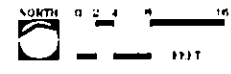
FOXTAIL PALM

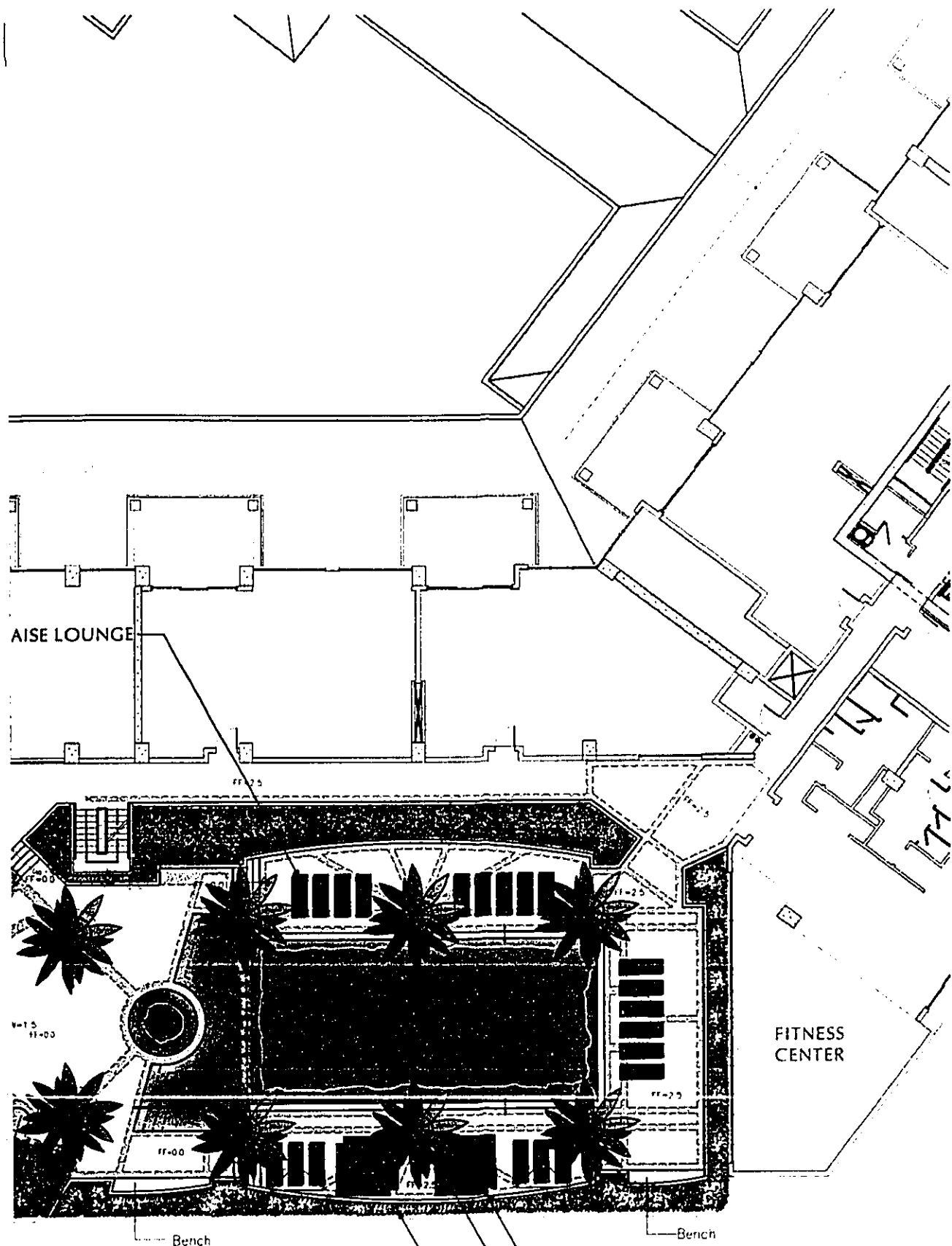
MEDIUM CANOPY TREE
EG. KUKUI, KOU, MILO

STORY TELLING
AREA

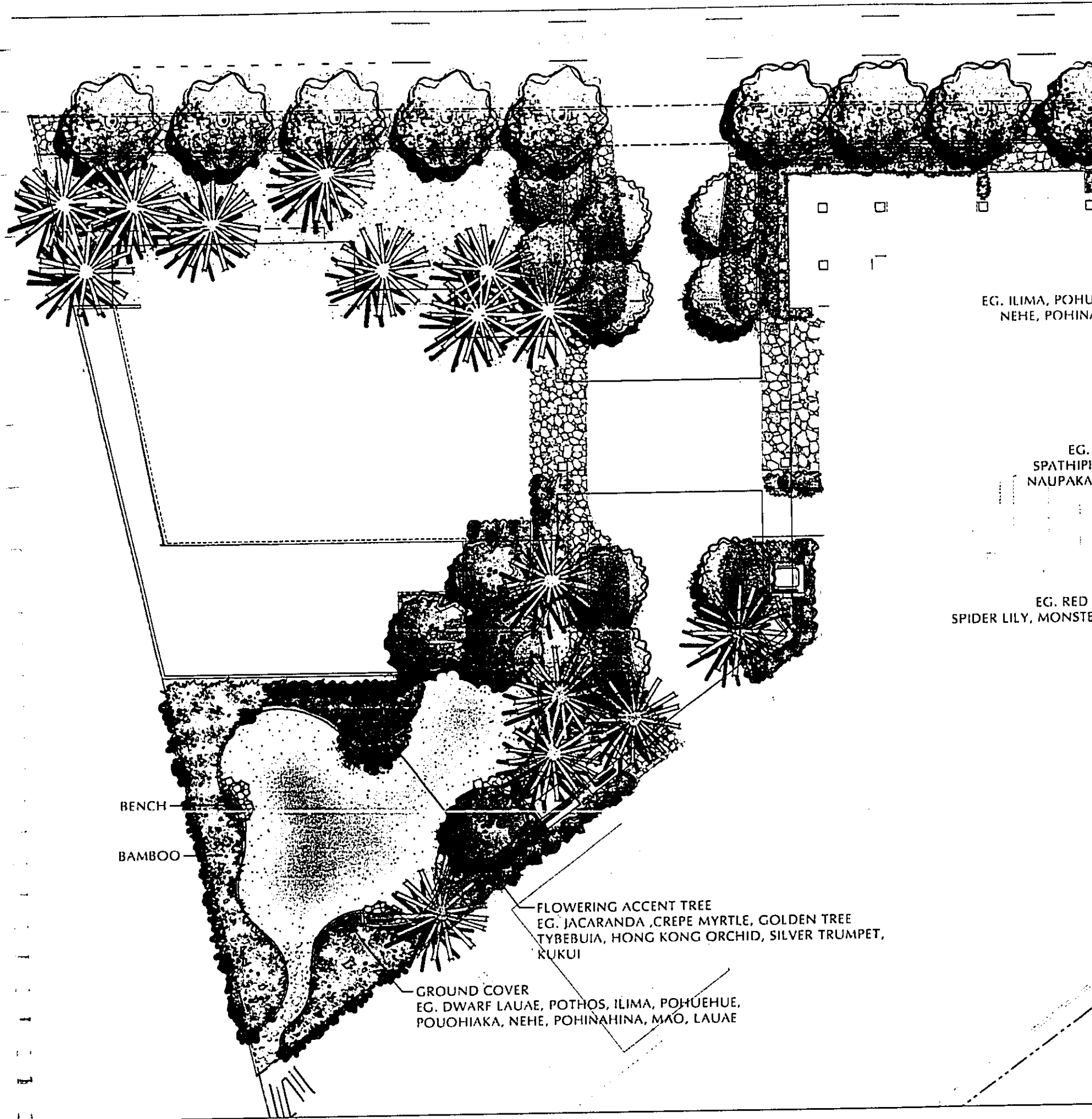


SMALL CANOPY TREE
EG. HONG KONG ORCHID KOU, MILO





EG. POTHOS, LANTANA, BOUGAINVILLEA,
HIBISCUS, TIARE, LAUAE, ILIMA, POHUEHUE,
PA'UOHI'AKA, NEHE, POHINAHINA, MA'O, NA'U



EG. ILIMA, POHUEHUE,
NEHE, POHINAHINA

EG. SPATHIPHILUM,
NAUPAKA

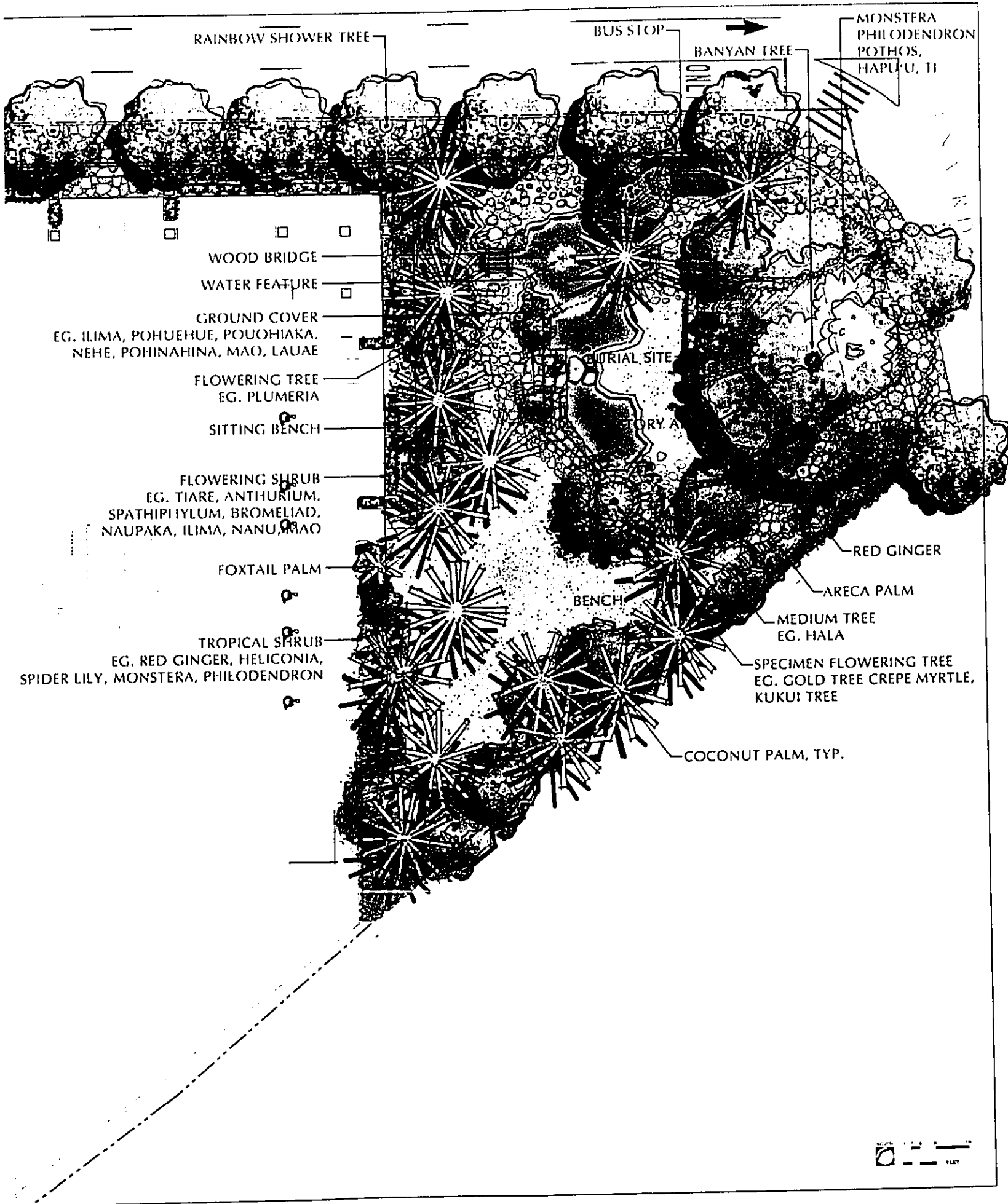
EG. RED CROCK
SPIDER LILY, MONSTERA

BENCH

BAMBOO

FLOWERING ACCENT TREE
EG. JACARANDA, CREPE MYRTLE, GOLDEN TREE
TYBEBUIA, HONG KONG ORCHID, SILVER TRUMPET,
RUKUI

GROUND COVER
EG. DWARF LAUAE, POTHOS, ILIMA, POHUEHUE,
POUOHIKA, NEHE, POHINAHINA, MAO, LAUAE



RAINBOW SHOWER TREE

BUS STOP

BANYAN TREE

MONSTERA
PHILODENDRON
POTHOS,
HAPU'U, TI

WOOD BRIDGE

WATER FEATURE

GROUND COVER
EG. ILIMA, POHUEHUE, POUOHIKA,
NEHE, POHINAHINA, MAO, LAUAE

FLOWERING TREE
EG. PLUMERIA

SITTING BENCH

FLOWERING SHRUB
EG. TIARE, ANTHURIUM,
SPATHIPHYLUM, BROMELIAD,
NAUPAKA, ILIMA, NANU, MAO

FOXTAIL PALM

TROPICAL SHRUB
EG. RED GINGER, HELICONIA,
SPIDER LILY, MONSTERA, PHILODENDRON

BURIAL SITE

DRY

BENCH

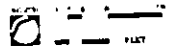
RED GINGER

ARECA PALM

MEDIUM TREE
EG. HALA

SPECIMEN FLOWERING TREE
EG. GOLD TREE, CREPE MYRTLE,
KUKUI TREE

COCONUT PALM, TYP.

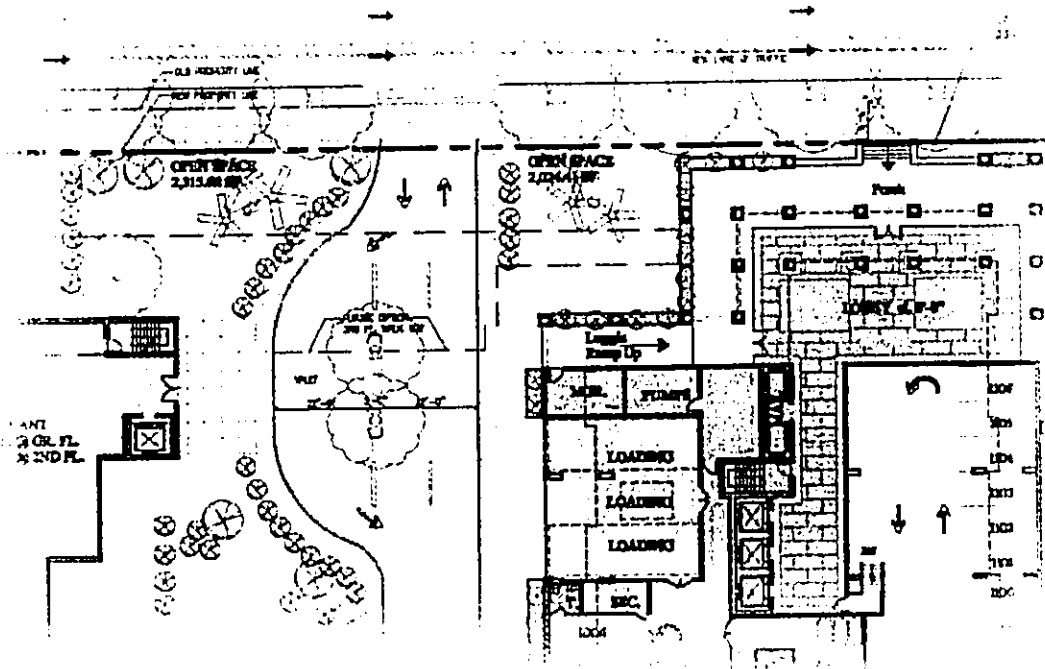


APPENDIX III

TRAFFIC IMPACT REPORT AND PEDESTRIAN TRAFFIC

Traffic Impact Report

Waikiki Allure Condominium



Prepared for:
Fifield Companies

Prepared by:
Wilson Okamoto Corporation

June 2006

TRAFFIC IMPACT REPORT
FOR THE
WAIKIKI ALLURE CONDOMINIUM

Prepared for:

Fifield Companies
2010 Main Street, Suite 610
Irvine, CA 92614

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #7558-01

June 2006

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the development of Waikiki Allure Condominium in Waikiki on the island of Oahu. The project site for the proposed residential condominiums is located at the southwest corner of the intersection of Kalakaua Avenue and Ena Road.

B. Scope of Study

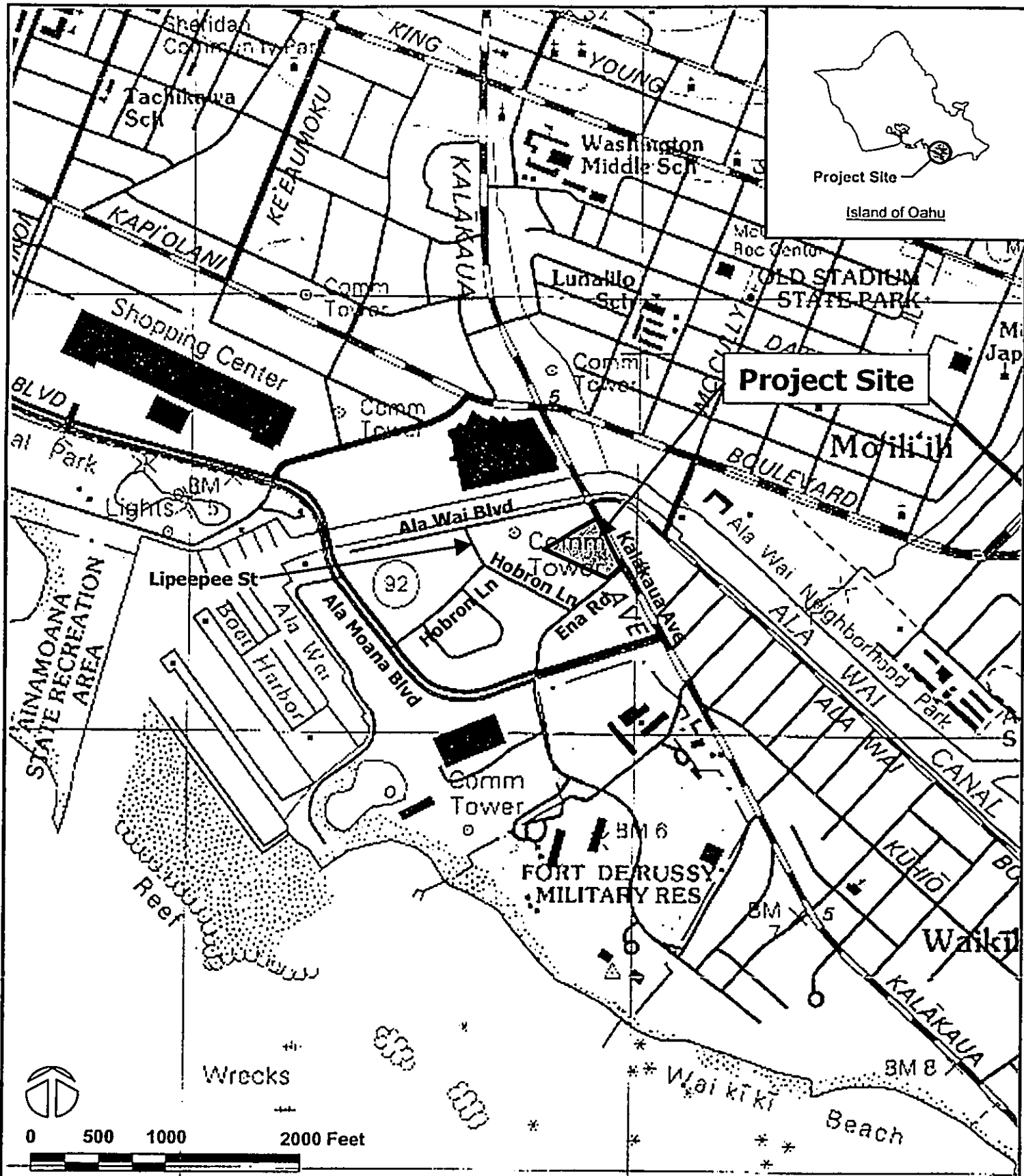
This report presents the findings and conclusions of the traffic study, the scope of which includes:


1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site is located along Kalakaua Avenue in Waikiki on the island of Oahu (see Figure 1) and is further identified as Tax Map Keys: 2-6-13: 01, 03, 04, 07, 08, 09, 11, 12, Pau Lane, and Makaoe Lane. The existing parcel is bound by Kalakaua Avenue to the north and Ena Road to the east, and is surrounded by high-rise condominiums to the south and west. Primary access to the project site would be via new driveways off of Kalakaua Avenue and Ena Lane.




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WAIKIKI ALLURE CONDOMINIUM
Location Map and Vicinity Map

FIGURE
1

B. Project Characteristics

The Waikiki Allure Condominium will be located on an approximately 99,741 square foot lot located at the southwest corner of the intersection of Kalakaua Avenue and Ena Road. The proposed project is expected to be completed and occupied by the Year 2009 and will include approximately 315 residential condominium units and an approximately 12,000 square foot restaurant. Access to the project site will be provided via a new two-way driveway off Kalakaua Avenue and a new exit only driveway off Ena Road. Figure 2 shows the project site plan.

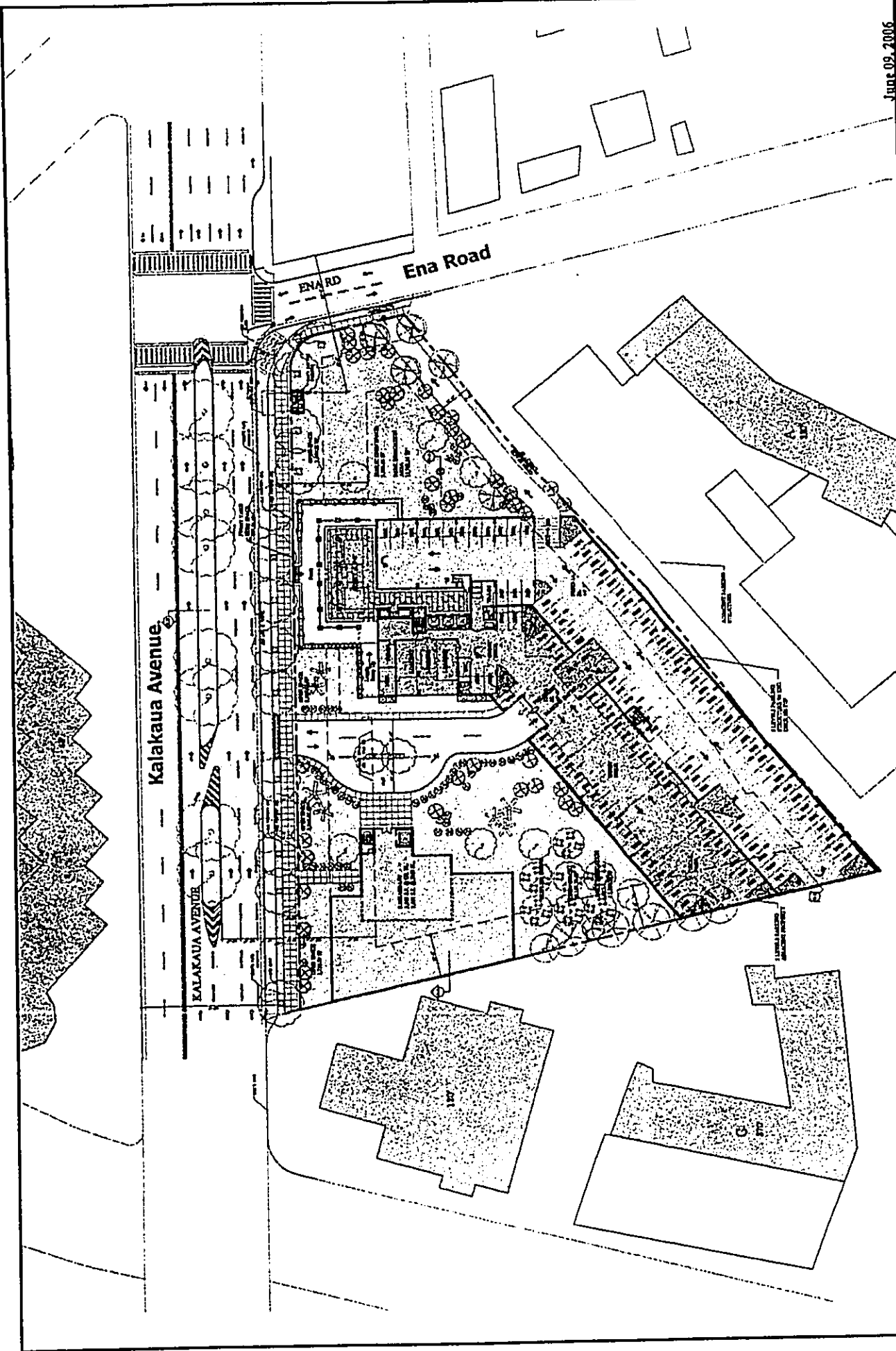
III. EXISTING TRAFFIC CONDITIONS

A. General

The proposed project site is located along Kalakaua Avenue which originates as a two-way roadway west of Waikiki and transitions to a one-way (eastbound) roadway in Waikiki at Kuhio Avenue. With Ala Wai Boulevard, Kalakaua Avenue forms a couplet system that provides access through most of Waikiki. In recent years, traffic volumes along these major arterials within the project vicinity have steadily increased due to growth in the tourism industry.

B. Area Roadway System

Northwest of the project site, Kalakaua Avenue intersects Ala Wai Boulevard. At this signalized intersection, the eastbound approach of Kalakaua Avenue has three lanes that serve through and right-turn traffic movements while the westbound approach has two lanes that serve only through traffic movements. Ala Wai Boulevard originates at Kapahulu Avenue as a predominantly one-way (westbound) roadway and transitions to a two-way roadway south of Kalakaua Avenue until its termination at a dead end just north of Ala Moana Boulevard. At the intersection with Kalakaua Avenue, the northbound approach of Ala Wai Boulevard has one lane that serves only right-turn traffic movements while the southbound approach has an exclusive left-turn lane, a shared through and right-turn lane, and an exclusive right-turn lane.



June 09, 2006

WAIKIKI ALLURE CONDOMINIUM

PROJECT SITE PLAN



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FIGURE
2

Southeast of the intersection with Ala Wai Boulevard, Kalakaua Avenue intersects Ena Road at the northeast corner of the project site. At this signalized T-intersection, the eastbound approach of Kalakaua Avenue has three lanes that serve through and right-turn traffic movements while the westbound approach has two lanes that serve through traffic movements only. Ena Road is a two-way, two-lane roadway that serves as a connector roadway between Kalakaua Avenue and Ala Moana Boulevard. At the intersection with Kalakaua Avenue, the Ena Road approach has one lane that serves left-turn and right-turn traffic movements.

South of the intersection with Kalakaua Avenue, Ena Road intersects Hobron Lane. At this unsignalized T-intersection, the northbound approach of Ena Road has one lane that serves left-turn and through traffic movements while the southbound approach has one lane that serves through and right-turn traffic movements. Hobron Lane is a predominantly two-way, two-lane roadway that serves as a connector roadway between Ena Road and Ala Moana Boulevard. At the intersection with Ena Road, the Hobron Lane approach has one lane that serves left-turn and right-turn traffic movements.

Southwest of the intersection with Ena Road, Hobron Lane intersects Lipeepee Street and the driveway for an adjacent apartment complex. At this unsignalized intersection, the northbound and westbound approaches of Hobron Lane have one lane that serves all traffic movements. Lipeepee Street is a short two-lane, two-way roadway serves as a connector roadway between Ala Wai Boulevard and Hobron Lane. At the intersection with Hobron Lane, Lipeepee Street has one eastbound lane that serves all traffic movements. The southbound approach of the intersection is comprised of the driveway for an adjacent apartment complex and has one lane that serves all traffic movements.

West of the intersection with Hobron Lane, Lipeepee Street intersects Ala Wai Boulevard. At this unsignalized T-intersection, Lipeepee Street has one lane that serves left-turn and right-turn traffic movements. The northbound approach of Ala Wai Boulevard has one lane that serves through and right-turn traffic movements

while the southbound approach has one lane that serves left-turn and through traffic movements.

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

A field investigation was conducted on May 4-6, 2006 and consisted of manual turning movement count surveys during the morning peak hours between 7:00 AM and 9:00 AM, and the afternoon peak hours between 3:00 PM and 6:00 PM at the following intersections:

- Kalakaua Avenue and Ala Wai Boulevard
- Kalakaua Avenue and Ena Road
- Ena Road and Hobron Lane
- Hobron Lane and Lipeepee Street
- Lipeepee Street and Ala Wai Boulevard

Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road’s carrying capacity. The LOS definitions are included in Appendix B.

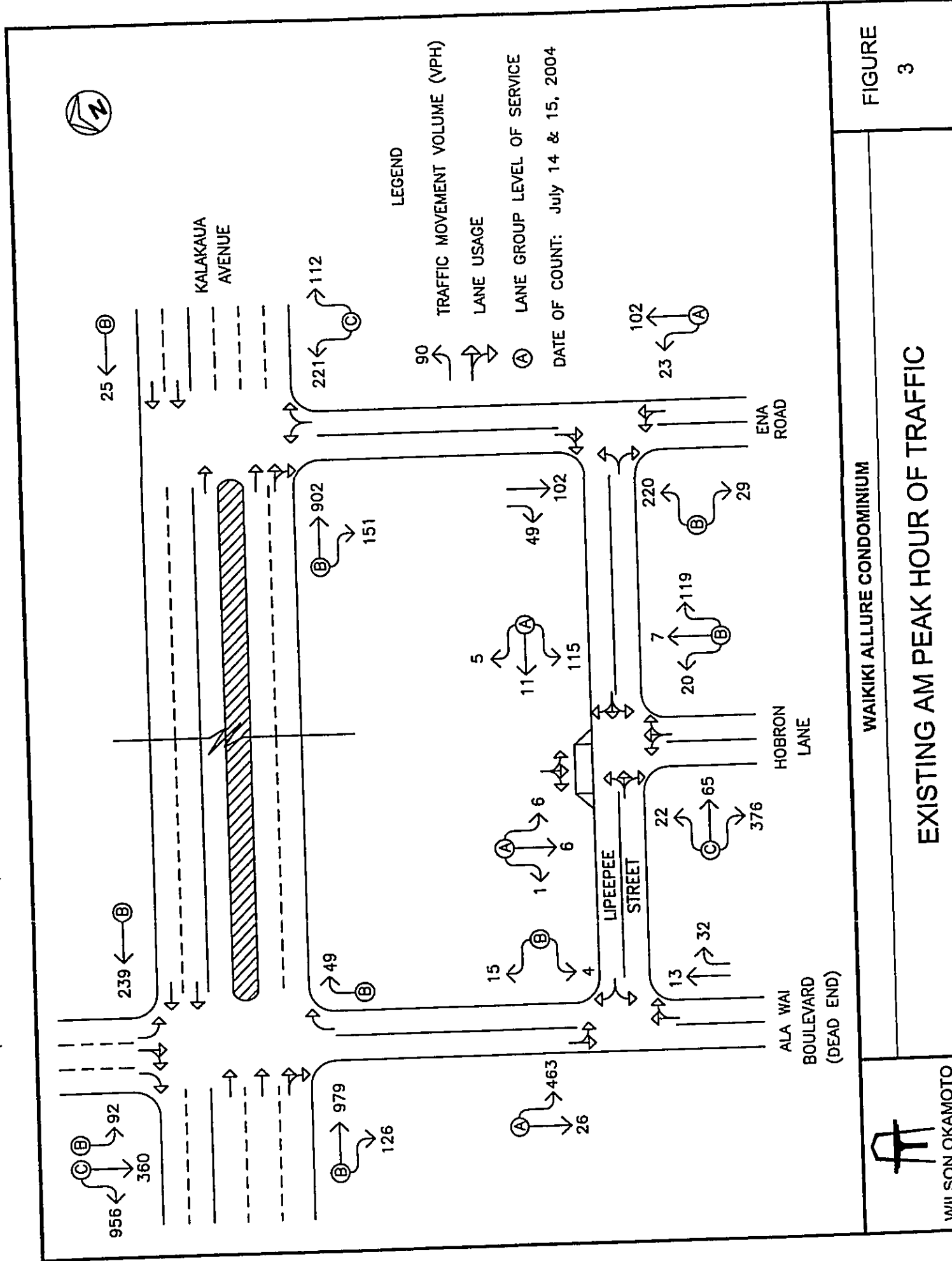
2. Existing Peak Hour Traffic

a. General

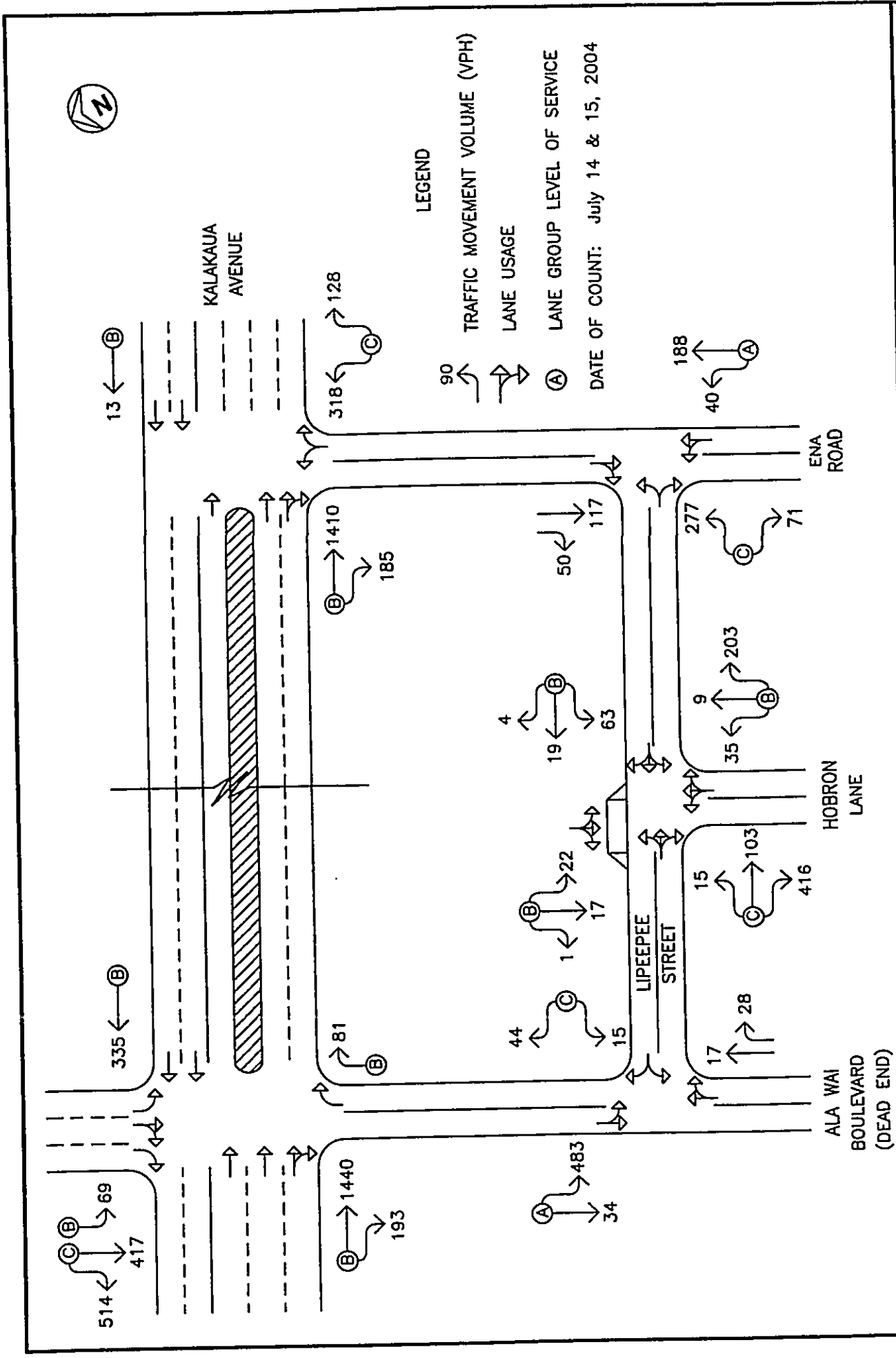
Figures 3 and 4 show the existing AM and PM peak hour traffic volumes and operating traffic conditions. The AM peak hour of traffic generally occurs between 7:15 AM and 8:15 AM in the vicinity of the proposed project. In the afternoon, the PM peak hour of traffic generally occurs between the hours of 4:30 PM and 5:30 PM. The analysis is based on these peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

b. Kalakaua Avenue and Ala Wai Boulevard

At the intersection with Ala Wai Boulevard, Kalakaua Avenue carries 1,105 vehicles eastbound and 239 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, traffic volumes are significantly higher with 1,633 vehicles traveling eastbound and 335 vehicles traveling westbound. The critical movement of the Kalakaua Avenue approaches is the eastbound through and right-turn traffic movement which operates at LOS “B” during both peak periods. Traffic queues would periodically form on the Kalakaua Avenue approaches with the most significant queuing occurring on the eastbound approach during both peak periods. Traffic queues on this approach were occasionally observed extending through the upstream intersection with Kalakaua Avenue. However, most of



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



WAIKIKI ALLURE CONDOMINIUM
EXISTING PM PEAK HOUR OF TRAFFIC

FIGURE 4



these queues would clear the intersection after each traffic signal cycle change.

The Ala Wai Boulevard approaches carry 49 vehicles northbound and 1,408 vehicles southbound during the AM peak hour of traffic. During the PM peak hour of traffic, the overall traffic volume is slightly lower with 81 vehicles traveling northbound and 1,000 vehicles traveling southbound. The critical traffic movement of the Ala Wai Boulevard approaches is the southbound through and right-turn traffic movement that operates at LOS "C" during both peak periods. Traffic queues would periodically form on the Ala Wai Boulevard approaches, but most of these queues would clear the intersection after each traffic signal cycle change.

c. Kalakaua Avenue and Ena Road

At the intersection with Ena Road, Kalakaua Avenue carries 1,053 vehicles eastbound and 25 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, traffic volumes are significantly higher with 1,595 vehicles traveling eastbound and 13 vehicles traveling westbound. The critical movement of the Kalakaua Avenue approaches is the eastbound through and right-turn traffic movement which operates at LOS "B" during both peak periods. Traffic queues would periodically form on the Kalakaua Avenue approaches, but most of these queues would clear the intersection after each traffic signal cycle change.

The Ena Road approach carries 333 vehicles northbound during the AM peak hour of traffic. During the PM peak hour of traffic, traffic volumes are higher with 446 vehicles traveling northbound. The Ena Road approach operates at LOS "C" during both peak periods. Traffic queues would periodically form on the Ena Road approach with the most significant queuing occurring during the PM peak period. These queues occasionally extended beyond the upstream

intersection with Hobron lane during this time period, but most queues would clear the intersection after each traffic signal cycle change.

d. Ena Road and Hobron Lane

At the intersection with Hobron Lane, Ena Road carries 125 vehicles northbound and 151 vehicles southbound during the AM peak hour of traffic. During the PM peak hour, traffic volumes are higher with 228 vehicles traveling northbound and 167 vehicles traveling southbound. The critical movement of the Ena Road approaches is the northbound left-turn and through traffic movement which operates at LOS "A" during both peak periods. As previously stated, traffic queues from the downstream intersection with Kalakaua Avenue occasionally extended through the intersection with Hobron Lane during the PM peak period.

The Hobron Lane approach carries 249 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour of traffic, traffic volumes are higher with 348 vehicles traveling eastbound. The Hobron Lane approach operates at LOS "B" and LOS "C" during the AM and PM peak periods, respectively.

e. Hobron Lane and Lipeepee Street

At the intersection with Lipeepee Street, Hobron Lane carries 131 vehicles westbound and 146 vehicles northbound. During the PM peak hour of traffic, the overall traffic volume is higher with 86 vehicles traveling westbound and 247 vehicles traveling northbound. The critical movement of the Hobron Lane approaches is the northbound left-turn, through, and right-turn traffic movement which operates at LOS "B" both peak hours of traffic.

The Lipeepee Street approach of this intersection carries 463 vehicles eastbound. During the PM peak hour, traffic volumes are higher with 534 vehicles traveling eastbound. The Lipeepee Street approach operates at LOS "C" during both peak periods. Field

observations indicate there are consistent traffic queues on the Lipeepee Street approach during both peak periods that occasionally extend through the upstream intersection with Ala Wai Boulevard.

A driveway for an adjacent apartment complex comprises the southbound approach of this intersection which currently carries a fairly low volume of traffic throughout the day. During the AM and PM peak hours of traffic 13 vehicles and 40 vehicles, respectively, travel southbound from the driveway.

f. Lipeepee Street and Ala Wai Boulevard

At the intersection with Ala Wai Boulevard, Lipeepee Street carries 19 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume is higher with 59 vehicles traveling westbound. This approach operates at LOS "B" and LOS "C" during the AM and PM peak hours of traffic, respectively. As previously stated, traffic queues from the downstream intersection with Hobron Lane occasionally extended through the intersection with Ala Wai Boulevard during both peak periods.

The Ala Wai Boulevard approach carries 45 vehicles northbound and 489 vehicles southbound during the AM peak hour of traffic. During the PM peak hour of traffic, traffic volumes are slightly higher with 45 vehicles traveling northbound and 517 vehicles traveling southbound. The critical movement of the Ala Wai Boulevard approaches is the southbound left-turn and through traffic movement which operates at LOS "A" during both peak periods of traffic.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation

Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit or 1,000 square feet of development. Table 1 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

Table 1: Peak Hour Trip Generation

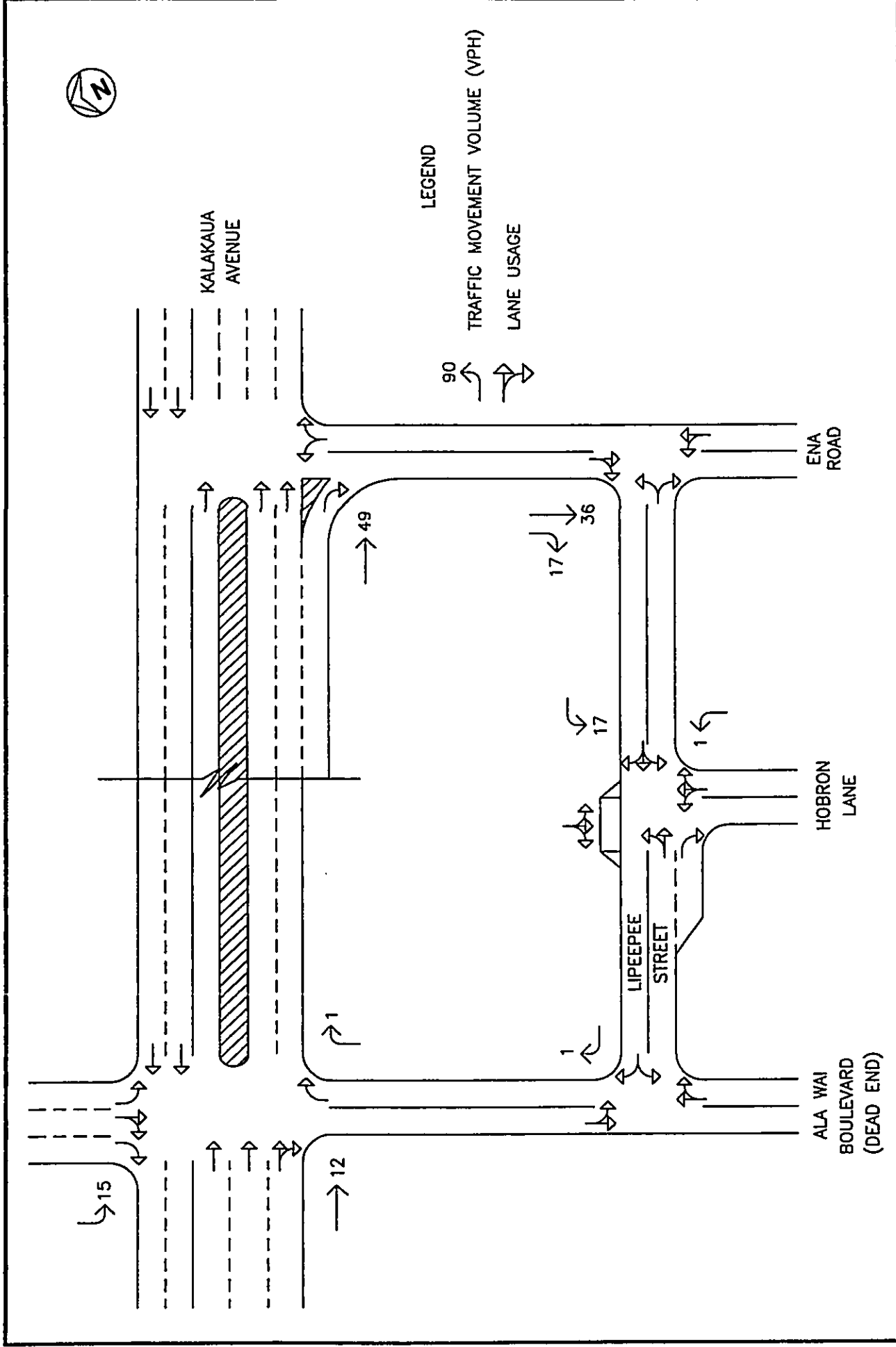
HIGH-RISE RESIDENTIAL CONDOMINIUM/TOWNHOUSE		
INDEPENDENT VARIABLE: Dwelling Units = 315		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	23
	EXIT	97
	TOTAL	120
PM PEAK	ENTER	76
	EXIT	47
	TOTAL	123
QUALITY RESTAURANT		
INDEPENDENT VARIABLE: 1,000 sf of development = 12		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	5
	EXIT	5
	TOTAL	10
PM PEAK	ENTER	60
	EXIT	30
	TOTAL	90
TOTALS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	28
	EXIT	102
	TOTAL	130
PM PEAK	ENTER	136
	EXIT	77
	TOTAL	213

2. Trip Distribution

Figures 5 and 6 show the distribution of site-generated traffic during the AM and PM peak periods. Access to the project site will be provided via a new two-way driveway off Kalakaua Avenue and a new exit only driveway off Ena Road. Due to the existing volume of conflicting traffic along Kalakaua Avenue and the presence of a raised median along that roadway, the traffic movements at the driveway off Kalakaua Avenue are assumed to be restricted to right-turn in and right-turn out movements only. Similarly, due to the proximity of the driveway along Ena Road to the intersection with Kalakaua Avenue, the traffic movements at that driveway are assumed to be restricted to right-turn out movements only.

The directional distribution of vehicles was based upon the permitted traffic movements at each driveway and the assumed direction of travel and route for all site-generated trips. The direction of travel for site-generated trips was based on the prevailing directional distribution of traffic along Kalakaua Avenue and Ala Wai Boulevard in the vicinity of the project. As such, 48.0% of the vehicles were assumed to be traveling eastbound during the AM peak period while 52.0% were assumed to be traveling westbound. During the PM peak period, 65.8% were assumed to be traveling eastbound while 34.2% were assumed to be traveling westbound.


All westbound entering vehicles were assumed to utilize Ala Wai Boulevard to access the site while eastbound entering vehicles were distributed between Kalakaua Avenue (95.2% during the AM peak period and 94.7% during the PM peak period) and northbound Ala Wai Boulevard (4.8% during the AM peak period and 5.3% during the PM peak period) based on the existing distribution of traffic at the intersection of those two roadways. Eastbound entering vehicles utilizing Ala Wai Boulevard were assumed to originate from Ala Moana Boulevard and travel along Hobron Lane and Lipeepee Street to reach Ala Wai Boulevard.



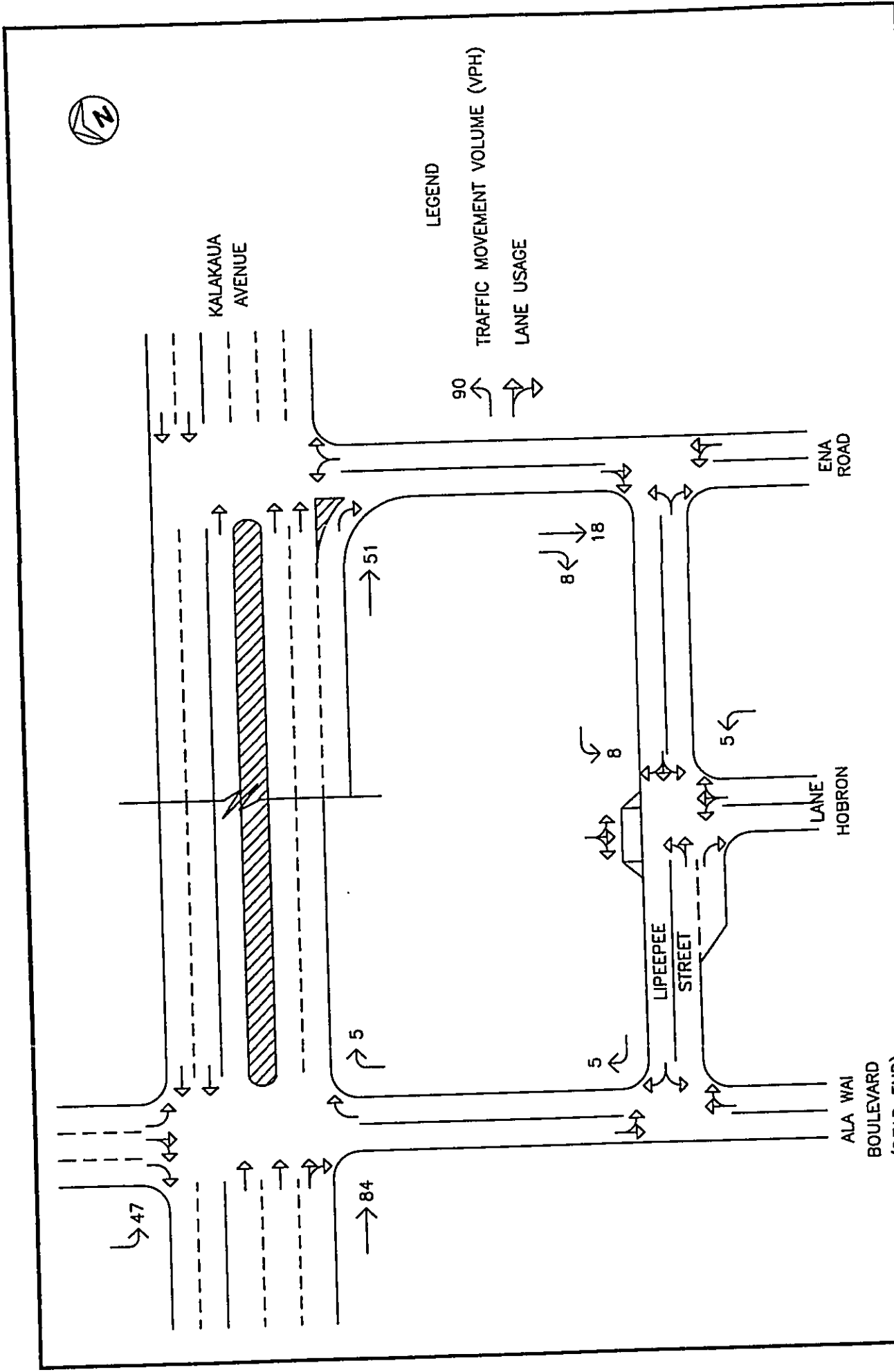
WAIKIKI ALLURE CONDOMINIUM

DISTRIBUTION OF SITE-GENERATED TRAFFIC
YEAR 2009 AM PEAK HOUR OF TRAFFIC

FIGURE 5



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WAIKIKI ALLURE CONDOMINIUM

DISTRIBUTION OF SITE-GENERATED TRAFFIC
YEAR 2009 PM PEAK HOUR OF TRAFFIC

FIGURE 6

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All eastbound exiting vehicles were assumed to utilize the driveway along Kalakaua Avenue and travel through the intersection with Ena Road. All westbound exiting vehicles were assumed to utilize the driveway along Ena Road and head south to the intersection with Hobron Lane. The directional distribution of site-generated vehicles at that intersection was assumed to remain similar to existing conditions. Westbound exiting vehicles that turn right onto Hobron Lane are assumed to turn left at the intersection with Lipeepee Street to reach Ala Moana Boulevard.

B. Through Traffic Forecasting Methodology

The travel forecast is based upon historical traffic count data obtained from the State DOT, Highways Division at a survey station located at the intersection of Kalakaua Avenue and Ala Moana Boulevard. The historical data were analyzed by linear regression techniques to obtain an average annual traffic growth rate of approximately 5.0% along Kalakaua Avenue in the project vicinity. For the purpose of this study, this annual traffic growth rate was conservatively assumed to apply to all traffic movements at the study intersections since many of the surrounding connector roadways are often utilized as "cut-through" routes between the major arterial roadways in the vicinity. As such, using 2006 as the Base Year, a growth rate factor of 1.15 was applied to the existing traffic demands at the study intersections to simulate projected Year 2009 traffic demands at those intersections.

C. Other Considerations

1. General

There are a number of other developments being proposed in Waikiki, however many of these projects are either anticipated to be completed after the Year 2009 or their schedule is unknown at this time. As such, a conservative, universal growth factor was applied to all the traffic movements at the study intersections to simulate ambient growth in traffic in the project vicinity. This ambient growth may absorb any variations in the projected traffic patterns as a result of these other developments.

2. The Watermark

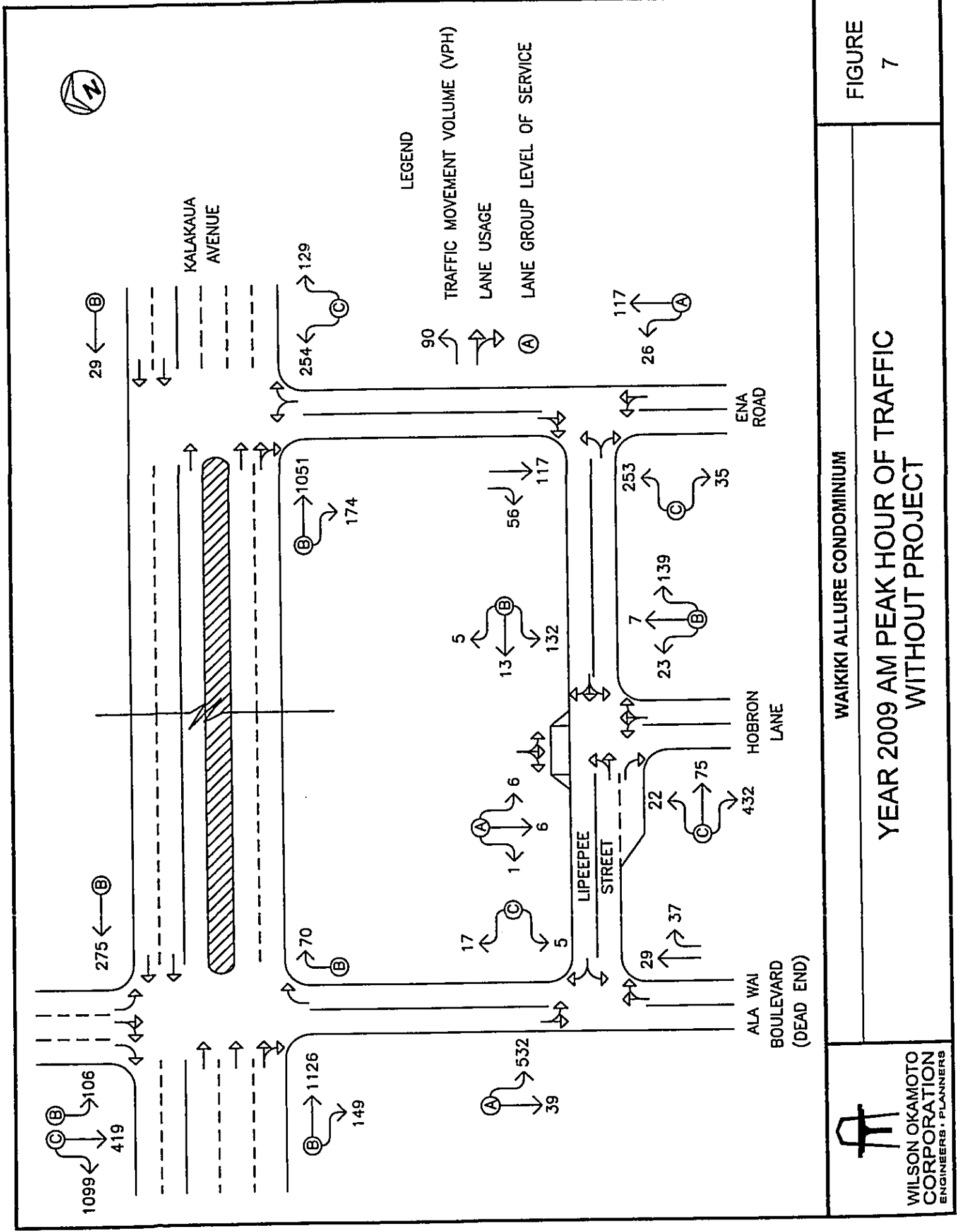
The Watermark is located at the southwest corner of the intersection of Hobron Lane and Lipeepee Street. The proposed development is anticipated to be completed in the Year 2007 and includes approximately 228 residential condominium units. In addition, the proposed project will include modifications to the intersection of Hobron Lane and Lipeepee Street to provide an exclusive right-turn lane on the eastbound approach of Lipeepee Street. As detailed in the "Traffic Impact Report for The Watermark" dated April 2005, the proposed project is expected to generate 95 trips and 93 trips during the AM and PM peak periods of traffic, respectively. These trips were assigned to the street network in the project vicinity to account for trips generated by the proposed development.

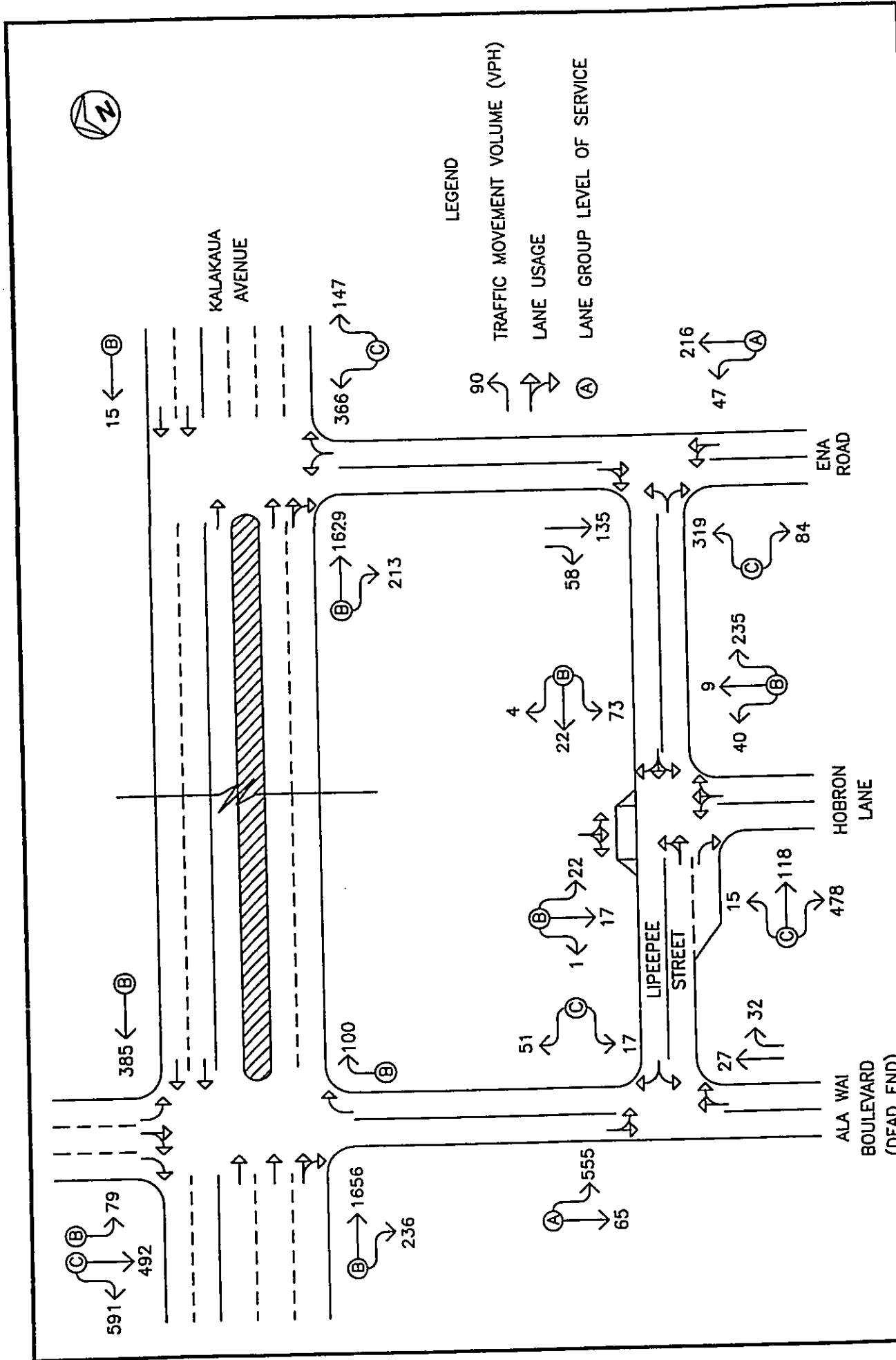
D. Total Traffic Volumes Without Project

The projected AM peak hour and PM peak hour traffic volumes and operating conditions in the project vicinity without the development of the Waikiki Allure Condominium are shown in Figures 7 and 8, and summarized in Table 2. The intersection of Hobron Lane and Lipeepee Street is assumed to have been modified to provide an exclusive right-turn lane on the eastbound approach of Lipeepee Street. The existing levels of service are included for comparison purposes. LOS calculations are included in Appendix D.

Table 2: Existing and Projected (Without Project) Traffic Operating Conditions

Intersection	Critical Movement		AM		PM	
			Exist	Year 2009 w/out Proj	Exist	Year 2009 w/out Proj
Kalakaua Ave/ Ala Wai Blvd	Eastbound	TH-RT	B	B	B	B
	Southbound	TH-RT	C	C	C	C
Kalakaua Ave/ Ena Rd	Eastbound	TH-RT	B	B	B	B
	Northbound	LT-RT	C	C	C	C





WAIKIKI ALLURE CONDOMINIUM

YEAR 2009 PM PEAK HOUR OF TRAFFIC WITHOUT PROJECT

FIGURE 8

WILSON OKAMOTO CORPORATION ENGINEERS & PLANNERS

**Table 2: Existing and Projected (Without Project)
Traffic Operating Conditions (Cont'd)**

Intersection	Critical Movement		AM		PM	
			Exist	Year 2009 w/out Proj	Exist	Year 2009 w/out Proj
Ena Rd/Hobron Ln	Eastbound	LT-RT	B	C	C	C
	Northbound	LT-TH	A	A	A	A
Hobron Ln/ Lipeepee St	Eastbound	LT-TH-RT	C	C	C	C
	Northbound	LT-TH-RT	B	B	B	B
Lipeepee St/ Ala Wai Blvd	Westbound	LT-RT	B	C	C	C
	Southbound	LT-TH	A	A	A	A

Traffic operations under Year 2009 without project conditions are expected to deteriorate slightly from existing conditions due to the anticipated increases in ambient traffic along the surrounding roadways and the development of other projects in the vicinity. The eastbound approach at the intersection of Ena Road with Hobron Lane intersection is anticipated to deteriorate from LOS "B" to LOS "C" during the AM peak period. Similarly, the westbound approach at the intersection of Lipeepee Street with Ala Wai Boulevard is expected to deteriorate from LOS "B" to LOS "C" during the AM peak period. The other critical movements at those intersections, as well as, the remaining study intersections are anticipated to continue operating at levels of service similar to existing conditions.

E. Total Traffic Volumes With Project

Figures 9 and 10 show the cumulative AM and PM peak hour traffic conditions resulting from the projected external traffic and the development of the Waikiki Allure Condominium. The cumulative volumes consist of site-generated traffic superimposed over Year 2009 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

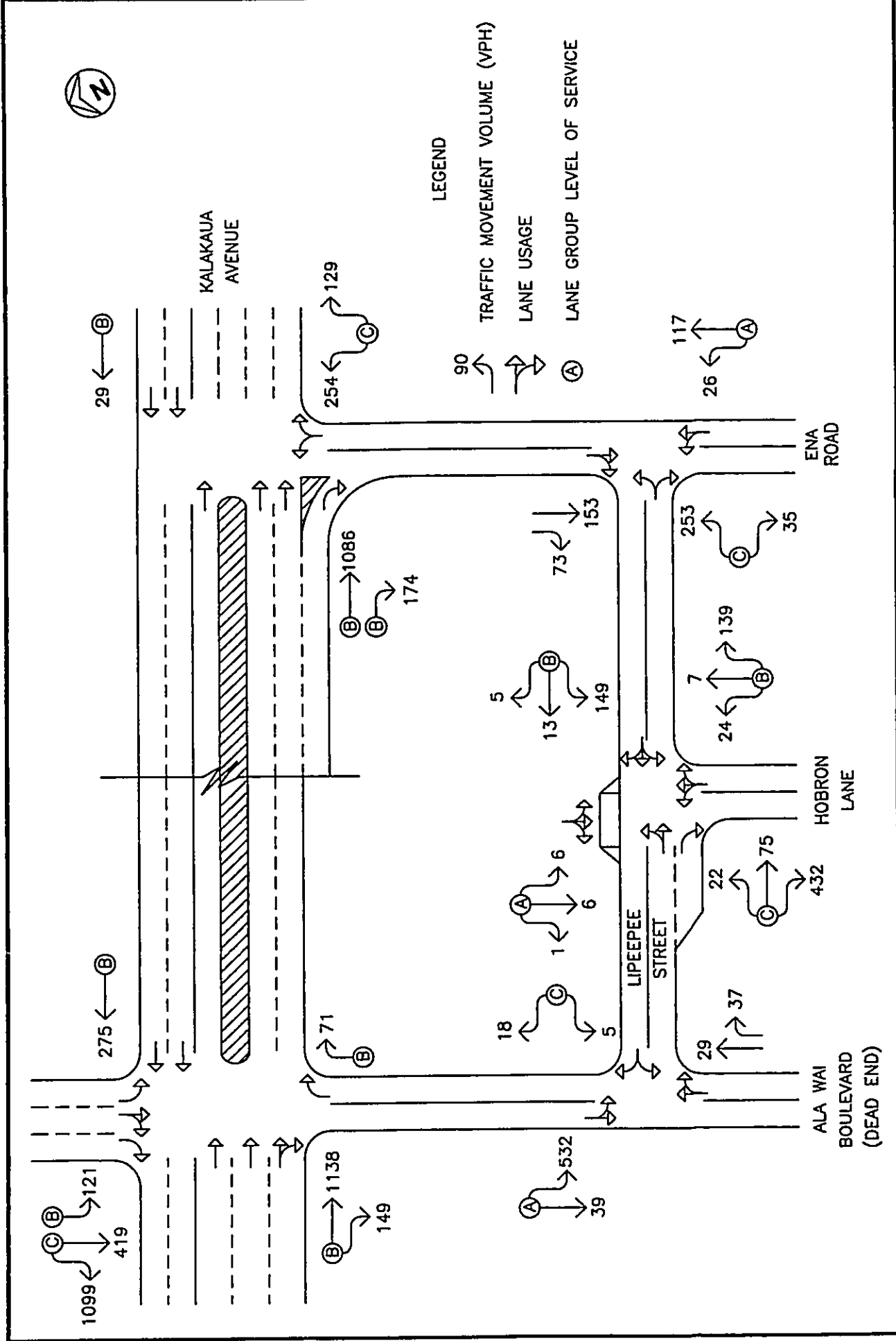
V. TRAFFIC IMPACT ANALYSIS

The Year 2009 cumulative AM and PM peak hour traffic conditions with the development of Waikiki Allure Condominium are summarized in Table 3. The eastbound approach at the intersection of Kalakaua Avenue and Ena Road is assumed to have been modified to provide a dedicated right-turn lane on the eastbound approach of Kalakaua Avenue. The existing and projected Year 2009 without project operating conditions are provided for comparison purposes. LOS calculations are included in Appendix E.

Table 3: Existing and Projected (With and Without Project) Traffic Operating Conditions

Intersection	Critical Movement		AM			PM		
			Exist	Year 2009		Exist	Year 2009	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Kalakaua Ave/ Ala Wai Blvd	Eastbound	TH-RT	B	B	B	B	B	B
	Southbound	TH-RT	C	C	C	C	C	C
Kalakaua Ave/ Ena Rd	Eastbound	TH	B	B	B	B	B	B
		RT						
	Northbound	LT-RT	C	C	C	C	C	C
Ena Rd/Hobron Ln	Eastbound	LT-RT	B	C	C	C	C	C
	Northbound	LT-TH	A	A	A	A	A	A
Hobron Ln/ Lipeepee St	Eastbound	LT-TH-RT	C	C	C	C	C	C
	Northbound	LT-TH-RT	B	B	B	B	B	B
Lipeepee St/ Ala Wai Blvd	Westbound	LT-RT	B	C	C	C	C	C
	Southbound	LT-TH	A	A	A	A	A	A

Traffic operations under Year 2009 with project conditions are expected to continue operating at levels of service similar to Year 2009 without project conditions during the AM and PM peak periods. The critical movements on the eastbound and southbound approaches of the intersection of Kalakaua Avenue with Ala Wai Boulevard are expected to continue operating at LOS "B" and LOS "C," respectively, during both peak periods while the eastbound and northbound approaches at the intersection of Hobron Lane with Ena Road are anticipated to continue operating at LOS "C" and LOS "A," respectively, during both peak

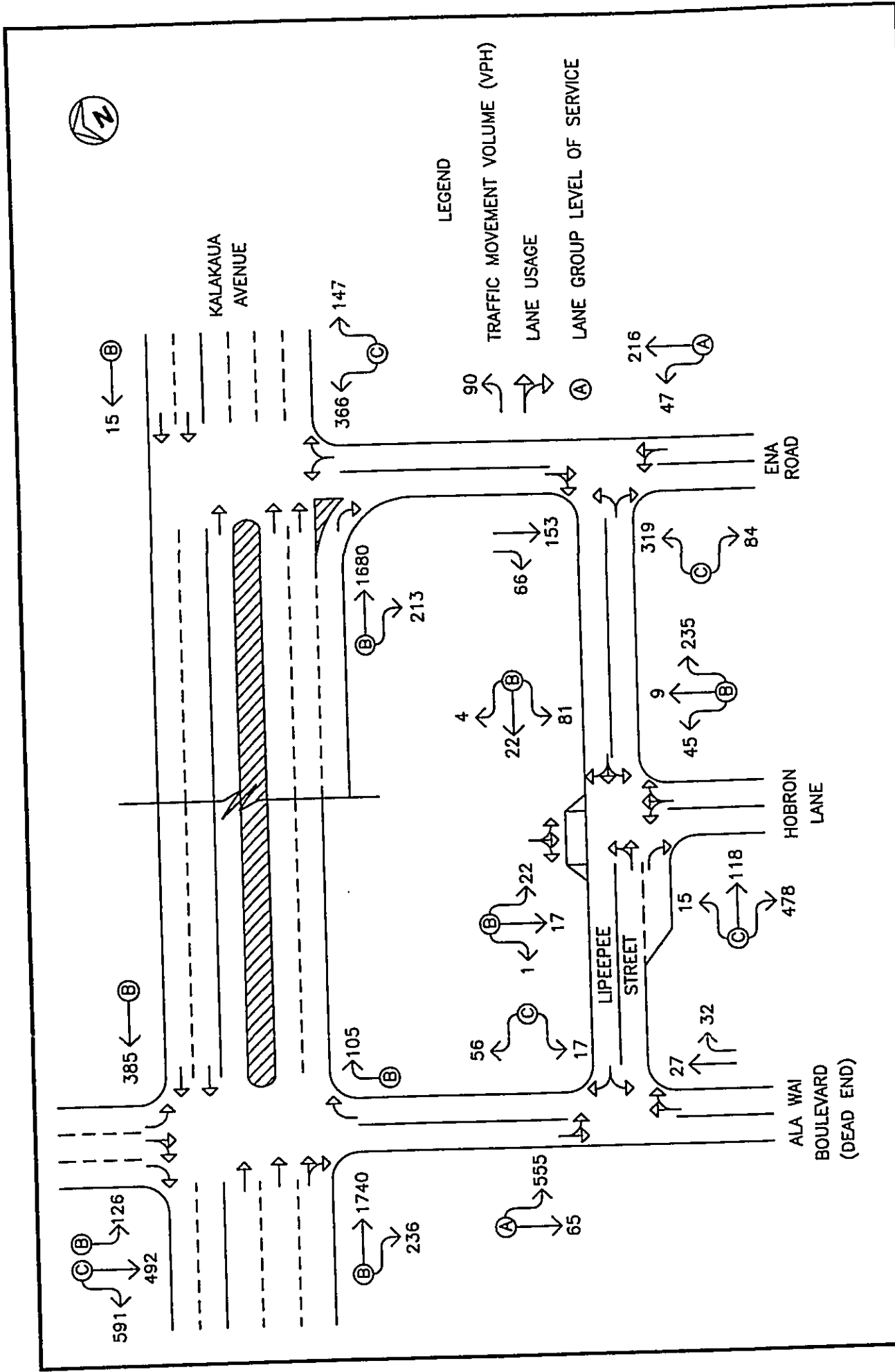


WILSON OKAMOTO CORPORATION ENGINEERS • PLANNERS

WAIKIKI ALLURE CONDOMINIUM

YEAR 2009 AM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE 9



WAIKIKI ALLURE CONDOMINIUM

YEAR 2009 PM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE 10

WILSON OKAMOTO CORPORATION
ENGINEERS • PLANNERS

periods. Similarly, the eastbound and northbound approaches of the intersection of Hobron Lane with Lipeepee Street are anticipated to continue operating at LOS "C" and LOS "B," respectively, during both peak periods while the westbound and southbound approaches at the intersection of Lipeepee Street with Ala Wai Boulevard are anticipated to continue operating at LOS "C" and LOS "A," respectively, during both peak periods. At the intersection of Kalakaua Avenue with Ena Road, the eastbound through and right-turn traffic movements are expected to operate at LOS "B" during both peak periods while the northbound approach of the intersection is expected to operate at LOS "C" during both peak periods.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project implementation:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
5. Restrict traffic movements at the project driveways along Kalakaua Avenue to right-turn-in and right-turn-out movements only.
6. Restrict traffic movements at the project driveway along Ena Road to right-turn-out movements only.
7. Widen Kalakaua Avenue along the project frontage to provide an exclusive eastbound right-turn lane at the intersection with Ena Road. The dimensions and layout of this lane should be determined during the design phase of the project.

VII. CONCLUSION

The proposed Waikiki Allure Condominium is not expected to have a significant impact on traffic operations in the project vicinity. The total traffic volumes entering the Kalakaua Avenue/Ena Road, Lipeepee Street/Ala Wai Boulevard, and Hobron Lane/Lipeepee

Street intersections are expected to increase by less than 2% during both peak hours of traffic with the development of the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along those roadways and represent a minimal increase in the overall traffic volumes. The increases in the total traffic volumes entering the Kalakaua Avenue/Ala Wai Boulevard and Ena Road/Hobron Lane intersections are higher, but the critical movements at these intersections are expected to continue operating at acceptable levels of service despite the anticipated increases in traffic. In addition, the provision of an exclusive right-turn lane along Kalakaua Avenue at the intersection with Ena Road should help to minimize the existing queuing along Kalakaua Avenue at that intersection.

10-20-2010 10:00 AM

APPENDIX A
EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : AlaKala
 Site Code : 00000001
 Start Date : 5/4/2006
 Page No : 1

T-1841
 Counted:KT, IW
 Weather: Clear

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Southbound			Kalakaua Ave Westbound			Ala Wai Blvd Northbound			Kalakaua Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	9	62	184	0	65	0	0	0	10	0	203	25	558
07:15 AM	14	82	244	0	60	0	0	7	7	0	214	22	643
07:30 AM	32	85	259	0	60	0	0	13	13	0	253	27	729
07:45 AM	22	122	249	0	60	0	0	11	11	0	263	37	764
Total	77	351	936	0	245	0	0	41	41	0	933	111	2694
08:00 AM	24	71	204	0	59	0	0	18	18	0	249	40	665
08:15 AM	12	66	178	0	57	0	0	18	18	0	275	30	636
08:30 AM	12	73	176	0	44	0	0	23	23	0	269	29	626
08:45 AM	11	75	160	0	59	0	0	15	15	0	253	39	612
Total	59	285	718	0	219	0	0	74	74	0	1046	138	2539
Grand Total	136	636	1654	0	464	0	0	115	115	0	1979	249	5233
Apprch %	5.6	26.2	68.2	0	100	0	0	100	100	0	88.8	11.2	42.6
Total %	2.6	12.2	31.6	0	8.9	0	0	2.2	2.2	0	37.8	4.8	42.6

Start Time	Ala Wai Blvd Southbound			Kalakaua Ave Westbound			Ala Wai Blvd Northbound			Kalakaua Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:15 AM	14	82	244	0	60	0	0	0	7	0	214	22	643
07:30 AM	32	85	259	0	60	0	0	13	13	0	253	27	729
07:45 AM	22	122	249	0	60	0	0	11	11	0	263	37	764
08:00 AM	24	71	204	0	59	0	0	18	18	0	249	40	665
Total Volume	92	360	956	0	239	0	0	49	49	0	979	126	2801
% App. Total	6.5	25.6	67.9	0	100	0	0	100	100	0	88.6	11.4	42.6
PHF	.719	.738	.923	.000	.996	.000	.000	.681	.681	.000	.931	.788	.917

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : AlakaIP
 Site Code : 00000001
 Start Date : 5/4/2006
 Page No : 1

Counter: T-1841
 Counted: KT
 Weather: Clear

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Southbound						Kalakaua Ave Westbound						Ala Wai Blvd Northbound						Kalakaua Ave Eastbound						
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	
03:00 PM	8	75	144	227	0	81	0	0	0	14	14	0	311	47	358	0	0	0	0	0	0	0	0	0	680
03:15 PM	12	88	187	287	0	72	0	0	0	16	16	0	363	57	420	0	0	0	0	0	0	0	0	0	795
03:30 PM	23	95	150	268	0	80	0	0	0	18	18	0	321	46	367	0	0	0	0	0	0	0	0	0	733
03:45 PM	21	96	115	232	0	63	0	0	0	18	18	0	312	29	341	0	0	0	0	0	0	0	0	0	654
Total	64	354	596	1014	0	296	0	0	0	66	66	0	1307	179	1486	0	0	0	0	0	0	0	0	0	2862
04:00 PM	22	72	119	213	0	79	0	0	0	15	15	0	378	48	426	0	0	0	0	0	0	0	0	0	733
04:15 PM	25	82	131	238	0	56	0	0	0	15	15	0	371	44	415	0	0	0	0	0	0	0	0	0	724
04:30 PM	14	109	144	267	0	80	0	0	0	30	30	0	368	42	410	0	0	0	0	0	0	0	0	0	787
04:45 PM	11	105	128	244	0	83	0	0	0	12	12	0	345	43	388	0	0	0	0	0	0	0	0	0	727
Total	72	368	522	962	0	298	0	0	0	72	72	0	1462	177	1639	0	0	0	0	0	0	0	0	0	2971
05:00 PM	17	90	107	214	0	85	0	0	0	20	20	0	375	44	419	0	0	0	0	0	0	0	0	0	738
05:15 PM	27	113	135	275	0	87	0	0	0	19	19	0	352	64	416	0	0	0	0	0	0	0	0	0	797
05:30 PM	14	87	139	240	0	85	0	0	0	22	22	0	323	53	376	0	0	0	0	0	0	0	0	0	723
05:45 PM	20	104	120	244	0	70	0	0	0	13	13	0	414	39	453	0	0	0	0	0	0	0	0	0	780
Total	78	394	501	973	0	327	0	0	0	74	74	0	1464	200	1664	0	0	0	0	0	0	0	0	0	3038
Grand Total	214	1116	1619	2949	0	921	0	0	0	212	212	0	4233	556	4789	0	0	0	0	0	0	0	0	0	8871
Approach %	7.3	37.8	54.9	33.2	0	10.4	0	0	0	100	2.4	0	88.4	11.6	54	0	0	0	0	0	0	0	0	0	100
Total %	2.4	12.6	18.3	33.2	0	10.4	0	0	0	2.4	2.4	0	47.7	6.3	54	0	0	0	0	0	0	0	0	0	100

Start Time	Ala Wai Blvd Southbound						Kalakaua Ave Westbound						Ala Wai Blvd Northbound						Kalakaua Ave Eastbound						
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	App.	Total	
04:30 PM	14	109	144	267	0	80	80	0	0	30	30	0	368	42	410	0	0	0	0	0	0	0	0	0	787
04:45 PM	11	105	128	244	0	83	83	0	0	12	12	0	345	43	388	0	0	0	0	0	0	0	0	0	727
05:00 PM	17	90	107	214	0	85	85	0	0	20	20	0	375	44	419	0	0	0	0	0	0	0	0	0	738
05:15 PM	27	113	135	275	0	87	87	0	0	19	19	0	352	64	416	0	0	0	0	0	0	0	0	0	797
Total	69	417	514	1000	0	335	335	0	0	81	81	0	1440	193	1633	0	0	0	0	0	0	0	0	0	3049
% App. Total	6.9	41.7	51.4	33.2	0	10.4	33.5	0	0	100	2.4	0	88.2	11.8	54	0	0	0	0	0	0	0	0	0	956
PHF	.639	.923	.892	.909	.000	.963	.963	.000	.000	.675	.675	.000	.675	.754	.974	.000	.000	.000	.000	.000	.000	.000	.000	.000	.956

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

3 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3889
 Counted: TO
 Weather: Clear

File Name : KalEnaA
 Site Code : 00000001
 Start Date : 5/5/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Southbound			Kalakaua Ave Westbound			Ena Road Northbound			Kalakaua Ave Eastbound			Int. Total	
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right		App. Total
07:00 AM	0	0	4	0	4	54	0	23	77	0	188	20	208	289
07:15 AM	0	0	5	0	5	57	0	28	85	0	202	41	243	333
07:30 AM	0	0	7	0	7	64	0	27	91	0	231	33	264	362
07:45 AM	0	0	8	0	8	49	0	34	83	0	258	36	294	385
Total	0	0	24	0	24	224	0	112	336	0	879	130	1009	1369
08:00 AM	0	0	5	0	5	51	0	23	74	0	211	41	252	331
08:15 AM	0	0	3	0	3	74	0	35	109	0	255	32	287	399
08:30 AM	0	0	5	0	5	47	0	34	81	0	248	45	293	379
08:45 AM	0	0	5	0	5	56	0	32	88	0	217	31	248	341
Total	0	0	18	0	18	228	0	124	352	0	931	149	1080	1450
Grand Total	0	0	42	0	42	452	0	236	688	0	1810	279	2089	2819
Approch %	0	0	100	0	100	65.7	0	34.3	86.6	0	86.6	13.4	74.1	
Total %	0	0	1.5	0	1.5	16	0	8.4	24.4	0	64.2	9.9		

Start Time	Southbound			Kalakaua Ave Westbound			Ena Road Northbound			Kalakaua Ave Eastbound			Int. Total	
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right		App. Total
07:45 AM	0	0	8	0	8	49	0	34	83	0	258	36	294	385
08:00 AM	0	0	5	0	5	51	0	23	74	0	211	41	252	331
08:15 AM	0	0	3	0	3	74	0	35	109	0	255	32	287	399
08:30 AM	0	0	5	0	5	47	0	34	81	0	248	45	293	379
Total Volume	0	0	21	0	21	221	0	126	347	0	972	154	1126	1494
% App. Total	0	0	100	0	100	63.7	0	36.3	86.3	0	86.3	13.7	74.1	
PHF	.000	.000	.656	.000	.656	.747	.000	.900	.796	.000	.942	.856	.957	.936

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:45 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : KalEnaP
 Site Code : 00000001
 Start Date : 5/5/2006
 Page No : 1

Counter: D4-3889
 Counted: TO
 Weather: Clear

Groups Printed- Unshifted

Start Time	Southbound			Kalakaua Ave Westbound			Ena Road Northbound			Kalakaua Ave Eastbound			Int. Total	
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right		App. Total
03:00 PM	0	0	3	0	3	81	0	39	120	0	274	31	305	428
03:15 PM	0	0	6	0	6	81	0	23	104	0	354	36	390	500
03:30 PM	0	0	2	0	2	69	0	27	96	0	312	41	353	451
03:45 PM	0	0	5	0	5	83	0	33	116	0	371	32	403	524
Total	0	0	16	0	16	314	0	122	436	0	1311	140	1451	1903
04:00 PM	0	0	5	0	5	68	0	34	102	0	355	41	396	503
04:15 PM	0	0	9	0	9	76	0	26	102	0	360	43	403	514
04:30 PM	0	0	2	0	2	71	0	35	106	0	379	45	424	532
04:45 PM	0	0	4	0	4	89	0	28	117	0	335	48	383	504
Total	0	0	20	0	20	304	0	123	427	0	1429	177	1606	2053
05:00 PM	0	0	4	0	4	79	0	34	113	0	337	42	379	496
05:15 PM	0	0	3	0	3	79	0	31	110	0	359	50	409	522
05:30 PM	0	0	7	0	7	61	0	32	93	0	357	45	402	502
05:45 PM	0	0	10	0	10	64	0	25	89	0	348	52	400	499
Total	0	0	24	0	24	283	0	122	405	0	1401	189	1590	2019
Grand Total	0	0	60	0	60	901	0	367	1268	0	4141	506	4647	5975
Approch %	0	0	100	0	100	71.1	0	28.9	21.2	0	89.1	10.9	77.8	
Total %	0	0	1	0	1	15.1	0	6.1	21.2	0	69.3	8.5	77.8	

Start Time	Southbound			Kalakaua Ave Westbound			Ena Road Northbound			Kalakaua Ave Eastbound			Int. Total	
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right		App. Total
03:45 PM	0	0	5	0	5	83	0	33	116	0	371	32	403	524
04:00 PM	0	0	5	0	5	68	0	34	102	0	355	41	396	503
04:15 PM	0	0	9	0	9	76	0	26	102	0	360	43	403	514
04:30 PM	0	0	2	0	2	71	0	35	106	0	379	45	424	532
Total Volume	0	0	21	0	21	298	0	128	426	0	1465	161	1626	2073
% App. Total	.000	.000	.583	.000	.583	.898	.000	.914	.918	.000	.966	.894	.959	.974
PHF														

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:45 PM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : HobEnaA
 Site Code : 00000002
 Start Date : 5/4/2006
 Page No : 1

Counter:D4-3889
 Counted:TO
 Weather: Clear

Groups Printed- Unshifted

Start Time	Ena Road Southbound			Westbound			Ena Road Northbound			Hobron Lane Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	24	7	31	0	4	16	0	20	67	0	75	126
07:15 AM	0	22	7	29	0	5	30	0	35	48	0	56	120
07:30 AM	0	34	14	48	0	10	22	0	32	60	0	62	142
07:45 AM	0	21	14	35	0	4	22	0	26	64	0	74	135
Total	0	101	42	143	0	23	90	0	113	239	0	267	523
08:00 AM	0	25	14	39	0	4	28	0	32	48	0	57	128
08:15 AM	0	13	7	20	0	4	27	0	31	33	0	42	93
08:30 AM	0	14	20	34	0	8	28	0	36	54	0	62	132
08:45 AM	0	23	20	43	0	9	30	0	39	49	0	66	148
Total	0	75	61	136	0	25	113	0	138	184	0	227	501
Grand Total	0	176	103	279	0	48	203	0	251	423	0	494	1024
Apprch %	0	63.1	36.9		0	19.1	80.9	0		85.6	0	14.4	
Total %	0	17.2	10.1	27.2	0	4.7	19.8	0	24.5	41.3	0	6.9	48.2

Start Time	Ena Road Southbound			Westbound			Ena Road Northbound			Hobron Lane Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:15 AM	0	22	7	29	0	5	30	0	35	48	0	56	120
07:30 AM	0	34	14	48	0	10	22	0	32	60	0	62	142
07:45 AM	0	21	14	35	0	4	22	0	26	64	0	74	135
08:00 AM	0	25	14	39	0	4	28	0	32	48	0	57	128
Total Volume	0	102	49	151	0	23	102	0	125	220	0	249	525
% App. Total	0	67.5	32.5		0	18.4	81.6	0		88.4	0	11.6	
PHF	.000	.750	.875	.786	.000	.575	.850	.000	.893	.859	.000	.725	.841

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : HobEnaP
 Site Code : 00000002
 Start Date : 5/4/2006
 Page No : 1

Counter:D4-3889
 Counted:TO
 Weather:Clear

Groups Printed- Unshifted

Start Time	Ena Road Southbound			Westbound	Ena Road Northbound			Hobron Lane Eastbound			Int. Total		
	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right			
03:00 PM	0	25	8	0	3	52	0	55	48	0	12	60	148
03:15 PM	0	18	7	0	9	30	0	39	60	0	8	68	132
03:30 PM	0	24	10	0	6	48	0	54	64	0	6	70	158
03:45 PM	0	31	10	0	10	30	0	40	58	0	13	71	152
Total	0	98	35	0	28	160	0	188	230	0	39	269	590
04:00 PM	0	22	14	0	3	47	0	50	61	0	12	73	159
04:15 PM	0	34	14	0	14	43	0	57	55	0	15	70	175
04:30 PM	0	31	15	0	9	50	0	59	69	0	17	86	191
04:45 PM	0	28	7	0	9	47	0	56	62	0	15	77	168
Total	0	115	50	0	35	187	0	222	247	0	59	306	693
05:00 PM	0	28	15	0	13	36	0	49	76	0	17	93	185
05:15 PM	0	30	13	0	9	55	0	64	70	0	22	92	199
05:30 PM	0	24	12	0	9	39	0	48	60	0	25	85	169
05:45 PM	0	26	7	0	10	44	0	54	63	5	16	84	171
Total	0	108	47	0	41	174	0	215	269	5	80	354	724
Grand Total	0	321	132	0	104	521	0	625	746	5	178	929	2007
Approch %	0	70.9	29.1	0	16.6	83.4	0	31.1	80.3	0.5	19.2	46.3	
Total %	0	16	6.6	0	5.2	26	0		37.2	0.2	8.9		

Start Time	Ena Road Southbound			Westbound	Ena Road Northbound			Hobron Lane Eastbound			Int. Total		
	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right			
04:30 PM	0	31	15	0	9	50	0	59	69	0	17	86	191
04:45 PM	0	28	7	0	9	47	0	56	62	0	15	77	168
05:00 PM	0	28	15	0	13	36	0	49	76	0	17	93	185
05:15 PM	0	30	13	0	9	55	0	64	70	0	22	92	199
Total Volume	0	117	50	0	40	188	0	228	277	0	71	348	743
% App. Total	0	70.1	29.9	0	17.5	82.5	0		79.6	0	20.4		
PHF	.000	.944	.833	.000	.769	.855	.000	.891	.911	.000	.807	.935	.933

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : HobLipA
 Site Code : 00000001
 Start Date : 5/5/2006
 Page No : 1

Counter: D4-3891
 Counted: LW
 Weather: Clear

Groups Printed- Unshifted

Start Time	Dwy Southbound			Hobron Ln Westbound			Hobron Ln Northbound			Lipepee St Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
07:00 AM	0	0	0	18	3	2	3	0	15	3	8	35	46	87
07:15 AM	0	2	0	29	4	1	5	1	20	4	10	48	62	124
07:30 AM	3	0	0	22	3	0	6	4	38	5	22	113	140	216
07:45 AM	3	2	1	26	4	3	5	1	26	4	12	109	125	196
Total	6	4	1	95	14	6	19	6	99	16	52	305	373	623
08:00 AM	0	2	0	38	0	1	4	1	35	4	21	106	136	217
08:15 AM	1	3	0	14	2	0	13	1	47	3	21	82	106	187
08:30 AM	4	1	0	21	4	3	7	0	27	9	17	83	109	176
08:45 AM	4	4	0	21	4	2	14	6	54	9	19	81	109	218
Total	9	10	0	94	10	6	38	8	163	30	78	352	460	798
Grand Total	15	14	1	189	24	12	57	14	262	46	130	657	833	1421
Apprch %	50	46.7	3.3	84	10.7	5.3	17.1	4.2	78.7	5.5	15.6	78.9	58.6	
Total %	1.1	1	0.1	13.3	1.7	0.8	4	1	18.4	3.2	9.1	46.2	58.6	

Start Time	Dwy Southbound			Hobron Ln Westbound			Hobron Ln Northbound			Lipepee St Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
07:30 AM	3	0	0	22	3	0	6	4	38	5	22	113	140	216
07:45 AM	3	2	1	26	4	3	5	1	26	4	12	109	125	196
08:00 AM	0	2	0	38	0	1	4	1	35	9	21	106	136	217
08:15 AM	1	3	0	14	2	0	13	1	47	3	21	82	106	187
Total	7	7	1	100	9	4	28	7	146	21	76	410	507	816
% App. Total	46.7	46.7	6.7	88.5	8	3.5	15.5	3.9	80.7	4.1	15	80.9	90.5	940
PHF	.583	.583	.250	.658	.563	.333	.538	.438	.777	.583	.864	.907	.905	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter:D4-3890
 Counted:JL
 Weather:Clear

File Name : HobLipP
 Site Code : 0000001
 Start Date : 5/5/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Dwy Southbound			Hobron Ln Westbound			Hobron Ln Northbound			Lipeepes St Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
03:00 PM	4	4	0	27	8	0	11	1	54	3	29	86
03:15 PM	2	3	0	15	5	2	22	5	50	7	27	106
03:30 PM	3	3	3	25	7	0	32	3	71	7	17	109
03:45 PM	8	4	1	17	3	0	20	3	64	7	28	111
Total	17	14	4	84	23	2	109	12	239	24	101	412
04:00 PM	7	4	0	21	5	2	28	3	64	3	40	100
04:15 PM	1	1	0	13	8	2	23	3	53	7	25	126
04:30 PM	2	3	0	15	3	0	18	4	55	4	16	95
04:45 PM	3	6	1	15	9	1	25	2	47	4	29	117
Total	13	14	1	64	25	5	94	12	219	18	110	438
05:00 PM	14	8	0	16	1	2	19	0	55	4	27	98
05:15 PM	3	0	0	17	6	1	24	3	46	3	31	106
05:30 PM	5	11	0	14	3	3	20	5	59	2	25	118
05:45 PM	3	7	1	22	7	2	31	1	50	4	23	116
Total	25	26	1	69	17	8	94	9	210	13	106	438
Grand Total	55	54	6	217	65	15	297	33	668	55	317	1288
Approch %	47.8	47	5.2	73.1	21.9	5.1	10.3	4	82	3.3	19.1	77.6
Total %	1.9	1.9	0.2	7.5	2.3	0.5	10.3	1.1	23.1	1.9	11	44.6

Start Time	Dwy Southbound			Hobron Ln Westbound			Hobron Ln Northbound			Lipeepes St Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
03:30 PM	3	3	3	25	7	0	32	3	71	7	17	109
03:45 PM	8	4	1	17	3	0	20	3	64	7	28	111
04:00 PM	7	4	0	21	5	2	28	3	64	3	40	100
04:15 PM	1	1	0	13	8	2	23	3	53	7	25	126
Total Volume	19	12	4	76	23	4	103	12	252	24	110	446
% App. Total	54.3	34.3	11.4	73.8	22.3	3.9	82.9	3.9	82.9	4.1	19	76.9
PHF	.594	.750	.333	.760	.719	.500	.805	1.000	.887	.857	.688	.885
App. Total	.673	.894	.894	.894	.894	.894	.894	.894	.894	.894	.894	.894
Int. Total	.979	.979	.979	.979	.979	.979	.979	.979	.979	.979	.979	.979

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:30 PM

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : AlaLipA
 Site Code : 00000004
 Start Date : 5/5/2006
 Page No : 1

Counter: T-1839
 Counted: GMT
 Weather: Clear

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Southbound			Lipepee St Westbound			Ala Wai Blvd Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
07:00 AM	85	7	0	1	0	5	0	3	11	0	0	0	14	112
07:15 AM	83	7	0	0	0	6	6	4	8	0	4	12	12	108
07:30 AM	133	11	0	1	0	4	5	4	12	0	4	16	16	165
07:45 AM	125	3	0	1	0	5	6	1	6	0	1	7	7	141
Total	426	28	0	3	0	20	23	12	37	0	12	49	49	526
08:00 AM	122	5	0	2	0	0	2	0	6	0	4	10	10	139
08:15 AM	95	6	0	4	0	11	15	3	9	0	3	12	12	128
08:30 AM	96	11	0	1	0	12	13	4	12	0	4	16	16	136
08:45 AM	79	8	0	5	0	11	16	3	7	0	3	10	10	113
Total	392	30	0	12	0	34	46	14	34	0	14	48	48	516
Grand Total	818	58	0	15	0	54	69	26	71	0	26	97	97	1042
Approch %	93.4	6.6	0	21.7	0	78.3	6.6	26.8	73.2	0	26.8	73.2	9.3	0
Total %	78.5	5.6	0	1.4	0	5.2	6.6	0	6.8	0	2.5	6.8	9.3	0

Start Time	Ala Wai Blvd Southbound			Lipepee St Westbound			Ala Wai Blvd Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
07:30 AM	133	11	0	1	0	4	5	0	12	0	4	16	16	165
07:45 AM	125	3	0	1	0	5	6	1	6	0	1	7	7	141
08:00 AM	122	5	0	2	0	0	2	4	6	0	4	10	10	139
08:15 AM	95	6	0	4	0	11	15	3	9	0	3	12	12	128
Total Volume	475	25	0	8	0	20	28	12	33	0	12	45	45	573
% App. Total	95	5	0	28.6	0	71.4	4.67	26.7	73.3	0	26.7	73.3	703	.868
PHF	.893	.568	.000	.500	.000	.455	.467	.750	.688	.000	.750	.703	.000	.868

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

File Name : AlaLipP
 Site Code : 00000001
 Start Date : 5/8/2006
 Page No : 1

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter:D4-3889
 Counted:TO
 Weather:Clear

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Southbound			Lipepee St Westbound			Ala Wai Blvd Northbound			Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	94	6	0	5	0	9	0	3	6	0	9	0	123
03:15 PM	114	8	0	3	0	9	12	4	6	0	10	0	144
03:30 PM	118	9	0	6	0	15	21	2	4	0	6	0	154
03:45 PM	94	2	0	5	1	7	13	2	7	0	9	0	118
Total	420	25	0	19	1	40	60	11	23	0	34	0	539
04:00 PM	129	7	0	2	0	10	12	7	2	0	9	0	157
04:15 PM	130	8	0	2	0	6	8	5	6	0	11	0	157
04:30 PM	115	8	0	5	0	9	14	4	8	0	12	0	149
04:45 PM	113	9	0	5	0	10	15	6	6	0	12	0	149
Total	487	32	0	14	0	35	49	22	22	0	44	0	612
05:00 PM	122	8	0	1	0	12	13	1	6	0	7	0	150
05:15 PM	133	9	0	4	0	13	17	6	8	0	14	0	173
05:30 PM	115	14	0	3	0	9	12	5	6	0	11	0	152
05:45 PM	98	9	0	1	0	14	15	0	8	0	8	0	130
Total	468	40	0	9	0	48	57	12	28	0	40	0	605
Grand Total	1375	97	0	42	1	123	166	45	73	0	118	0	1756
Approch %	93.4	6.6	0	25.3	0.6	74.1	9.5	38.1	61.9	0	6.7	0	
Total %	78.3	5.5	0	2.4	0.1	7	9.5	2.6	4.2	0	6.7	0	

Start Time	Ala Wai Blvd Southbound			Lipepee St Westbound			Ala Wai Blvd Northbound			Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:45 PM	113	9	0	5	0	10	15	6	6	0	12	0	149
05:00 PM	122	8	0	1	0	12	13	1	6	0	7	0	150
05:15 PM	133	9	0	4	0	13	17	6	8	0	14	0	173
05:30 PM	115	14	0	3	0	9	12	5	6	0	11	0	152
05:45 PM	98	9	0	1	0	14	15	0	8	0	8	0	130
Total	468	40	0	14	0	48	57	12	28	0	40	0	605
Grand Total	1375	97	0	42	1	123	166	45	73	0	118	0	1756
Approch %	93.4	6.6	0	25.3	0.6	74.1	9.5	38.1	61.9	0	6.7	0	
Total %	78.3	5.5	0	2.4	0.1	7	9.5	2.6	4.2	0	6.7	0	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM

Start Time	Ala Wai Blvd Southbound			Lipepee St Westbound			Ala Wai Blvd Northbound			Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:45 PM	113	9	0	5	0	10	15	6	6	0	12	0	149
05:00 PM	122	8	0	1	0	12	13	1	6	0	7	0	150
05:15 PM	133	9	0	4	0	13	17	6	8	0	14	0	173
05:30 PM	115	14	0	3	0	9	12	5	6	0	11	0	152
05:45 PM	98	9	0	1	0	14	15	0	8	0	8	0	130
Total	468	40	0	14	0	48	57	12	28	0	40	0	605
Total Volume	463	40	0	13	0	44	57	18	26	0	44	0	624
% App. Total	92.4	7.6	0	22.8	0	77.2	9.5	40.9	59.1	0	6.7	0	
PHF	.908	.714	.000	.650	.000	.846	.838	.750	.813	.000	.786	.000	.902

11/15/2011 10:00 AM

APPENDIX B
LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤ 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	>80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

**Table 1: Level-of-Service Criteria for
Unsignalized Intersections**

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

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APPENDIX C
CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig	TR			T			R			L	TR	R
Volume	979 126			239			49			92	360	956
Lane Width	12.0			12.0			12.0			12.0	12.0	12.0
RTOR Vol	13						0			478		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/c	Delay	LOS	Delay	LOS
Eastbound								
TR	2498	4995	0.48	0.50	13.3	B	13.3	B
Westbound								
T	1774	3547	0.13	0.50	10.8	B	10.8	B
Northbound								
R	604	1611	0.12	0.38	16.4	B	16.4	B
Southbound								
L	664	1770	0.15	0.38	16.7	B		
TR	672	1793	0.79	0.38	29.1	C	25.8	C
R	594	1583	0.67	0.38	23.8	C		
Intersection Delay = 18.2 (sec/veh) Intersection LOS = B								

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig		TR			T				R	L	TR	R
Volume		1440	193		335				81	69	417	514
Lane Width		12.0			12.0				12.0	12.0	12.0	12.0
RTOR Vol			19						0			257

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations								
	1	2	3	4	5	6	7	8	
EB Left					NB Left				
Thru	A				Thru				
Right	A				Right	A			
Peds					Peds				
WB Left					SB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	40.0				30.0				
Yellow	4.0				4.0				
All Red	1.0				1.0				
								Cycle Length: 80.0	secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2496	4992	0.67	0.50	15.7	B	15.7	B
Westbound								
T	1774	3547	0.20	0.50	11.1	B	11.1	B
Northbound								
R	604	1611	0.20	0.38	17.0	B	17.0	B
Southbound								
L	664	1770	0.11	0.38	16.4	B		
TR	684	1825	0.77	0.38	27.7	C	24.2	C
R	594	1583	0.36	0.38	18.4	B		
Intersection Delay = 17.6 (sec/veh)					Intersection LOS = B			

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	0	0	0	0
LGConfig	TR			T			LR					
Volume	902 151			25			221 112					
Lane Width	12.0			12.0			12.0					
RTOR Vol	15						11					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	A				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2487	4974	0.46	0.50	13.2	B	13.2	B
Westbound								
T	1774	3547	0.02	0.50	10.1	B	10.1	B
Northbound								
LR	647	1725	0.55	0.38	20.6	C	20.6	C
Southbound								

Intersection Delay = 14.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	0	0	0	0
LGConfig	TR			T			LR					
Volume	1410 185			13			318 128					
Lane Width	12.0			12.0			12.0					
RTOR Vol	15						11					

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left					NB	Left	A	
	Thru	A					Thru		
	Right	A					Right	A	
	Peds						Peds		
WB	Left					SB	Left		
	Thru	A					Thru		
	Right						Right		
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		40.0					30.0		
Yellow		4.0					4.0		
All Red		1.0					1.0		
		Cycle Length: 80.0 secs							

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2496	4992	0.67	0.50	15.8	B	15.8	B
Westbound								
T	1774	3547	0.01	0.50	10.0+	B	10.0+	B
Northbound								
LR	650	1732	0.70	0.38	24.8	C	24.8	C
Southbound								

Intersection Delay = 17.7 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto

Phone:
E-Mail:

Fax:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Hobron Ln

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	22	65	376	115	11	5	20	7	119	6	6	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.83		0.84		0.76		0.54	
Flow Rate	557		154		191		23	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	557		154		191		23	
Left-Turn	26		136		26		11	
Right-Turn	453		5		156		1	
Prop. Left-Turns	0.0		0.9		0.1		0.5	
Prop. Right-Turns	0.8		0.0		0.8		0.0	

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto

Phone:
E-Mail:

Fax:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Hobron Ln

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	15	103	416	63	19	4	35	9	203	22	17	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.89		0.86		0.87		0.45	
Flow Rate	598		99		283		87	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	598		99		283		87	
Left-Turn	16		73		40		48	
Right-Turn	467		4		233		2	
Prop. Left-Turns	0.0		0.7		0.1		0.6	
Prop. Right-Turns	0.8		0.0		0.8		0.0	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	-0.4	0.2	-0.4	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	598		99		283		87	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.53		0.09		0.25		0.08	
hd, final value	4.74		6.05		5.43		6.38	
x, final value	0.79		0.17		0.43		0.15	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.7		4.0		3.4		4.4	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	598		99		283		87	
Service Time	2.7		4.0		3.4		4.4	
Utilization, x	0.79		0.17		0.43		0.15	
Dep. headway, hd	4.74		6.05		5.43		6.38	
Capacity	744		349		533		337	
Delay	24.55		10.26		12.47		10.55	
LOS	C		B		B		B	
Approach:								
Delay		24.55		10.26		12.47		10.55
LOS		C		B		B		B
Intersection Delay	18.88				Intersection LOS C			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Lipeepie St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		13	32	463	26		
Peak-Hour Factor, PHF		0.70	0.70	0.85	0.85		
Hourly Flow Rate, HFR		18	45	544	30		
Percent Heavy Vehicles		--	--	2	--	--	
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		4		15			
Peak Hour Factor, PHF		0.79		0.79			
Hourly Flow Rate, HFR		5		18			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		544		23				
C(m) (vph)		1540		433				
v/c		0.35		0.05				
95% queue length		1.63		0.17				
Control Delay		8.6		13.8				
LOS		A		B				
Approach Delay				13.8				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume		17	28	483	34	
Peak-Hour Factor, PHF		0.80	0.80	0.91	0.91	
Hourly Flow Rate, HFR		21	34	530	37	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes Configuration		1	0	0	1	
Upstream Signal?		No	TR	LT	No	

Minor Street: Approach Movement	Westbound			Eastbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	15		44			
Peak Hour Factor, PHF	0.87		0.87			
Hourly Flow Rate, HFR	17		50			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes Configuration	0		0			
		LR				

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	NB	SB	Westbound			Eastbound		
	1	4 LT	7	8 LR	9	10	11	12
v (vph)		530		67				
C(m) (vph)		1550		409				
v/c		0.34		0.16				
95% queue length		1.55		0.59				
Control Delay		8.5		15.5				
LOS		A		C				
Approach Delay				15.5				
Approach LOS				C				

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2009 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT**

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/out project
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig	TR			T			R			L	TR	R
Volume	1126 149			275			70			106	419	1099
Lane Width	12.0			12.0			12.0			12.0	12.0	12.0
RTOR Vol	15						0			550		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach		
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2497	4993	0.53	0.50	13.8	B	13.8	B
Westbound								
T	1774	3547	0.16	0.50	10.9	B	10.9	B
Northbound								
R	604	1611	0.17	0.38	16.8	B	16.8	B
Southbound								
L	664	1770	0.17	0.38	16.8	B		
TR	677	1805	0.82	0.38	31.3	C	28.9	C
R	594	1583	0.78	0.38	28.9	C		
Intersection Delay = 19.7 (sec/veh)					Intersection LOS = B			

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/out project
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig		TR			T				R	L	TR	R
Volume		1656	236		385				100	79	492	591
Lane Width		12.0			12.0				12.0	12.0	12.0	
RTOR Vol			24					0				296

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left	A		
Thru		A			Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0					30.0		
Yellow	4.0					4.0		
All Red	1.0					1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2494	4988	0.77	0.50	17.9	B	17.9	B
Westbound								
T	1774	3547	0.23	0.50	11.3	B	11.3	B
Northbound								
R	604	1611	0.24	0.38	17.4	B	17.4	B
Southbound								
L	664	1770	0.13	0.38	16.5	B		
TR	687	1833	0.84	0.38	33.2	C	27.8	C
R	594	1583	0.42	0.38	19.0	B		

Intersection Delay = 19.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/out project
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	0	0	0	0
LGConfig	TR			T			LR					
Volume	1051 174			29			254			129		
Lane Width	12.0			12.0			12.0					
RTOR Vol	17									13		

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left					NB	Left	A	
	Thru		A				Thru		
	Right		A				Right	A	
	Peds						Peds		
WB	Left					SB	Left		
	Thru		A				Thru		
	Right						Right		
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		40.0				30.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
Cycle Length: 80.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2488	4975	0.54	0.50	13.9	B	13.9	B
Westbound								
T	1774	3547	0.02	0.50	10.1	B	10.1	B
Northbound								
LR	647	1725	0.63	0.38	22.4	C	22.4	C
Southbound								

Intersection Delay = 15.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/out project
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	0	0	0	0
LGConfig	TR			T			LR					
Volume	1629	213		15			366		147			
Lane Width	12.0			12.0			12.0					
RTOR Vol			15						11			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru		A			Thru			
Right		A			Right	A		
Peds					Peds			
WB Left					SB Left			
Thru		A			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		40.0				30.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2496	4992	0.78	0.50	18.0	B	18.0	B
Westbound								
T	1774	3547	0.01	0.50	10.1	B	10.1	B
Northbound								
LR	650	1732	0.81	0.38	30.7	C	30.7	C
Southbound								

Intersection Delay = 20.7 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto

Phone:
E-Mail:

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/out project
 Project ID:
 East/West Street: Lipeepe St
 North/South Street: Hobron Ln

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	22	75	432	132	13	5	23	7	139	6	6	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LTR		LTR		LTR	
PHF	0.83	0.83	0.84		0.76		0.54	
Flow Rate	116	520	177		221		23	
% Heavy Veh	2	2	2		2		2	
No. Lanes		2		1		1		1
Opposing-Lanes		1		2		1		1
Conflicting-lanes		1		1		2		2
Geometry group		5		4a		2		2
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	116	520	177		221		23	
Left-Turn	26	0	157		30		11	
Right-Turn	0	520	5		182		1	
Prop. Left-Turns	0.2	0.0	0.9		0.1		0.5	
Prop. Right-Turns	0.0	1.0	0.0		0.8		0.0	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0
Geometry Group	5		4a	2	2	
Adjustments Exhibit 17-33:						
hLT-adj	0.5		0.2	0.2	0.2	
hRT-adj	-0.7		-0.6	-0.6	-0.6	
hHV-adj	1.7		1.7	1.7	1.7	
hadj, computed	0.1	-0.7	0.2	-0.4	0.1	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	116	520	177		221		23	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	0.02	3.20
x, initial	0.10	0.46	0.16		0.20		6.29	
hd, final value	5.58	4.76	5.63		5.32		0.04	
x, final value	0.18	0.69	0.28		0.33			2.0
Move-up time, m		2.3		2.0		2.0		
Service Time	3.3	2.5	3.6		3.3		4.3	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	116	520	177		221		23	
Service Time	3.3	2.5	3.6		3.3		4.3	
Utilization, x	0.18	0.69	0.28		0.33		0.04	
Dep. headway, hd	5.58	4.76	5.63		5.32		6.29	
Capacity	366	744	427		471		273	
Delay	9.50	17.72	10.79		10.90		9.56	
LOS	A	C	B		B		A	
Approach:								
Delay		16.22	10.79		10.90		9.56	
LOS		C	B		B		A	
Intersection Delay	14.05				Intersection LOS B			

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto

Phone:
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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/out project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Hobron Ln

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	15	118	478	73	22	4	40	9	235	22	17	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LTR		LTR		LTR	
PHF	0.89	0.89	0.86		0.87		0.45	
Flow Rate	148	537	113		325		87	
% Heavy Veh	2	2	2		2		2	
No. Lanes		2		1		1		1
Opposing-Lanes		1		2		1		1
Conflicting-lanes		1		1		2		2
Geometry group		5		4a		2		2
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	148	537	113		325		87	
Left-Turn	16	0	84		45		48	
Right-Turn	0	537	4		270		2	
Prop. Left-Turns	0.1	0.0	0.7		0.1		0.6	
Prop. Right-Turns	0.0	1.0	0.0		0.8		0.0	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0
Geometry Group	5		4a	2	2	
Adjustments Exhibit 17-33:						
hLT-adj	0.5		0.2	0.2	0.2	
hRT-adj	-0.7		-0.6	-0.6	-0.6	
hHV-adj	1.7		1.7	1.7	1.7	
hadj, computed	0.1	-0.7	0.2	-0.4	0.1	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	148	537	113		325		87	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13	0.48	0.10		0.29		0.08	
hd, final value	6.03	5.27	6.40		5.55		6.63	
x, final value	0.25	0.79	0.20		0.50		0.16	
Move-up time, m		2.3		2.0		2.0		2.0
Service Time	3.7	3.0	4.4		3.5		4.6	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	148	537	113		325		87	
Service Time	3.7	3.0	4.4		3.5		4.6	
Utilization, x	0.25	0.79	0.20		0.50		0.16	
Dep. headway, hd	6.03	5.27	6.40		5.55		6.63	
Capacity	398	673	363		575		337	
Delay	10.71	26.39	11.00		14.08		10.89	
LOS	B	D	B		B		B	
Approach:								
Delay		23.00	11.00		14.08		10.89	
LOS		C	B		B		B	
Intersection Delay	18.61		Intersection LOS C					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/out project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			29	37	532	39	
Peak-Hour Factor, PHF			0.70	0.70	0.85	0.85	
Hourly Flow Rate, HFR			41	52	625	45	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			1	0	0	1	
Configuration				TR		LT	
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		5		17			
Peak Hour Factor, PHF		0.79		0.79			
Hourly Flow Rate, HFR		6		21			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration				LR			

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		625		27				
C(m) (vph)		1501		321				
v/c		0.42		0.08				
95% queue length		2.13		0.27				
Control Delay		9.1		17.2				
LOS		A		C				
Approach Delay				17.2				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/out project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume		27	32	555	65	
Peak-Hour Factor, PHF		0.80	0.80	0.91	0.91	
Hourly Flow Rate, HFR		33	39	609	71	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach Movement	Westbound			Eastbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	17		51			
Peak Hour Factor, PHF	0.87		0.87			
Hourly Flow Rate, HFR	19		58			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration			LR			

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
		LT		LR				
v (vph)		609		77				
C(m) (vph)		1528		314				
v/c		0.40		0.25				
95% queue length		1.98		0.97				
Control Delay		8.9		20.2				
LOS		A		C				
Approach Delay				20.2				
Approach LOS				C				

APPENDIX E

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2009 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/ project
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig	TR			T			R			L	TR	R
Volume	1138 149			275			71			121	419	1099
Lane Width	12.0			12.0			12.0			12.0	12.0	12.0
RTOR Vol	15						0			550		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2497	4994	0.54	0.50	13.9	B	13.9	B
Westbound								
T	1774	3547	0.16	0.50	10.9	B	10.9	B
Northbound								
R	604	1611	0.17	0.38	16.8	B	16.8	B
Southbound								
L	664	1770	0.19	0.38	17.0	B		
TR	677	1805	0.82	0.38	31.3	C	28.7	C
R	594	1583	0.78	0.38	28.9	C		
Intersection Delay = 19.6 (sec/veh)					Intersection LOS = B			

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 05/09/06
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/ project
 N/S St: Ala Wai Blvd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	0	0	2	0	0	0	1	1	1	1
LGConfig	TR			T			R			L	TR	R
Volume	1740 236			385			105			126	492	591
Lane Width	12.0			12.0			12.0			12.0	12.0	12.0
RTOR Vol	24						0			296		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2496	4991	0.81	0.50	18.8	B	18.8	B
Westbound								
T	1774	3547	0.23	0.50	11.3	B	11.3	B
Northbound								
R	604	1611	0.25	0.38	17.5	B	17.5	B
Southbound								
L	664	1770	0.20	0.38	17.0	B		
TR	687	1833	0.84	0.38	33.2	C	27.3	C
R	594	1583	0.42	0.38	19.0	B		
Intersection Delay = 20.2 (sec/veh)					Intersection LOS = C			

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: AM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/ project
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	1	0	2	0	0	0	0	0	0	0
LGConfig		T	R		T			LR				
Volume		1086	174		29		254			129		
Lane Width		12.0	12.0		12.0			12.0				
RTOR Vol			17							13		

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	A		
Thru	A				Thru			
Right	A				Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	A				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2537	5074	0.48	0.50	13.3	B	13.0	B
R	792	1583	0.22	0.50	11.4	B		
Westbound								
T	1774	3547	0.02	0.50	10.1	B	10.1	B
Northbound								
LR	647	1725	0.63	0.38	22.4	C	22.4	C
Southbound								

Intersection Delay = 15.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: CL
 Agency:
 Date: 5/9/2006
 Period: PM Peak
 Project ID:
 E/W St: Kalakaua Ave

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2009 w/ project
 N/S St: Ena Rd

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3	1	0	2	0	0	0	0	0	0	0
LGConfig		T	R		T			LR				
Volume		1680	213		15		366		147			
Lane Width		12.0	12.0		12.0			12.0				
RTOR Vol			15						11			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations								
	1	2	3	4	5	6	7	8	
EB Left					NB Left	A			
Thru		A			Thru				
Right		A			Right	A			
Peds					Peds				
WB Left					SB Left				
Thru		A			Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		40.0				30.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
								Cycle Length: 80.0	secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2537	5074	0.70	0.50	16.3	B	15.9	B
R	792	1583	0.27	0.50	11.7	B		
Westbound								
T	1774	3547	0.01	0.50	10.1	B	10.1	B
Northbound								
LR	650	1732	0.81	0.38	30.7	C	30.7	C
Southbound								

Intersection Delay = 18.9 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/ project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Hobron Ln

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	22	75	432	149	13	5	24	7	139	6	6	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LTR		LTR		LTR	
PHF	0.83	0.83	0.84		0.76		0.54	
Flow Rate	116	520	197		222		23	
% Heavy Veh	2	2	2		2		2	
No. Lanes		2		1		1		1
Opposing-Lanes		1		2		1		1
Conflicting-lanes		1		1		2		2
Geometry group		5		4a		2		2
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	116	520	197		222		23	
Left-Turn	26	0	177		31		11	
Right-Turn	0	520	5		182		1	
Prop. Left-Turns	0.2	0.0	0.9		0.1		0.5	
Prop. Right-Turns	0.0	1.0	0.0		0.8		0.0	

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto

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ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/ project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Hobron Ln
 _____Worksheet 2 - Volume Adjustments and Site Characteristics_____

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	15	118	478	81	22	4	45	9	235	22	17	1
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LTR		LTR		LTR	
PHF	0.89	0.89	0.86		0.87		0.45	
Flow Rate	148	537	123		331		87	
% Heavy Veh	2	2	2		2		2	
No. Lanes		2		1		1		1
Opposing-Lanes		1		2		1		1
Conflicting-lanes		1		1		2		2
Geometry group		5		4a		2		2
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	148	537	123		331		87	
Left-Turn	16	0	94		51		48	
Right-Turn	0	537	4		270		2	
Prop. Left-Turns	0.1	0.0	0.8		0.2		0.6	
Prop. Right-Turns	0.0	1.0	0.0		0.8		0.0	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0
Geometry Group	5		4a	2	2
Adjustments Exhibit 17-33:					
hLT-adj	0.5		0.2	0.2	0.2
hRT-adj	-0.7		-0.6	-0.6	-0.6
hHV-adj	1.7		1.7	1.7	1.7
hadj, computed	0.1	-0.7	0.2	-0.4	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	148	537	123		331		87	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13	0.48	0.11		0.29		0.08	
hd, final value	6.08	5.32	6.45		5.61		6.70	
x, final value	0.25	0.79	0.22		0.52		0.16	
Move-up time, m		2.3		2.0		2.0		2.0
Service Time	3.8	3.0	4.4		3.6		4.7	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	148	537	123		331		87	
Service Time	3.8	3.0	4.4		3.6		4.7	
Utilization, x	0.25	0.79	0.22		0.52		0.16	
Dep. headway, hd	6.08	5.32	6.45		5.61		6.70	
Capacity	398	666	373		581		337	
Delay	10.81	27.44	11.27		14.53		10.99	
LOS	B	D	B		B		B	
Approach:								
Delay		23.84		11.27		14.53		10.99
LOS		C		B		B		B
Intersection Delay	19.16		Intersection LOS C					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/ project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			29	37	532	39	
Peak-Hour Factor, PHF			0.70	0.70	0.85	0.85	
Hourly Flow Rate, HFR			41	52	625	45	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			1	0		0	1
Configuration				TR		LT	
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		5		18			
Peak Hour Factor, PHF		0.79		0.79			
Hourly Flow Rate, HFR		6		22			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration				LR			

Delay, Queue Length, and Level of Service								
Approach Movement	NB 1	SB 4 LT	Westbound			Eastbound		
			7	8 LR	9	10	11	12
v (vph)		625		28				
C(m) (vph)		1501		329				
v/c		0.42		0.09				
95% queue length		2.13		0.28				
Control Delay		9.1		17.0				
LOS		A		C				
Approach Delay				17.0				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

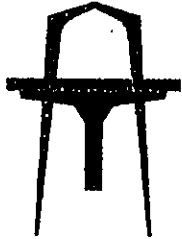
Analyst: CL
 Agency/Co.:
 Date Performed: 05/09/06
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2009 w/ project
 Project ID:
 East/West Street: Lipeepee St
 North/South Street: Ala Wai Blvd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			27	32	555	65	
Peak-Hour Factor, PHF			0.80	0.80	0.91	0.91	
Hourly Flow Rate, HFR			33	39	609	71	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			1	0		0	1
Configuration				TR		LT	
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		17		56			
Peak Hour Factor, PHF		0.87		0.87			
Hourly Flow Rate, HFR		19		64			
Percent Heavy Vehicles		2		2		0	
Percent Grade (%)			0		/		/
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration				LR			

Delay, Queue Length, and Level of Service									
Approach Movement	NB 1	SB 4	Westbound			Eastbound			
			7 LT	8 LR	9	10	11	12	
v (vph)		609		83					
C(m) (vph)		1528		331					
v/c		0.40		0.25					
95% queue length		1.98		1.00					
Control Delay		8.9		19.5					
LOS		A		C					
Approach Delay				19.5					
Approach LOS				C					

**WILSON
OKAMOTO
CORPORATION**



**ENGINEERS
PLANNERS**

1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH. (808)946-2277
FAX: (808)946-2253

7558-02
December 5, 2006

Mr. Ben Ortega
Fifield Realty Corporation
19900 MacArthur Blvd., Suite 655
Irvine, CA 92612

Subject: Waikiki Allure Condominium – Pedestrian Assessment

Dear Mr. Ortega:

As requested, we are submitting a supplemental assessment for the Waikiki Allure Condominium development to determine if the proposed sidewalk narrowing would significantly impact pedestrian operations fronting the project site. The following is a summary of our assessment and conclusions.

Field Investigation

Field investigations were conducted on December 1-2, 2006 and consisted of pedestrian volume counts along the sidewalk fronting the project site. The counts on the 1st (Friday) were conducted between 3:00 PM and 9:00 PM while those on the 2nd (Saturday) were conducted between 5:00 PM and 9:00 PM. The collected data included a cursory survey of the available sidewalk area fronting the project site and a count of the number of pedestrians fronting the project site every 10 minutes (see attached).

Existing Conditions

The existing sidewalk fronting the project site is approximately 455 feet in length with a width that varies from ~11.75' near the intersection of Ena Road to ~12.5' near the western edge of the project site. The sidewalk width is occasionally constricted by obstacles such as light poles, a traffic signal controller cabinet, tree wells, and a bus stop. The bus stop and traffic signal controller cabinet are located adjacent to each other in the middle of the sidewalk reducing the sidewalk width to ~9.8' for a distance of ~20'. Similarly, the tree wells range from 4'-5' in width thereby reducing the sidewalk width to ~8'.

Existing pedestrian operations adjacent to the project site were assessed utilizing procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000. Utilizing the field measurements and adjusting for larger obstacles (i.e., bus stop, traffic controller cabinet, tree wells), it was determined that the sidewalk adjacent to the project site currently provides ~ 5,300 ft² of available area for pedestrians. The available space per pedestrian was then calculated for each time period and a correlating level-of-service (LOS) determined. Pedestrian flows

WILSON
OKAMOTO
CORPORATION

7558-02
Letter to Mr. Ben Ortega
Page 2
December 5, 2006

operated at LOS "A" adjacent to the project during all surveyed time periods (see attached).

Projected Conditions


The Waikiki Allure Condominium development includes a residential condominium and restaurant. Pedestrian traffic in the project vicinity is not anticipated to increase significantly due to the project since the project is located on the far end (western) of Waikiki and is primarily a residential development. In conjunction with the development, the sidewalk adjacent to the project site will be narrowed from ~12 feet to ~10 feet and the adjacent bus stop will be relocated outside the sidewalk area to allow pedestrians to utilize the full sidewalk width. The narrowed sidewalk width is anticipated to reduce the available sidewalk area to ~4,400 ft². However, this area should be sufficient to accommodate the adjacent pedestrian traffic with pedestrian flows expected to continue operating at LOS "A" during the PM hours.

Conclusion

The proposed sidewalk width of ~10' adjacent to the project site for the Waikiki Allure Condominium is not expected to have a significant impact on pedestrian operations in the vicinity. Pedestrian flows are expected to continue operating at LOS "A" during the PM hours. In addition, the relocation of the existing bus stop outside the sidewalk area to allow pedestrians to utilize the full sidewalk width should minimize the impact of the sidewalk narrowing.

Should you have any questions or require additional information, please contact Mr. Pete Pascua or myself at 946-2277.

Sincerely,



Cathy Leong, P.E.

WAIKIKI ALLURE CONDOMINIUM PEDESTRIAN SURVEY
FRIDAY, DEC 1, 2006
EXISTING CONDITIONS

TIME		# of Pedestrians	Space/Ped	LOS
3:00 PM	:00	9	589	A
	:10	2	2650	A
	:20	14	379	A
	:30	5	1060	A
	:40	8	663	A
	:50	9	589	A
4:00 PM	:00	3	1767	A
	:10	13	408	A
	:20	9	589	A
	:30	5	1060	A
	:40	1	5300	A
	:50	8	663	A
5:00 PM	:00	8	663	A
	:10	5	1060	A
	:20	10	530	A
	:30	10	530	A
	:40	6	883	A
	:50	14	379	A
6:00 PM	:00	5	1060	A
	:10	7	757	A
	:20	8	663	A
	:30	4	1325	A
	:40	5	1060	A
	:50	7	757	A
7:00 PM	:00	7	757	A
	:10	4	1325	A
	:20	4	1325	A
	:30	6	883	A
	:40	10	530	A
	:50	7	757	A
8:00 PM	:00	3	1767	A
	:10	5	1060	A
	:20	3	1767	A
	:30	6	883	A
	:40	2	2650	A
	:50	9	589	A
Max Peds		14		

WAIKIKI ALLURE CONDOMINIUM PEDESTRIAN SURVEY
SATURDAY, DEC 2, 2006
EXISTING CONDITIONS

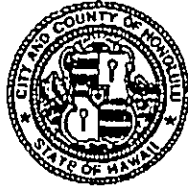
TIME		# of Pedestrians	Space/Ped	LOS
5:00 PM	:00	8	663	A
	:10	15	353	A
	:20	8	663	A
	:30	2	2650	A
	:40	1	5300	A
	:50	3	1767	A
6:00 PM	:00	8	663	A
	:10	9	589	A
	:20	4	1325	A
	:30	3	1767	A
	:40	9	589	A
	:50	8	663	A
7:00 PM	:00	6	883	A
	:10	8	663	A
	:20	7	757	A
	:30	1	5300	A
	:40	3	1767	A
	:50	1	5300	A
8:00 PM	:00	1	5300	A
	:10	4	1325	A
	:20	0	-	A
	:30	2	2650	A
	:40	7	757	A
	:50	2	2650	A
Max Peds		15		

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APPENDIX IV
AGENCY COMMENTS

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
 801 SOUTH BERETANIA STREET
 HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
<http://www.honolulu.gov>
<http://www.honolulupd.org>
www.honolulu.gov

MUFI HANNEMANN
MAYOR



BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-DK

September 20, 2006

RECEIVED
 SEP 22 10:31 AM
 CITY OF HONOLULU

TO: HENRY ENG, FAICP, DIRECTOR
 DEPARTMENT OF PLANNING AND PERMITTING

FROM: BOISSE P. CORREA, CHIEF OF POLICE
 HONOLULU POLICE DEPARTMENT

SUBJECT: WAIKIKI SPECIAL DISTRICT PERMIT
 DRAFT ENVIRONMENTAL ASSESSMENT
 ALLURE WAIKIKI CONDOMINIUM
 TAX MAP KEYS: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12, PAU LANE, AND
MAKAOE LANE

Thank you for the opportunity to review and comment on the subject project.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Marie McCauley of District 6 at 529-3361 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

BOISSE P. CORREA
Chief of Police

By *John P. Kerr*
 JOHN P. KERR
 Assistant Chief of Police
 Support Services Bureau

Serving and Protecting with Aloha

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Mr. Boisse P. Correa, Chief of Police
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Chief Correa:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 3, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. Your letter states that the proposal is not anticipated to have a significant impact on the operations and facilities of the Honolulu Police Department.

Thank you for participating in the environmental review process. Your comment letter and this response will be included in the Final Environmental Assessment for the project.

Very truly yours,



Ardis Shaw-Kim
Planner

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov



MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

September 26, 2006

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: LESTER K. C. CHANG, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
ALLURE WAIKIKI CONDOMINIUM
TMK: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12,
PAU LANE AND MAKAOE LANE

RECEIVED
CITY & COUNTY OF HONOLULU

06 SEP 27 P 3:09

RECEIVED

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the proposed Allure Waikiki Condominium.

The Department of Parks and Recreation is not necessarily in agreement with the developer's proposal to meet the Park Dedication Requirements with on site improvements and we requested at the Pre-Consultation review, that the developer schedule a presentation of their proposed park improvements to the department.

This Draft Environmental Assessment does reference our previous request and the department looks forward to meeting with the developers to discuss Park Dedication Requirements.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

LESTER K. C. CHANG
Director

LKCC:mk
(174224)

DOCUMENT CAPTURED AS RECEIVED

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Mr. Lester Chang, Director
Department of Parks and Recreation
1000 Uluohia Street #309
Kapolei, Hawaii 96707

Dear Mr. Chang:

Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and
Pau Lane

Thank you for comments, dated September 26, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium Mixed use project in Waikiki. Our response is as follows:

The developer will comply with park dedication requirements. We have met with both the Department of Parks and Recreation and the Department of Planning and Permitting regarding compliance with Park Dedication requirements. We will continue our dialog with these agencies in an effort to address concerns related to compliance with the Park Dedication Ordinance and open space. The Final Environmental Assessment will contain additional information on the recreational and open space amenities to be provided by the project.

Thank you for participating in the environmental assessment process.

Very truly yours,



Ardis Shaw-Kim
Planner

DOCUMENT CAPTURED AS RECEIVED

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME LEINAALA FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

September 28, 2006

DEPARTMENT OF HEALTH
CITY & COUNTY OF HONOLULU

In reply, please refer to
File: EHS/DR/RIAQ
RECEIVED
06 OCT -2 18:59

Mr. Henry Eng, FAICP
Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: **Comments to the Waikiki Special District (Major) Permit
Application No. 2006/ED-18
Project Name: Allure Waikiki Condominium
Location: 1837, 1855, 1867, 1879, 1881, 1883, 1887, and 1891
Kalakaua Avenue; 478 and 484 Pau Lane; 466, 467,
472, 475, and 479 Makaoe Lane; 491 Ena Road; Pau
Lane; and Makaoe Lane
Tax Map Keys: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12, Pau Lane, and Makaoe
Lane**

Our comments should be printed as follows:

“Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Sincerely,

Russell S. Takata, Program Manager
Noise, Radiation and Indoor Air Quality Branch

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Mr. Russell S. Takata, Program Manager
Noise, Radiation and Indoor Air Quality Branch
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Takata:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated September 28, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. Your letter states that the project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46, Community Noise Control.

The applicant proposes to comply with those requirements.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

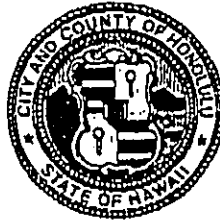
Very truly yours,



Ardis Shaw-Kim
Planner

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, KAPOLEI HALE, SUITE 215, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5054 FAX: (808) 692-5857



MUFI MANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE K. MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 06-989

September 29, 2006

MEMORANDUM

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING
Laverne Higa
FROM: LAVERNE HIGA, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE
SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
ALLURE WAIKIKI CONDOMINIUM

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

'06 OCT -2 P 3:40

RECEIVED

Thank you for the opportunity to comment on the proposed project. We have no comments at the present time. Please help keep us informed as your project progresses.

Should you have any questions, please contact Larry Leopardi Chief of the Division of Road Maintenance, at 484-7600.

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANDA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
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BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Ms. Laverne Higa, P.E., Director and Chief Engineer
Department of Facility Maintenance
1000 Uluohia Street
Kapolei Hale, Ste. 215
Kapolei, Hawaii 96707

Dear Ms. Higa:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated September 29, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. Your letter requests that the Department of Facility Maintenance be kept informed as the project progresses.

We are currently responding to comments we received during the 30 day public comment period on the Draft Environmental Assessment. These comments, including those from the Department of Facility Maintenance, as well as our response will be included in the Final Environmental Assessment. Subsequent to satisfying the environmental assessment requirements, we will be submitting a Waikiki Special District Permit Application to the Department of Planning and Permitting for processing.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment

Very truly yours,



Ardis Shaw-Kim
Planner

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



October 3, 2006

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNOIFF

RODNEY K. HARAGA, Ex-Officio
LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF PLANNING AND PERMITTING
CITY & COUNTY OF HONOLULU

06 OCT -4 P3:21

RECORDED

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER DATED SEPTEMBER 14, 2006 REGARDING THE
DRAFT ENVIRONMENTAL ASSESSMENT FOR THE ALLURE WAIKIKI
CONDOMINIUM MIXED USE DEVELOPMENT,
TMK: 2-6-013: 1, 3, 4, 7, 8, 9, 11, 12 AND PAU LANE AND MAKAOE
LANE

Our comments dated May 22, 2006, which are included in the assessment, are still applicable.

If you have any questions, please contact Robert Chun at 748-5443.

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Mr. Clifford P. Lum, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, HI 96813

Dear Mr. Lum:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 3, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. Your letter refers to a May 22, 2006 letter from the Board of Water Supply regarding the pre-consultation period.

The May 22, 2006 letter indicates that the existing water system is presently adequate to accommodate the proposed development but that a final decision on the availability of water would be confirmed when building permits are submitted for approval.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

Very truly yours,



Ardis Shaw-Kim
Planner

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

06 OCT -6 P 4:06

RECEIVED

OFFICE OF THE SUPERINTENDENT

October 3, 2006

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Application for Waikiki Special District Permit for the Allure Waikiki,
Mixed-Use Development, TMK: 2-6-013: 1, 3, 4, 7-9, 11, & 12 (2006/ED-18)

The Department of Education (DOE) has reviewed the Environmental Assessment (EA) and Special District Major Permit request from Fifield Companies for a 315-unit residential condominium and mixed-use development in Waikiki.

Although the project will have an impact on student enrollment in neighborhood schools, the property already has its appropriate zoning so the DOE will not ask for a school fair-share condition.

Thank you for the opportunity to review and comment on this EA. Should you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Estelle Wong, CAS, Kaimuku/Kalani Complex Areas

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Ms. Patricia Hamamoto, Superintendent
State Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Attention: Heidi Meeker (Facilities Development Branch)

Dear Superintendent Hamamoto:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 3, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development. Your letter correctly notes that the proposed uses are currently permitted by the existing Resort Commercial Precinct zoning.

Thank you for your participation in the environmental assessment process.

Very truly yours,



Ardis Shaw-Kim
Planner



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

October 17, 2006

HRD06/2458C

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

RE: Draft Environmental Assessment for proposed condominium and retail development, Waikiki Allure Condominium, Waikiki, O'ahu; TMKs: 2-6-013:001, 003, 007, 008, 009, 011, 012 and Makaoe and Pau Lanes

Dear Mr. Eng,

The Office of Hawaiian Affairs (OHA) is in receipt of your September 14, 2006, request for comments on the above project, which includes the construction of a condominium tower, retail establishments, ground floor lobby and condo support functions, and five stories of parking. OHA appreciates the continued correspondence and offers the following comments.

OHA is impressed with the level of consultation with the local community that was provided in the Cultural Impact Study's and the attempt to contact individuals affiliated with the project area, although pages 36-37 of the CIA are missing from our copy of the DEA. We appreciate that the "applicant plans to conduct the recommended archeological survey," page 44, however, we do request that the DEA contain concrete assurance that an archeological survey will be completed. OHA also appreciates that the developer will stop work if any cultural objects are inadvertently discovered, however, we request that a cultural monitor be present during any ground disturbance.

OHA is also concerned that it is unclear from the DEA whether the proposed use will be for permanent or transient housing. At page 63, the DEA claims that the range of beneficial uses of the environment will not be significantly impacted, because "[t]he project site will provide much needed condominium units to meet the growing demand for housing, particularly in Waikiki." In addition, on page 17 it is stated that "[t]he proposed development will have no impact on the visitor population as no visitor units are proposed." Yet on page 63, it is suggested that the condominiums may be sold as timeshare units, and on page 17, it is stated that the units may be purchased by "second or vacation home buyers."

Henry Eng, FAIP, Director
October 10, 2006
Page 2

Before the Department of Planning and Permitting makes a finding of no significant impact, we request that it be made clear that the development will be dedicated to residential use for Hawai'i residents and will not increase visitor capacity. The impacts of the two types of developments differ greatly, and the EA must address the impacts of the type of development that will be built. This particular EA appears to be based on residential housing, and assurances must be made that this will be the actual use. If the purpose is not to provide residential housing, then the environmental impacts will be much greater, and a finding of no significant impact cannot be issued based on this EA. Rather, OHA would recommend that an Environmental Impact Statement (EIS) be completed to further analyze the impacts of adding timeshare or transient units to Waikiki, including addressing cumulative effects.

In conclusion, OHA cannot support a finding of no significant impact unless the applicant guarantees that 1) an archeological survey will be completed upon demolition of existing buildings and prior to new construction, 2) a cultural monitor will be on-site during all ground disturbances, and 3) the applicant guarantees use of the new development for residential, non-transient housing.

Thank you for your continued correspondence and opportunity to comment. We look forward to reviewing the final DEA, or a draft EIS if this project does indeed contemplate provision of transient housing. If you have any further questions or concerns please contact Koa Kaulukukui at (808) 594-0244 or koalanik@oha.org.

Sincerely,



Clyde W. Nāmu'o
Administrator

C: ✓ Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Ste. 5-202
Honolulu, Hawai'i 96822

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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December 7, 2006

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Ste. 500
Honolulu, Hawaii 96813

Dear Mr. Namu'o:

**Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane**

Thank you for comments, dated October 17, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development. Our response is as follows:

The Allure Waikiki project will comply with all directives from the State Historic Preservation Division (SHPD/DLNR). This began with a requirement for an Archaeological Inventory Survey Plan (Tulchin et al. 2006) that was accepted by the SHPD in its letter of July 7, 2006 (Log No 2006.2424; Doc No 0607AJ18). The Archaeological Inventory Survey fieldwork has been completed in close co-ordination with the SHPD archaeology branch to meet or exceed their requirements. The Archaeological Inventory Survey report has been submitted to SHPD and will be included in the Final Environmental Assessment.


We anticipate that an archaeological monitor will be on-site during all ground disturbances. Regarding possible use of cultural monitors the advice of the SHPD will be sought. As you noted in your letter the developer has taken a proactive and conscientious effort from early on to work in close consultation with the local community and Native Hawaiian groups and individuals. This consultation will continue through the course of the implementation of project mitigation.

Mr. Clyde W. Namu'o
December 7, 2006

The condominium component of the project is being developed as a multifamily dwelling as is allowed in the Resort Commercial Precinct. Hotels, time sharing, and transient vacation units are not permitted in this zoning district and the developer does not propose these uses at this location. The Final Environmental Assessment will clarify this aspect of the proposal.

Thank you for participating in the environmental review process. Your comment letter and this response will be included in the Final Environmental Assessment for the project.

Very truly yours,


Ardis Shaw-Kim
Planner

LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2313

October 23, 2006

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Allure Waikiki Condominium
Hawaii Land LP - Fifield Companies
DPP Project No. 2006/ED-18
Waikiki Special District Permit (Major)
TMK: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12, Pau Lane, and Makaoe Lane

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

06 OCT 24 P 1:49

RECEIVED

We have the following comments on the subject project for a proposed condominium and mixed-use development:

1. The project will add to the traffic impact from the County's streets, particularly Hobron Lane, Ena Road, and Kalakaua Avenue, intersecting with our highway Route 92, Ala Moana Boulevard.
2. The Traffic Impact Report for the project did not discuss the traffic at the intersections with our highway. The subject applicant should be responsible for traffic mitigation measures necessary at our highway.
3. The project is also one of several land developments in the immediate area, now on-going or planned for the same time period, that will contribute to a cumulative impact effect on our highway and the local streets. The cumulative effect of these developments on the roadways and intersections in the area should be reviewed and addressed.
4. If your department has similar concerns as we have provided above, we recommend that your staff contact our Highways Divisions, through our Highways Planning Branch, for further discussions on the project and the cumulative traffic impact in the area. Our Highways Traffic Branch may also need to get involved in such discussions.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

December 7, 2006

Mr. Rodney K. Haraga, Director of Transportation
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Haraga:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 23, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. Our following responses are numbered to correspond to the numbering in your letter:

1. The Traffic Impact Report (TIAR) recognizes the traffic that will be generated by the proposed project. Project generated traffic is reported in Section IV, "Projected Traffic Conditions" of the Traffic Impact Report.
2. Available traffic data along Ala Moana Boulevard in the vicinity of the project site was reviewed. The total traffic volumes entering the intersections along Ala Moana Boulevard in the project vicinity are anticipated to increase by approximately 1% or less during the AM and PM peak periods due to the development of the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along Ala Moana Boulevard and represent a minimal increase in the overall traffic volumes. As such, these intersections were not assessed in the TIAR.
3. Section 4C of the TIAR discusses traffic generated by other developments in the vicinity. Since many of the projects in the vicinity are either anticipated to be completed after Year 2009 or their schedule is unknown, a conservative, universal growth factor was applied to all the traffic movements at the study intersections to simulate ambient growth in traffic in the project vicinity. This

Mr. Rodney K. Haraga
December 7, 2006

ambient growth factor of 5.0% per year may absorb any variations in the projected traffic patterns as a result of these other developments. Site-generated traffic from the closest on-going development, The Watermark, (formerly known as the Ala Wai Gateway) was also conservatively added to the street network in the project vicinity in addition to ambient traffic growth.

4. Your Item number 4 recommends that should the Department of Planning and Permitting have similar concerns, it may contact the Highways Division, through the Highways Planning Branch and possibly the Highways Traffic Branch. It would be up to the Department of Planning and Permitting to determine the appropriate course of action.

Thank you for participating in the environmental review process. Your comments and this response will be included in the Final Environmental Assessment.

Very truly yours,

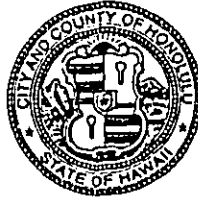


Ardis Shaw-Kim
Planner

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR



HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2006/ELOG-2278(TC)
2006/ED-18

November 8, 2006

Ms. Ardis Shaw-Kim
Kusao & Kurahashi, Inc
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Ms. Shaw-Kim:

Subject: Chapter 343, HRS, Draft Environmental Assessment (DEA)
DPP Project Reference No. 2006/ED-18
Project: Allure Waikiki Condominium
Applicant: Fifield Companies
Landowner: Hawaii Land LP
Agent: Kusao & Kurahashi, Inc.
Location: 1837, 1855, 1867, 1879, 1881, 1883, 1887, and
1891 Kalakaua Avenue; 478 and 484 Pau Lane; 466, 467, 472,
475, and 479 Makaoe Lane; 491 Ena Road; Pau Lane; and
Makaoe Lane
Request: Waikiki Special District Permit (Major)
Proposal: 35-Story, 315-Unit High-Rise Residential Condominium and
Two-Story Restaurant
Tax Map Keys: 2-6-13: 1, 3, 4, 7, 8, 9, 11, 12, Pau Lane, and Makaoe Lane

Transmitted for your response and incorporation into the project's Final Environmental Assessment (FEA) are agency comments on the Draft Environmental Assessment (DEA) received thus far by the Department of Planning and Permitting (DPP). Most of these comments were previously faxed to you; we will transmit any others that are received after the date of this letter.

Additionally, the DPP has reviewed the project's DEA, and transmits the following comments:

1. Traffic and Roadway Improvements – Provide more information and discussion regarding the need and the associated required length of the road widening improvement. Provide information regarding the existing and proposed City sidewalk width. If the project is proposing a reduction to the existing sidewalk width, include a pedestrian study component in the traffic analysis to justify such reduction. In addition, an alternative solution to the sidewalk meandering within private property should be provided. The alternative solution should be a continuous sidewalk within City property.

2. Wastewater – Provide more information (including narrative and drawings) regarding the proposed off-site infrastructure improvements. Discuss the impacts that improvement will have, its construction phasing relative the rest of the project, and any necessary mitigative measures associated with that work.
3. Drainage – Clarify whether the two (2) storm water box culverts be retained for this project? If so, then the applicant must apply for a drain connection license into the City's drainage system. If they are not required, then they should be disconnected.
4. Government Permits and Approval Required – Indicate that the development will require the following permits/approvals – grading permit, trenching permit, and subdivision application for road widening and pedestrian easement.
5. Perspective Illustration – In accordance with the Waikiki Special Design Guidelines, the project site is located in one of the Waikiki gateways. In Appendix X, provide a perspective illustration or photo montage from ground level showing the proposed project from Kalakaua Avenue at the Ala Wai Canal bridge.
6. Building Encroachment – It appears that portion of the roof overhang for the front porch along Kalakaua Avenue encroaches into the street right-of-way (after road widening). A greater front yard along Kalakaua Avenue should be considered to avoid these encroachments and provide greater distance from the sidewalk to the City rights-of-way. Accordingly, an alternative to the proposed design should be provided.
7. Pedestrian Easement – A portion of the subject property fronting the proposed restaurant will require a subdivision to create an easement for pedestrian walkway purposes.
8. Open Space and Park Dedication – Provide greater description of the proposed public open space at the corner of Kalakaua Avenue and Ena Road, and how it would satisfy the gateway designation within the Waikiki Special District. Statements that this space will be used to satisfy dedication may conflict with this purpose and intent. In addition, clarify whether this public open space will be private or public and who will be responsible to maintain it. Further, describe and show the park dedication areas and proposed amenities for the park dedication purposes.
9. Archaeological – In its letter of June 1, 2006, the State Department of Land and Natural Resources (DLNR), Historic Preservation Division requested an archaeological inventory survey for the project. Provide this document in the Final Environmental Assessment as well as DLNR's response to the survey. Also, include any mitigative measures and alternatives to the proposed action needed in follow-up to the completed survey. If significant discoveries are made, alternatives to the proposed action should include retaining these in place, documentation, and relocation.

Ms. Ardis Shaw-Kim
November 8, 2006
Page 2

10. Lot Consolidation – Clarify whether the various lots of the project site will be consolidated or a conditional use permit application submitted for joint development. We believe a consolidation would better address the conversion of the roadway lots to a developable lot.
11. Neighborhood Presentation – Provide the meeting minutes to show evidence of your presentation and discussion regarding this project with the Waikiki Neighborhood Board.
12. Alternatives to the Proposed Action – Alternatives to the proposed action should be provided as discussed above. In addition, alternatives to the proposed building design should be considered that would reduce the proposed building mass. Alternatives could include, but not necessarily limited to, the design of two smaller more slender residential towers (in lieu of one) and/or alternatives to the current tower that would reduce the visual impact of its breadth as viewed from Kalakaua Avenue.

If you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Very truly yours,



HE Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:nt

cc: Joseph Farrell, Architects Hawaii Limited

doc487138rev1

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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December 7, 2006

Mr. Henry Eng, FAICP
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated November 8, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. The following responses are numbered to correspond to the numbers provided in your letter:

1. The Traffic Review Branch has requested that a 10-foot road widening fronting the site be provided in conformance with city road widening plans. (We understand that this widening has currently been requested of the remainder of the block, fronting the Pacific News Building.) Because a 2-foot curb and gutter will ne needed, the existing 12 to 12\5 foot-wide side walk will be reduced to approximately 10 feet. Although, the overall width will be reduced, improved pedestrian circulation is anticipated because the applicant proposes to relocate the existing bus stop from the public sidewalk to the project site. This plan will reduce the pedestrian congestion that can occur in this area. The meandering sidewalk has now been modified to provide a linear sidewalk. The Final Environmental Assessment will provide additional information on pedestrian movements along the sidewalk fronting the proposed road widening.
2. The City plans to upgrade wastewater infrastructure in the vicinity of the project, including the Fort Derussy Sewer Pump Station. If these improvements are completed, the improvements proposed by the developer will not be needed.

Mr. Henry Eng, FAICP
December 7, 2006

The applicant proposes to divert flows and replace the existing 18-inch sewer line with a new 21-inch sewer line in Kuhio Avenue between Kalaimoku Street and Kaiolu Street. In addition the applicant proposes to construct an 18-inch overflow line from DeRussy SPS into the existing 18-inch collector line along the mauka side of Kalakaua Ave.

A sewer infrastructure improvement plan is currently under review with the Department of Planning and Permitting. The Final Environmental Assessment will provide additional information regarding the proposed improvements and mitigation measures.

3. The two storm water box culverts will not be retained and will be disconnected. This information will be included in the Final Environmental Assessment.
4. We acknowledge that the listed permits and approvals will be required. They will be noted in the Final Environmental Assessment.
5. We acknowledge that the project is within one of the Waikiki Gateways. We will provide a perspective from the mauka Diamond Head corner of that intersection is requested in the Final EA.
6. The project has been modified in the following ways:
 - A. An additional 2.5 foot setback will be provided for the portion of the condominium building that are closest to Kalakaua Avenue. This will eliminate the encroachment of the roof overhang.
 - B. The meandering sidewalk has been modified to be a linear sidewalk.
 - C. A portion of the building facing Kalakaua Avenue has been recessed.
 - D. The middle tower has been lowered to provide additional stepping.
 - E. The Ena Road driveway has been eliminated, allowing for more landscaping.

The Final Environmental Assessment will provide additional information and plans showing the modifications.

7. The site plan has been modified to realign the sidewalk to be within the public sidewalk area.
8. The Final Environmental Assessment will describe the proposed public open space and clarify who will be responsible for maintaining the various areas. Park dedication areas and proposed amenities will be further explained in the Final

Mr. Henry Eng, FAICP
December 7, 2006

Environmental Assessment.

9. The Allure Waikiki project will comply fully with all directives from the State Historic Preservation Division (SHPD/DLNR). This began with a requirement for an Archaeological Inventory Survey Plan (Tulchin et al. 2006) that was accepted by the SHPD in their letter of July 7, 2006 (Log No 2006.2424; Doc No 0607AJ18). The Archaeological Inventory Survey fieldwork has been completed in close co-ordination with the SHPD archaeology branch to meet or exceed their requirements. The Archaeological Inventory Survey report has been submitted to the SHPD and will be included in the Final Environmental Assessment. Anticipated mitigation measures will include a Burial Treatment Plan and Archaeological Monitoring program. If significant discoveries are made mitigation and resolution will be worked out in close consultation with the SHPD in accordance with HAR Chapter 13-280 and HAR Chapter 13-300-40.
10. A subdivision application to consolidate the lots has been submitted to the DPP for review on October 26, 2006.
11. A copy of the agenda for the Waikiki Neighborhood Board is attached as evidence of the presentation. The minutes of the Waikiki Neighborhood Board will be transmitted to the Department of Planning and Permitting when they become available.
12. Alternative designs will be discussed in the Final Environmental Assessment. The proposed modifications to the building, as described in item number six, above, are intended to reduce the visual impact of the buildings as viewed from Kalakaua Avenue.

Very Truly Yours,



Ardis Shaw-Kim
Planner

LINDA LINGLE
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
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October 12, 2006

Mr. Ben Ortega
Fifield Companies
2010 Main Street, Suite 610
Irvine, California 92614

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

Ms. Ardis Shaw-Kim
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawai'i 96822

Dear Messrs. Ortega, Eng, and Ms. Shaw-Kim:

The Office of Environmental Quality Control has reviewed the draft environmental assessment for the Allure Waikiki Condominium (2006/ED-18(TC)) and offers the following comments.

1. **Sustainable Building Guidelines and Landscaping with Native Plants:** Please refer to our Internet website at <http://www.state.hi.us/health/oeqc/guidance/index.html> for guidance on sustainable building and landscaping with native plants. The applicant should also analyze landscaping with Hawaiian plants. The applicant should examine the internet website for the Landscape Industry Council of Hawaii at the following Uniform Resource Locator (URL) www.lichawaii.com/invasive_species.htm.
2. **Recycling with Solid Waste:** Please compare and contrast recycling with solid waste as opposed to not recycling at all.

Thank you for the opportunity to comment. Please call Mr. Leslie Segundo, Environmental Health Specialist at (808) 586-4185 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Genevieve Salmonson".

GENEVIEVE SALMONSON
Director

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.rr.com

December 14, 2006

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street
Honolulu, Hawaii 96813

Attention: Leslie Segundo

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 12, 2006 on the Draft Environmental Assessment (EA) for the Allure Waikiki Condominium mixed use development in Waikiki.

Our responses to your comments are as follows:

The architect has been provided with a copy of the Guidelines for Sustainable Building Design in Hawaii and asked to incorporate applicable measures where possible.

The applicant proposes to incorporate native Hawaiian plants in the project landscaping. The types of native plants that will be used will be further discussed during the processing of the Waikiki Special District Permit. The project is located in an area that is surrounded by high rises which limit the amount of sunlight on the site. This in turn limits the variety of plants that will thrive there. Some of the native plants currently being considered are Ukiuki, Iiiee, and Paiaapalae.

According to the Oahu Municipal Refuse Disposal Alternatives Study, an overview of overall residential sampling results by weight conducted in 1998 found that paper, plastics, metal and glass, those items that are typically recycled, make up about 43.2% of the overall residential waste stream. The ability of a residential condominium to divert a portion of this waste to recycling is dependent on a number of variables that differ from project to project. An important variable is participation rates. Implementation of a recycling program can be expected to reduce a portion of the

Ms. Genevieve Salmonson
Page 2

43.2% of solid waste attributed to recyclable material by some amount.

Recycling can offer condominiums an opportunity to lower refuse costs by reducing hauling and disposal charges. Some recyclable materials have a market value which can provide a economic incentive for recycling . Development of a recycling program may be implemented by the property manager in the future.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

Very truly yours,



Ardis Shaw-Kim
Planner

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 535
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

ROBERT K. MASUDA
DIRECTOR, LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR, W.A.D.R.

ADRIANNE HENNINGSEN
WATER, AIR, AND SOIL POLLUTION
BUREAU CHIEF, W.A.D.R.
COMMISSION ON WATER RESOURCES MANAGEMENT
CONSERVATION AND RESTORATION DIVISION
CONSERVATION AND RESTORATION ENFORCEMENT
PERMITS AND REGULATIONS
DIVISION CHIEF, W.A.D.R.
KAIKOLA, ISLAND HISTORIC COMMISSION
LAND
STATE PARKS

October 20, 2006

Henry Eng, FAICP, Director
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

LOG NO: 2006.3524
DOC NO: 0610AJ15
Archaeology

Dear Mr. Eng:

**SUBJECT: Chapter 6E-8 Historic Preservation Review –
Draft Environmental Assessment – Allure Waikiki Condominium Mixed Use
Development
Waikiki Ahupua'a, Honolulu [Kona] District, Island of O'ahu
TMK: (1) 2-6-013:001, 003, 004, 007, 008, 009, 011, 012**

Thank you for the opportunity to review the aforementioned project. We received the Draft Environmental Assessment (DEA) for the proposed undertaking on September 21, 2006. The proposed undertaking involves various construction activities associated with the construction of a 35 floor high rise condominium building and a separate retail/restaurant building on the subject parcels.

We have undergone consultation with representatives of Cultural Surveys Hawai'i (CSH) and Kui'wahu regarding the proposed undertaking. We requested that an archaeological inventory survey plan for the subject property be submitted for our review, prior to the commencement of the archaeological inventory survey of the subject property. Subsequently, in a letter dated July 17, 2006 (LOG NO: 2006.2424; DOC NO: 0607AJ18), we accepted the archaeological inventory survey plan for the subject property prepared by CSH (Tulchin et al. 2006. *Archaeological Inventory Survey Plan for a 2.3-acre Project Area, Waikiki Ahupua'a, Kona District, O'ahu. TMK: (1) 2-6-013:001, 002, 003, 004, 007, 008, 009, 011, and 012*).

It is our understanding that the archaeological inventory survey of the subject property is on-going. Thus, if the recommendations of the inventory survey are carried and approved by our office, we believe the proposed undertaking will have "no adverse effect" on historically-significant resources. We look forward to receiving the archaeological inventory survey report for review.

Please contact Mr. Adam Johnson at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

AJ:

Post-It® Fax Note	7671	Date	10/27	# of pages	6
To	ARDIS	From	UDB		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #	988-1140	Fax #			

DOCUMENT CAPTURED AS RECEIVED

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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December 14, 2006

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Adam Johnson

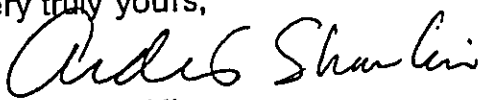
Dear Ms. Chinen

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 20, 2006 on the Draft Environmental Assessment for the Allure Waikiki Condominium mixed use development in Waikiki. In response, we note that the archaeological inventory survey report for the project has been completed and submitted to your office for review. This report will be included in the Final Environmental Assessment.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

Very truly yours,


Ardis Shaw-Kim

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMDSHWB

October 27, 2006

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

S1051LO

06 OCT 30 P1:36

RECEIVED

The Honorable Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dear Mr. Eng:

SUBJECT: Draft Environmental Assessment
Allure Waikiki Condominium Mixed Use Development
DPP Project Reference No. 2006/ED-18

Thank you for providing the Solid and Hazardous Waste Branch with the opportunity to review and provide comments on the above-cited document. The Office of Solid Waste Management offers the following comments:

The discussion of solid waste issues contained in the document is restricted to activity within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases. The plan should cover activities from demolition of existing structures, to the construction of the proposed project, and should seek to maximize recycling of potential wastes related to project development.

Specific examples of plan elements include the recycling of greenwaste during clear and grub activities; maximizing the recycling of construction and demolition wastes; the use of locally produced compost in the landscaping of the project; and the provision of recycling facilities in the design of the project.

Finally, the developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

Please contact Mr. Lane Otsu of the Office of Solid Waste Management at (808) 586-4226 with any questions concerning this information.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.rr.com

December 14, 2006

Mr. Seven Y. K. Chang, P.E., Chief
State Department of Health, Solid and Hazardous Waste Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Chang:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 27, 2006 on the Draft Environmental Assessment (EA) for the Allure Waikiki Condominium mixed use development in Waikiki. We offer the following response:

The previously existing structures have been demolished. There is currently minimal vegetation on the property at this time. It is anticipated that some of the existing vegetation will be retained or relocated on the site. Depending on the demand for construction waste, the contractor may be able to recycle construction wastes.

Recycling can offer condominiums an opportunity to lower refuse costs by reducing hauling and disposal charges. Some materials, have a market value that can be recouped. Development of a recycling program may be implemented by the property manager in the future.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

Very truly yours,



Ardis Shaw-Kim
Planner

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

636 SOUTH STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulufire.org

MUFI HANNEMANN
MAYOR



KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

October 9, 2006

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU

06 OCT 11 P2:47

RECEIVED

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: KENNETH G. SILVA, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
REFERENCE NUMBER 2006/ED-18

PROJECT: ALLURE WAIKIKI CONDOMINIUM
LOCATION: 1837, 1855, 1867, 1879, 1881, 1883, 1887, AND
1891 KALAKAUA AVENUE; 478 AND 484 PAU LANE;
466, 467, 472, 475, AND 479 MAKAOE LANE;
491 ENA ROAD

TAX MAP KEYS: 2-6-013: 001, 003, 004, 007, 008, 009, 011, AND 012

In response to your memorandum dated September 14, 2006, regarding the above-mentioned project, the Honolulu Fire Department (HFD) reviewed the material you provided and requires that the following be complied with.

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)
2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in

Henry Eng, FAICP, Director
Page 2
October 9, 2006

excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2 as amended.)

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.



KENNETH G. SILVA
Fire Chief

KGS/SK:bh

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231

FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

December 13, 2006

Mr. Kenneth Silva, Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819

Dear Chief Silva:

Subject: Draft Environmental Assessment Comments for a
Proposed Mixed Use Development - Condominium and Retail
Corner of Kalakaua and Ena Road
Tax Map Key: 2-6-13: 1, 3, 7, 8, 9, 11, 12 and Makaoe Lane and Pau
Lane

Thank you for comments, dated October 9, 2006 on the Draft Environmental Assessment (EA) for the Allure Waikiki Condominium mixed use development in Waikiki.

Our responses to your comments are as follows:

A site plan has been submitted to the Honolulu Fire Department for review for compliance with applicable fire protection requirements. The developer will continue to work with the Fire Department to ensure adequate fire protection is provided to the project.

Thank you for participating in the environmental review process. Your letter and this response will be included in the Final Environmental Assessment.

Very truly yours,



Ardis Shaw-Kim
Planner

APPENDIX V

**SEWER CONNECTION APPLICATION
AND
PROPOSED OFF-SITE IMPROVEMENTS**



DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET * HONOLULU, HAWAII 96813
 Phone: (808) 527-5827 * Fax: (808) 523-4210

RECEIVED
 APR 20 2006

SEWER CONNECTION APPLICATION

APPLICATION NO.: 2006/SCA-0234 STATUS: Approved with conditions
 DATE RECEIVED: 04/07/2006 IWDP APP. NO.:
 PROJECT NAME: Waikiki Land, L.P. Development / Dwelling Unit/Drinking Establishment

\$843,192.00
Estimated Wastewater System Facility Charge*

LOCATION:

Zone	Section	Plat	Parcel		
2	6	013	001	491 ENA RD	11,707 Sq. Ft.
2	6	013	003	466 MAKAOE LN	10,469 Sq. Ft.
2	6	013	004	1837 KALAKAUA AVE	24,601 Sq. Ft.

SPECIFIC LOCATION: Kalakaua Ave/Ena Rd

APPLICANT: Hida, Okamoto & Associates, Inc., Glen Bran
 Lukec
 1440 Kapiolani Blvd. Suite 1120
 Honolulu, Hawaii 96814
 Waikiki Land L.P.
 333 South Grand Avenue 28th Floor
 Los Angeles, CA 90071

DEVELOPMENT TYPE: Dwelling, Multi-family SEWER CONNECTION WORK DESIRED: **New**
 OTHER USES: Night Club/Drinking Establishment
 NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: 06/13/2007

<u>PROPOSED UNITS</u>	<u>EXISTING UNITS</u>	<u>UNITS TO BE DEMOLISHED</u>
No. of New Units: 300	No. of Existing Units: 48	No. of Units to be Demolished: 48
Studios:	Studios:	Studios:
1-Bedroom:	1-Bedroom:	1-Bedroom:
2-Bedroom: 300	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS Also, included TMK:2-6-013:07,08,09,011 & 012. Approval is conditioned that sewer connection for this project will not be allowed until after the construction and completion of the proposed sewer diversion and proposed sewer replacement projects on Kuhio Avenue as stipulated in our June 5, 2005 letter 03WWB090(AS). Submit construction plans for the sewer diversion and sewer replacement projects for review and approval.

APPROVAL DATE: 04/18/2006

EXPIRATION DATE: 04/17/2008

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
 * Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.

REVIEWED BY: Arturo Saavedra Jr.

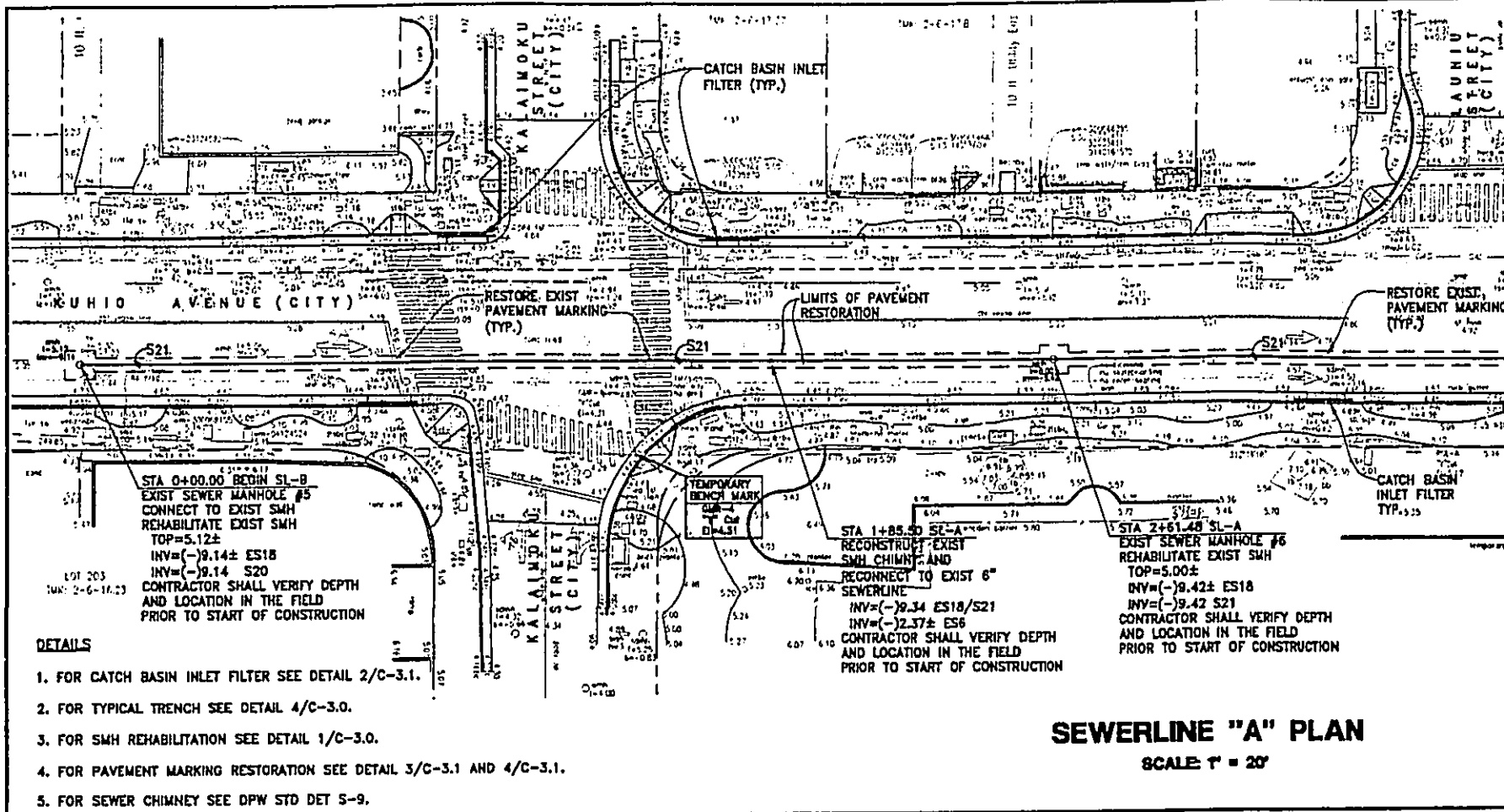
Arturo Saavedra Jr.
 Site Development Division, Wastewater Branch

ExternalID: 024093107-001

JobId: 24093107

Initial Print Date: Tuesday April 18, 2006 10:54 am

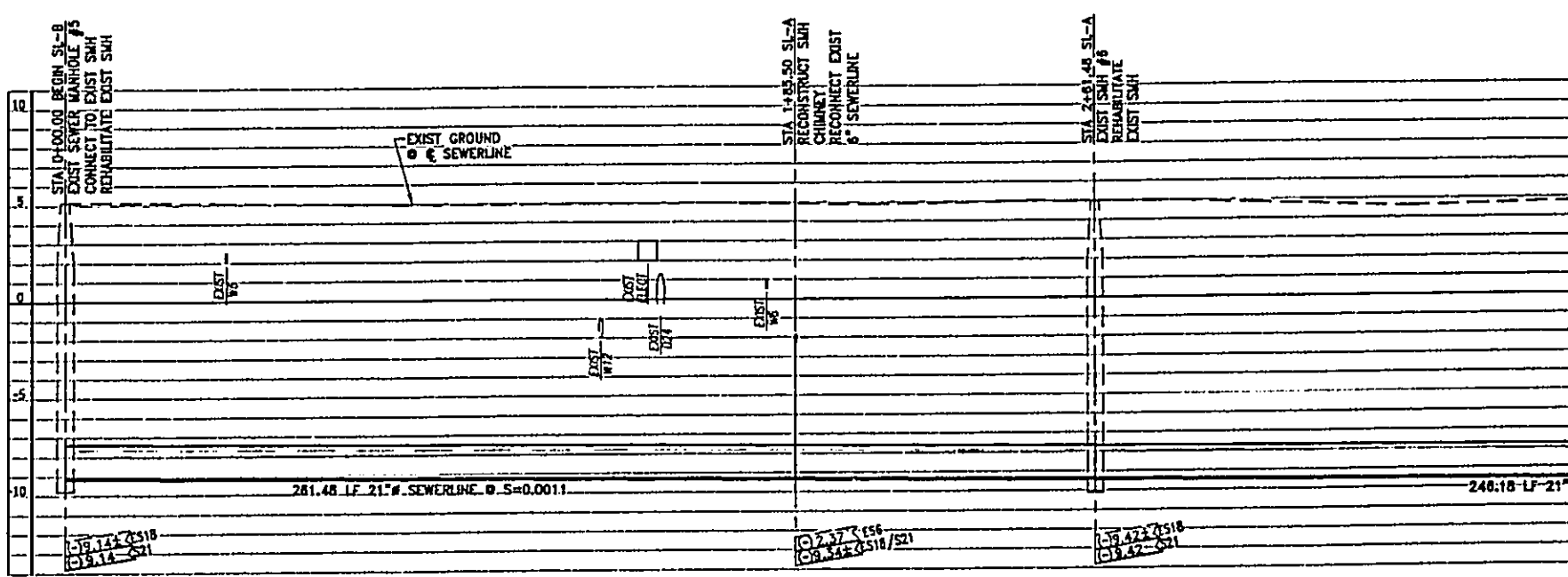
Page 1 of 1



DETAILS

1. FOR CATCH BASIN INLET FILTER SEE DETAIL 2/C-3.1.
2. FOR TYPICAL TRENCH SEE DETAIL 4/C-3.0.
3. FOR SMH REHABILITATION SEE DETAIL 1/C-3.0.
4. FOR PAVEMENT MARKING RESTORATION SEE DETAIL 3/C-3.1 AND 4/C-3.1.
5. FOR SEWER CHIMNEY SEE DPW STD DET 5-9.

SEWERLINE "A" PLAN
SCALE 1" = 20'



SEWERLINE "B" PROFILE
SCALE: HORIZ 1" = 20'
VERT 1" = 4'

NOTES:

- 1.) CONTRACTOR SHALL VERIFY THE DEPTH & LOCATION OF ALL UTILITY CONNECTION AND CROSSINGS IN FIELD.
- 2.) CONTRACTOR SHALL OBTAIN ALL STATE AND CITY DEWATERING PERMITS AS REQUIRED.
- 3.) SEWER DIVERSION AND SEWERLINE UPSIZE ARE REQUIRED TO ALLEVIATE SEWER INADEQUACY FOR THE ALLURE WAIKIKI CONDOMINIUM PROJECT (TMK:2-6-13:01,03,04,07,08,09,11,12).
- 4.) CONTRACTOR SHALL RESTORE ALL PAVEMENT MARKINGS DISTURBED TO CONDITIONS PRIOR TO CONSTRUCTION.

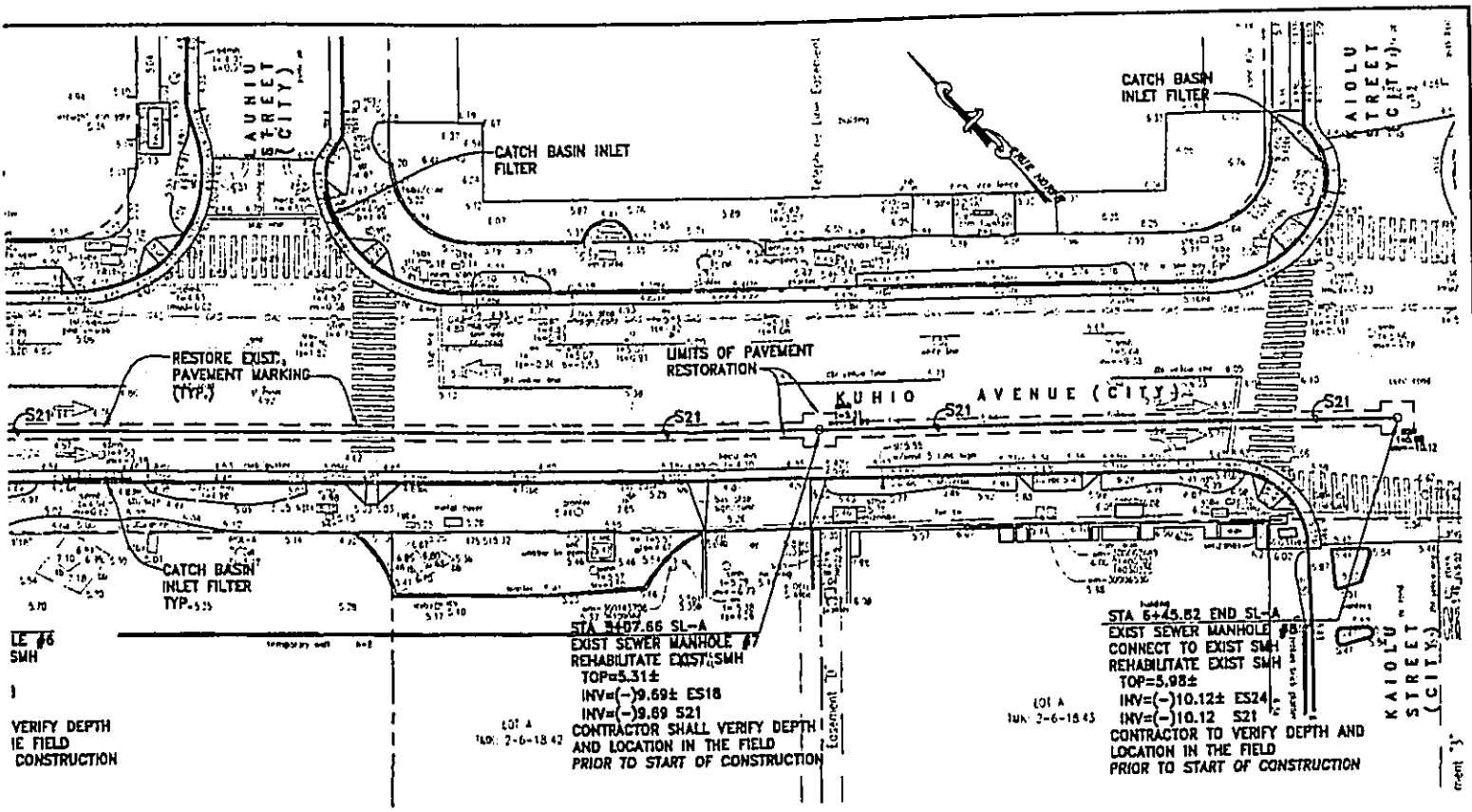
EROSION CONTROL/BEST MANAGEMENT PRACTICES NOTES

1. THE CATCH BASIN INLET FILTERS SHALL BE INSTALLED PRIOR TO START OF WORK AND MAINTAINED UNTIL COMPLETION OF CONSTRUCTION.
2. CONTRACTOR TO PERIODICALLY INSPECT EROSION CONTROL DEVICES ESPECIALLY DURING PERIODS OF HEAVY RAIN FALL.
3. THE CONTRACTOR SHALL DISPOSE OF EQUIPMENT AND HYDRAULIC OILS OFF-SITE.
4. NO OIL OR FUEL SHALL BE STORED ON THE SITE.
5. ALL EQUIPMENT SHALL BE SERVICED IN A CONFINED AREA AND ALL FLUIDS SHALL DRAIN INTO PANS FOR HANDLING.

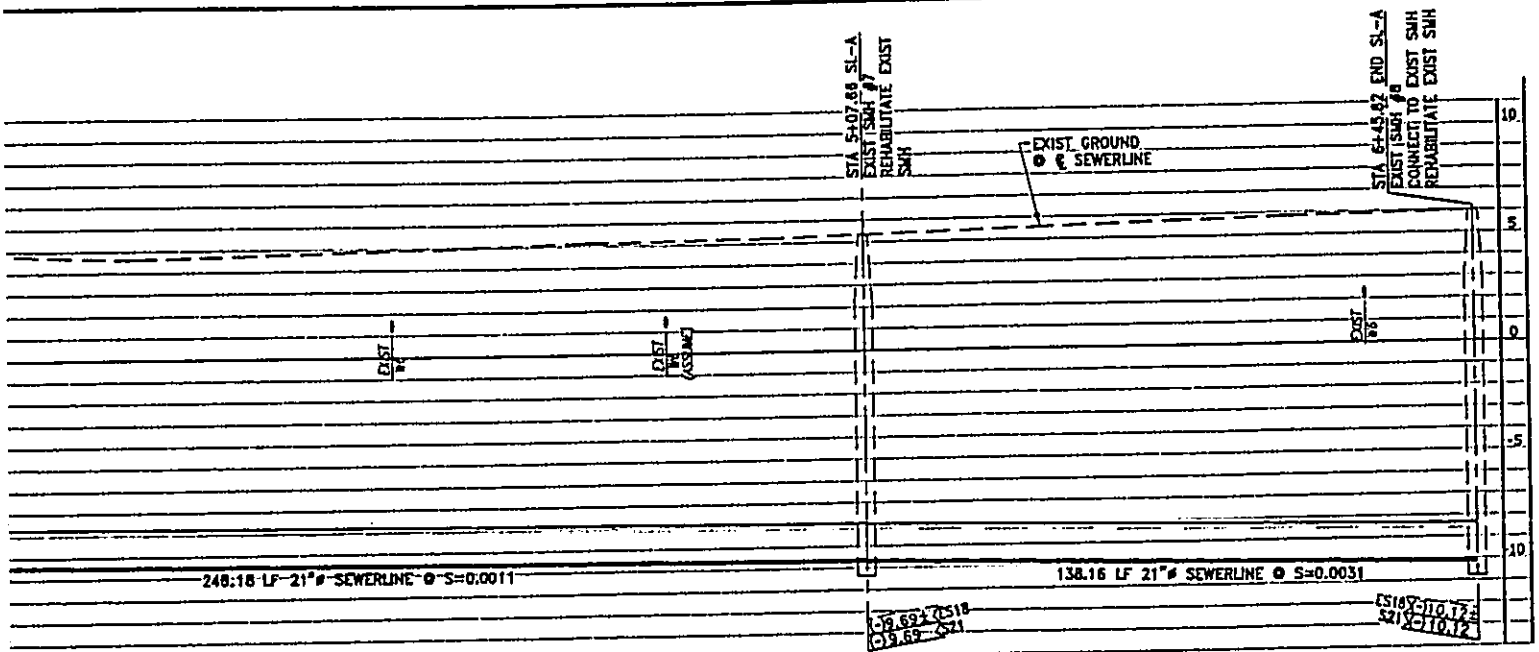
APP

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

DRAWING FILE: 2016.DWG NO. 20160101 & ASSOCIATES, INC.



A" PLAN
20'



E "B" PROFILE
HORIZ T = 20'
VERT T = 4'

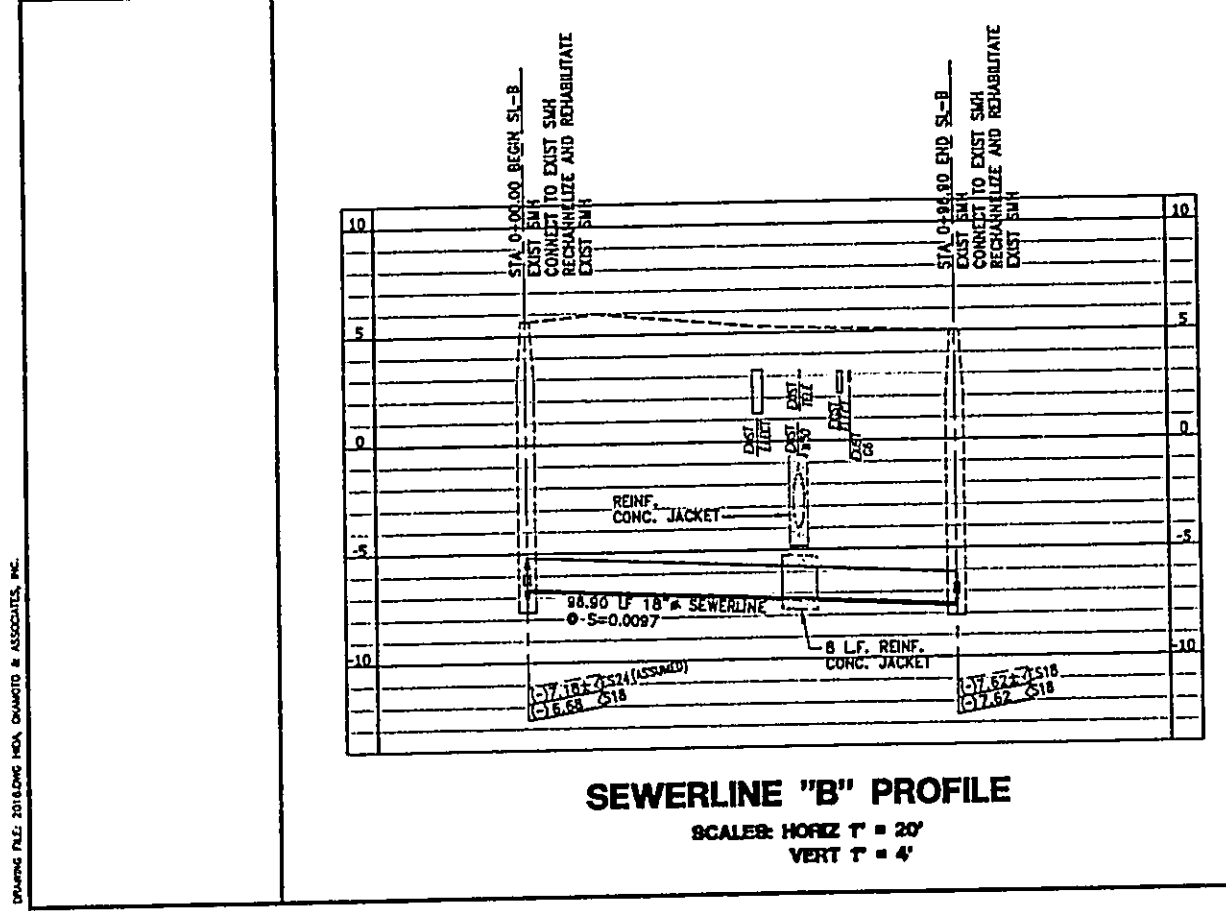
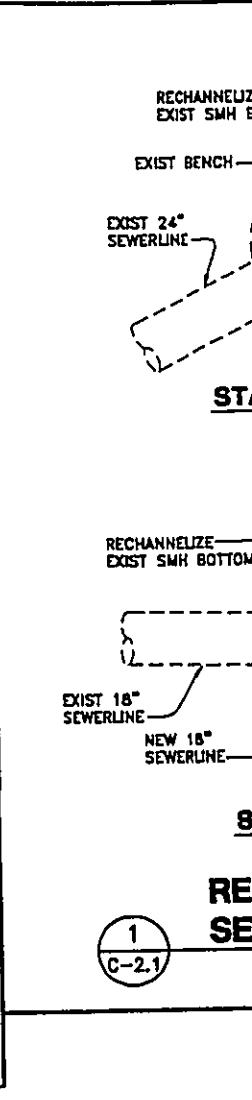
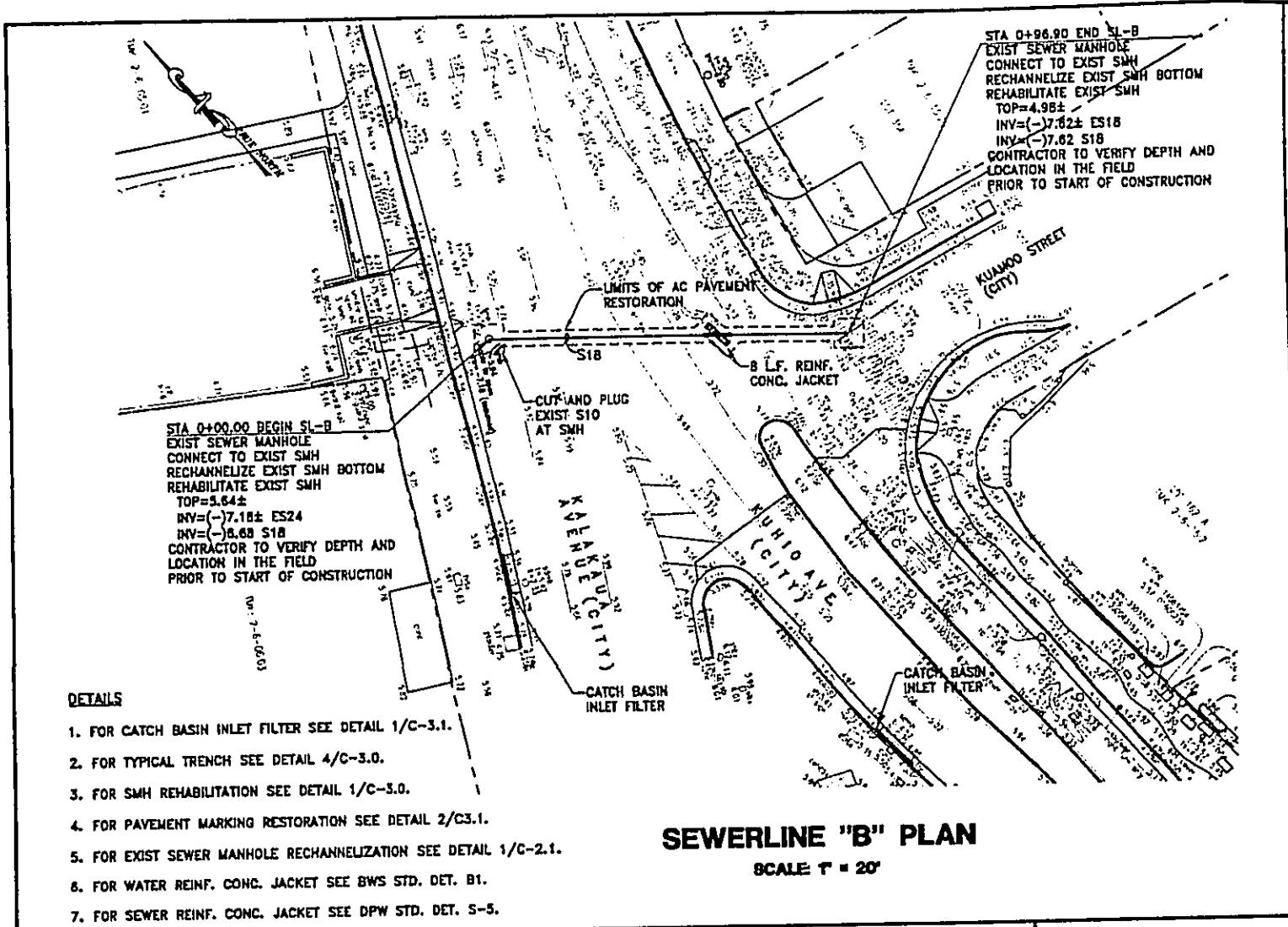
APPROVED			
BRANCH, D.P.P.	DATE	CHIEF, WASTEWATER BRANCH, D.P.P.	DATE
		CHIEF, CAPITAL PROJECTS DIVISION, B.W.S.	DATE

C-2.0



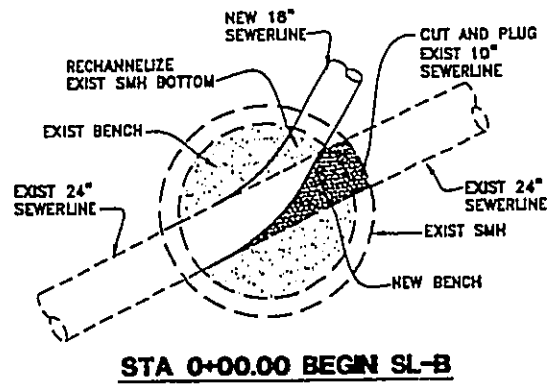
LENSH OF APR 26, 1983
This work prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Section 10-115-2 of the Rules of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii.)

Revision	Date	Brief	Made by	Approved
HIDA, OKAMOTO & ASSOCIATES, INC. CONSULTING ENGINEERS 1440 KAPOLANI BOULEVARD, SUITE 1150, HONOLULU, HAWAII 96814 TELEPHONE (808) 843-0088 ALLURE WAIKIKI OFFSITE SEWER At Kaka, Waikiki, Oahu, Hawaii Tax Map Key: 2-0-13:				
SEWERLINE 'A'				
PLAN AND PROFILE				
Des. 1096	Dr. 281	Ch. 1092		

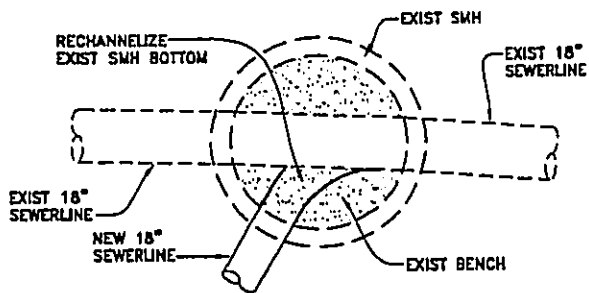


- EROSION CONTROL/BEST MANAGEMENT PRACTICES NOTES**
1. THE CATCH BASIN INLET FILTERS SHALL BE INSTALLED PRIOR TO START OF WORK AND MAINTAINED UNTIL COMPLETION OF CONSTRUCTION
 2. CONTRACTOR TO PERIODICALLY INSPECT EROSION CONTROL DEVICES ESPECIALLY DURING PERIODS OF HEAVY RAIN FALL
 3. THE CONTRACTOR SHALL DISPOSE OF EQUIPMENT AND HYDRAULIC OILS OFF-SITE.
 4. NO OIL OR FUEL SHALL BE STORED ON THE SITE.
 5. ALL EQUIPMENT SHALL BE SERVICED IN A CONFINED AREA AND ALL FLUIDS SHALL DRAIN INTO PANS FOR HANDLING.
- NOTES:**
- 1.) CONTRACTOR SHALL VERIFY THE DEPTH & LOCATION OF ALL UTILITY CONNECTION AND CROSSINGS IN FIELD.
 - 2.) CONTRACTOR SHALL OBTAIN ALL STATE AND CITY DEWATERING PERMITS AS REQUIRED.
 - 3.) SEWER DIVERSION AND SEWERLINE UPSIZE ARE REQUIRED TO ALLOW SEWER INADEQUACY FOR THE ALLURE WAKIKI CONDOMINIUM PROJECT (TRK2-6-13-01,03,04,07,08,09,11,12).
 - 4.) CONTRACTOR SHALL RESTORE ALL PAVEMENT MARKINGS DISTURBED CONDITIONS PRIOR TO CONSTRUCTION.
- APPROVED: _____ DATE: _____
 CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

DRAWING FILE: 2018.DWG MEDIA: DWG/PLT & ASSOCIATES, INC.



STA 0+00.00 BEGIN SL-B



STA 0+98.90 END SL-B

**RECHANNERIZE EXIST
SEWER MANHOLE BOTTOM**

1
C-2.1

NO SCALE

**CONTROL/BEST
PRACTICES NOTES**

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IED UNTIL COMPLETION OF CONSTRUCTION.

LY INSPECT EROSION CONTROL DEVICES
F HEAVY RAIN FALL.

POPOSE OF EQUIPMENT AND HYDRAULIC

STORED ON THE SITE.

SERVICED IN A CONFINED AREA AND ALL
S FOR HANDLING.

THE DEPTH & LOCATION OF ALL UTILITY
S IN FIELD.

ALL STATE AND CITY DEWATERING PERMITS

ERLINE UPSIZE ARE REQUIRED TO ALLEVIATE
IE ALLURE WAIKIKI CONDOMINIUM PROJECT
8,09,11,12).

E ALL PAVEMENT MARKINGS DISTURBED TO
STRUCTION.

APPROVED

S BRANCH, D.P.P. DATE _____
CHIEF, WASTEWATER BRANCH, D.P.P. DATE

CHIEF, CAPITAL PROJECTS DIVISION, B.W.S. DATE

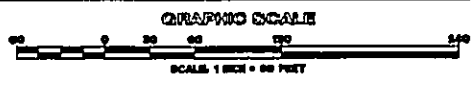
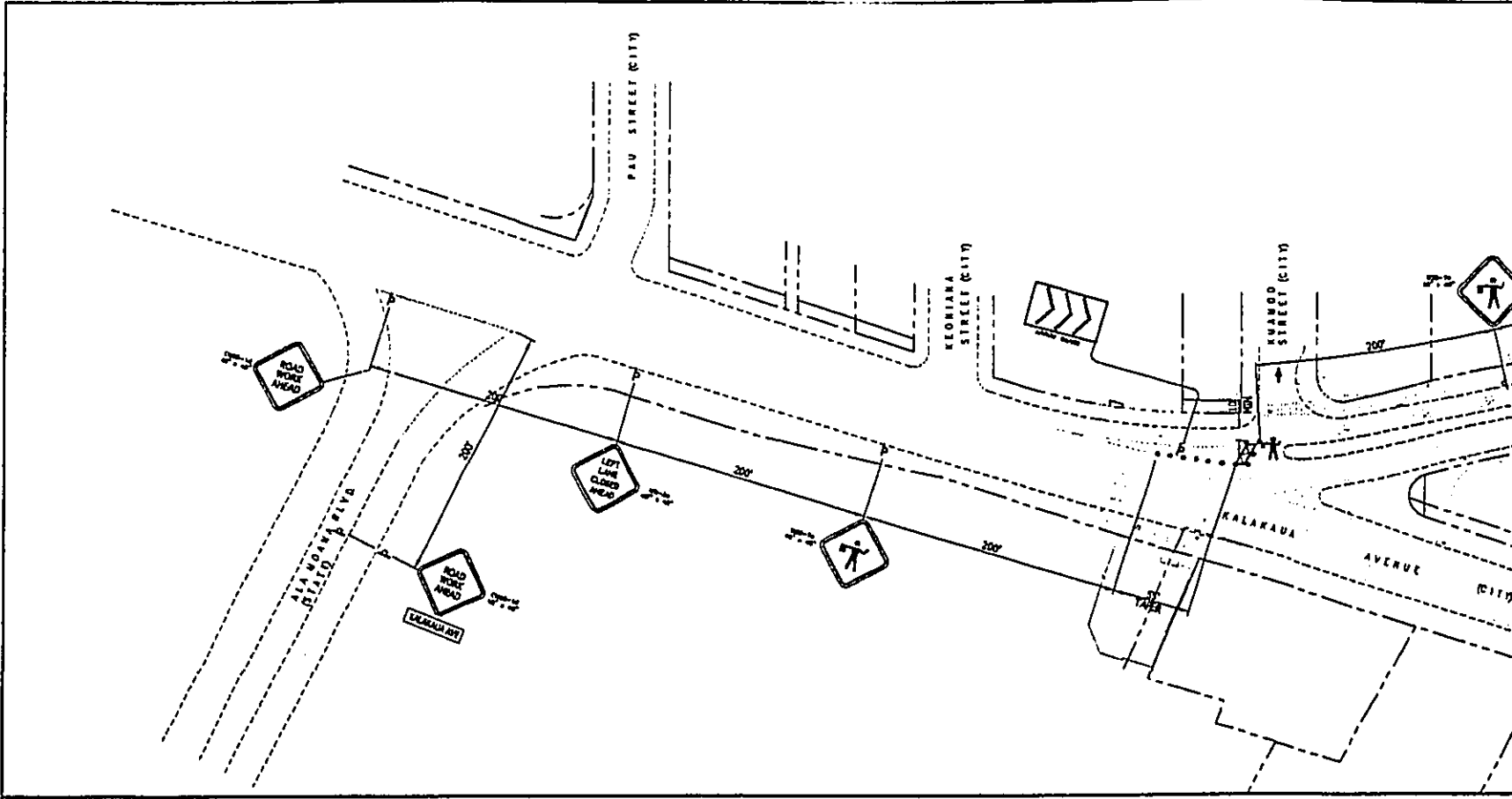
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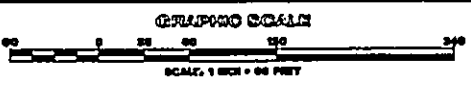
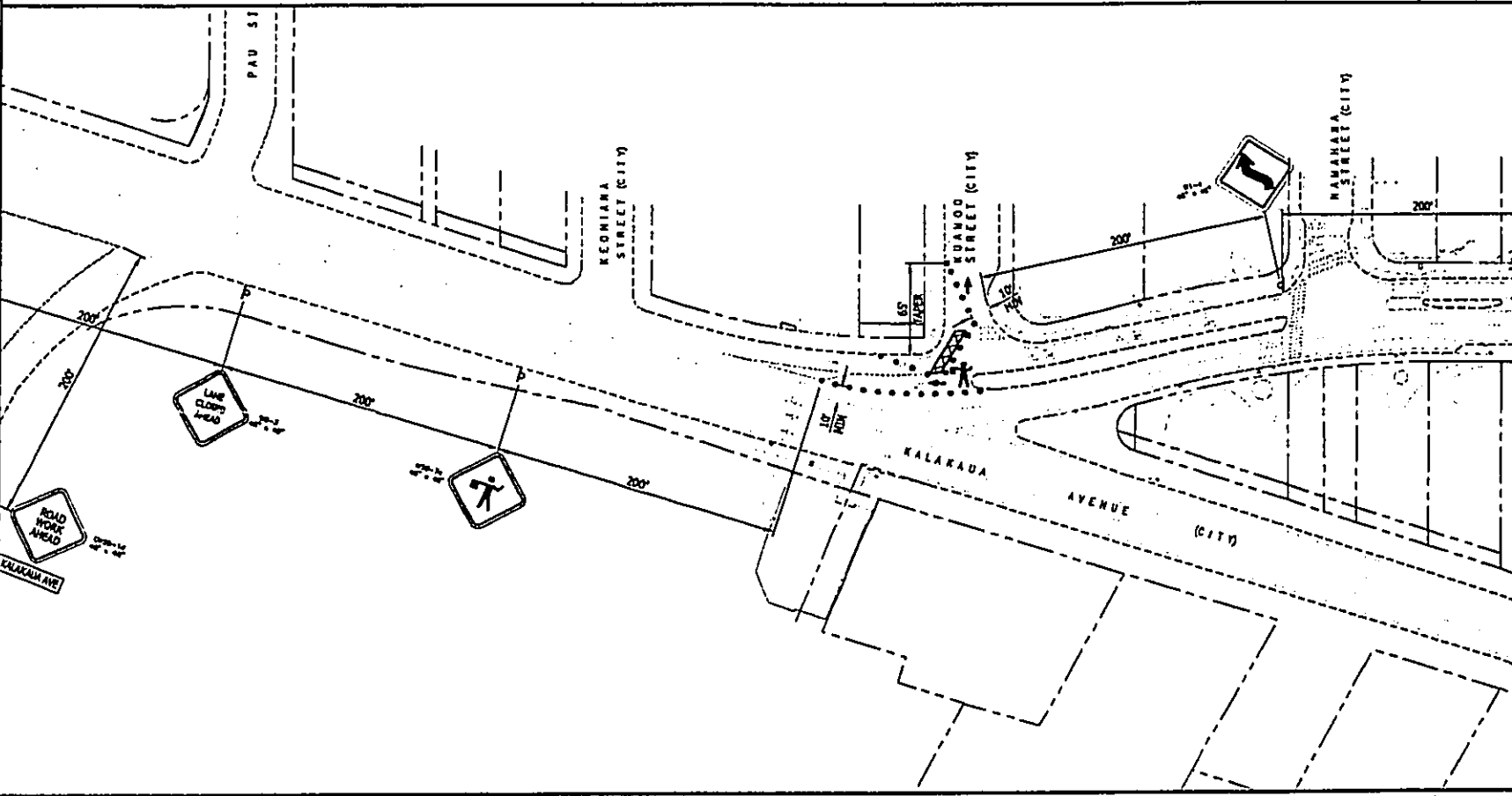
LICENSE NO. 4383-C
This work prepared by me
or under my supervision and
construction of this project will
be under my observation.
(Observation of construction as
defined in Section 18-112-2 of
the Rules of the Board of
Professional Engineers, Architects
and Surveyors of the State of
Hawaii).

By _____
Date _____

Revision	Date	By	Checked by	Approved
HIDA, OKAMOTO & ASSOCIATES, INC. CONSULTING ENGINEERS 1440 KAPOLANI BOULEVARD, SUITE 1120, HONOLULU, HAWAII 96814 TELEPHONE (808) 848-0088				
ALLURE WAIKIKI OFFSITE SEWER Al Kaka, Waikiki, Oahu, Hawaii Tax Map Key: 2-8-13				
SEWERLINE 'B' PLAN AND PROFILE				
Des. _____	Dr. _____	Ch. _____	MOI	

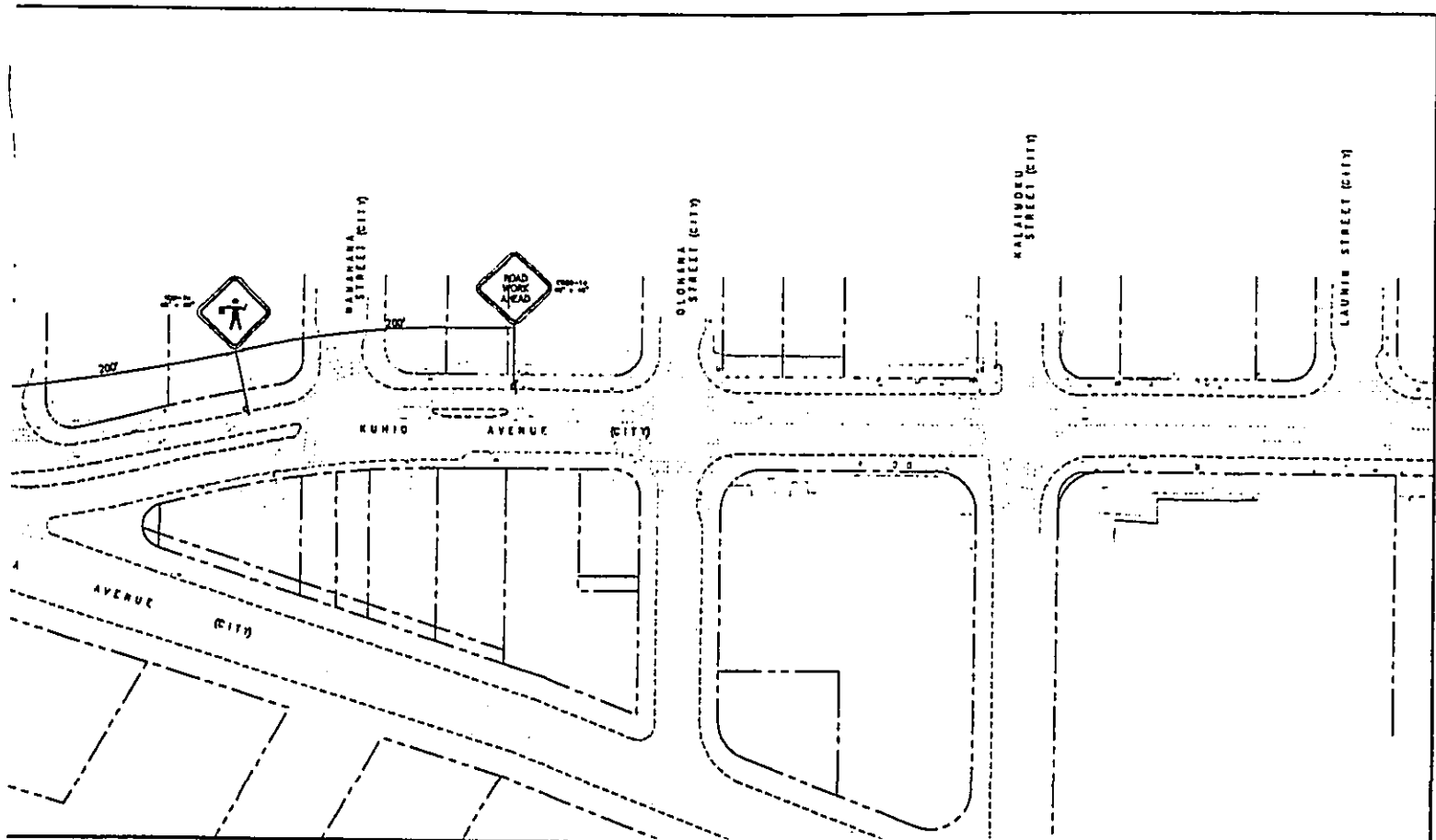


TRAFFIC CONTROL PLAN 2D
 SCALE: 1 = 60'



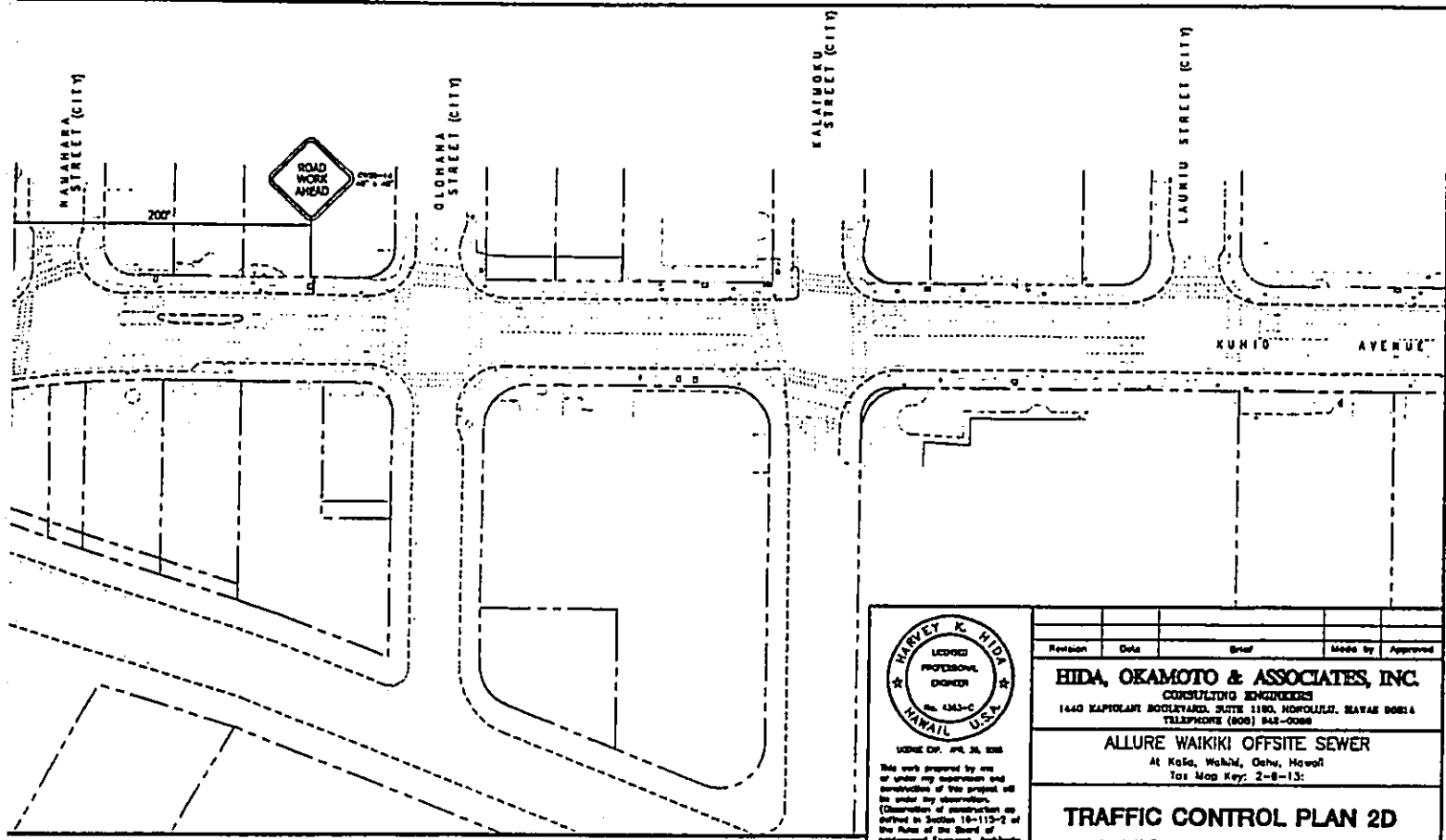
TRAFFIC CONTROL PLAN 2E
 SCALE: 1 = 60'

DRAWING FILE: 7015LW0 HDA, OHMOTO & ASSOCIATES, INC.



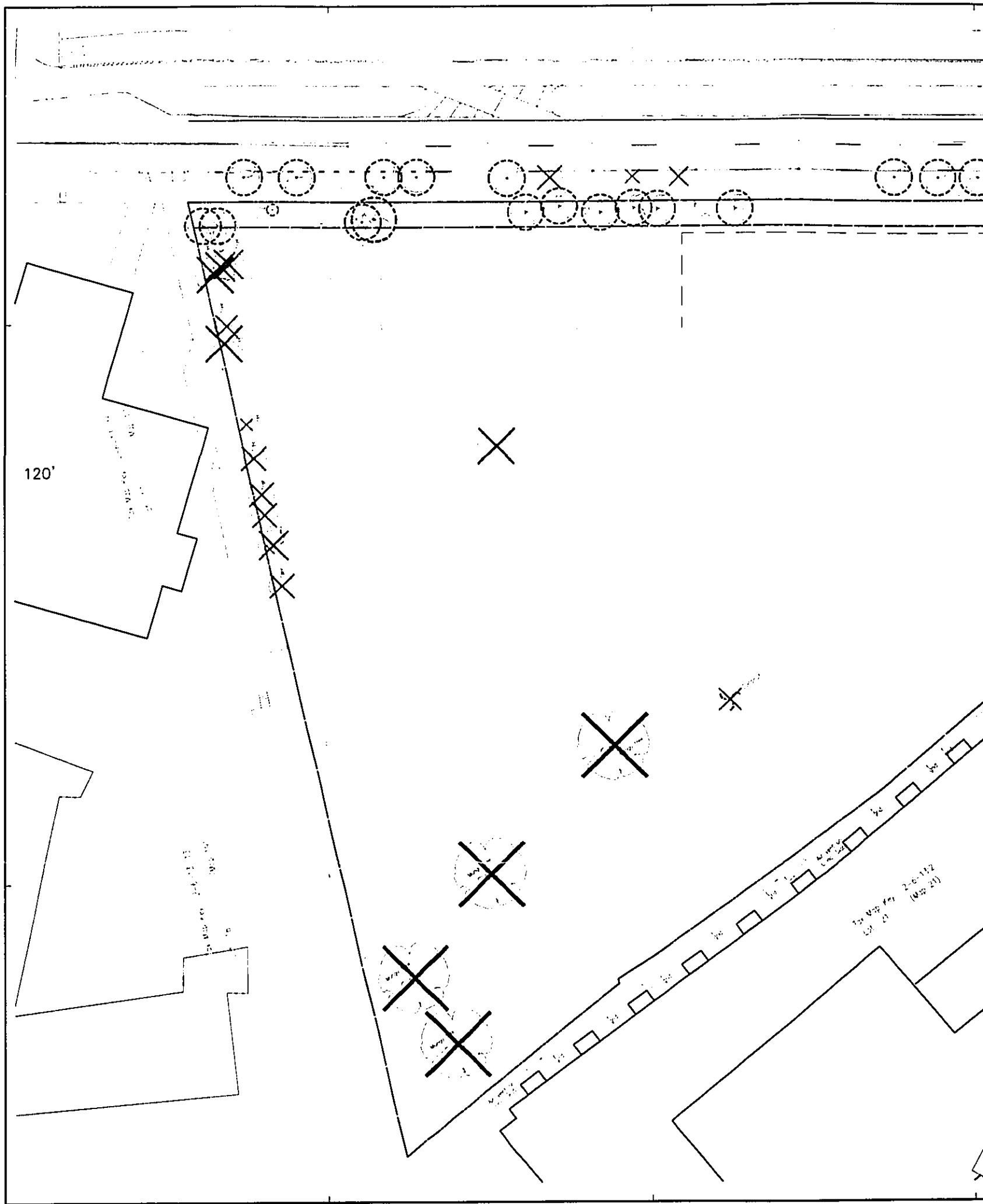
CONTROL PLAN 2D

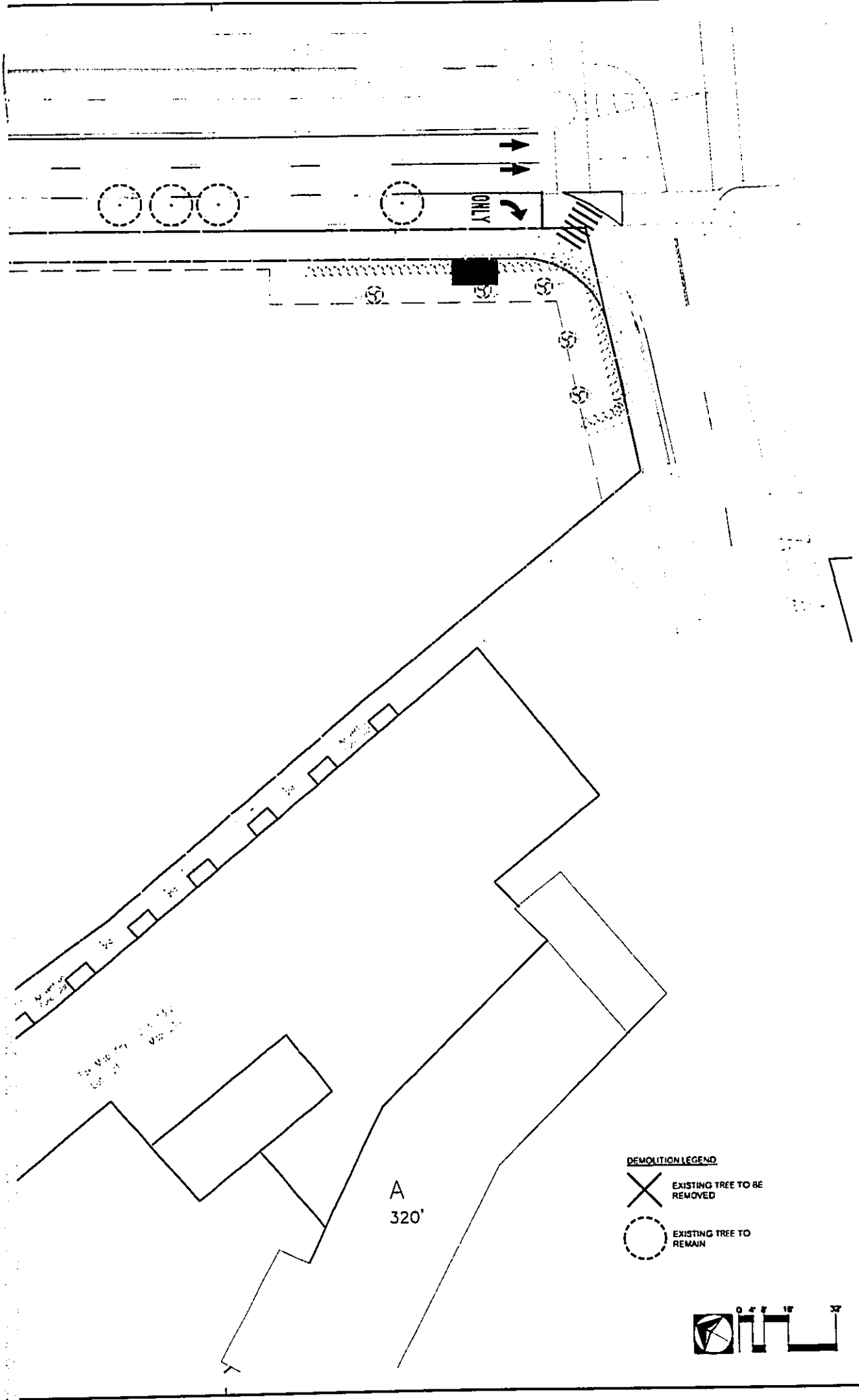
SCALE 1" = 60'



C-4.3

<p>HAARVEY K. HIDA LICENSED PROFESSIONAL ENGINEER No. 4343-C HAWAII U.S.A.</p> <p>ENGINE DIV. P.E. 36, 326</p> <p>This work prepared by me or under my supervision and authorization of the project will be under my observation. (Observation of construction as defined in Section 16-113-2 of the Rules of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii.)</p>	Revision	Date	By	Checked by	Approved	
	<p>HIDA, OKAMOTO & ASSOCIATES, INC. CONSULTING ENGINEERS 1440 KAPOLANI BOULEVARD, SUITE 1180, HONOLULU, HAWAII 96814 TELEPHONE (808) 945-0088</p>					
	<p>ALLURE WAIKIKI OFFSITE SEWER At Kala, Waikiki, Oahu, Hawaii Tax Map Key: 2-8-13</p>					
	<p>TRAFFIC CONTROL PLAN 2D TRAFFIC CONTROL PLAN 2E</p>					
No.	Date					
Des.	CHK	Dr.	LEZ	Ch.	1001	





PBR HAWAII
 & ASSOCIATES, INC.

LANDSCAPE ARCHITECTURE
 LAND PLANNING
 ENVIRONMENTAL STUDIES
 GRAPHIC DESIGN

1011 Kalia Road, Suite 100
 Honolulu, Hawaii 96813-1011
 TEL: (808) 733-4001
 FAX: (808) 733-1011
 WEB: www.pbrhawaii.com
 EMAIL: info@pbrhawaii.com

REVISIONS

No.	Date	Description

**ALLURE WAIKIKI
 CONDOMINIUM**
 OAHU, HAWAII

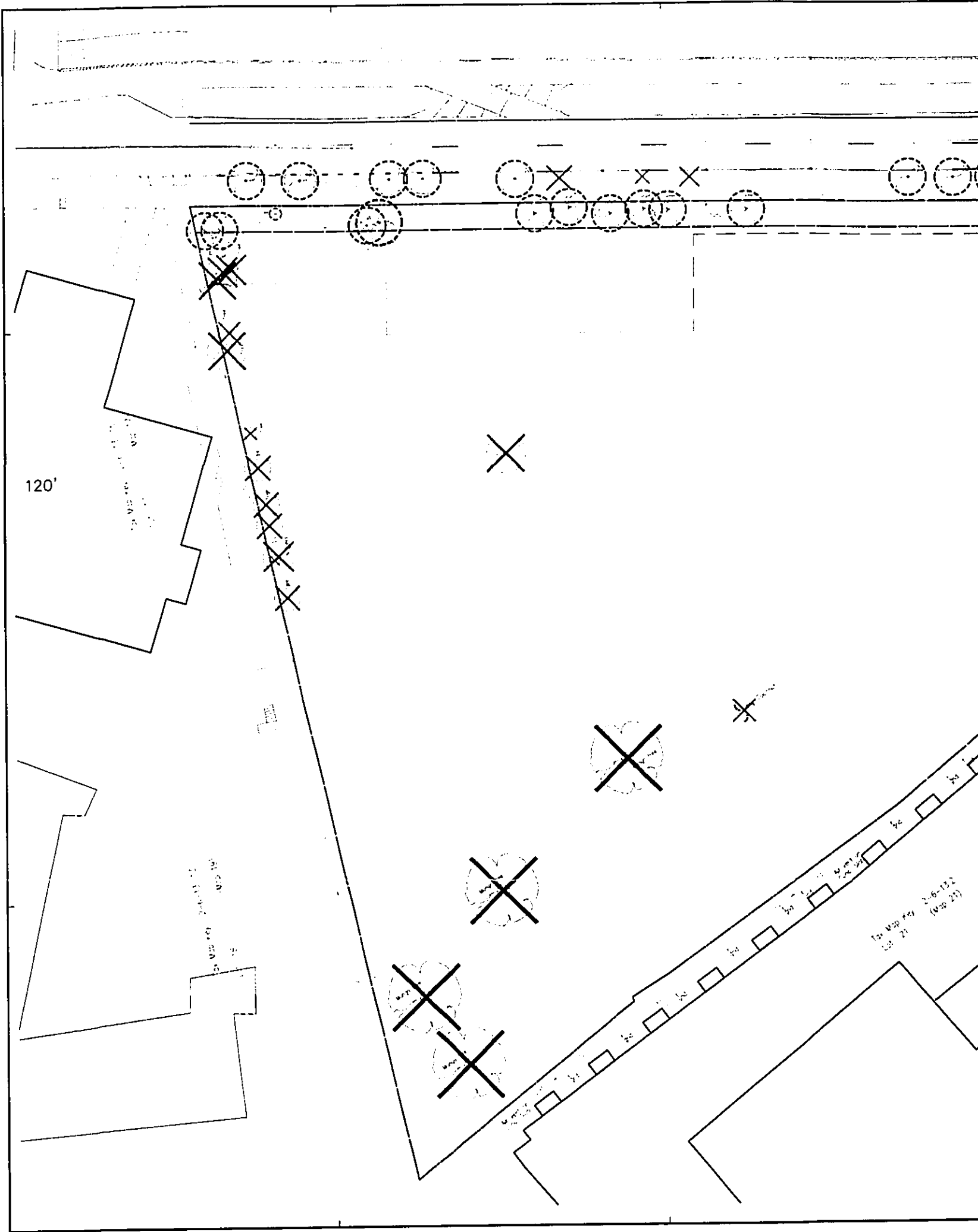
PROJECT NAME:

SHEET TITLE:
 WAIKIKI SPECIAL
 DISTRICT
 SUBMITTAL

Landscape Demolition
 plan

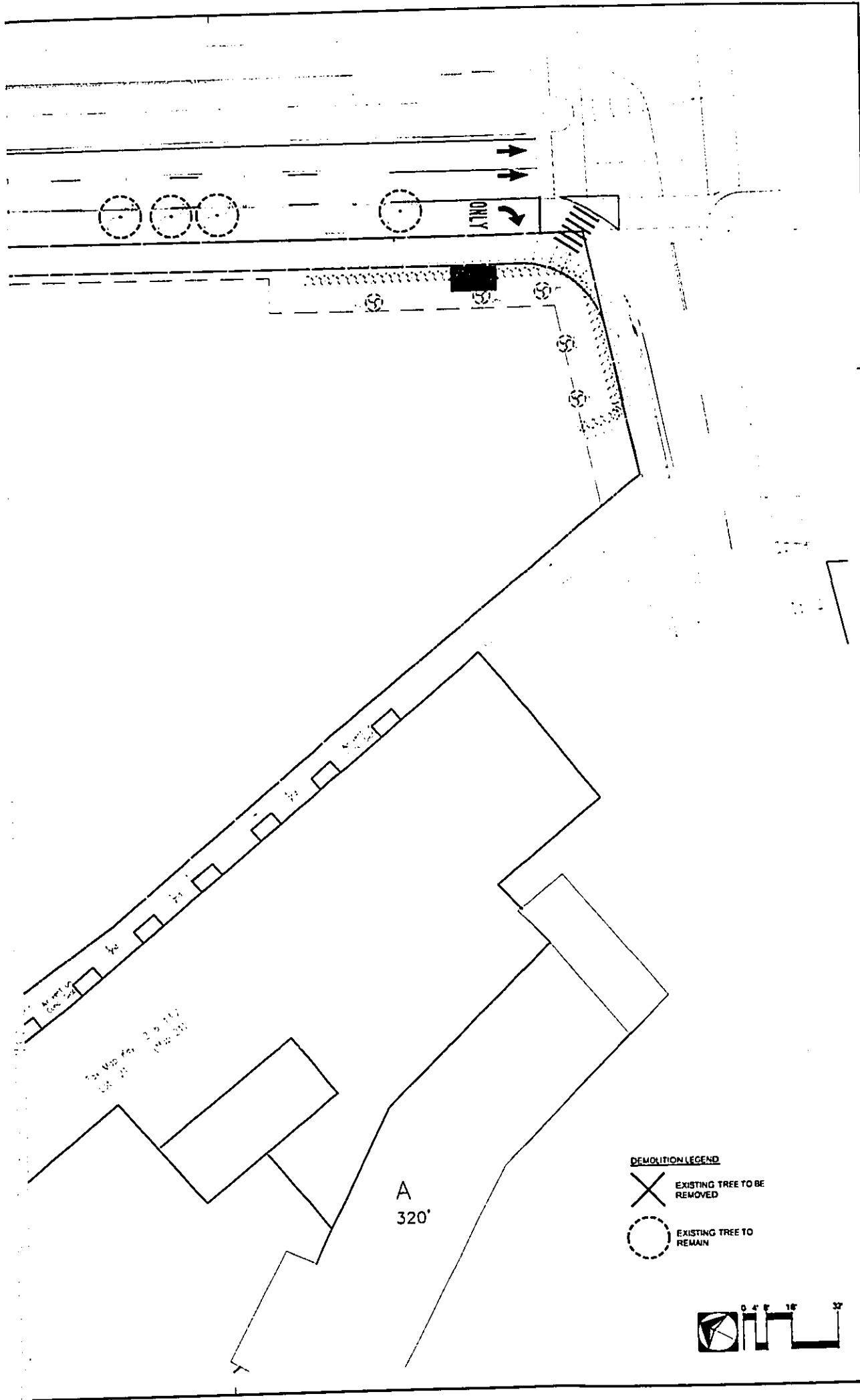
Date:	
Scale:	
Drawn:	
Checked:	
Job Number:	
Sheet Number:	

Of _____ Sheets



120'

For Map For 2-6-122
Lot 21 (Map 21)



PBR HAWAII
 & ASSOCIATES, INC.
 LANDSCAPE ARCHITECTURE
 LAND PLANNING
 ENVIRONMENTAL STUDIES
 GRAPHIC DESIGN
 1515 Kalia Road
 Suite 2000
 Honolulu, Hawaii 96813-4504
 TEL (808) 525-6033
 FAX (808) 525-1872
 WEB www.pbrhawaii.com
 EMAIL: info@pbrhawaii.com

REVISIONS

No.	Date	Description

PROJECT NAME:
ALLURE WAIKIKI CONDOMINIUM
 OAHU, HAWAII

SHEET TITLE:
WAIKIKI SPECIAL DISTRICT SUBMITTAL
 Landscape Demolition plan

Date:	
Scale:	
Drawn:	
Checked:	
Job Number:	
Sheet Number:	

OF 1 Shows

DEMOLITION LEGEND
 EXISTING TREE TO BE REMOVED
 EXISTING TREE TO REMAIN

A 320'

APPENDIX VI

**ARCHAEOLOGICAL LITERATURE
REVIEW AND FIELD INSPECTION
AND
CULTURAL IMPACT ASSESSMENT**

**Archaeological Literature Review and Field Inspection
for a 2.3-acre Project Area,
Waikīkī Ahupua‘a, Kona District, O‘ahu
(TMK 2-6-13: 1,3,4,7,8,9,11 and 12)**

**Prepared for
Fifield Companies**

**Prepared by
Hallett H. Hammatt, Ph.D.
and
Rodney Chiogioji, B.A.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: WAIKI 3)**

May 2006

**O‘ahu Office
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950**

www.culturalsurveys.com

**Maui Office
16 S. Market Street, Suite 2N
Wailuku, Hawai‘i 96793
Ph: (808) 242-9882
Fax: (808) 244-1994**

Management Summary

Reference	Archaeological Literature Review and Field Inspection of a 2.3-acre Project Area in Waikīkī Ahupua'a, Kona District, Island of O'ahu [TMK 2-6-13: 1,3,4,7,8,9,11 and 12] (Hammatt and Chiogioji 2006)
Date	May 2006
Project Number (s)	Cultural Surveys Hawai'i Inc. (CSH) Job Code: WAIKI 3
Investigation Permit Number	The fieldwork for this investigation was carried out under archaeological permit number 0605 issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR)
Project Location	The project area – TMK 2-6-13: 1,3,4,7,8,9,11 and 12 – comprises the southeast quarter of the block bounded by Ala Wai Boulevard, Kalakaua Avenue, Ena Road, Hobron Lane, and Lipepee Street in Waikīkī, O'ahu. It is shown on the 1998 USGS 7.5 Minute Series topographic map, Honolulu Quadrangle.
Land Jurisdiction	Private
Project Description	The project area is proposed for development of a residential condominium comprising 30 floors of apartments, five parking levels, and a retail component.
Project Acreage	2.3 acres
Historic Preservation Regulatory Context	The project is subject to Hawai'i State environmental and historic preservation review legislation [Hawai'i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai'i Administrative Rules (HAR) Chapter 13-13-275, respectively].
Fieldwork Effort	Field inspection of the project area was accomplished by Rodney Chiogioji on September 24, 2004 and April 25, 2006, and required one person-day.
Summary of Findings	<p>Nineteenth and twentieth century documents indicate that the project area from traditional Hawaiian times to the modern era comprised a dryland environment elevated above surrounding fishponds and wetland fields. In traditional Hawaiian times, such an environment would have provided a base for habitation, work, and recreational activities of the population.</p> <p>Maps and photographs produced prior to the completion of the Ala Wai Canal in the late 1920s, indicate that the project area contained house sites associated with the early development of Waikīkī. As that development continued, by the early 1950s, residential structures were being supplanted by commercial structures in the project area.</p> <p>As none of the extant permanent structures within the project area are indicated on a 1951 fire insurance map, they do not appear to be of sufficient</p>

	<p>age to warrant historic preservation concern.</p> <p>Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī. Especially relevant to the present project area are two burials that were encountered at the corner of Kalākaua Avenue and Ena Road, immediately adjacent to the project area, during trenching for an anti-crime lighting project in 1999. Additionally, <i>makai</i> of the present project area, within a parcel bounded by Ala Wai and Ala Moana boulevards, Hobron Lane, and Līpe'epe'e Street, human burials were also encountered in 2005.</p> <p>Archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area.</p> <p>It is possible that intact prehistoric and early contact cultural deposits associated with Hawaiian habitation, work and recreation are lying undisturbed beneath modern fill layers within the project area. Other cultural deposits, including historic trash pits, associated with late nineteenth century and early twentieth century residential sites may also be present. An additional concern is the possible presence of human burials within the project area.</p>
Recommendations	<p>Based on the findings of this report and on the cultural sensitivity of the entire Waikīkī area, CSH anticipates that the State Historic Preservation Division (SHPD) would require an archaeological inventory survey with a substantial subsurface testing component for the project area. This survey could be scheduled following demolition of structures within the project area and before commencement of building activities. Additionally, SHPD has already indicated that an archaeological inventory survey plan would need to be prepared and approved by SHPD prior to the inventory survey investigation. The approved plan will serve to guide the inventory survey investigation's methods and sampling strategy.</p> <p>If human remains or other significant finds are encountered during the inventory survey, there is a significant likelihood of further historic preservation requirements, potentially including a burial treatment plan, archaeological data recovery, and/or an archaeological monitoring program. Any Native Hawaiian burials discovered during the course of the inventory survey would be considered "previously identified" and their treatment would fall under the jurisdiction of the O'ahu Island Burial Council.</p>

Recommendations	<p>Based on the findings of this report and on the cultural sensitivity of the entire Waikīkī area, Cultural Surveys Hawai'i anticipates that the State Historic Preservation Division (SHPD) would require an archaeological inventory survey with a substantial subsurface testing component for the project area. This survey could be scheduled following demolition of structures within the project area and before commencement of building activities. Additionally, SHPD has already indicated that an archaeological inventory survey plan would need to be prepared and approved by SHPD. The approved plan serves to guide the inventory survey investigation.</p> <p>If human remains or other significant finds are encountered during the inventory survey, there is a significant likelihood of further SHPD requirements, potentially including a burial treatment plan, archaeological data recovery, and/or an archaeological monitoring program. Any burials discovered during the course of the inventory survey are considered "previously identified burials" under the purview of the O'ahu Island Burial Council.</p>
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Section 1 Introduction

1.1 Project Background

At the request of Fifield Companies, Cultural Surveys Hawai'i (CSH) has conducted an archaeological literature review and field inspection of a 2.3-acre project area in Waikīkī Ahupua'a, Kona District, Island of O'ahu (TMK 2-6-13: 1,3,4,7,8,9,11 and 12) (Figures 1 & 2). The project area comprises the southeast quarter of the block bounded by Ala Wai Boulevard, Kalakaua Avenue, Ena Road, Hobron Lane, and Lipepee Street.

The project area presently comprises low-rise buildings (including the site of The Wave nightclub), a parking lot, and a vacant lot. The project area is proposed for development of a residential condominium comprising 30 floors of apartments, five parking levels, and a retail component.

This report is not an archaeological inventory survey, per the requirements of HAR Chapter 13-276; however, through detailed historical, cultural, and archaeological background research, and a field inspection of the project area, this investigation seeks to identify cultural resources that may be affected by the project. The document is intended to facilitate the project's planning and support the project's historic preservation compliance.

1.2 Scope of Work

The scope of work for this investigation included:

- 1) Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near the property.
- 2) Field inspection of the project area to further assess the potential for impact to subsurface deposits. The goal of the assessment was to identify any sensitive area that might require further investigation or mitigation before the project proceeds.
- 3) Preparation of a report to include the results of the historical research and the fieldwork with an assessment of archaeological potential based on that research, with recommendations for archaeological work, if appropriate. This report will also provide mitigation recommendations if there are any archaeologically sensitive areas that need to be taken into consideration.

1.3 Environmental Setting

The project area is flat and averages 2 to 3 meters above mean sea level. The average rainfall in this coastal area of Waikīkī is between 20-30 inches per year, with temperatures ranging from 60 to 85 degrees Fahrenheit (Armstrong 1973:56). Although the area has been graded and filled (Fill Land), the natural soil deposit is Jaucus sand (JaC) (Foote et al. 1973).

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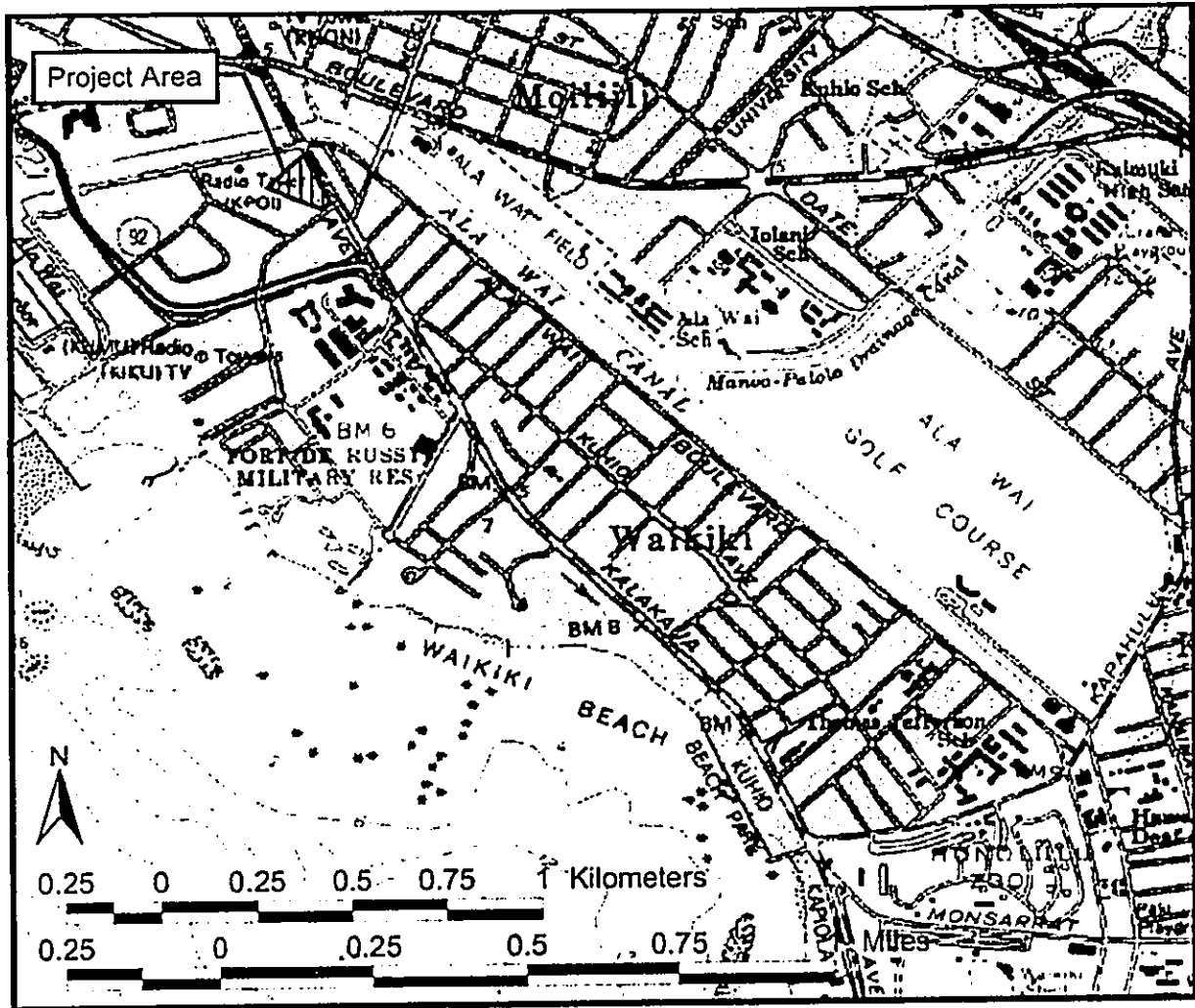


Figure 1. Portion of USGS Topographic Map, Honolulu Quadrangle, showing location of project area

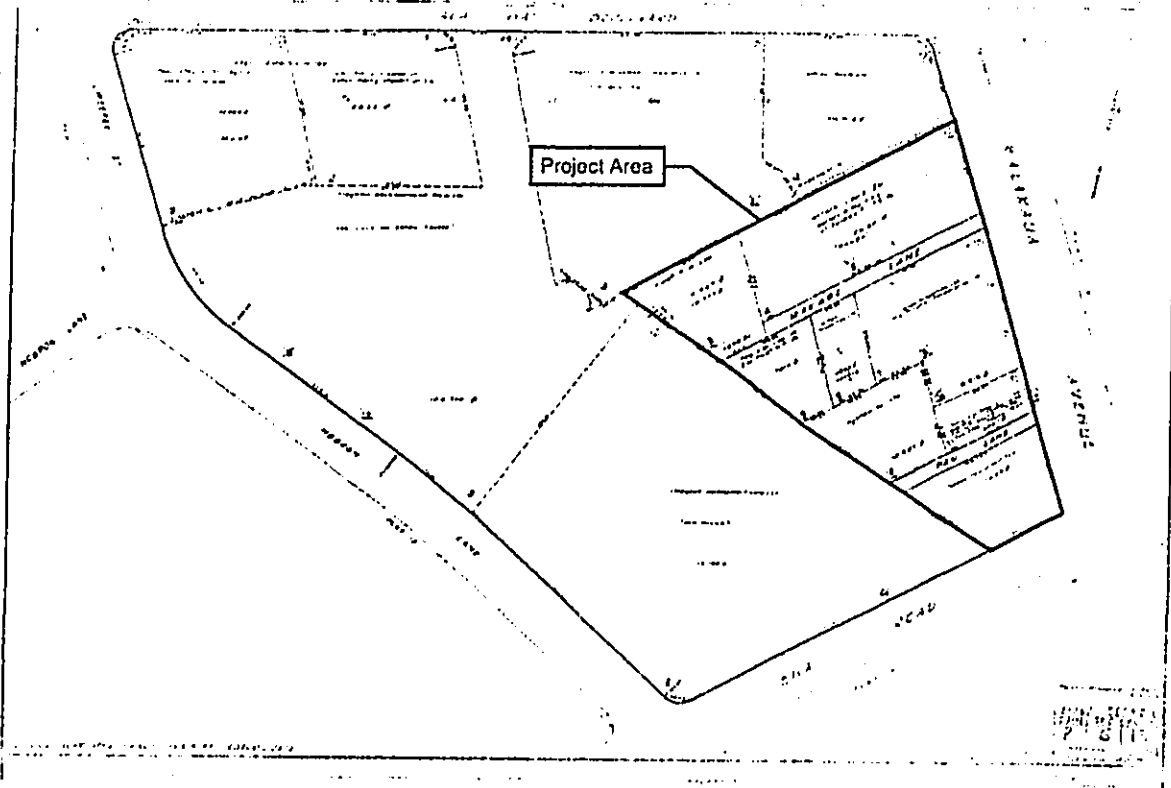


Figure 2 Tax map showing project area

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1.4 Methods

Rodney Chiogioji, B.A., under the supervision of Hallett H. Hammatt, Ph.D. completed the field inspection effort on September 4, 2004 and April 25, 2006. Fieldwork was conducted under state archaeological fieldwork permit No. 0605 issued by SHPD, per Hawai'i Administrative Rules (HAR) Chapter 13-13-282. The field effort required 1 person-day to complete.

Historical background research included study of archival sources, Land Commission Awards and historic maps, as well as a review of past archaeological research in Waikīkī to construct a history of land use and to assess the potential for the presence of subsurface cultural deposits and human burials within the project area.

Section 2 Historical Background

2.1 Pre-Contact to Early 1800's

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The 19th-century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

Kamehameha's houses were at Puaaliili, *makai* of the old road, and extended as far as the west side of the sands of 'Apuakehau. Within it was Helumoa where Ka'ahumanu *mā* went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features – that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. Water was also available from springs in nearby Mō'ili'ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance. Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of this profusion in his journals:

On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.

[Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.

This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and

some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.

[We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Draecena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

However, the traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact which produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood that had developed. By 1828, the missionary Levi Chamberlain(1957:26), describing a journey into Waikīkī, would note:

Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820's, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populis.

2.2 Mid-Nineteenth Century and the Māhele

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-19th century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) which introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

2.3 Mid to Late 1800s

As the 19th century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as “a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year” (Bliss 1873).

Other developments during the second half of the 19th century a prelude of changes that would dramatically alter the landscape of Waikīkī during the 20th century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the 19th century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five

years, and pay was \$3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880's, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800's reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-19th century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.

In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product [Coulter and Chun, 1937: 13]

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

2.4 1900 to 1920

During the first decade of the 20th century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...

Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of a hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground, [Hibbard and Franzen 1986:79].

All the fishponds were filled by 1928.

A fire insurance map of 1914 shows that there were five areas in Waikīkī where residential and commercial structures were concentrated in the early 20th century (Figure 3). These areas were located: 1) clustered at Saratoga Road and Lewers Road; 2) near the intersection of Ena Road and Kalākaua Avenue; 3) *makai* of Kālia Road on the east side of Ft. DeRussy; 4) clustered

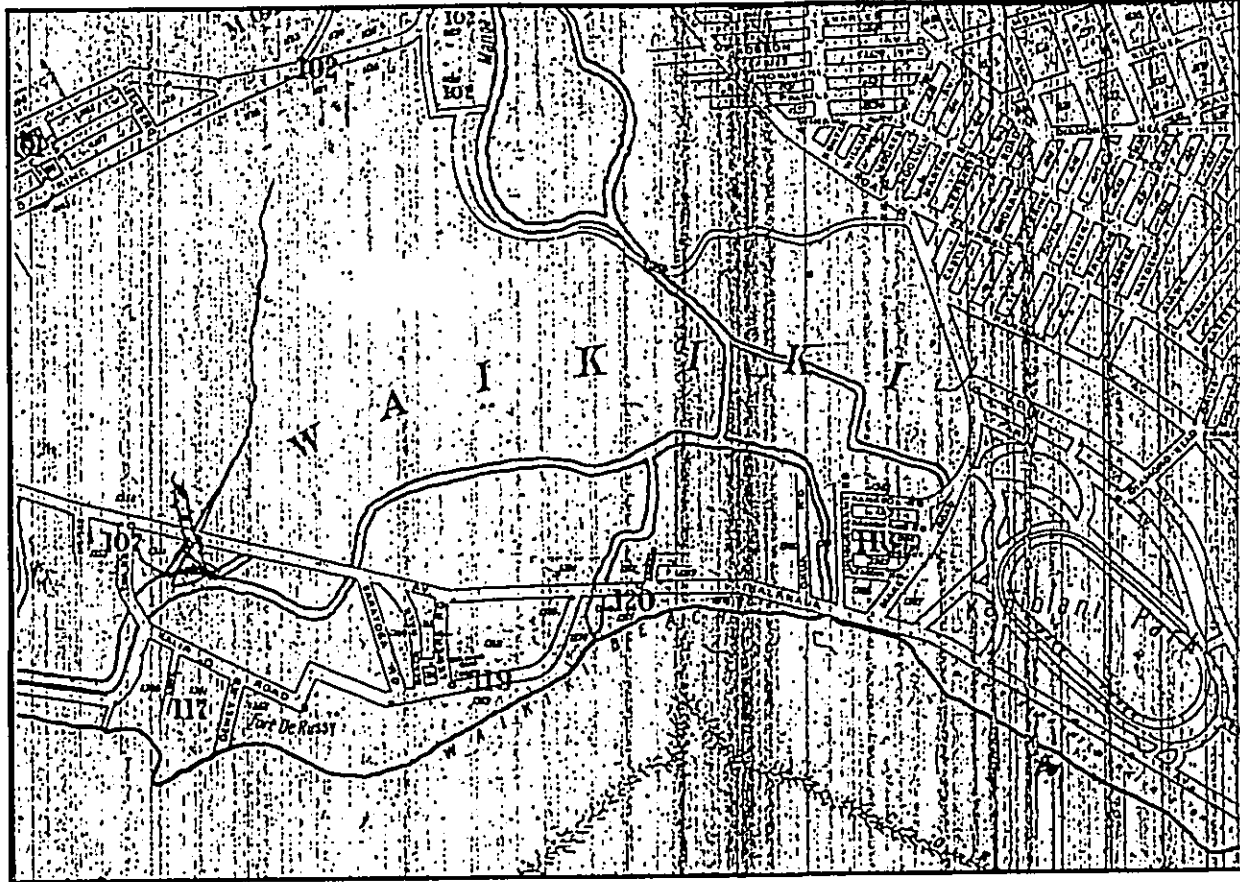


Figure 3. Portion of 1914 Sanborn Fire Insurance Map of Waikiki

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around the Moana Hotel on Kalākaua Avenue; and 5) in Kapahulu on the 'Ewa side of Makee Road (the present Kapahulu Avenue). The fire insurance map also reveals the relative isolation of Waikīkī, in the early 20th century, from the encroaching grid of modern Honolulu streets.

2.5 1920's to 1930's

During the 1920's, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī (Figure 6). The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...

The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930's. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.

These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

2.6 1940's

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy

controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

2.7 1950's

By the mid-1950's there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950's, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

2.8 Historic Documentation of the Project Area

The present project area is located on the *mauka* fringe of a portion of Waikīkī that, in traditional Hawaiian times and before the massive drainage accomplished by the Ala Wai Canal, comprised a complex of numerous large fishponds that extended between the present Saratoga Road and the grounds of Fort DeRussy to present Atkinson Drive and Ala Moana Shopping Center. An 1881 Hawaiian Government survey map by S.E. Bishop provides a detailed record of the physical landscape of Waikīkī before the transformations of the 20th century. When the map was copied in 1922, additional material from subsequent government surveys was added, including locations of road corridors not present in 1881. A portion of the 1922 copy, with the location of the present project area indicated, shows the fishponds located between the project area and the Waikīkī coast line (Figure 4).

The 1881 map also indicates locations of mid-nineteenth century Land Commission Awards. Māhele records for these awards provide the first specific documentation of land use in the vicinity of the present project area. Two *apana* (parcels) associated with two Land Commission Awards – LCA 1999 to Nalimu and LCA 2081 to Jane Laeau – are located immediately adjacent to the project area.

In LCA documents, Nalimu's parcel – located immediately northwest of the project area – is described as a “land and house at Kalia in Waikiki” (Native Register vol.3, pg. 319) which he acquired “from his wife, Kamakani, who had received it from her grandfolks before the time of Kamehameha I” (Native Testimony vol. 3, pg. 574). The parcel is described as bounded:

Mauka by Napahuelima's land

Waialae by the same

Makai by Loeau's land

Honolulu by a water course belonging to Kapahoulima (Foreign Testimony vol. 3, pg. 237-238)

Māhele records indicate that LCA 2081, comprising two parcels – was actually awarded to Kaoneanea who claimed the land “for my hanai, Loeau”, i.e. the Jane Loeau identified on the 1881 map (Native Register vol. 3, pg. 350). Apana (parcel) 1 of LCA 2081 – located immediately west of the project area – is described as “3 taro patches” bounded:

Mauka, [by land of] Kamoanahula

Waialae, [by land of] Kauhao

Makai, [by land of] Maoli

Honolulu, Kekuanaoa's land (Native Testimony vol. 3, pg. 634)

Documents for LCA 1999, LCA 2081 and other nearby awards suggest that, in the vicinity of the present project area, land usage and activity by the mid-nineteenth century included habitation and wetland agriculture. This may reflect the continuation into that century of traditional Hawaiian land use, along with the farming of fishponds, in this portion of Waikīkī.

The 1881 map appears to indicate that the present project area, during the second half of the nineteenth century, was a dryland environment with fencing delineating some of its sides and running across a portion of its interior. The only apparent water feature indicated within the project area is an *'auwai* (irrigation channel), running through its northeastern corner, that feeds a pond or irrigated taro field located just outside its northern boundary. Drawn before the extensive drainage and landfilling of the Waikīkī landscape accomplished by the construction of the Ala Wai Canal in the 1920s, the 1881 map likely represents the project area as it had appeared in traditional Hawaiian times: a dryland environment elevated above the surrounding fishpond ponds and wetland fields. Such an environment would have provided a base for habitation, work, and recreational activities of the Hawaiian population.

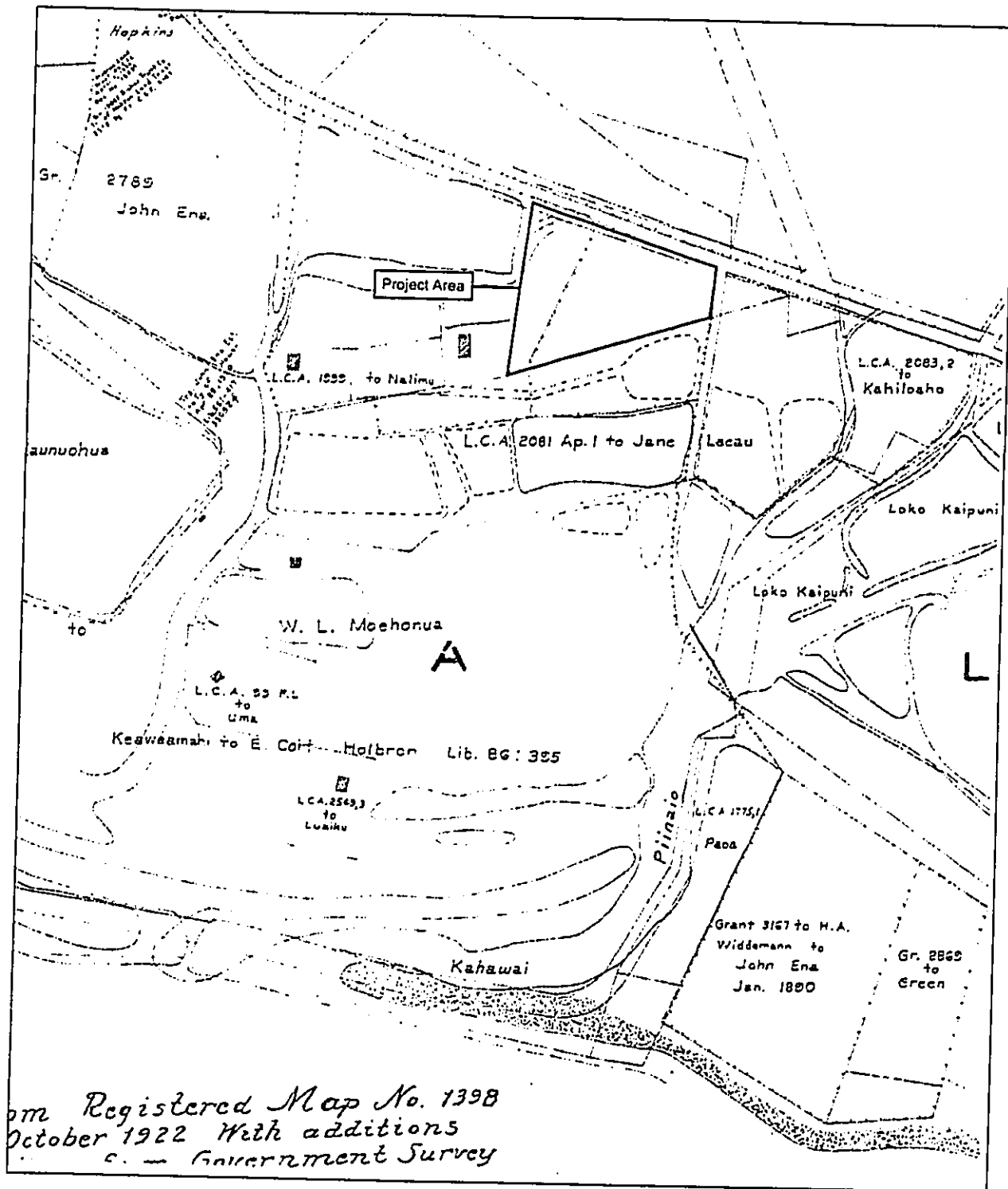


Figure 4. Portion of 1881 map by S.E. Bishop with location of present project area indicated

Literature Review & Field Inspection - 2.3-acre Project Area, Waikiki Ahupua'a

TMK 2-6-13: 1,3,4,7,8,9,11 and 12

Subsequent documents – including historic maps and photographs – record the development of the project area through the first half of the twentieth century. A map of Waikīkī based on military surveys between 1909 and 1913 indicate rows of buildings laid out across the project area (Figure 5). A 1927 Sanborn Fire Insurance map the early identifies the buildings within the project area, constructed during the first quarter of the twentieth century, as single-story, wooden dwellings (Figure 6).

A 1927 aerial photograph of Waikīkī shows the project area in the year before the completion of the Ala Wai Canal (Figure 7). The presence of structures and mature trees within the project area and its surroundings further confirm that the area was an original dryland environment. It was not a drained and filled construct related to the canal's construction.

A 1951 Sanborn Fire Insurance map showing the project area reflects mid-twentieth century changes occurring within Waikīkī (Figure 8). Dwelling structures away from Kalākaua Avenue shown on the 1927 fire insurance map continue in place. However, along Kalākaua Avenue itself: two dwelling structures have been converted to commercial use; one has been demolished and a furniture store and warehouse have been constructed in its place; and a bar and store have been constructed on the formerly empty lot at the corner of Kalākaua Avenue and Ena Road.

In summary, from traditional Hawaiian times to the modern era the present project has comprised continuously a dryland environment. Originally elevated above surrounding fishponds and wetland fields, the project area, from the latter nineteenth century into the twentieth century, was integrated into development of Waikīkī as a residential area and subsequently as a resort and commercial district.

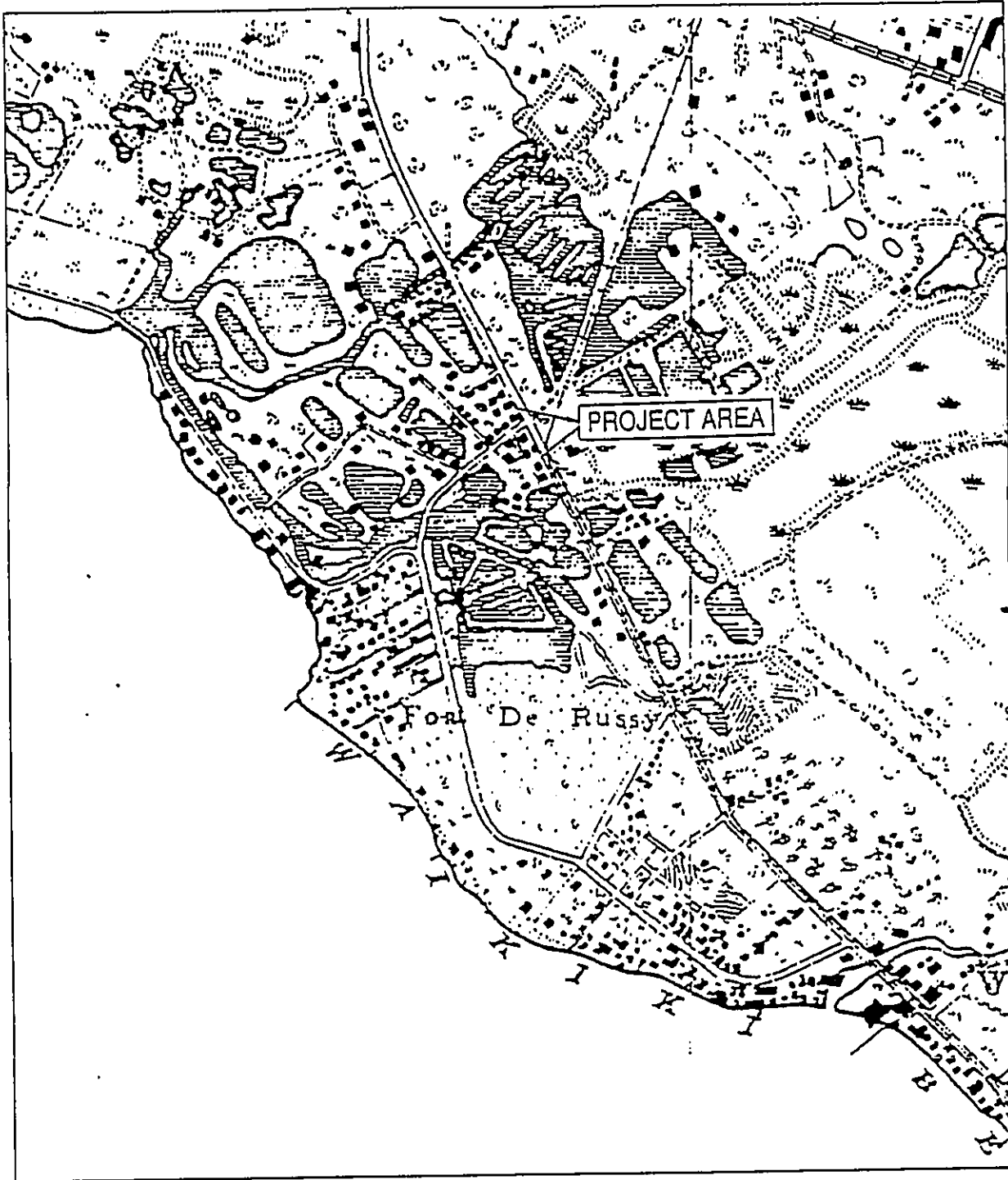


Figure 5. Portion of U.S. Army Engineers map, based on military surveys from 1909 to 1913, with location of present project area indicated

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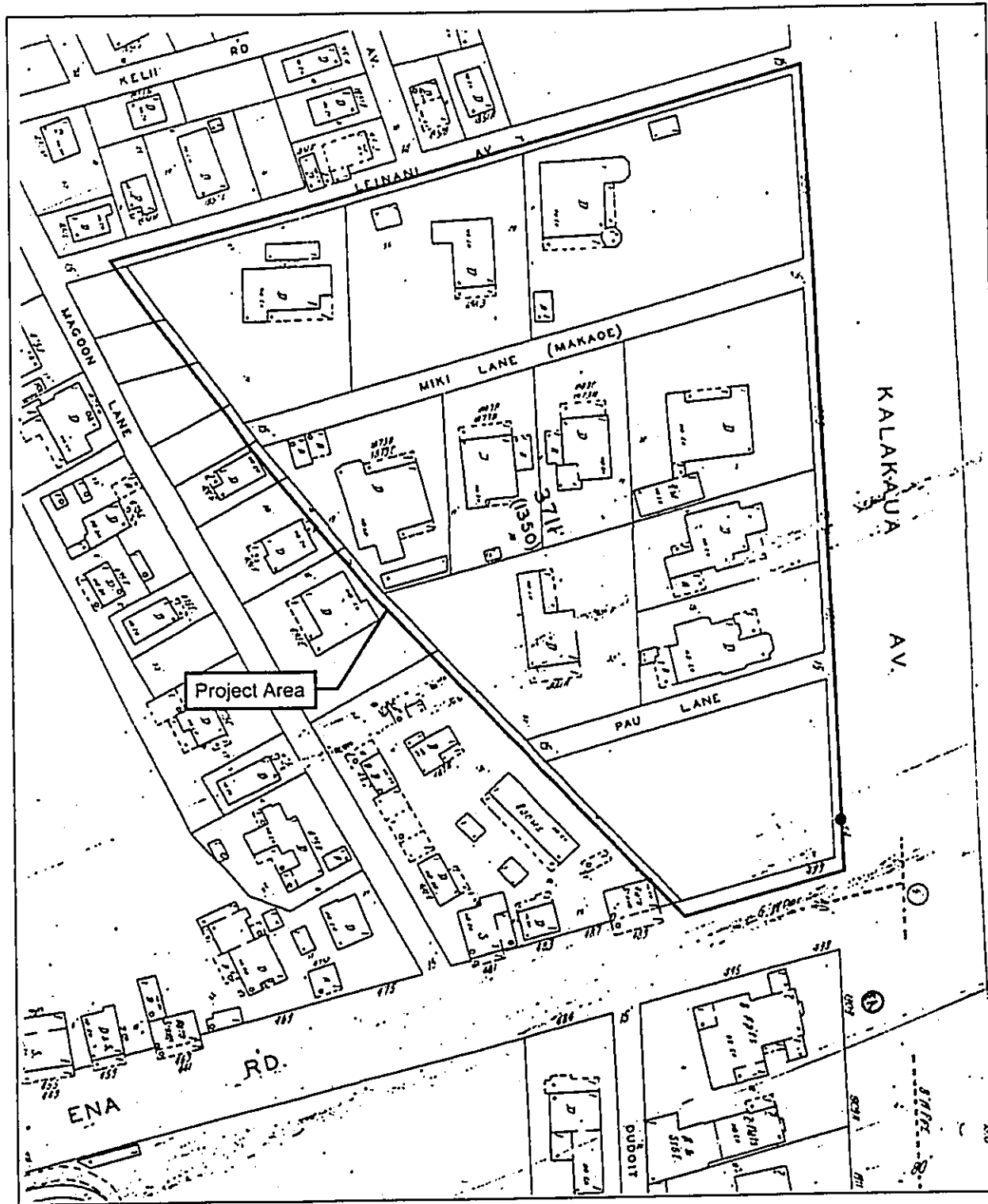


Figure 6. 1927 Sanborn Fire Insurance map of project area

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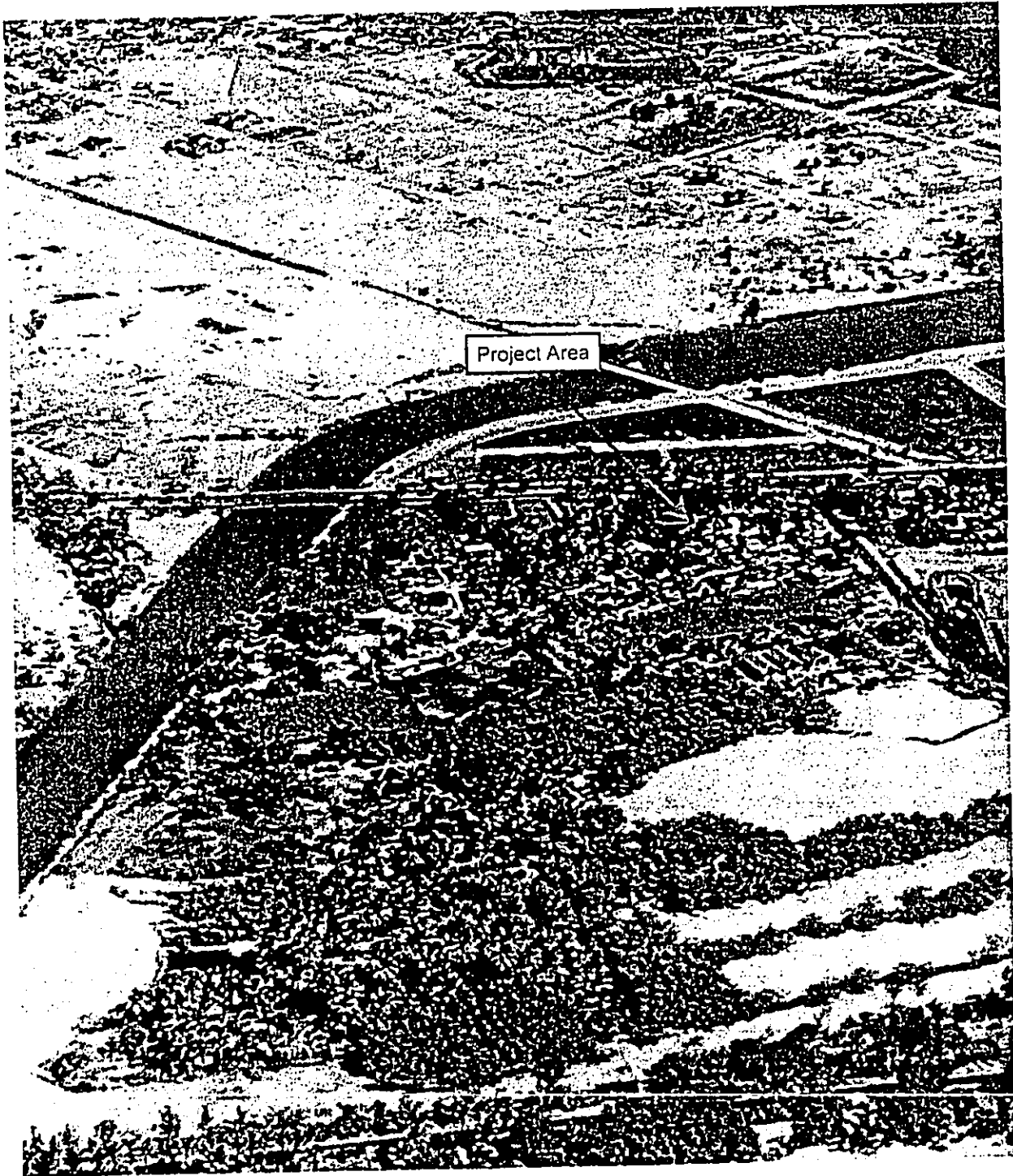


Figure 7. 1927 aerial photograph of Waikiki with location of present project area indicated

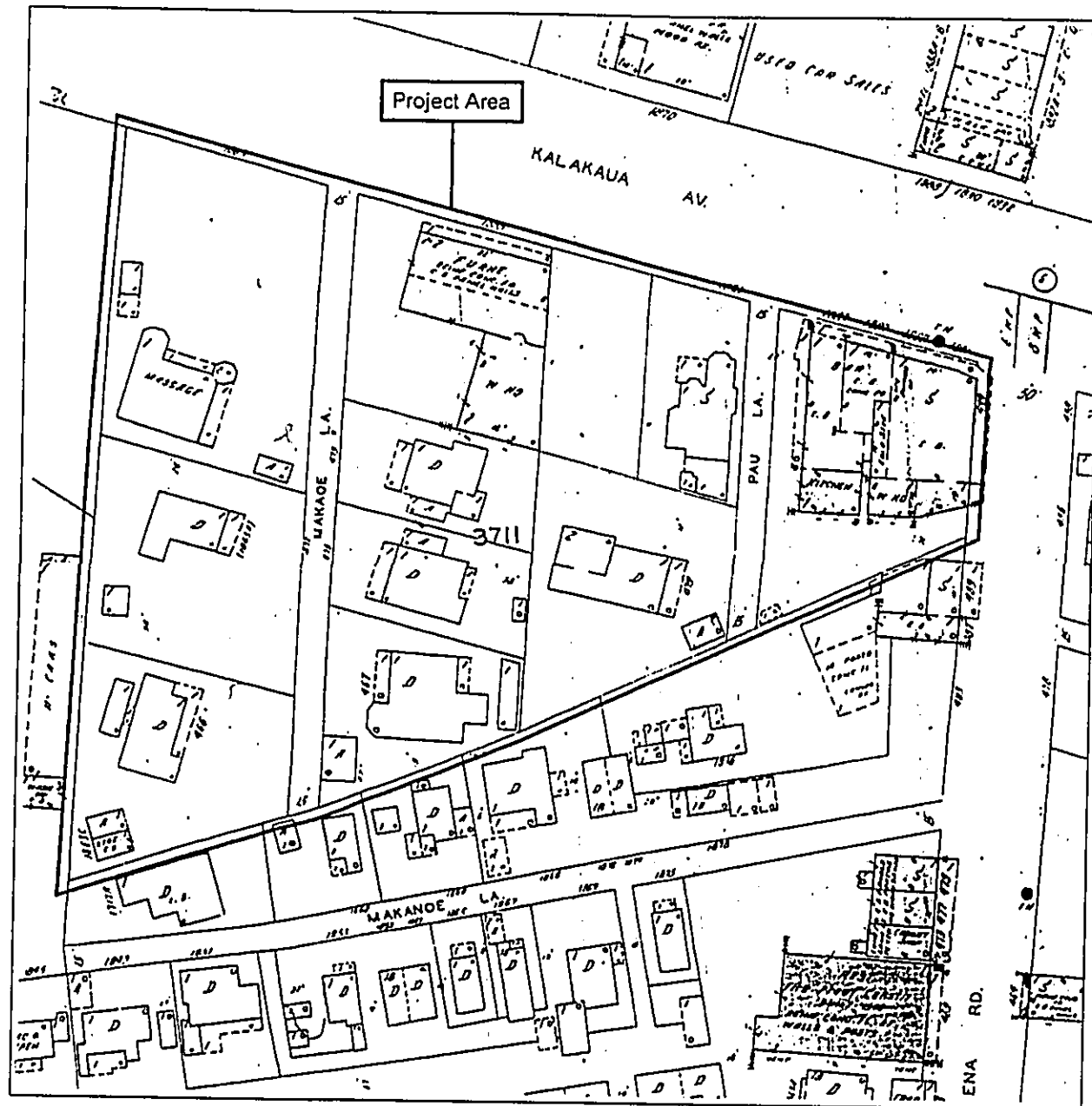


Figure 8. 1951 Sanborn Fire Insurance map of project area

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Section 3 Previous Archaeological Research

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. A full list of projects conducted in the Waikīkī area is listed in Table 1. A discussion of projects focusing on burials (Figure 12) follows.

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones [Emerson 1902:18].

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *nihopalaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī *Ahupua'a* in lower Mānoa Valley. The fourth *heiau* - Papa'ena'ena - was located at the foot of Diamond Head crater in the environs of the present Hawai'i School for Girls. Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'Ī, Kamehameha placed at Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'Ī 1959:50-51).

Table 1. Previous archaeological investigations in Waikīkī Ahupua'a, focusing on burials

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Nakamura 1979	History Graduate Thesis	Waikīkī	History of Waikīkī with focus on the radical changes in land use that occurred in the early 20th century.
Neller 1980	Monitoring Report	Kālia Burial Site: Hilton Hawaiian Village	Brief field inspection: partial recovery of 3 historic Hawaiian burials, trash pit from 1890's, no prehistoric Hawaiian sites.
Bishop Museum 1981	Testing, Excavations, & Monitoring	Halekulani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekulani Hotel	Limited background research on area
Acson 1983	Historical Research	'Ewa to Diamond Head	Nine walks through Waikīkī, photos, maps and historical info.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī Ahupua'a at the Bishop Museum
Davis 1984	Archaeological and Historical Investigation	Halekulani Hotel	48 historic and prehistoric features excavated.
Neller 1984	Informal Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Center for Oral History 1985	Oral Histories, Volumes I-IV	Waikīkī	Oral Histories of Waikīkī, 1900-1985, Volumes I-IV
Griffin 1987	Burial Recovery Report	Along Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in <i>makai</i> wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel (site -9901).
Davis 1989	Reconnaissance Survey & Historical Research	Fort DeRussy	Fishponds and other features are buried in this area. Sites -4573 thru -4577 are fishponds, 4570 is a remnant cultural deposit.
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.

Reference	Type of Investigation	General Location	Findings
Rosendahl 1989	Inventory Survey, Prelim. Report	Fort DeRussy	Historic artifacts, no human remains
Athens 1990	Letter	TMK: 2-6-023:025	Letter to SHPD listing human remains at IARII lab from Pacific Beach Hotel, and Barbers Point Generating Station.
Hurst 1990	Historical Literature Search	Waikikian Hotel	Background and planning document. No fieldwork was done.
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83, TMK 2-6-24:34-40 & 42-45	Formerly a corner of the 'Āinahau estate; remainder of parcels, former 'auwai, kalo and rice fields; test excavations and specific sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. Subsurface features and material remains date to early post-contact times (c. 1780s to 1790s) through the mid-19th century.
Kennedy 1991	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ¹⁴ C samples from ponded sediments were recovered. The three ¹⁴ C dates and pollen sequence were inverted.
SHPD 1991	Public Inquiry	TMK: 2-6-024:036	Bones were determined to be non-human and part of the extensive fill material present
Simons et al. 1991	Interim Field Study, Monitoring & Data Recovery	Moana Hotel Area	8 burials, preliminary osteological analysis indicates pre-contact type; pre- and post artifactual material recovered.
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing and monitoring in same area.
Pietrusewsky 1992a	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992b	PA Report	Lili'uokalani Gardens Site, Hamohamo	Human Remains from the Lili'uokalani Gardens Site, Hamohamo, Waikīkī, O'ahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	Identified 12 historic refuse pits, 3 historic to modern trenches.
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial discovery (believed to be late prehistoric Hawaiian) during data recovery excavations, May, 20, 1992.

Reference	Type of Investigation	General Location	Findings
Cleghorn 1993	Inadvertent Discovery of Human Remains	Waikīkī Aquarium	Remains of one human individual, mandible identified.
Dagher 1993	Inadvertent Discovery of Human Remains	Waikīkī Aquarium	Human remains of at least one person identified, excavation recommended.
Dega & Kennedy 1993	Inadvertent Discovery of Remains	Waikīkī Aquarium	Discovery of unidentified bone fragments, all remains turned over to SHPD.
Hammatt & Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Not associated with any know surface archaeological site, however prehistoric and early historic occupation layers associated with <i>lo'i</i> system remain intact below modern fill. Specific sampling strategy and potential burial testing recommended.
Maly et al. 1994	Archaeological and Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	SHPD Burial Report	Intersection of Kalākaua and Kuamo'o Streets	Inadvertent Burial Discovery: misc. bones uncovered in back dirt pile during construction. Follow up by CSH.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	Hawai'i Convention Center Site, 1777 Kalākaua Ave.	No further work recommended.
Jourdane 1995	Inadvertent Discovery of Human Remains	Paoakalani Avenue	Human skeletal remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic and prehistoric artifacts, and midden materials collected from 7 occupation layers. 6 prehistoric cultural features recorded: <i>'auwai</i> bunds and channels, fishpond walls and sediments, a possible <i>lo'i</i> , and hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt & Shideler 1996	Data Recovery	Hawai'i Convention Center Site	No clear evidence that Kuwili Pond sediments present in project area; no further work recommended.

Reference	Type of Investigation	General Location	Findings
McDermott et al. 1996	Inventory Survey	'Āinahau Estate	Buried remnants of 'auwai and lo'i and human burial found. ¹⁴ C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ¹⁴ C dates mid-17th C.
Denham & Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	Final Report does not include SHPD recommendations. 10 subsurface features and 9 burial locations found. ¹⁴ C dates
Beardsley & Kaschko 1997	Monitoring and Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ¹⁴ C dates
Hammatt & Chiogioji. 1998	Assessment	King Kalākaua Plaza Phase II	No surface archaeological sites, documented human burials, presence of subsurface cultural deposits (both of pre-contact Hawaiian and historic provenance).
Hammatt & McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Along Ala Wai Blvd., Kalākaua Ave., Ala Moana Blvd., & 'Ena Rd.	Two human burials found (1 preceding monitoring); pockets of undisturbed layers still exist. Burial #2 previously disturbed.
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt & Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Majority of zoo parcel unlikely to yield significant cultural deposits. However, strong possibility of significant subsurface cultural deposits in the SW portion. Monitoring is recommended in this area.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration of the project area. Site -4970, has been adequately documented.
Perzinski et al. 2000	Burial Findings	Kalākaua Ave. between Kai'ulani & Monsarrat Avenues	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, interred prior to 1820.

Reference	Type of Investigation	General Location	Findings
Cleghorn 2001	Mitigation	Burger King Construction Site	Concerning three incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian Property	No arch. sites were found during excavations of the area
Elmore & Kennedy 2001	Burial Report	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. The in situ remains were left in place, while the disturbed remains were reentered with the others.
McGuire & Hammatt 2001	Cultural Assessment for Waikiki Beach Walk Project	Along Lewers St., Beach Walk, Kalia Rd. & Saratoga Rd.	Primary cultural concern identified as inadvertent burial discovery. Cultural monitoring recommended for all subsurface work within project area.
Perzinski & Hammatt 2001a	Monitoring Report	Kapi'olani Bandstand	A charcoal layer was observed, concentrated on the SW side of the bandstand; recovered indigenous basalt lamp with a handle, from the SE end of the bandstand.
Perzinski & Hammatt 2001b	Monitoring Report	Kapi'olani Park	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Perzinski & Hammatt 2001c	Monitoring Report	Kalākaua Avenue from the Natatorium to Poni Mo'i Road	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeology and historical literature.
Winieski & Hammatt 2001	Monitoring Report	TMK: 1-2-6-025:000	There is a possibility that Hawaiian or Historic materials as well as human burials may still be present within the project area.
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials were found during testing; absence of dry Jaucus sand deposits indicate that burial finds are unlikely in project area.
Bush et al. 2002	Monitoring Report	Kalākaua Avenue, between Ala Moana Blvd. and Kapahulu Ave.	Encountered 4 human burials, probably pre-contact Native Hawaiians; several historic trash pits; entire pig within an imu pit (estimated date, A.D. 1641-1671); gleyed muck associated with former ponds.

Reference	Type of Investigation	General Location	Findings
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore & Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann & Hammatt 2002	Monitoring Report	Lili'uokalani Avenue and Uluniu Avenue	5 burial finds of 6 individuals; two historic trash pits.
Putzi & Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench excavations for sewer connections.
Winieski, Perzinski, Shideler et al. 2002	Monitoring Report	Kalākaua Ave. between Ka'iulani and Monsarrat Avenues.	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional Hawaiian artifacts, midden, firepits, & charcoal; fragment of light gauge rail, remnant of Honolulu Transit trolley system, observed; low energy alluvial sediments associated with the now channelized <i>muliwai</i> Kukaunahi also observed.
Winieski, Perzinski, Souza et al. 2002	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, six disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Discontinuous cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikīkī Marriot	One isolated not in situ possible human bone fragment found. Recommends monitoring during future work.
Tulchin & Hammatt 2003	Archaeological & Cultural Impact Assessment	2284 Kalākaua Ave.	Notes possibility of burials in the project area; recommends an inventory survey with subsurface testing.
Freeman et al. 2005	Archaeological Inventory Survey	Hobron Lane	Four sites identified during subsurface testing; 1 disturbed burial; 1 coffin burial with two individuals; 1 cultural deposit; and, 1 fishpond sediment
O'Hare et al. 2005	Archaeological Inventory Survey	Kaio'o Drive	Site 50-80-14-6848, a pre-contact firepit radiocarbon dated to AD 1470-1660, was recorded.

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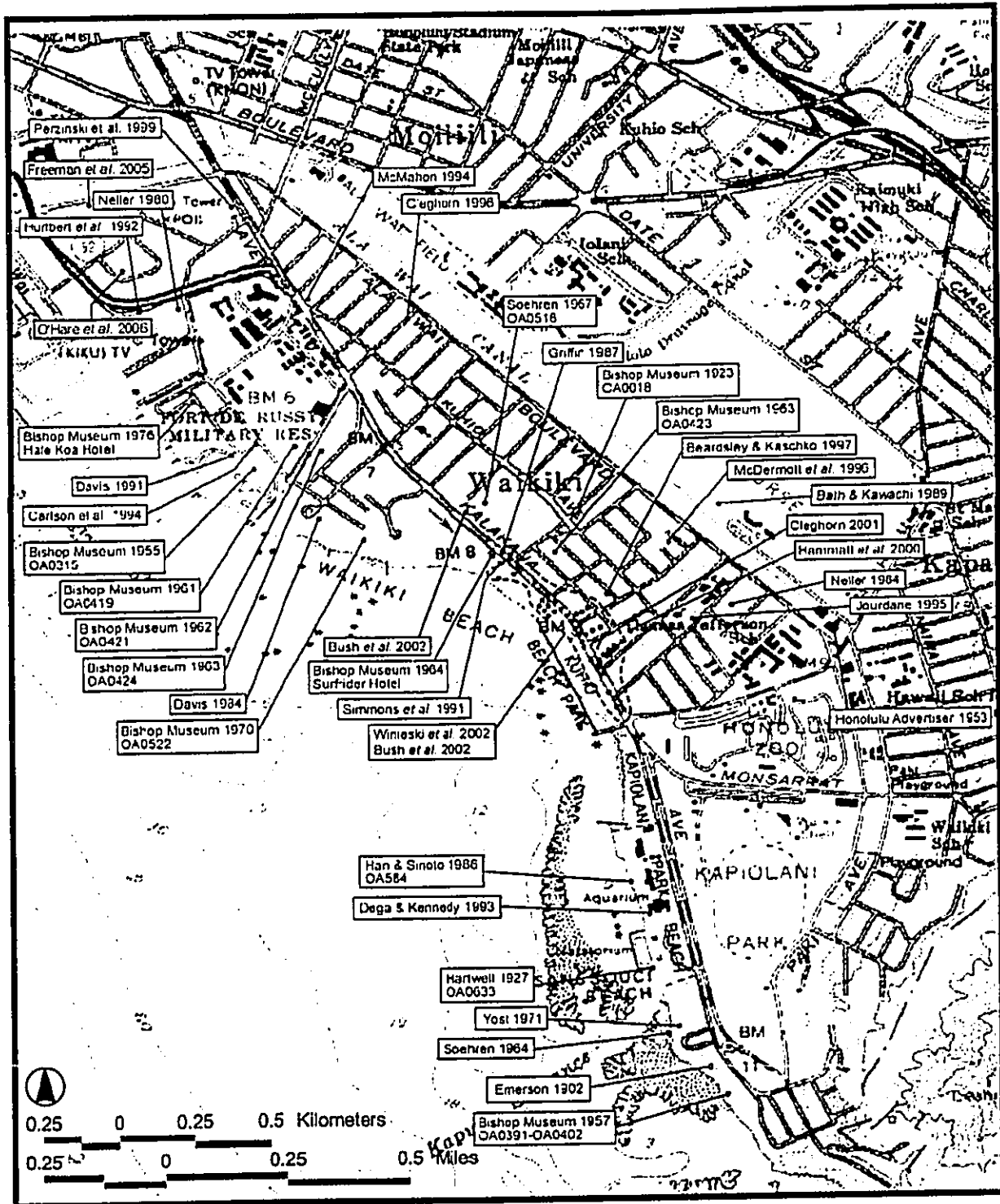


Figure 9. Previous Archaeological Work in Waikiki, focusing on locations of burials

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984. Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . .

Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .

Most of the bodies were buried in the traditional hoolewa position, with the legs bound tightly against the chest.

One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.

The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971: 28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surf Rider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent prehistoric or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one to a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago [Neller 1980:5].

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain tablewares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

[The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, firepits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifact material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within

this project area (see above). No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In 1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

In 1989, skeletal remains were unearthed on the grounds of the Ala Wai Golf Course during digging of an electrical line trench for a new sprinkler system. The trench had exposed a pit containing two burials (Bath and Kawachi 1989: 2). The report suggests that one of the burials may have been disturbed earlier during grading for the Territorial Fair Grounds. The osteological analysis included in the report concludes that both sets of remains "appear ancient." (Bath and Kawachi 1989: 2)

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, prehistoric, historic, and modern. These deposits included buried fishpond sediments, 'auwai [irrigation ditch] sediments, midden and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and 'auwai system in this area. The 'auwai system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this 'auwai enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and 'auwai deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer that contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, directly adjacent to the present project area, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdan 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Olohana Street, and Kālaïmoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that

. . . this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street (McDermott et al. 1996). Indigenous Hawaiian artifacts and historic artifacts were also found within the project area.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix that had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999). These discoveries were the closest to the current project area on the *makai* side of Kalakaua Avenue.

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush et al. 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find; they were assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was

assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua Avenue and Kealohilani, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial burials in fill, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden approximately 75 meters north of the current project area separated by a wing of the hotel. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue. During the course of monitoring, five burials finds, consisting of six individuals, were recorded

within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In 2004, Cultural Surveys Hawai'i conducted an archaeological inventory survey and cultural impact evaluation for the Ala Wai Gateway project site (Freeman et al. 2005). The project site comprised TMK 2-6-011:001, 002, 004, 32, 37, and 40, which are bounded by Ala Wai and Ala Moana boulevards, Hobron Lane, and Līpe'epe'e Street. Four historic properties were documented in the survey:

Site 50-80-14-6700: disturbed, ethnicity undetermined, human skeletal remains;

Site 50-80-14-6701: historic coffin burial, with two individuals, ethnicity undetermined;

Site 50-80-14-6702: culturally enriched buried A horizon in geographic association with Land Commission Award (LCA) 99 FL to Uma; and,

Site 50-80-14-6703: fishpond remnant.

In 2005 Cultural Surveys Hawai'i conducted an archaeological inventory survey of a 72,135 square foot (1.67 acre) project area on Kaio'o Drive (TMK: [1] 2-6-012: 37, 38, 39, 40, 41, 42, 43, 44, 55, 56, 57) (O'Hare et al. 2005). One Site 50-80-14-6848, a pre-contact firepit radiocarbon dated to AD 1470-1660, was recorded.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

Section 4 Field Inspection Findings

The project area was field inspected on September 4, 2004 and April 25, 2006 (Figures 10-13). All portions of the project area (except for interiors of buildings) were accessible to visual inspection.

Permanent buildings are present within only two of the parcels – TMK 2-6-13:4 and 11) – comprising the project area. These buildings appear to be three-story, hollow tile structures constructed on concrete slabs on grade without basements or elevator shafts. The parcel at the corner of Kalākaua Avenue and Ena Road – TMK 2-6-13:1 – is a paved rental car lot with only temporary structures.

The remainder of the project area is presently vacant land that has been cleared of buildings indicated on the fire insurance maps discussed above (see Figures 6 & 8) and of any subsequently built structures.

Based on field observation as well as historical background documentation, there has been relatively little subsurface disturbance within the project area during the twentieth century.

Additionally, as none of the extant permanent structures – the building housing The Wave nightclub and two unoccupied former apartment buildings – are indicated on the 1951 fire insurance map, they do not appear to be of sufficient age to warrant historic preservation concern.

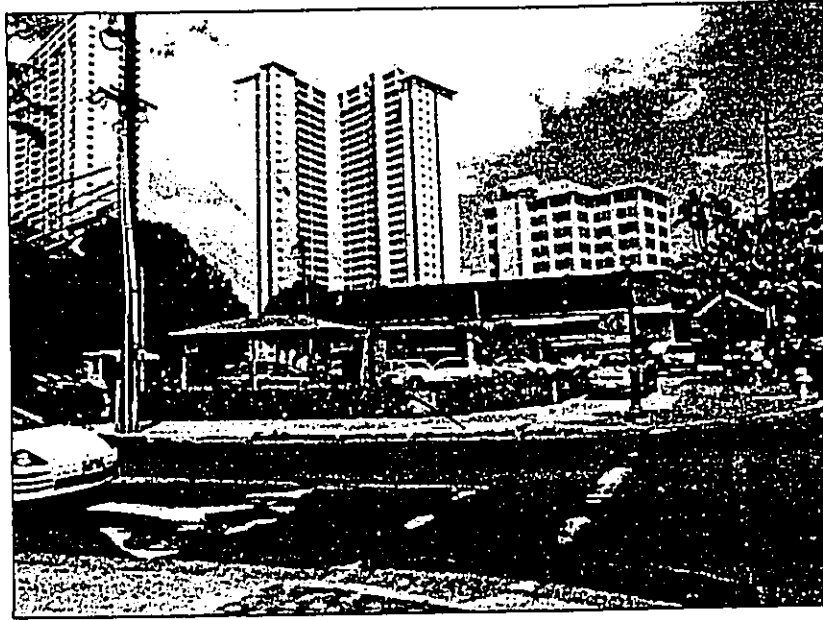


Figure 10. Project area from corner of Kalākaua Avenue and Ena Road showing rental car lot and Wave nightclub building; view to northwest

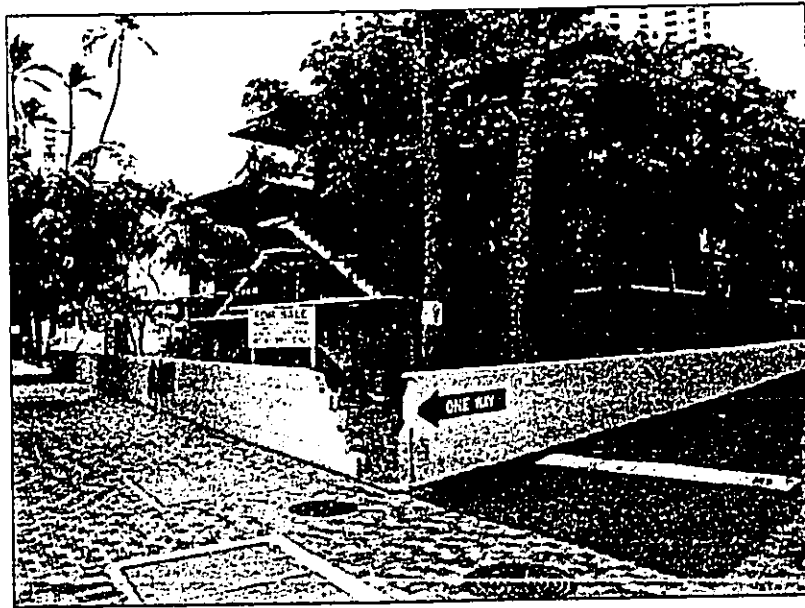


Figure 11. Project area from north corner on Kalākaua Avenue showing unoccupied apartment buildings and Wave nightclub building in background; view to south



Figure 12. Project area from northwest corner showing vacant land on parcels away from Kalākaua Avenue; view to southeast

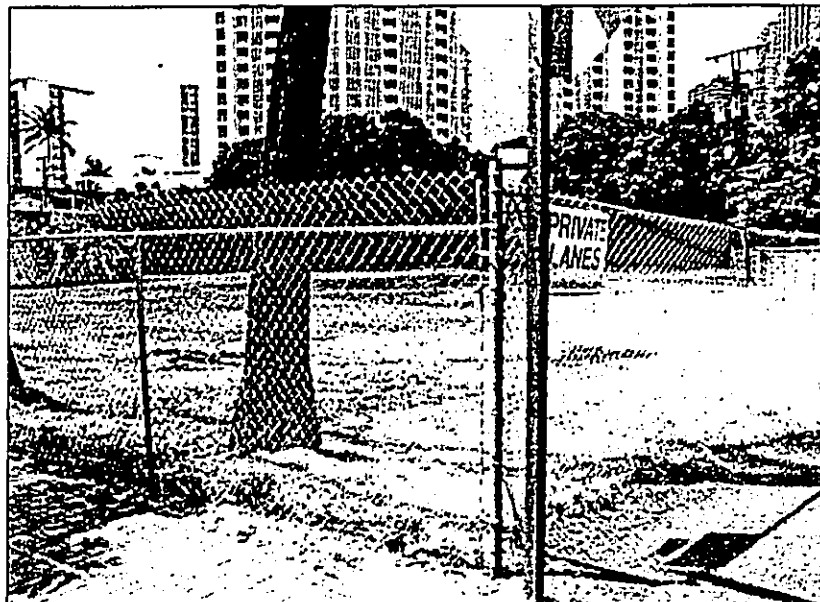


Figure 13. Project area showing vacant parcel between Makaoe Lane and Wave nightclub building; view to southwest

Section 5 Summary

The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system which had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

The present project area is located on the *mauka* fringe of a portion of Waikīkī that, in traditional Hawaiian times and before the massive drainage accomplished by the Ala Wai Canal, comprised a complex of numerous large fishponds. Also located in this portion of Waikīkī were wetland and dryland agricultural fields, and habitation sites. Land Commission Award documents from the mid-nineteenth century record continuing native Hawaiian habitation and taro cultivation in parcels adjacent to the present project area. Subsequent nineteenth and twentieth century documents – including historic maps and photographs – indicate that the project area from traditional Hawaiian times to the modern era comprised a dryland environment elevated above the surrounding fishponds and wetland fields. In traditional Hawaiian times, such an environment would have provided a base for habitation, work, and recreational activities of the population. Maps and photographs produced prior to the completion of the Ala Wai Canal in the late 1920s, indicate that the project area contained house sites associated with the early development of Waikīkī. As that development continued, by the early 1950s, residential structures were being supplanted by commercial structures in the project area.

As none of the extant permanent structures within the project area – the building housing The Wave nightclub and two unoccupied former apartment buildings – are indicated on the 1951 fire insurance map (see Figure 8 above), they do not appear to be of sufficient age to warrant historic preservation concern.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Especially relevant to the present project area are two burials that were encountered at the corner of Kalākaua Avenue and Ena Road, immediately adjacent to the project area, during trenching for an anti-crime lighting project in 1999. The burials were found at relatively shallow depths (80-120cm below surface). The archaeological monitoring report for the lighting project suggests that the potential for more inadvertent burial finds at shallow depths in the general area is high (Perzinski et al. 1999: 31). Additionally, *makai* of the present project area, within a parcel bounded by Ala Wai and Ala Moana boulevards, Hobron Lane, and Līpe'epe'e Street, human burials were also encountered (Freeman et al. 2005).

Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. The authors of these studies emphasize that the potential for discovering similar intact

deposits elsewhere in Waikīkī cannot be discounted. Based on stratigraphic documentation accomplished during archaeological monitoring for the anti-crime lighting project mentioned above, the subsequent monitoring report concluded that "many previously undisturbed layers including calcareous beach sand exist in this area of Waikīkī [i.e., in the vicinity of the present project area]" (Freeman *et al.* 2005).

It is possible that intact prehistoric and early contact cultural deposits associated with Hawaiian habitation, work and recreation are lying undisturbed beneath modern fill layers within the project area. Other cultural deposits, including historic trash pits, associated with late nineteenth century and early twentieth century residential sites may also be present. An additional concern is the possible presence of human burials within the project area.

Based on these considerations and the cultural sensitivity of the entire Waikīkī area, Cultural Surveys Hawai'i anticipates that the State Historic Preservation Division (SHPD) would require an archaeological inventory survey with a substantial subsurface testing component for the project area. This survey could be scheduled following demolition of structures within the project area and before commencement of building activities. Additionally, SHPD has already indicated that an archaeological inventory survey plan would need to be prepared and approved by SHPD. The approved plan serves to guide the inventory survey investigation.

If human remains or other significant finds are encountered during the inventory survey, there is a significant likelihood of further SHPD requirements, potentially including a burial treatment plan, archaeological data recovery, and/or an archaeological monitoring program. Any burials discovered during the course of the inventory survey are considered "previously identified burials" under the purview of the O'ahu Island Burial Council.

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APPENDIX VII

CULTURAL IMPACT ASSESSMENT

**Cultural Impact Assessment
of a 2.3-acre Project Area,
Waikīkī Ahupua‘a, Kona District, O‘ahu**

(TMK 2-6-13: 1,3,4,7,8,9,11 and 12)

**Prepared for
Fifield Companies**

**Prepared by
Aulii Mitchell, B.A.
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: WAIKI 4)**

May 2006

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Management Summary

Reference	Cultural Impact Assessment of a 2.3-acre Project Area in Waikīkī Ahupua'a, Kona District, Island of O'ahu [TMK 2-6-13: 1,3,4,7,8,9,11 and 12] (Mitchell and Hammatt 2006)
Date	May 2006
Project Number (s)	Cultural Surveys Hawai'i Inc. (CSH) Job Code: WAIKI 3
Project Location	The project area – TMK 2-6-13: 1,3,4,7,8,9,11 and 12 – comprises the southeast quarter of the block bounded by Ala Wai Boulevard, Kalakaua Avenue, Ena Road, Hobron Lane, and Lipeepee Street in Waikīkī, O'ahu. It is shown on the 1998 USGS 7.5 Minute Series topographic map, Honolulu Quadrangle.
Land Jurisdiction	Private
Agencies	State of Hawai'i Department of Health / Office of Environmental Quality Control (DOH / OEQC)
Project Description	The project area is proposed for development of a residential condominium comprising 30 floors of apartments, five parking levels, and a retail component.
Project Acreage	2.3 acres
Historic Preservation Regulatory Context	The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 343], which requires consideration of a proposed project's effect on traditional cultural practices. At the request of Fifield Companies, CSH undertook this cultural impact assessment. It provides information pertinent to the assessment of the proposed project's cultural impacts [per HRS Chapter 343 and the Office of Environmental Quality's (OEQC) <i>Guidelines for Assessing Cultural Impacts</i>]. The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.
Consultation Effort	Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the vicinity. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the O'ahu Island Burial Council, and Hui Malama I Nā Kūpuna O Hawai'i Nei. Cultural anthropologist Aulii Mitchell conducted the consultation effort under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

Cultural Impact Recommendations	<p>As a result of this assessment, no ongoing traditional cultural practices or concerns were identified for the study area. None of the community contacts queried for this assessment identified any on-going traditional cultural practices, cultural sites or concerns specifically within the project area.</p> <p>Based on the above findings subsurface properties associated with former traditional Hawaiian activities, such as artifacts and cultural layers, may be present in the project area despite the decades of urban development of Waikīkī. Given this consideration and the cultural sensitivity of the entire Waikīkī area, Cultural Surveys Hawai'i Inc. recommends an archaeological inventory survey with a substantial subsurface testing component for the project area.</p>
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Section 1 Introduction

1.1 Project Background

At the request of Fifield Companies, Cultural Surveys Hawai'i (CSH) has conducted a cultural impact assessment of a 2.3-acre project area in Waikīkī Ahupua'a, Kona District, Island of O'ahu (TMK 2-6-13: 1, 3,4,7,8,9,11 and 12) (Figures 1 & 2). The project area comprises the southeast quarter of the block bounded by Ala Wai Boulevard, Kalākaua Avenue, 'Ena Road, Hobron Lane, and Līpe'epe'e Street.

The project area presently comprises low-rise buildings (including the site of The Wave nightclub), a parking lot, and a vacant lot (Figures 3-6). The project area is proposed for development of a residential condominium comprising 30 floors of apartments, five parking levels, and a retail component.

The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 343], which requires consideration of a proposed project's effect on traditional cultural practices. At the request of Fifield Companies, CSH undertook this cultural impact assessment. It provides information pertinent to the assessment of the proposed project's cultural impacts [per HRS Chapter 343 and the Office of Environmental Quality's (OEQC) *Guidelines for Assessing Cultural Impacts*]. The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.

1.2 Scope of Work

The scope for the cultural impact assessment includes:

1. Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
3. Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. We anticipate both formal and informal interviews.
4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

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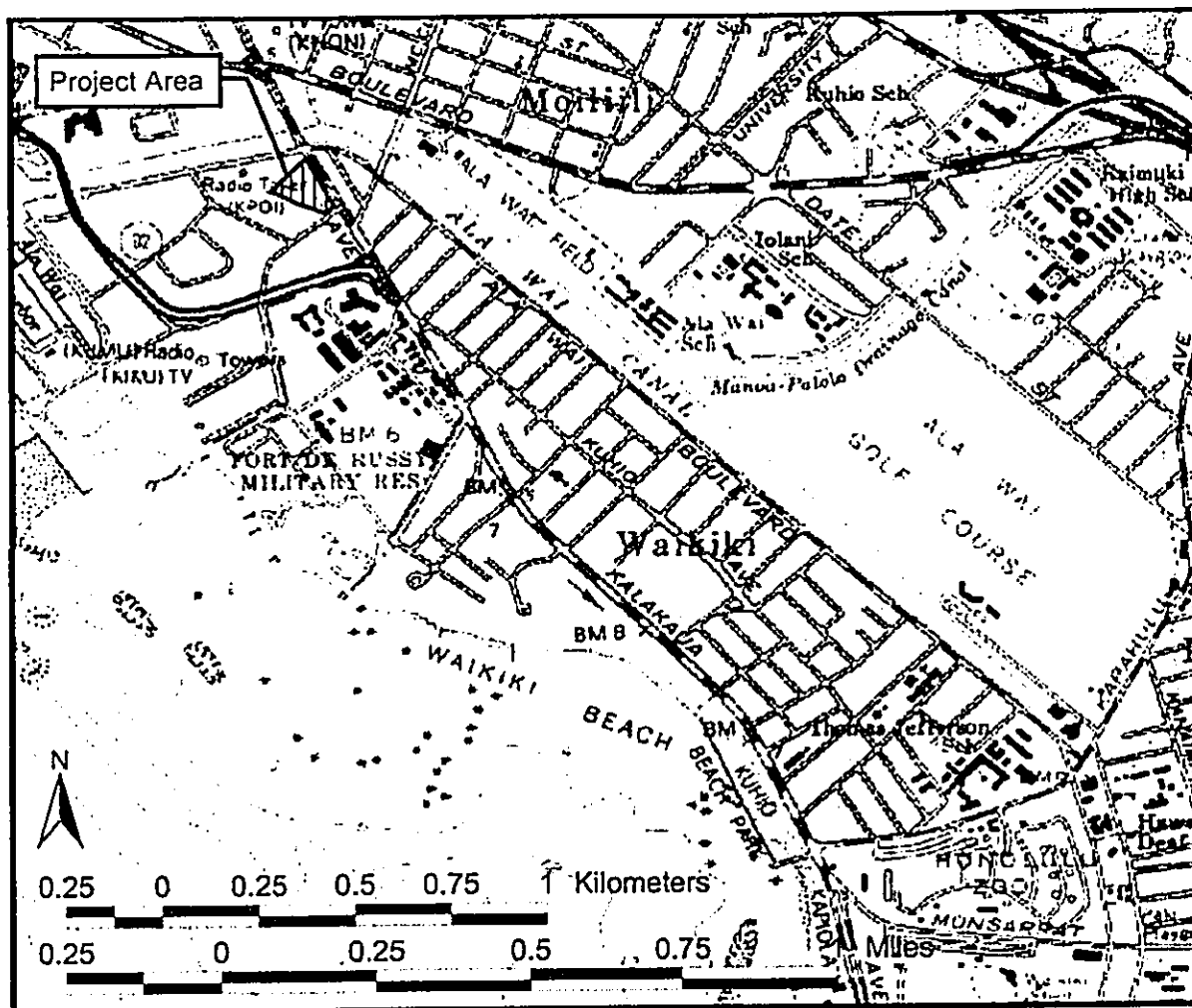


Figure 1 Portion of USGS Topographic Map, Honolulu Quadrangle, showing location of project area

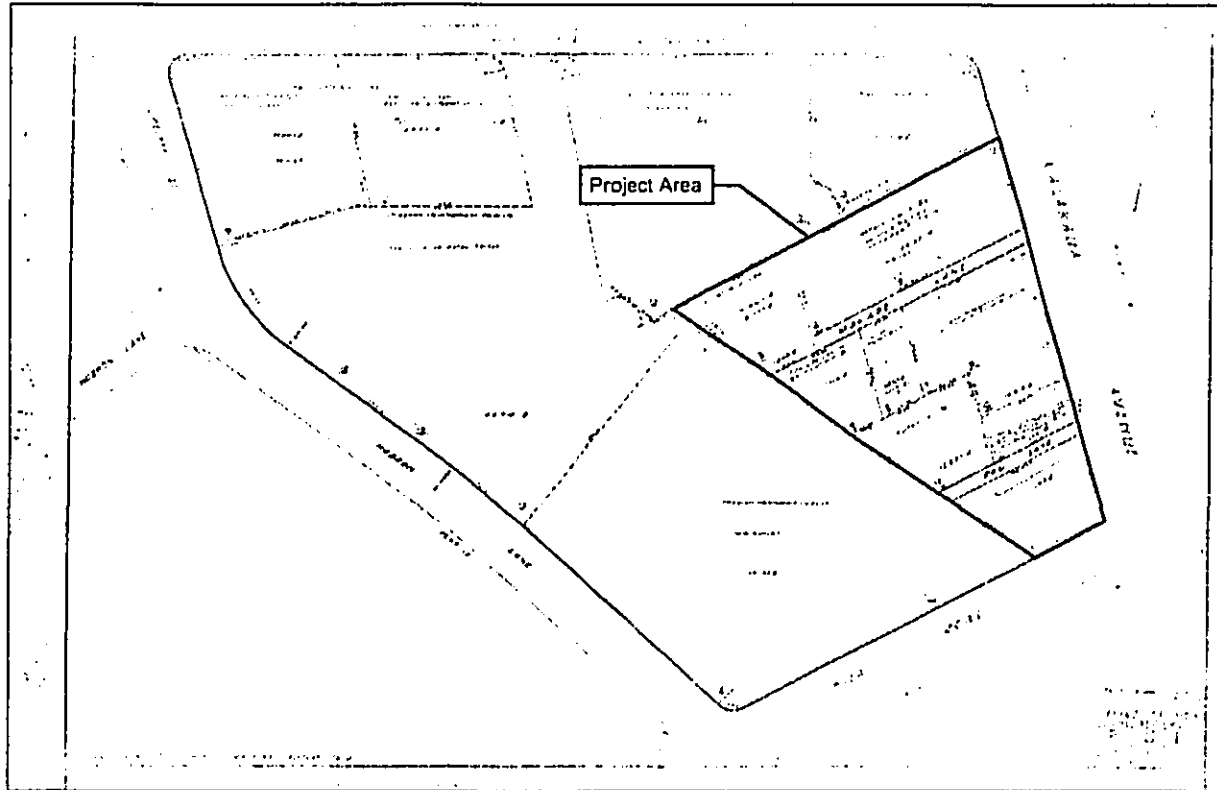


Figure 2 Tax map showing project area

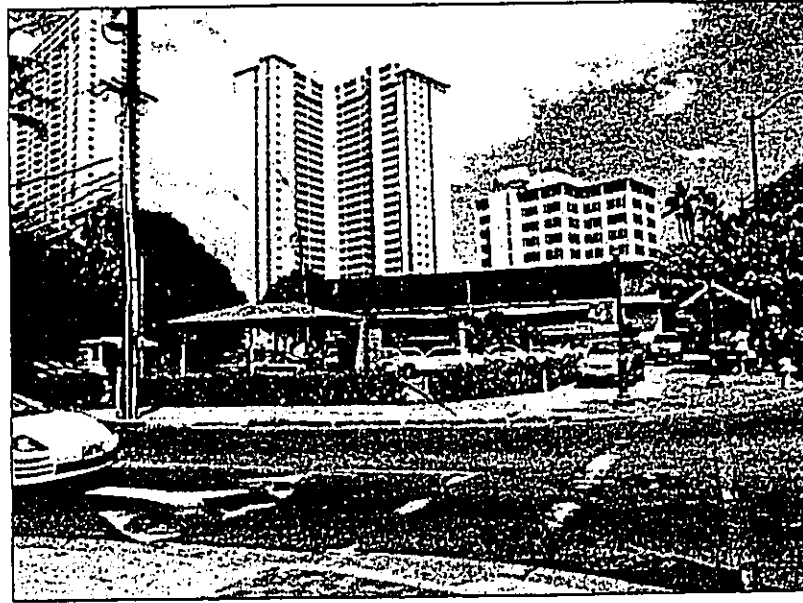


Figure 3. Project area from corner of Kalākaua Avenue and 'Ena Road showing rental car lot and Wave nightclub building; view to northwest

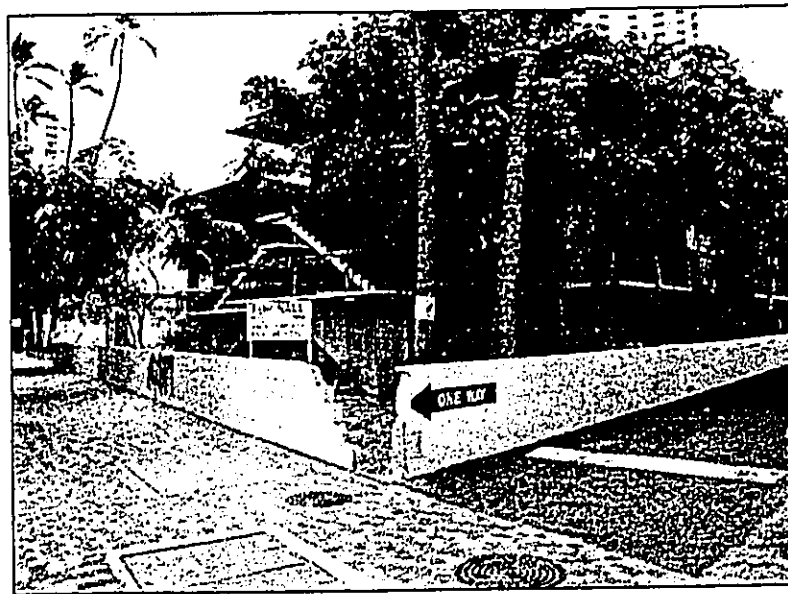


Figure 43. Project area from north corner on Kalākaua Avenue showing unoccupied apartment buildings and Wave nightclub building in background; view to south

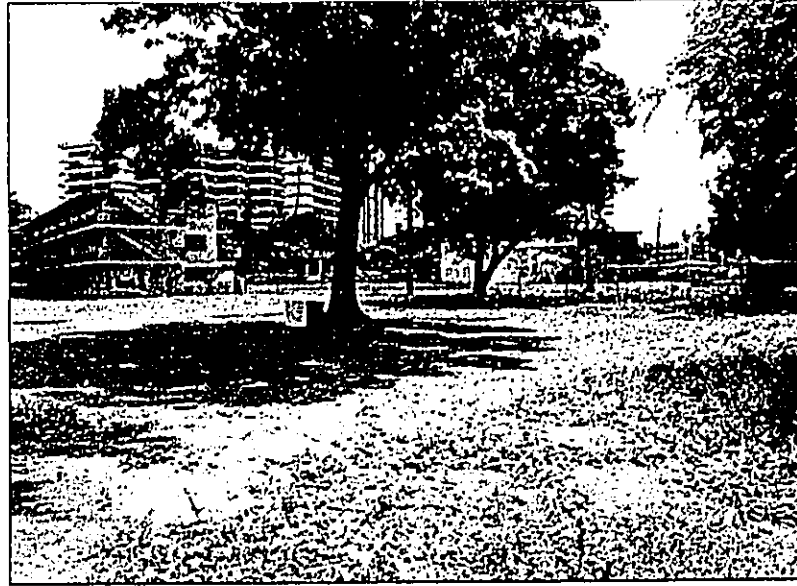


Figure 5. Project area from northwest corner showing vacant land on parcels away from Kalākaua Avenue; view to southeast

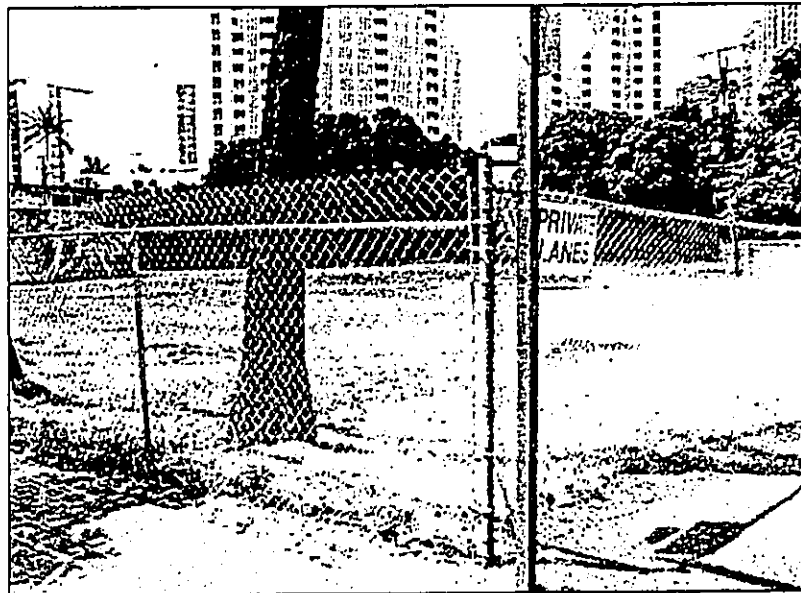


Figure 6. Project area showing vacant parcel between Makaoe Lane and Wave nightclub building; view to southwest

1.3 Environmental Setting

The project area is flat and averages 2 to 3 meters above mean sea level. The average rainfall in this coastal area of Waikīkī is between 20-30 inches per year, with temperatures ranging from 60 to 85 degrees Fahrenheit (Armstrong 1973:56). Although the area has been graded and filled (Fill Land), the natural soil deposit is Jaucus sand (JaC) (Foote et al. 1973).

1.4 Methods

Numerous published and unpublished accounts, surveys, reports, maps and photographs found in public and private collections pertaining to Waikīkī and the project area were investigated by Cultural Surveys Hawai'i Inc. Historical documents, maps and existing archaeological information pertaining to the sites in the vicinity of this project were researched at the State Historic Preservation Division library, Cultural Surveys Hawai'i Library, and the University of Hawai'i's Hamilton Library. The Office of Hawaiian Affairs, O'ahu Island Burial Council, and other community organizations were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. The names of potential community contacts were also provided by colleagues at CSH and from the researcher's familiarity of the families who frequent the area. A discussion of the consultation process can be found in the following section on "Community Consultations". Please refer to Table 2 for a complete list of individuals and organizations contacted.

Section 2 Historical Background

2.1 Pre-Contact to Early 1800's

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The 19th-century Hawaiian historian John Papa 'Ī'Ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

Kamehameha's houses were at Puaaliilii, *makai* of the old road, and extended as far as the west side of the sands of 'Apuakehau. Within it was Helumoa where Ka'ahumanu *mā* went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'Ī 1959:17).

'Ī'Ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" ('Ī'Ī 1959:17).

Chiefly residences, however, were only one element of a complex of features – that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. Water was also available from springs in nearby Mō'ili'ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance. Captain George Vancouver (1798:161-164), arriving at "Whyteete" in 1792, captured something of this profusion in his journals:

On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.

[Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.

This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and

some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations.

[We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), a naturalist accompanying Vancouver's expedition:

The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Draecena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews.

However, the traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact which produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood that had developed. By 1828, the missionary Levi Chamberlain(1957:26), describing a journey into Waikīkī, would note:

Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820's, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populous.

2.2 Mid-Nineteenth Century and the Māhele

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-19th century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) which introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

2.3 Mid to Late 1800s

As the 19th century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu. An 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as “a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year” (Bliss 1873).

Other developments during the second half of the 19th century a prelude of changes that would dramatically alter the landscape of Waikīkī during the 20th century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the 19th century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five

years, and pay was \$3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers. As was happening in other locales, in the 1880's, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800's reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-19th century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.

In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product [Coulter and Chun, 1937: 13]

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

2.4 1900 to 1920

During the first decade of the 20th century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...

Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fishponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground, [Hibbard and Franzen 1986:79].

All the fishponds were filled by 1928.

A fire insurance map of 1914 shows that there were five areas in Waikīkī where residential and commercial structures were concentrated in the early 20th century (Figure 3). These areas were located: 1) clustered at Saratoga Road and Lewers Road; 2) near the intersection of Ena Road

and Kalākaua Avenue; 3) *makai* of Kālia Road on the east side of Ft. DeRussy; 4) clustered around the Moana Hotel on Kalākaua Avenue; and 5) in Kapahulu on the 'Ewa side of Makee Road (the present Kapahulu Avenue). The fire insurance map also reveals the relative isolation of Waikīkī, in the early 20th century, from the encroaching grid of modern Honolulu streets.

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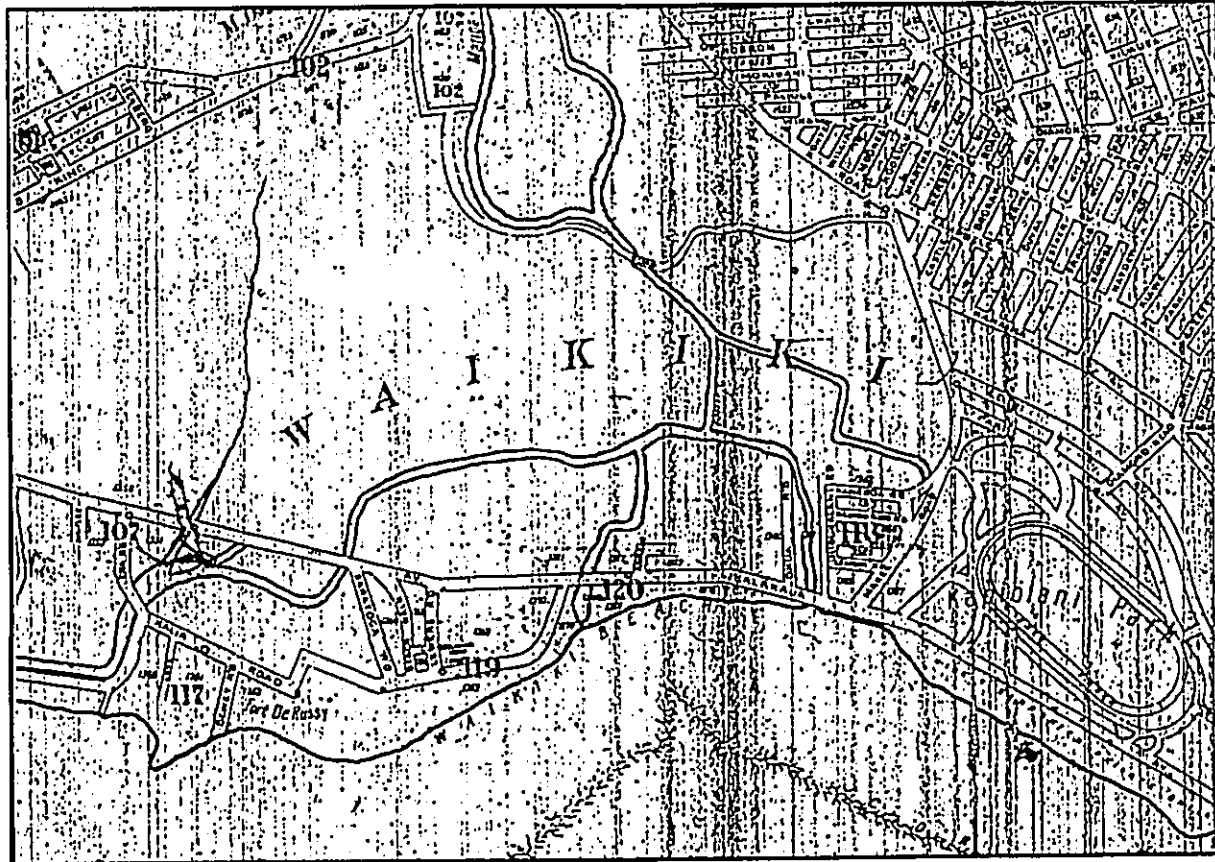


Figure 4. Portion of 1914 Sanborn Fire Insurance Map of Waikiki

2.5 1920's to 1930's

During the 1920's, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī (Figure 6). The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa...

The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block [Johnson 1991:311]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930's. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.

These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

2.6 1940's

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a

huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

2.7 1950's

By the mid-1950's there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950's, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

2.8 Historic Documentation of the Project Area

The present project area is located on the *mauka* fringe of a portion of Waikīkī that, in traditional Hawaiian times and before the massive drainage accomplished by the Ala Wai Canal, comprised a complex of numerous large fishponds that extended between the present Saratoga Road and the grounds of Fort DeRussy to present Atkinson Drive and Ala Moana Shopping Center. An 1881 Hawaiian Government survey map by S.E. Bishop provides a detailed record of the physical landscape of Waikīkī before the transformations of the 20th century. When the map was copied in 1922, additional material from subsequent government surveys was added, including locations of road corridors not present in 1881. A portion of the 1922 copy, with the location of the present project area indicated, shows the fishponds located between the project area and the Waikīkī coast line (Figure 4).

The 1881 map also indicates locations of mid-nineteenth century Land Commission Awards. Māhele records for these awards provide the first specific documentation of land use in the vicinity of the present project area. Two *apana* (parcels) associated with two Land Commission Awards – LCA 1999 to Nalimu and LCA 2081 to Jane Laeau – are located immediately adjacent to the project area.

In LCA documents, Nalimu's parcel – located immediately northwest of the project area – is described as a “land and house at Kalia in Waikiki” (Native Register vol.3, pg. 319) which he acquired “from his wife, Kamakani, who had received it from her grand folks before the time of Kamehameha I” (Native Testimony vol. 3, pg. 574). The parcel is described as bounded:

Mauka by Napahuelima's land

Waialae by the same

Makai by Loeau's land

Honolulu by a water course belonging to Kapahoulima (Foreign Testimony vol. 3, pg. 237-238)

Māhele records indicate that LCA 2081, comprising two parcels – was actually awarded to Kaoneanea who claimed the land “for my hanai, Loeau”, i.e. the Jane Loeau identified on the 1881 map (Native Register vol. 3, pg. 350). Apana (parcel) 1 of LCA 2081 – located immediately west of the project area – is described as “3 taro patches” bounded:

Mauka, [by land of] Kamoanahula

Waialae, [by land of] Kauhao

Makai, [by land of] Maoli

Honolulu, Kekuanaoa's land (Native Testimony vol. 3, pg. 634)

Documents for LCA 1999, LCA 2081 and other nearby awards suggest that, in the vicinity of the present project area, land usage and activity by the mid-nineteenth century included habitation and wetland agriculture. This may reflect the continuation into that century of traditional Hawaiian land use, along with the farming of fishponds, in this portion of Waikīkī.

The 1881 map appears to indicate that the present project area, during the second half of the nineteenth century, was a dryland environment with fencing delineating some of its sides and running across a portion of its interior. The only apparent water feature indicated within the project area is an *'auwai* (irrigation channel), running through its northeastern corner, that feeds a pond or irrigated taro field located just outside its northern boundary. Drawn before the extensive drainage and land filling of the Waikīkī landscape accomplished by the construction of the Ala Wai Canal in the 1920s, the 1881 map likely represents the project area as it had appeared in traditional Hawaiian times: a dryland environment elevated above the surrounding fishpond ponds and wetland fields. Such an environment would have provided a base for habitation, work, and recreational activities of the Hawaiian population.

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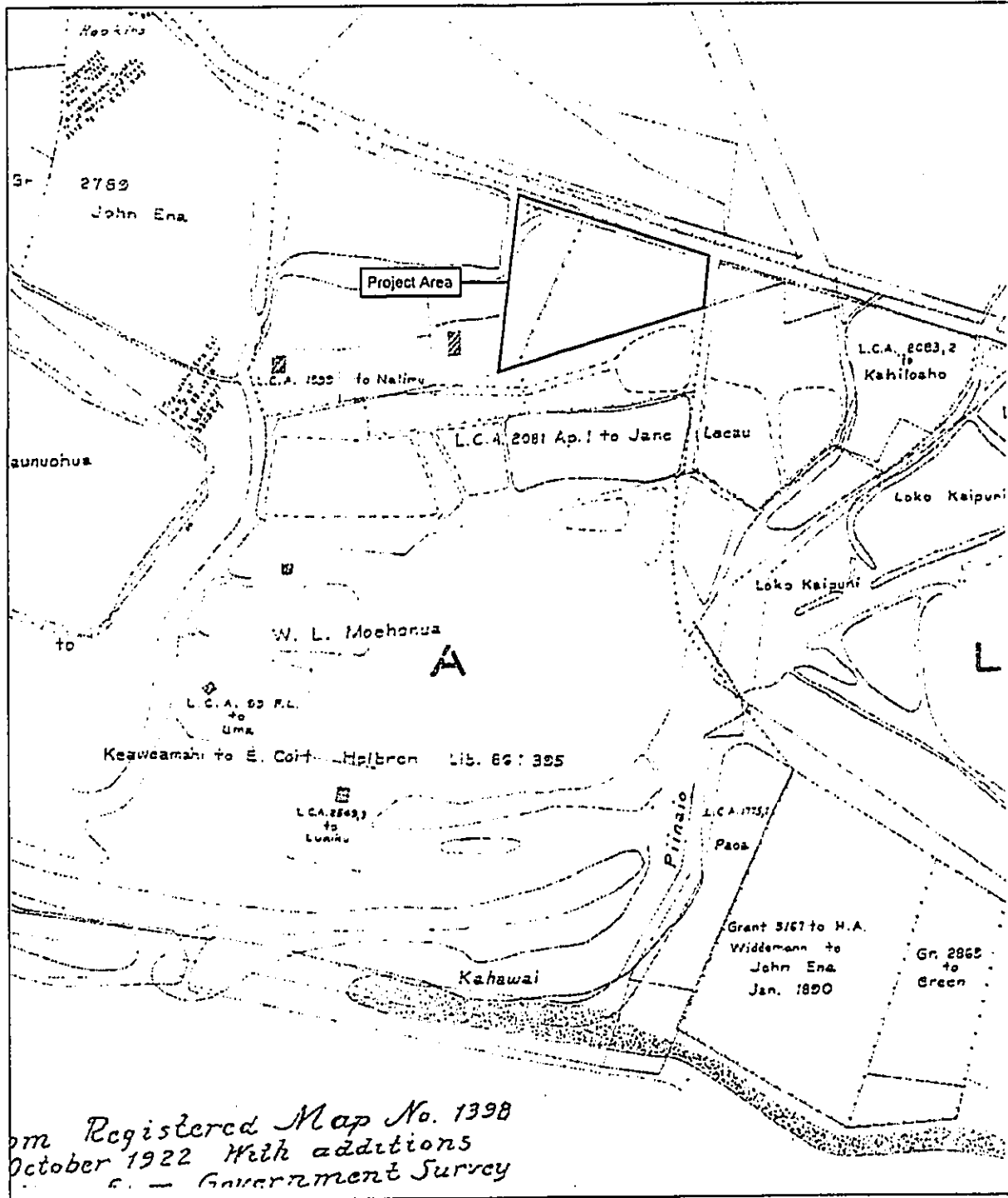


Figure 5. Portion of 1881 map by S.E. Bishop with location of present project area indicated

Subsequent documents – including historic maps and photographs – record the development of the project area through the first half of the twentieth century. A map of Waikīkī based on military surveys between 1909 and 1913 indicate rows of buildings laid out across the project area (Figure 5). A 1927 Sanborn Fire Insurance map the early identifies the buildings within the project area, constructed during the first quarter of the twentieth century, as single-story, wooden dwellings (Figure 6).

A 1927 aerial photograph of Waikīkī shows the project area in the year before the completion of the Ala Wai Canal (Figure 7). The presence of structures and mature trees within the project area and its surroundings further confirm that the area was an original dryland environment. It was not a drained and filled construct related to the canal's construction.

A 1951 Sanborn Fire Insurance map showing the project area reflects mid-twentieth century changes occurring within Waikīkī (Figure 8). Dwelling structures away from Kalākaua Avenue shown on the 1927 fire insurance map continue in place. However, along Kalākaua Avenue itself: two dwelling structures have been converted to commercial use; one has been demolished and a furniture store and warehouse have been constructed in its place; and a bar and store have been constructed on the formerly empty lot at the corner of Kalākaua Avenue and 'Ena Road.

In summary, from traditional Hawaiian times to the modern era the present project has comprised continuously a dryland environment. Originally elevated above surrounding fishponds and wetland fields, the project area, from the latter nineteenth century into the twentieth century, was integrated into development of Waikīkī as a residential area and subsequently as a resort and commercial district.

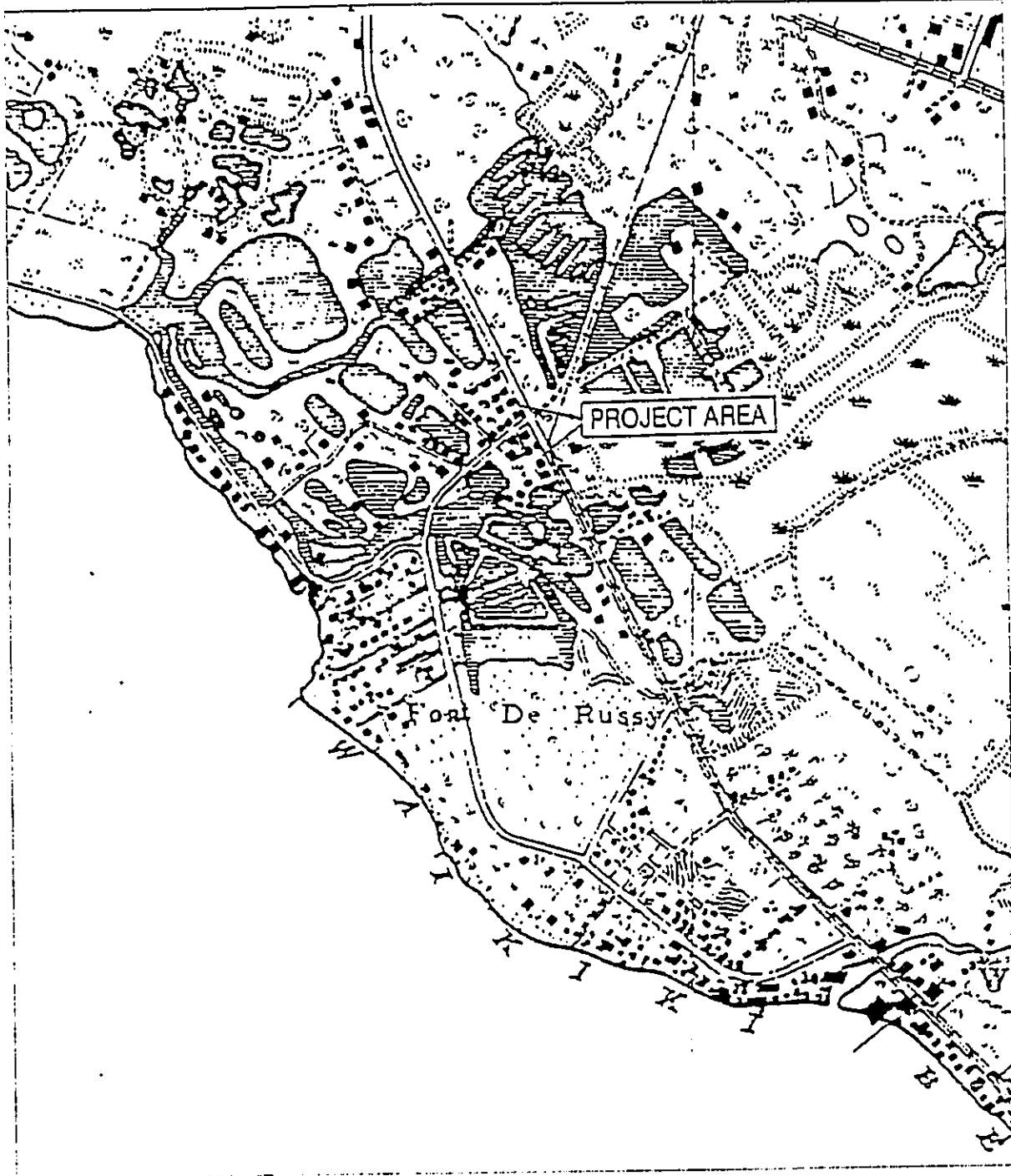


Figure 6. Portion of U.S. Army Engineers map, based on military surveys from 1909 to 1913, with location of present project area indicated

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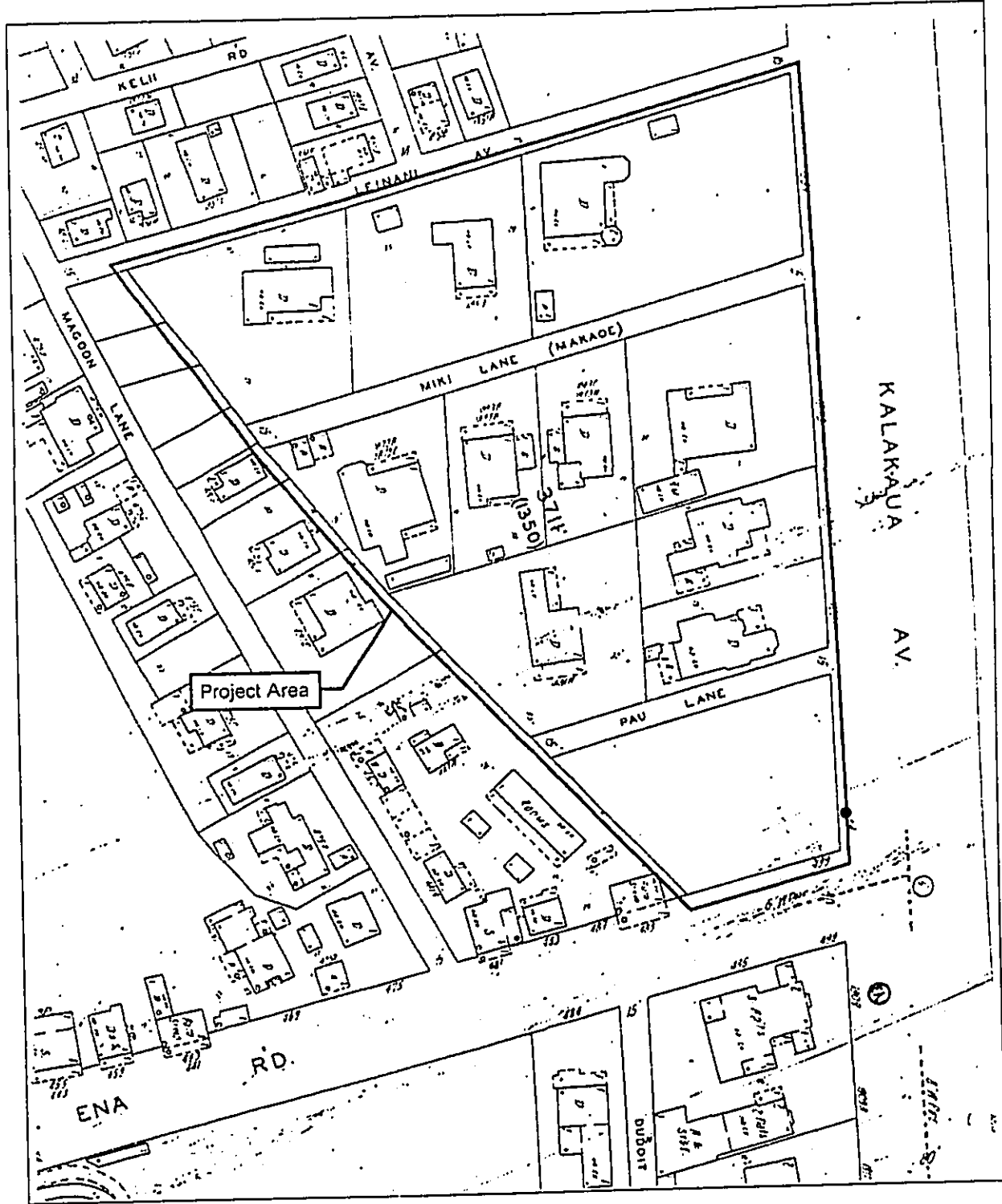


Figure 7. 1927 Sanborn Fire Insurance map of project area

Cultural Impact Assessment – 2.3-acre Project Area, Waikiki Ahupua'a

TMK 2-6-13: 1,3,4,7,8,9,11 and 12

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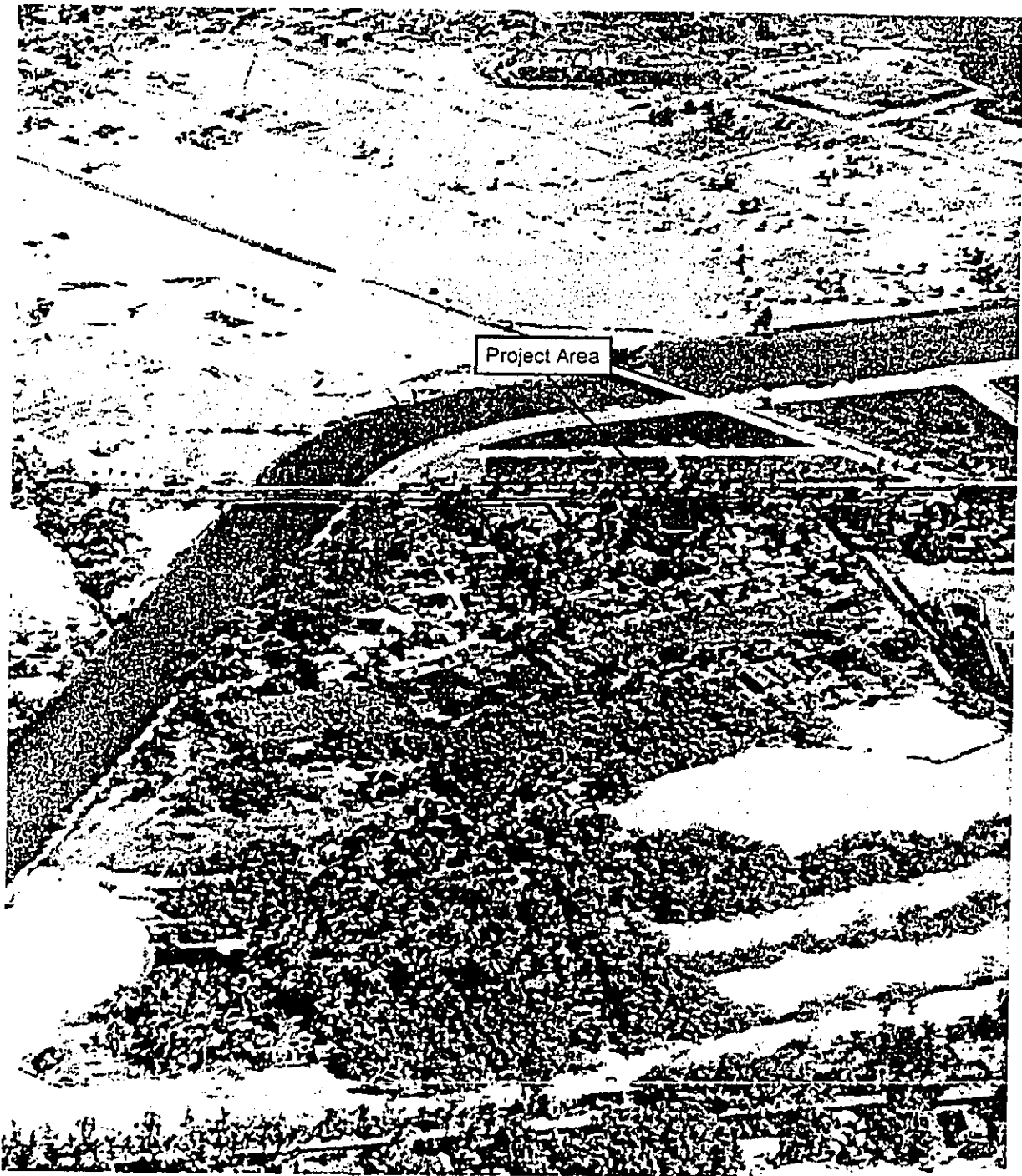


Figure 8. 1927 aerial photograph of Waikiki with location of present project area indicated

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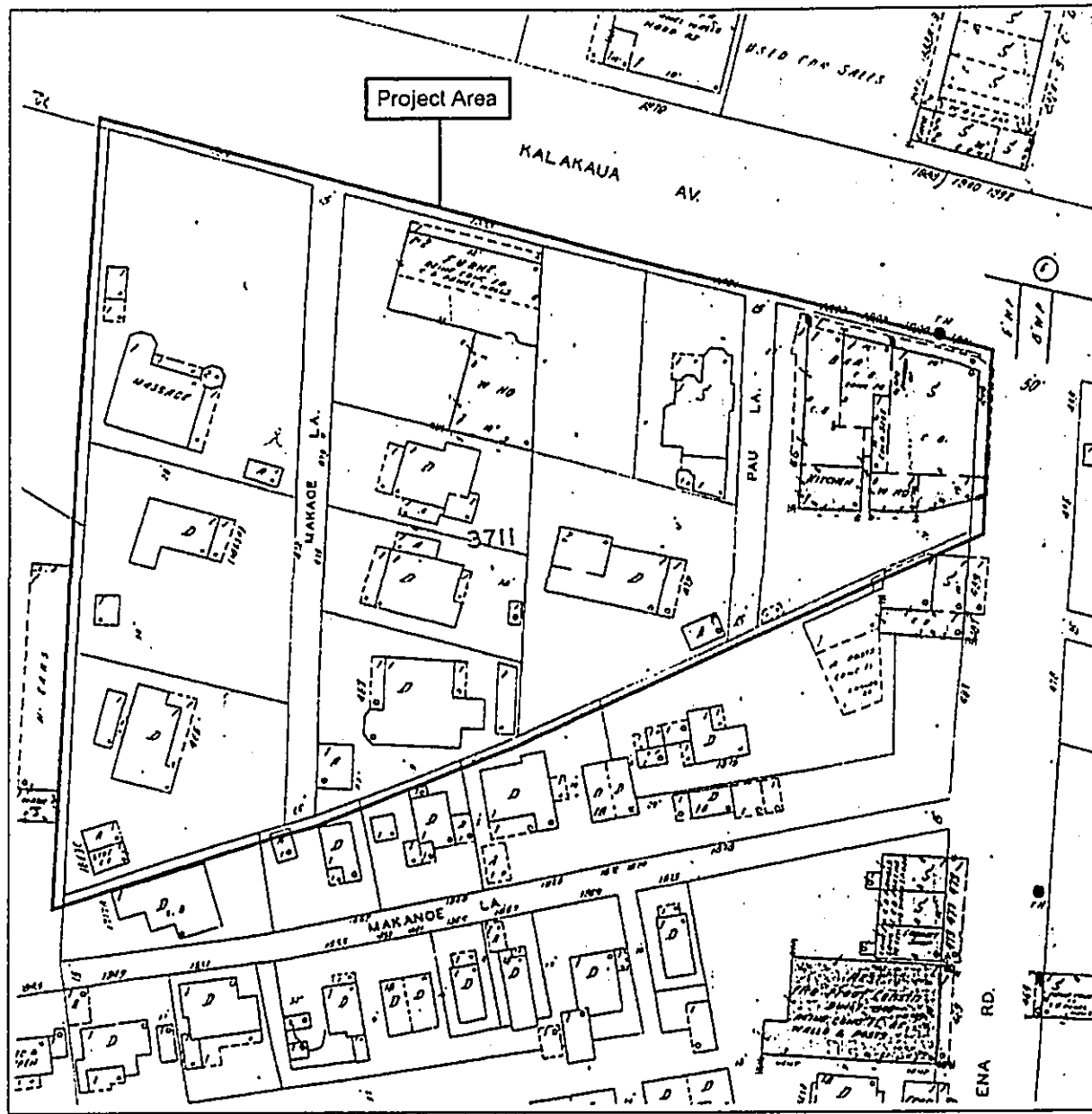


Figure 9. 1951 Sanborn Fire Insurance map of project area

Section 3 Archaeological Research in Waikīkī

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources, that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field system, which had been converted from taro to rice. Farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, traditional Hawaiian and historic, as well as pre-contact Hawaiian and historic cultural deposits. A full list of projects conducted in the Waikīkī area is listed in Table 1. A discussion of projects focusing on burials (Figure 12) follows.

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle - site of the present Elks Club - in Waikīkī during excavations for the laying of sewer pipes (Emerson 1902:18-20). Emerson noted:

The soil was white coral sand mixed with coarse coral debris and sea-shells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones [Emerson 1902:18].

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size". The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau* (temples), three of which were located at the *mauka* reaches of Waikīkī *Ahupua'a* in lower Mānoa Valley. The fourth *heiau* - Papa'ena'ena - was located at the foot of Diamond Head crater in the environs of the present Hawai'i School for Girls. Papa'ena'ena Heiau is traditionally associated with Kamehameha I, who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī, Kamehameha placed at Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51).

Table 1. Previous archaeological investigations in Waikīkī Ahupua'a, focusing on burials

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Nakamura 1979	History Graduate Thesis	Waikīkī	History of Waikīkī with focus on the radical changes in land use that occurred in the early 20th century.
Neller 1980	Monitoring Report	Kālia Burial Site: Hilton Hawaiian Village	Brief field inspection: partial recovery of 3 historic Hawaiian burials, trash pit from 1890's, no prehistoric Hawaiian sites.
Bishop Museum 1981	Testing, Excavations, & Monitoring	Halekulani Hotel	Intact cultural deposits found.
Neller 1981	Reconnaissance Survey	Halekulani Hotel	Limited background research on area
Aeson 1983	Historical Research	'Ewa to Diamond Head	Nine walks through Waikīkī, photos, maps and historical info.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī Ahupua'a at the Bishop Museum
Davis 1984	Archaeological and Historical Investigation	Halekulani Hotel	48 historic and prehistoric features excavated.
Neller 1984	Informal Narrative Report	Paoakalani Street	Recovery of human skeletons at construction site
Center for Oral History 1985	Oral Histories, Volumes I-IV	Waikīkī	Oral Histories of Waikīkī, 1900-1985, Volumes I-IV
Griffin 1987	Burial Recovery Report	Along Kalākaua Ave. near corner of Kai'ulani St.	Bones removed and bagged by construction crew, burial found in <i>makai</i> wall of gas pipe excavation.
SHPD 1987	Burial, PA Report	Kalākaua Ave.	From excavation adjacent to Moana Hotel (site -9901).
Davis 1989	Reconnaissance Survey & Historical Research	Fort DeRussy	Fishponds and other features are buried in this area. Sites -4573 thru -4577 are fishponds, 4570 is a remnant cultural deposit.
Riford 1989	Background Literature Search	TMK: 2-6-014:039	List of literature pertaining to Waikīkī area.

Reference	Type of Investigation	General Location	Findings
Rosendahl 1989	Inventory Survey, Prelim. Report	Fort DeRussy	Historic artifacts, no human remains
Athens 1990	Letter	TMK: 2-6-023:025	Letter to SHPD listing human remains at IARII lab from Pacific Beach Hotel, and Barbers Point Generating Station.
Hurst 1990	Historical Literature Search	Waikikian Hotel	Background and planning document. No fieldwork was done.
Chigioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83, TMK 2-6-24:34-40 & 42-45	Formerly a corner of the 'Āinahau estate; remainder of parcels, former 'auwai, kalo and rice fields; test excavations and specific sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy	See also Davis 1989. Subsurface features and material remains date to early post-contact times (c. 1780s to 1790s) through the mid-19th century.
Kennedy 1991	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location	Pollen and bulk-sediment ¹⁴ C samples from pond sediments were recovered. The three ¹⁴ C dates and pollen sequence were inverted.
SHPD 1991	Public Inquiry	TMK: 2-6-024:036	Bones were determined to be non-human and part of the extensive fill material present
Simons et al. 1991	Interim Field Study, Monitoring & Data Recovery	Moana Hotel Area	8 burials, preliminary osteological analysis indicates pre-contact type; pre- and post artifactual material recovered.
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001	Site -2870 (3 burials) found by Neller in 1980. This report is on testing and monitoring in same area.
Pietrusewsky 1992a	PA Report	Moana Hotel	Right half of human mandible found by hotel guest.
Pietrusewsky 1992b	PA Report	Lili'uokalani Gardens Site, Hamohamo	Human Remains from the Lili'uokalani Gardens Site, Hamohamo, Waikīkī, O'ahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village	Identified 12 historic refuse pits, 3 historic to modern trenches.

Reference	Type of Investigation	General Location	Findings
Streck 1992	Memorandum for Record	Fort DeRussy	Human burial discovery (believed to be late prehistoric Hawaiian) during data recovery excavations, May, 20, 1992.
Cleghorn 1993	Inadvertent Discovery of Human Remains	Waikiki Aquarium	Remains of one human individual, mandible identified.
Dagher 1993	Inadvertent Discovery of Human Remains	Waikiki Aquarium	Human remains of at least one person identified, excavation recommended.
Dega & Kennedy 1993	Inadvertent Discovery of Remains	Waikiki Aquarium	Discovery of unidentified bone fragments, all remains turned over to SHPD.
Hammatt & Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course	Not associated with any know surface archaeological site, however prehistoric and early historic occupation layers associated with <i>lo'i</i> system remain intact below modern fill. Specific sampling strategy and potential burial testing recommended.
Maly et al. 1994	Archaeological and Historical Assessment Study	Convention Center Project Area	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	SHPD Burial Report	Intersection of Kalākaua and Kuamo'o Streets	Inadvertent Burial Discovery: misc. bones uncovered in back dirt pile during construction. Follow up by CSH.
Hammatt & Shideler 1995	Sub-surface Inventory Surface	Hawai'i Convention Center Site, 1777 Kalākaua Ave.	No further work recommended.
Jourdane 1995	Inadvertent Discovery of Human Remains	Paoakalani Avenue	Human skeletal remains discovered in planted strip between street and sidewalk fronting hotel.

Reference	Type of Investigation	General Location	Findings
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy	Historic and prehistoric artifacts, and midden materials collected from 7 occupation layers. 6 prehistoric cultural features recorded: <i>'auwai</i> bunds and channels, fishpond walls and sediments, a possible <i>lo'i</i> , and hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69	7 backhoe trenches excavated, no sites located.
Grant 1996	Historical Reference	Waikiki	Historical information about Waikiki prior to 1900.
Hammatt & Shideler 1996	Data Recovery	Hawai'i Convention Center Site	No clear evidence that Kuwili Pond sediments present in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Ainahau Estate	Buried remnants of <i>'auwai</i> and <i>lo'i</i> and human burial found. ¹⁴ C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy	Excavations conducted at fishponds, ¹⁴ C dates mid-17th C.
Denham & Pantaleo 1997	Monitoring and Excavations Report	Fort DeRussy	Final Report does not include SHPD recommendations. 10 subsurface features and 9 burial locations found. ¹⁴ C dates
Beardsley & Kaschko 1997	Monitoring and Data Recovery Report	Pacific Beach Hotel Office Annex	Traditional Hawaiian cultural deposits and 2 human burials. 3 ¹⁴ C dates
Hammatt & Chiogioji. 1998	Assessment	King Kalākaua Plaza Phase II	No surface archaeological sites, documented human burials, presence of subsurface cultural deposits (both of pre-contact Hawaiian and historic provenance).
Hammatt & McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue	Two human burials found
Perzinski et al. 1999	Monitoring Report	Along Ala Wai Blvd., Kalākaua Ave., Ala Moana Blvd., & 'Ena Rd.	Two human burials found (1 preceding monitoring); pockets of undisturbed layers still exist. Burial #2 previously disturbed.

Reference	Type of Investigation	General Location	Findings
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy	This area is part of the old shoreline.
Hammatt & Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel	Majority of zoo parcel unlikely to yield significant cultural deposits. However, strong possibility of significant subsurface cultural deposits in the SW portion. Monitoring is recommended in this area.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II	Site -5796 has been adversely affected by land alteration of the project area. Site -4970, has been adequately documented.
Perzinski et al. 2000	Burial Findings	Kalākaua Ave. between Kai'ulani & Monsarrat Avenues	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, interred prior to 1820.
Cleghorn 2001	Mitigation	Burger King Construction Site	Concerning three incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian Property	No arch. sites were found during excavations of the area
Elmore & Kennedy 2001	Burial Report	Royal Hawaiian Hotel	Human remains found during trench excavations for conduit. The in situ remains were left in place, while the disturbed remains were reentered with the others.
McGuire & Hammatt 2001	Cultural Assessment for Waikiki Beach Walk Project	Along Lewers St., Beach Walk, Kālia Rd. & Saratoga Rd.	Primary cultural concern identified as inadvertent burial discovery. Cultural monitoring recommended for all subsurface work within project area.
Perzinski & Hammatt 2001a	Monitoring Report	Kapi'olani Bandstand	A charcoal layer was observed, concentrated on the SW side of the bandstand; recovered indigenous basalt lamp with a handle, from the SE end of the bandstand.

Reference	Type of Investigation	General Location	Findings
Perzinski & Hammatt 2001b	Monitoring Report	Kapi'olani Park	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Perzinski & Hammatt 2001c	Monitoring Report	Kalākaua Avenue from the Natatorium to Poni Mō'i Road	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Rosendahl 2001	Assessment Study	Outrigger Beach Walk	Assessment of previous archaeology and historical literature.
Winieski & Hammatt 2001	Monitoring Report	TMK: 1-2-6-025:000	There is a possibility that Hawaiian or Historic materials as well as human burials may still be present within the project area.
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002	No burials were found during testing; absence of dry Jaucus sand deposits indicate that burial finds are unlikely in project area.
Bush et al. 2002	Monitoring Report	Kalākaua Avenue, between Ala Moana Blvd. and Kapahulu Ave.	Encountered 4 human burials, probably pre-contact Native Hawaiians; several historic trash pits; entire pig within an <i>imu</i> pit (estimated date, A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road	No historic deposits, major previous disturbance
Elmore & Kennedy 2002	Monitoring Report	Fort DeRussy	No findings.
Mann & Hammatt 2002	Monitoring Report	Lili'uokalani Avenue and Uluniu Avenue	5 burial finds of 6 individuals; two historic trash pits.
Putzi & Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench excavations for sewer connections.

Reference	Type of Investigation	General Location	Findings
Winieski, Perzinski, Shideler et al. 2002	Monitoring Report	Kalākaua Ave. between Ka'uilani and Monsarrat Avenues.	44 human burials encountered, 37 disinterred; buried habitation layer identified, with traditional Hawaiian artifacts, midden, firepits, & charcoal; fragment of light gauge rail, remnant of Honolulu Transit trolley system, observed; low energy alluvial sediments associated with the now channelized <i>muliwai</i> Kukaunahi also observed.
Winieski, Perzinski, Souza et al. 2002	Monitoring Report	Kūhiō Beach	Skeletal remains of 10 individuals, six disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Discontinuous cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace	Historic trash found.
Tome & Dega 2003	Monitoring Report	Waikiki Marriot	One isolated not in situ possible human bone fragment found. Recommends monitoring during future work.
Tulchin & Hammatt 2003	Archaeological & Cultural Impact Assessment	2284 Kalākaua Ave.	Notes possibility of burials in the project area; recommends an inventory survey with subsurface testing.
Freeman et al. 2005	Archaeological Inventory Survey	Hobron Lane	Four sites identified during subsurface testing; 1 disturbed burial; 1 coffin burial with two individuals; 1 cultural deposit; and, 1 fishpond sediment
O'Hare et al. 2005	Archaeological Inventory Survey	Kaio'o Drive	Site 50-80-14-6848, a pre-contact fire pit radiocarbon dated to AD 1470-1660, was recorded.

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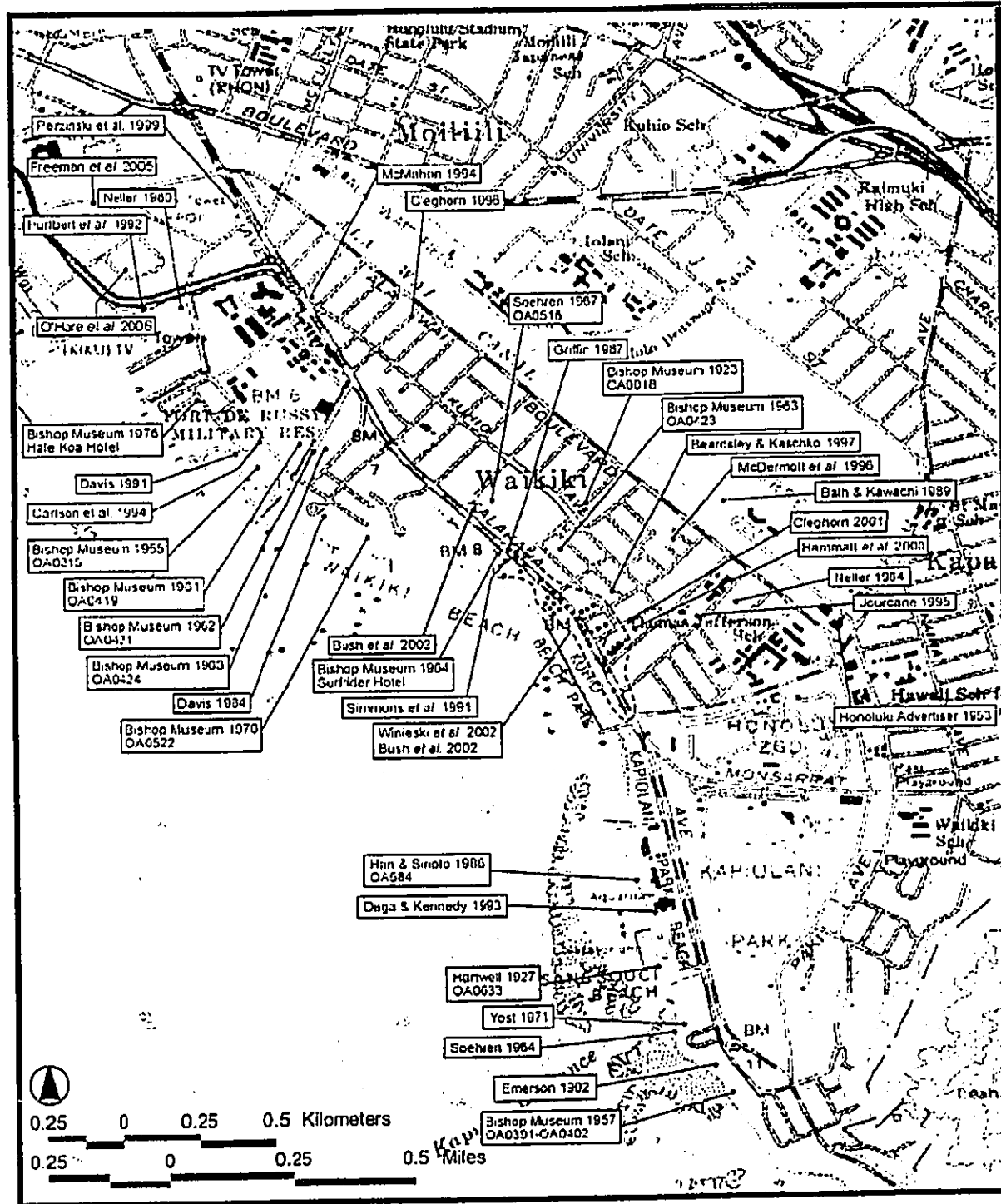


Figure 10. Previous Archaeological Work in Waikiki, focusing on locations of burials

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984. Multiple burials were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī. . .

Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club. . . .

Most of the bodies were buried in the traditional hoolewa position, with the legs bound tightly against the chest.

One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.

The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years [*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A].

A total of 27 burials were encountered (Yost 1971: 28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surfriider Hotel (Bishop Museum Site Files).

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent prehistoric or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspection of the project area. Neller's (1980) report noted:

The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, on a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago [Neller 1980:5].

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain tablewares imported from China, Japan, the United States, and Europe" (Neller 1980:5). He further notes:

It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years [Neller 1980:5].

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian fire pits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date . . . settlement in Waikīkī to no later than the mid-1600s" (Neller 1980:5). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

[The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i [Neller 1980:5].

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the nineteenth century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits, including a late pre-contact habitation layer, contained pits, fire pits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph.D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikīkī. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring, all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The three partial burials reported by Neller (1980) were found within

this project area (see above). No further burials were encountered during the PHRI field work (Hurlbett et. al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Avenue and Ka'iulani Street during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In 1988, the Moana Hotel Historical Rehabilitation Project (Simons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

In 1989, skeletal remains were unearthed on the grounds of the Ala Wai Golf Course during digging of an electrical line trench for a new sprinkler system. The trench had exposed a pit containing two burials (Bath and Kawachi 1989: 2). The report suggests that one of the burials may have been disturbed earlier during grading for the Territorial Fair Grounds. The osteological analysis included in the report concludes that both sets of remains "appear ancient." (Bath and Kawachi 1989: 2)

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits, prehistoric, historic, and modern. These deposits included buried fishpond sediments, 'auwai [irrigation ditch] sediments, midden and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the sixteenth century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simons et al. 1995). BioSystems research documents the development and expansion of the fishpond and 'auwai system in this area. The 'auwai system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S. E. Bishop discussed above, this 'auwai enters the Fort DeRussy grounds through the present project area). Remains of the fishpond and 'auwai deposits, as well as habitation deposits, were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic subsurface deposits, even amidst the development of Waikīkī.

In 1992, Hurlbett et al. (1992) conducted additional monitoring and testing in this same area as Neller (1980). The state site -2870 was given to the three burials first found by Neller. Additional subsurface features, postdating 1881, were found during trenching operations.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer that contained post holes.

In 1993, during construction activities at the Waikīkī Aquarium, directly adjacent to the present project area, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994, an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Fort. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered in situ during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdan 1995).

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Avenue, Kūhiō Avenue, 'Olohana Street, and Kālaïmoku Street (Cleghorn 1996). The survey included excavation of seven backhoe trenches. The subsurface testing indicated that

... this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices. . . . The current project area appears to have been unused because it was too wet and marshy. Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area [Cleghorn 1996:15].

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found", but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street (McDermott et al. 1996). Indigenous Hawaiian artifacts and historic artifacts were also found within the project area.

In 1997, during archaeological monitoring by CSH for the Waikīkī Force Main Replacement project, scattered human bones were encountered on 'Ōhua Street (Winieski and Hammatt 2000). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix that had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of 'Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikīkī Anti-Crime Lighting Improvements Project (Perzinski et al. 1999). These discoveries were the closest to the current project area on the *makai* side of Kalakaua Avenue.

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities relating to the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush et al. 2002). The first burial was encountered on Kalākaua Avenue, just before Dukes Lane and assigned State Site 50-80-14-5864. The burial was left in place however, and the light post was repositioned. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water mains project, two burials were encountered in the immediate area of the second burial find; they were assigned state site 50-80-14-5856 features A and B. Due to the close proximity to the previously encountered burials, the second burial was

assigned the same State Site 50-80-14-5856, and designated feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua Avenue and Kealohilani, near an area of concentrated burials assigned State Site 50-80-14-5860 during monitoring for the water mains project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

From November, 1999, to May, 2000, 44 human burials, with associated cultural deposits, were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial burials in fill, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January 2000, to October 2000, 10 human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension/Kalākaua Promenade project (Winieski et al. 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore et al. 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden approximately 75 meters north of the current project area separated by a wing of the hotel. The burial was partially disturbed through the thoracic region and anatomical left side. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was found also during excavation but could not be positively associated with the site.

On May 2nd and June 14th, 2001, two in situ and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue (Cleghorn 2001a and 2001b). Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002a), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal and fragments of volcanic glass. Historic era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments were also encountered within fill materials.

In 2001 and 2002, CSH (Mann and Hammatt 2002) performed archaeological monitoring for the installation of 8- and 12-inch water mains on Uluniu Avenue and Lili'uokalani Avenue. During the course of monitoring, five burials finds, consisting of six individuals, were recorded

within the project area. Four burial finds were recorded on Uluniu Avenue; three of these inadvertent finds were found in fill sediment. Due to the nature of the three burial finds in fill, it was concluded that no State Site number(s) be assigned to these three previously disturbed burials. The only primary in situ burial encountered on Uluniu Avenue was assigned State Site #50-80-14-6369. The fifth burial, consisting of two individuals in fill material, was recorded from Lili'uokalani Avenue. Since three burials had been found in the immediate vicinity during a previous project (Winieski et al. 2002b) and had been assigned to Site #50-80-14-5859, the two new individuals were recorded as Feature H of this previously recorded site.

In 2004, Cultural Surveys Hawai'i conducted an archaeological inventory survey and cultural impact evaluation for the Ala Wai Gateway project site (Freeman et al. 2005). The project site comprised TMK 2-6-011:001, 002, 004, 32, 37, and 40, which are bounded by Ala Wai and Ala Moana boulevards, Hobron Lane, and Līpe'epe'e Street. Four historic properties were documented in the survey:

Site 50-80-14-6700: disturbed, ethnicity undetermined, human skeletal remains;

Site 50-80-14-6701: historic coffin burial, with two individuals, ethnicity undetermined;

Site 50-80-14-6702: culturally enriched buried A horizon in geographic association with Land Commission Award (LCA) 99 FL to Uma; and,

Site 50-80-14-6703: fishpond remnant.

In 2005 Cultural Surveys Hawai'i conducted an archaeological inventory survey of a 72,135 square foot (1.67 acre) project area on Kaio'o Drive (TMK: [1] 2-6-012: 37, 38, 39, 40, 41, 42, 43, 44, 55, 56, 57) (O'Hare et al. 2005). One, Site 50-80-14-6848, a pre-contact fire pit radiocarbon dated to AD 1470-1660, was recorded.

In summary, past archaeological research, from the beginning of the twentieth century to the present has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials, do exist throughout the breadth of the Waikīkī area.

Section 4 Community Consultation Process

Throughout the course of this assessment, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, community members and recognized lineal and cultural descendants of Waikīkī who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone and in person contact. In the majority of cases, letters along with a map and an aerial photograph of the project area were mailed with the following text:

At the request of Fifield Companies, Cultural Surveys Hawai'i Inc. is conducting a cultural impact assessment for a 2.3 acre project area in Waikīkī, Kona District, island of O'ahu. The project area comprises the southeast quarter of the block bounded by Ala Wai Boulevard, Kalākaua Avenue, Ena Road, Hobron Lane, and Līpe'epe'e Street. Please see the enclosed maps and photographs.

The project area presently comprises low-rise building (including the site of The Wave nightclub), a parking lot, and a vacant lot. The project area is proposed for the development of a residential condominium.

The development will include 30 floors of apartments, five parking levels, and a retail component. Our preliminary research indicates that the project area is located on the *mauka* fringe of a portion of Waikīkī that, in traditional Hawaiian times and before the massive drainage accomplished by the Ala Wai Canal, comprised a complex of numerous large fishponds. Also located in this portion of Waikīkī were wetland and dryland agricultural fields, and habitation sites. Land Commission Award documents from the mid-nineteenth century record continuing native Hawaiian habitation and taro cultivation in parcels adjacent to the present project area. Subsequent nineteenth and twentieth century documents – including historic maps and photographs – indicate that the project area from traditional Hawaiian times to the modern era comprised a dryland environment elevated above the surrounding fishponds and wetland fields. In traditional Hawaiian times, such an environment would have provided a base for habitation, work, and recreational activities of the population. Maps and photographs produced prior to the completion of the Ala Wai Canal in the 1920s, indicate that the project area contained house sites associated with the early development of Waikīkī. As the development continued, by the early 1950s, residential structures were being supplanted by commercial structures in the project area.

The purpose of the cultural impacts assessment is to assess potential impact to traditional cultural practices as a result of proposed development of the above mentioned project.

We are seeking your input regarding the following issues:

General history and present and past land use of the study area

Knowledge of cultural sites that may be impacted by the project, e.g., historic sites, archaeological sites, burials, etc.

Knowledge of traditional gathering practices in the study area-both past and present.

Cultural associations with the study area through legends, traditional use or otherwise.

Referrals of *kūpuna* or elders who might be willing to share their cultural knowledge of the study area in general.

Any other cultural concerns the community might have related to Hawaiian or other cultural practices I this section of Waikīkī.

The individuals, organizations, and agencies attempted to be contacted and the results of any consultations are presented in the table below.

Table 2 Community Contact Table

Name	Background, Affiliation	Comments
Ayau, Halealoha	Po'o Hui Mālama O Nā Kūpuna O Hawai'i Nei	Sent, e-mail.
Diamond, Van Horn	O'ahu Island Burial Council/ <i>Kama'aina</i>	Referred to IV Volumes of Ethnographic Studies done by the University of Hawai'i at Mānoa's Ethnic Studies Department. The <i>ahupua'a</i> of Waikīkī was divided up in away that would make it easy to find people related to the study area.
Kahanamoku, JoAnne	<i>Kama'aina</i> to Waikīkī	Referred to her brother, Samuel Alapa'i Kahanamoku.
Kahanamoku, Samuel Alapa'i "Bunny"	<i>Kama'aina</i> to Waikīkī	See interview in section 5.
Kaleikini, Paulette Ka'anohi	Lineal descendant to project area.	See interview in section 5.
McQuivey, Jace	Po'o O'ahu Island Burial Council	Know cultural concerns at this time. I will present the information to the rest of the OIBC.
Nāmu'o, Clyde	Administrator to Office of Hawaiian Affairs	Sent a letter dated on May 12, 2006.
Paoa, Robert Clark	<i>Kama'aina</i> to Waikīkī	See interview in section 5.
Worthington, Robert	<i>Kama'aina</i> to Waikīkī	Sent letter; No cultural concerns at this time.

Section 5 *Kamā'aina* Interviews

Kama'aina and *kūpuna* with knowledge of the Waikīkī Ahupua'a and the area within the vicinity of the proposed project participated in "talk-story" sessions for this assessment.

The approach of Cultural Surveys Hawai'i Inc. to the cultural impact studies affords those community members an opportunity to review transcriptions and to make any corrections, deletions or additions to the substance of their testimony. Our interview selection process focuses on knowledge older individuals (*kūpuna*) who are often in ill health or of a mind not to be rushed. It is often the case that the driving coercive demands of time that drive the contemporary development process do not fit well with those who have memories of an earlier time.

One member of the community, Paulette Ka'anohi Kaleikini participated in a "talk-story" session that was taped and transcribed. One members of the community, Mr. Robert Clark Paoa participated in a telephone interview and Mr. Samuel Alapa'i Taula Kahanamoku responded by letter. To assist in discussion of natural and cultural resources and any traditional cultural practices specific to the project area, Cultural Anthropologist Aulii Mitchell initiated in the "talk-story" session questions from these five broad categories. The categories include: Burials, Trails, Native Gathering Practices of Plants, Marine and Fresh water Resources and Historic Properties.

Presented below are brief backgrounds of participants in this assessment and their comments and concerns about the proposed project area.

5.1 Mrs. Paulette Ka'anohi

Mrs. Paulette Kaleikini was born to Samuel Keko'o Kawainui and his wife Alice Kekahiliokamokukeli Keaweamaahi in June, 13, 1952. Mrs. Kaleikini's great-father's home was situated along Kalākaua Avenue and Makano Lane. All of his children were born there including her mother Alice. Her great-grandfather was given the land by his cousin, W.L. Moehonua, the son of 'Aikanaka, the grandfather of Kalākaua and Lili'uokalani. Mrs. Kaleikini commented on the present project in a "talk-story" session on May 25, 2006:

Regarding the project area. It is at the exact site of where my *'ohana* had their home, *ka hale o ku'u makuahine* or the house of my mother was located. The name of the lane was Makano; listed is Makaoe. My great-grandfather's home, G.W. Keaweamaahi, was situated along Kalākaua Avenue and Makano Lane. All his children were born in that *hale*. My mother was born in that *hale*, as well along with her siblings. There were several homes on that block and my mother's aunts and uncles lived on that compound. Those homes were situated from Kalākaua to Hobron Lane. My parents later occupied the home of one of her aunts that was situated on Hobron Lane. All my *kua'ana* or older siblings were born in that *hale*.

My great-grandfather was given this *'aina* by his cousin, W.L. Moehonua, the son of 'Aikanaka, the grandfather of Kalākaua and Liliuokalani.

My mother is Alice Kekahiliokamoku Keliilumilani Keaweamahe. She was born in Kālia on this property proposed for development. My father is Samuel Keko'o Kawainui and he is from Punalu'u, Ka'u on the big island.

My mother's father was William Nehemaia Keaweamahe. He was the son of George William Keaweamahe and Caroline Kamake'e Fern. Caroline Fern was the sister of Joseph James Fern who was the first mayor of Honolulu. My great grandfather George William Keaweamahe, was the son of Ialua who had come over here to O'ahu with the early chiefs, mainly in the days of 'Aikanaka when they were cutting sandalwood. They came here and this is how Moehonua was born at the time of sandalwood in Mokuleia. My great-great grandfather Ialua who also is Keaweamahe, my great grandfather was named after him. Ialua was the *kahu* of 'Aikanaka, he and his brother were *kahu* of 'Aikanaka. My great-great grandfather's sister Napua was the *wahine* of Keaweamahe. She also became 'Aikanaka's wife. So Moehonua's parents are Napua and 'Aikanaka.

There were two lanes that run parallel to each other, Makano Lane and Makaoe Lane. My mother used to bring us here. I was the only one of my siblings that was not born here on this land. What I know is that this area once belonged to Moehonua and when he passed away it went into probate, so my great grandfather George William had fought King Kalākaua for this 'āina, who was also by blood was the nephew of Moehonua. It was the King's mother, Keohokālole who would not acknowledge that Moehonua was indeed her *koko* or blood, so in the end my great grandfather won the probate and got back the 'āina. That is why my grand father was born here and my mother and all my siblings. We lost the 'āina when my great grandfather George William had passed away. My great grand mother Caroline Kamakee Fern was still raising her children, so it was Eaton Magoon, who saved the day and helped her to raise the *keiki*. So in gratitude she let them have the 'āina and then Caroline also had a child by him too.

In the 1950s we would come to this place with my mother, we often came down here to go to Grace Beach on the other side of the Hawaiian Village. Grace Beach was where we used to gather *limu*. She mentioned that from her home on Makano Lane, you could see clear to the beach and even to where the 'Ilikai Hotel is today, there was nothing to obstruct the view to the sea.

The lifestyle when my grand parents where here was becoming westernized already. There were certain *lā'au* or medicine plants around here. My mother knew a lot about plant uses and would come back to the area to gather. I do not remember the plants she gathered.

I do not remember any *kalo* cultivation in my time. The ponds were dried up already. The area was being developed by my time. My family moved away around 1948, '49.

I do not remember any trails in the area. My siblings used to take trails to the beach. My family was not fishing people they were more in charge of the fishpond Moehonua in the early years of the chief.

I never heard any legends other than when my grandfather and his brothers who were swimmers and lifeguards, along with the Kahanamoku Family. The story told to me was that after work in the evenings they would see Princess Ka'iulani following them home.

My grandfather's brother was named "Tough Bill", he was an early prison guard and later a chauffer for the actors that used to come here. One in particular was Errow Flynn. Every time he came to Waikīkī, "Tough Bill" would pick him up and bring him to Kālia. Then one of my sisters on her first birthday where the family made an old style *lū'au* and Errow Flynn through the bash. They closed down Makanoe Lane and Kalākaua Avenue.

There was a place that went along Makanoe Lane on the corner and what is now Hobrane Lane called "Squatters Ville". People like Gabby Pahinui used to live there. That is how my family knows Gabby. The Pahinui Family and my mother were raised together. My mother's only brother used to play music with Gabby. The other families that used to live there were the Palimo'o Family. Squatter Ville was a housing area where the Hawaiians lived for awhile in transition. All the families that lived there and in my family's area knew each other.

The White Family had more of a mansion house on the other side of my family's house. The Jermiles had a house right in front next to where the wave is today on Kalākaua Avenue. There was also a family by the name of Kaina who also lived in the area.

There was something on Ena Road and Kalākaua Avenue where the parking lot is today. There was a photography gallery write on the corner, Baker was the name. He often took pictures of people living in Kālia area

There was a lot of Kiawe in the area. My family did have an *imu* for whenever they had *lū'au*. My *tūtū's* house was right where the parking structure for Waipuna is today.

There are no on-going cultural practices today. There is one mango tree planted by my brother which would mark the *lānai* of my family's *hale*. It is the one with the straight trunk. There were also a lot of *hau* trees around the house.

What concerns me now, is that some of my *kūpuna* that traveled to 'Oahu with 'Aikanaka, never made it back to *Moku o Keawe* or the Island of Hawai'i. My great-great grandfather never made it back to Ka'awaloa. His cousin, the *kahu* of 'Aikanaka and Moehonua also never made it back. It was normal cultural practice that the *'ohana* be buried on the *'āina* where they lived. I am feeling a lot

sadness in that they may be buried there. My great-great-grandfather, Ialua, took care of the mullet fishpond that was situated on the Moehonua property. The mullet from this fishpond was frequently provided to Kamehameha I whenever he was on 'Oahu, as he was *'ohana* to my great-great-grandfather, Ialua. Kamehameha also lived in this area for a while and tended to *lo'i* that he developed. Ialua may be buried somewhere on the land in flex position.

The *kahu* of Moehonua, Kauā, was left here by 'Aikanaka to attend Moehonua. When Kauā passed away, he was buried western style in a coffin. He was placed in the coffin with the *niho palaoa* and *malo* that belonged to 'Aikanaka. The exact location of the burial I do not know.

5.2 Mr. Robert Clark Paoa

Robert Clark Paoa was born in Waikīkī, Kālia (where the 'Ilikai is today) Kona District on the island of O'ahu in 1937. He was raised by his parents Mr. Malcom Paoa and Mrs. Ellen Clark Paoa on their family land just south east of the present project area. Mr. Paoa worked for the Federal Government National Guard. Today he resides in Moanalua Gardens and is a member of the Moanalua Gardens Community Association.

Mr. Paoa participated in a telephone interview on May 25, 2006:

The family land was obtained during the *mahele* 1848. My Grandfather Paoa (his grandfather only had one name Paoa) was awarded that land in 1848. Later King David Kalākaua reconveyed the land to Paoa again 1877. We do not know why. It was a legal document. I have not been able to find it.

My family and others used to fish in the ocean and gather *limu*. We did not trust fishing in the canal. The Japanese used to fish in the canal for mullet. You see, when war broke out in the 1940s that stopped any kind of cultural practices. When the war came there was black outs, rules and curfew in which it stopped the normal lifestyle.

I am not too familiar with the families in the study area although I do remember the Keaweamahi and the Palimo'o names and one of the beach boys at that time we called "Tough Bill". If you look in the books written about the old beach boys of Waikīkī he is featured in there.

There were a lot of Hawaiians living in there at that time. The area used to have a nick name, "Squatters Ville", due to many displaced Hawaiians at that time.

There used to be a rattan art gallery where the Wave is now.

5.3 Mr. Samuel Alapai Taula Kahanamoku III

Mr. Samuel Alapai Taula Kahanamoku III is a member of the Kahanamoku Family who are *kama'aina* of Waikīkī. Mr. Kahanamoku kindly responded with an email on May 31, 2006 which is presented in its entirety below:

Received your letter concerning the TMK [1] 2-6-13: 1,3,4,7,8,9,11,12 of the Ahupua'a Waikiki Kona District, island of Oahu.

In regards to the following issues;

General history and present and past use of the studies of the area.

Knowledge of cultural sites that may be impacted by the project, e.g., historic sites, archaeological sites, burials.

Knowledge of traditional gathering practices in the study area both past and present.

Cultural association with the study area through legends, traditional use of otherwise.

Referrals of Kupuna or elders who might be willing to share their culture knowledge of the study area in general.

Any other cultural concerns the community might have related to Hawaiian or other cultural practices in this section of Waikiki.

As what has been handed down by family knowledge the section you are referring to was one of semi dry land before Ben Dillingham dug the Ala Wai.

As the area from the Magoon Estate to the semi fishing village Kalia from whence I come from, encompass all the area except the Moody Property. At the corner of what was Waikiki Blvd. and John Ena Road. Was the most famous area in the Territory of Hawai'i, after the canal was finished, but has lost its prestige from time even in memory, but may be found in books dare to publish for the masses to acquire as history of the Territory of Hawai'i or true Hawaiian history recorded by the courts of that era. But before entering I shall indulge you of the land area that the developers of Fifield Companies are interested in future production in their interest of commercialization to which they have that right! That area was Chinese owned I remember the Wong's and their restaurant the Lee Family Ching, Ah fuk, Martins, whom Sargent Kahanamoku married into Martin/Furtado i.e. Anne Furtado (Maui). Most of the homes eventually became rentals in the latter 30s and two night clubs existed one was called The Good Earth, a Chinese restaurant and a bar called Kalakaua Inn but do not quote me on the Inn it may have had a different name, but it was a beach boy hang out.

As far as I was told no Hawaiian were buried in that area as the ground was not suitable for burials as the ground before the Ala Wai Canal was swamp and not suitable for the purpose if remains (bones) are found it will be dated from after the Ala Wai, as the dirt removed from the canal was used to fill the swamp and that area known back then as the Magoons. Perhaps it has been lost over time but the land was blue clay like quick sand one of weight would sink and would need help to get out, most of the ponds were filled with sand and mud, the mud from the St. Louis river and the Pawa River and Kapahulu had a river but sporadic in flow. Most of Waikīkī was swamp that till today the hotels are jacked to keep it from sinking into the swamp. What people and Archaeologist don't realize is that Waikīkī mostly Kalia is a volcanic chimney of Punchbowl and is below sea level. The Ala Wai was semi solid land at the time of construction. The only *heiau* were *kuula* type and unsound as the tide at that time would destroy it and the process was repeated. Only known *heiau* till today is at Leahi.

2,3,4,5,6 Which are assumptions if referred to by anyone now of that district as most of the populace at the time of the construction of the canal moved to Kaaawa (Hawaiian taro growers Chinese rice growers) and those that stayed were from the Kalia fishing village encompassed the Nuumalu Bay known for its opae.

As for the corner of Ena Road and Kalakau it's fame is that is where the fornication by one Sam Kahanamoku from his 1934 Packard only to be follow in a vehicle by the four accused and accused by said wife of rape. If interested it can be found over the internet or in books. Thus began the hatred for the white race i.e. *HAOLE*. Now that incident has implied it self into the genes of the Hawaiian and Multi Races of Hawai'i. As no one is thought to hate the *haole* it is now genetic we are with it. The strength of propagandizing can leave the memory banks and create a genetic cell! Call hate.

The ramifications can never be viewed beyond greed as over population is like the crabs in a bucket syndrome, while being in the mists of the revolution between the microbes and the faunas.

Section 6 Traditional Cultural Landscape of the Project Area

Discussions of specific aspects of traditional Hawaiian culture as they may relate to the present project area are presented below.

6.1 Hawaiian Habitation and Agriculture

Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. It is likely that, during traditional Hawaiian times, environs like the present project area were used for less intensive cultivation of patches of sweet potato, *pia*, and *wauke*, and the gathering of *hala*, *kukui* and other upland resources.

From traditional Hawaiian times to the modern era the present project has comprised continuously a dryland environment. This is confirmed by *kama`āina* Mr. Samuel Kahanamoku who stated that in his time in the 1930s the area of study was still one of semi dry land before Ben Dillingham dug the Ala Wai.

Originally elevated above surrounding fishponds and wetland fields, the project area, from the latter nineteenth century into the twentieth century, was integrated into development of Waikīkī as a residential area and subsequently as a resort and commercial district.

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-19th century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) which introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

6.2 Gathering for Plant Resources

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, for not only the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal and religious purposes. Within the project area itself no specific documentation was found in regards to gathering of plants during traditional Hawaiian times. Mrs. Paulette Kaleikini stated her mother knew a lot about plant uses and would come back to their families lands within the project area to gather.

During this assessment there were no ongoing practices related to traditional gathering of plant resources identified in the present project area. None of the individuals contacted or

interviewed for this assessment identified any native plant gathering practices within the project area. Based on the information it is likely that there was far greater emphasis on gathering plant resources further inland.

6.3 Marine and Aquatic Resources

The sea is a rich resource and the Hawaiian people were traditionally expert fishermen. Fish of all types supplied the Hawaiian diet with a rich source of protein. Hawaiian women practiced the gathering of seaweeds and salt. Community members were quick to talk about coastal and offshore resources. Mr. Clark Paoa stated that his family and others used to fish in the ocean and gather *limu*. They did not trust fishing in the canal. The Japanese used to fish in the canal for mullet. When war broke out in the 1940s that stopped any kind of cultural practices. When the war came there was black outs, rules and curfew in which it stopped the normal lifestyle. Community member Mr. Samuel Kahanamoku stated that most of the populace at the time of the construction of the canal moved to Kaaawa (Hawaiian taro growers Chinese rice growers) and those that stayed were from the Kālia fishing village encompassed by the Nu'umalu Bay known for its *'ōpae*. Mrs. Paulette Kaleikini mentioned that in the 1950s she would come back to the area with her mother and go to Grace Beach on the other side of the Hawaiian Village to gather *limu*. It was her great-great-grandfather, Ialua, who took care of the mullet fishpond that was situated on the Moehonua property. The mullet from this fishpond was frequently provided to Kamehameha I whenever he was on 'Oahu. During this assessment there were no ongoing practices related to marine and freshwater resources identified in the present project area.

None of the individuals contacted or interviewed for this assessment identified any native marine or freshwater resources within the project area.

6.4 Historic Properties

None of the individuals contacted or interviewed for this assessment identified any historic properties within the project area. During this assessment there were no historic properties identified within the project area.

6.5 Burials

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Especially relevant to the present project area are two burials that were recently encountered in a project area on the 'Ewa side of Hobron Lane (Freeman *et al.* 2005). Mrs. Paulette Kaleikini stated that it was normal cultural practice that the *'ohana* be buried on the *'āina* where they lived. She voiced her concern that her great-great grandfather Ialua may be buried somewhere in the flex position and that the *kahu* of 'Aikanaka, Kauā was placed in a coffin and buried with personal cultural artifacts that belonged to 'Aikanaka. The exact location of the burial she does not know. Mr. Samuel Kahanamoku mentioned that as far as he was told no Hawaiians were buried in that area as the ground was not suitable for buries as the ground before the Ala Wai Canal was swamp and not suitable for the purpose and if remains (bones) are found it will be dated from after the Ala Wai.

None of the individuals contacted or interviewed for this assessment identified any human remains within the project area.

6.6 Native Hawaiian Hunting Practices

No specific native Hawaiian hunting practices were identified within the project area in the historic documentation and archaeological investigation.

6.7 Hawaiian Trails

Trails served to connect the various settlements throughout the *ahupua'a* and districts of the Hawaiian Islands in traditional times. According to John Papa 'I'i (1959: 93), the primary traditional coastal trail from Honolulu to Waikīkī fronted the present parcel, along the route of the present Kalākaua Avenue.

No traditional trails were identified within the present project area on historic maps.

Section 7 Summary

The *ahupua'a* of Waikīkī in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources – including an expansive system of irrigated taro fields and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by farmers continuing to work the irrigated field system which had been converted from taro to rice. This farming continued up to the first decades of the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

Historic documentation reviewed for this assessment indicates that the present project area is located on the *mauka* fringe of a portion of Waikīkī that, in traditional Hawaiian times and before the massive drainage accomplished by the Ala Wai Canal, comprised a complex of numerous large fishponds. Also located in this portion of Waikīkī were wetland and dryland agricultural fields, and habitation sites. Land Commission Award documents from the mid-nineteenth century record continuing native Hawaiian habitation and taro cultivation in parcels adjacent to the present project area. Subsequent nineteenth and twentieth century documents – including historic maps and photographs – indicate that the project area from traditional Hawaiian times to the modern era comprised a dryland environment elevated above the surrounding fishponds and wetland fields. In traditional Hawaiian times, such an environment would have provided a base for habitation, work, and recreational activities of the population. Maps and photographs produced prior to the completion of the Ala Wai Canal in the late 1920s, indicate that the project area contained house sites associated with the early development of Waikīkī. As that development continued, by the early 1950s, residential structures were being supplanted by commercial structures in the project area.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Especially relevant to the present project area are two burials that were encountered at the corner of Kalākaua Avenue and Ena Road, immediately adjacent to the project area, during trenching for an anti-crime lighting project in 1999. The burials were found at relatively shallow depths (80-120cm below surface). The archaeological monitoring report for the lighting project suggests that the potential for more inadvertent burial finds at shallow depths in the general area is high (Perzinski et al. 1999: 31). Additionally, *makai* of the present project area, within a parcel bounded by Ala Wai and Ala Moana boulevards, Hobron Lane, and Līpe'epe'e Street, human burials were also encountered (Freeman et al. 2005).

Several archaeological studies have recorded the presence within Waikīkī of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the entire Waikīkī area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikīkī cannot be discounted. During archaeological inventory survey of the Hobron Lane parcel mentioned above, intact cultural deposits were encountered (Freeman et al. 2005).

As noted above in this report, before the construction of the Ala Wai Canal and the filling in of Waikīkī's marshes and fishponds, the present project area comprised dryland and portions of ponds. It is possible that intact pond sediments and intact prehistoric and early contact cultural deposits associated with Hawaiian habitation, work and recreation are lying undisturbed beneath modern fill layers within the project area. Other cultural deposits, including historic trash pits, associated with late nineteenth century and early twentieth century residential sites may also be present. Additionally, human burials may also be present within the project area.

For the purposes of cultural impact assessments, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about the project area. This is reflected in the statement provided by *kama'āina* Mr. Samuel Kahanamoku which states that the ground was not suitable for burials as the ground before the Ala Wai Canal was swamp and not suitable for the purpose if remains (bones) are found it will be dated from after the Ala Wai. Mrs. Paulette Kaleikini concerns state that it was a normal practice that the *'ohana* be buried where they lived and her great-great grandfather, Ialua may be buried somewhere on the land in flex position and it is possible that the *kahu* Kauā was buried western style in a coffin. In the coffin were placed traditional personal artifacts belonging to the chief 'Aikanaka, but she is not sure of the exact location. Mrs. Kaleikini also stated that her mother used to bring her back to the project area to gather medicinal plants.

As a result of this assessment, no ongoing traditional cultural practices or concerns were identified for the study area. None of the community contacts queried for this assessment identified any on-going traditional cultural practices, cultural sites or concerns specifically within the project area.

Based on the above findings subsurface properties associated with former traditional Hawaiian activities, such as artifacts and cultural layers, may be present in the project area despite the decades of urban development of Waikīkī. Given this consideration and the cultural sensitivity of the entire Waikīkī area, Cultural Surveys Hawai'i Inc. recommends an archaeological inventory survey with a substantial subsurface testing component for the project area.

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