COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

April 8, 1996

Mr. Gary Gill
Director
STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Central Pacific Plaza, 4th Floor
220 South King Street
Honolulu, HI 96813

SUBJECT: LOWER MAIN STREET TRAFFIC SIGNAL AND INTERSECTION IMPROVEMENTS AT MILL STREET
FEDERAL AID PROJECT NO. STP-3830(4)

Dear Mr. Gill:

In accordance with the requirements of Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Administrative Rules, a Final Environmental Assessment has been prepared for the subject project.

As the proposing agency, we are forwarding herewith one (1) copy of the OEQC Bulletin Publication Form and four (4) copies of the Final Environmental Assessment (EA). During the public comment period of the Draft EA, no written comments were received. We have determined that the project will not have a significant environmental effect and have issued a negative declaration. Please publish this notice in the next edition of the "Environmental Notice".

If there are any questions, please contact project manager, Charlene Shibuya of our Engineering Division at (808) 243-7745.

Sincerely,

Charles Jencks
Director of Public Works & Waste Management

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Enclosures

cc: Milton Arakawa, Munekiyo & Arakawa, Inc.

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1996-04-23-MA-FEA-Lower Main Street Traffic Signal and Intersection Improvements at Mill Street

Final Environmental Assessment

Lower Main Street Traffic Signal and Intersection Improvements at Mill Street

Prepared for

County of Maui, Dept. of Public Works and Waste Management

March 1996

MUNEKIYO & ARAKAWA, INC.

Final
Environmental Assessment

Lower Main Street
Traffic Signal and Intersection Improvements at Mill Street

Prepared for

County of Maui, Dept. of Public
Works and Waste Management

March 1996

MUNEKIYO & ARAKAWA INC.

CONTENTS

LIST OF FIGURES

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Chapter I

Project Overview

I. PROJECT OVERVIEW

A. PROJECT LOCATION

The Department of Public Works and Waste Management (DPWWM), a subdivision of the County of Maui, proposes a traffic signal and intersection improvements at Lower Main Street and Mill Street (TMK 3-4-39:por.51, por.82).

The project is located in Wailuku Town. See Figure 1. To the north of the project area, there are several office and commercial structures with frontages on Lower Main Street. To the east of the project site are vacant lands which slope upward to the Sand Hills residential area. To the south is an existing Maui Electric Company substation and the Wailuku Government Cemetery. To the west, there are commercial and public uses which are adjacent to Mill Street with residential uses further northwest.

B. EXISTING ROADWAY SYSTEM

Access routes into the Wailuku-Kahului urban area are limited to Hana Highway from East Maui and Makawao-Pukalani-Kula, Mokulele Highway from Kihei-Makena, and Honoapiilani Highway and Kuihelani Highway from Lahaina. Hana Highway is a four-lane, divided highway between Haleakala Highway and Kahului. Honoapiilani Highway, Mokulele Highway, and Kuihelani Highway are two-lane arterials connecting Wailuku-Kahului with Lahaina and Kihei-Makena.

Access between Wailuku and Kahului is limited to Kaahumanu Avenue and Kahului Beach Road. Kaahumanu Avenue is a four- to six-lane divided roadway in Kahului which becomes Main Street in Wailuku. Kahului Beach Road is a two-lane roadway, which connects to Lower Main Street and Mill Street, leading to Wailuku and Waiehu Beach Road,

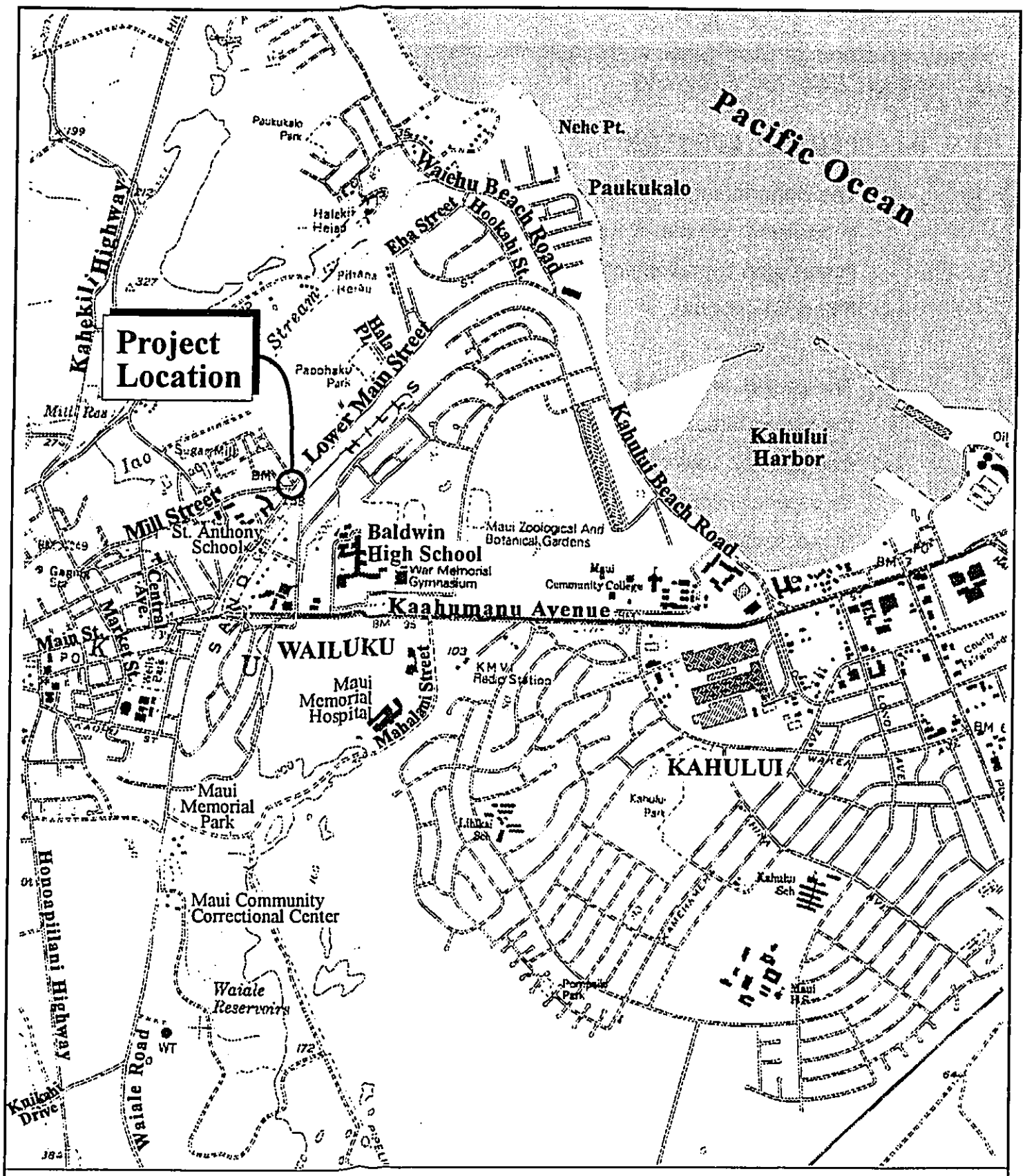

Figure 1 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

Regional Location Map

Prepared for: County of Maui, Department of Public Works and Waste Management

0 1000 2000 4000 Feet

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continuing along the coastline.

Lower Main Street/Mill Street is a T-intersection with Mill Street forming the stop-sign controlled stem of the intersection. Lower Main Street is a two-lane roadway with the westbound approach providing a through lane and a separate right-turn lane. The eastbound approach on Lower Main Street has a shared through/left turn lane. The posted speed limit on Lower Main Street in the vicinity of the intersection is 20 miles per hour. Mill Street is a two-lane roadway that terminates at Lower Main Street. At the intersection, separate right-turn and left-turn lanes are provided on Mill Street. The posted speed limit on Mill Street is 20 miles per hour. Lower Main Street becomes Waiale Road at its western end. Mill Street connects to Market Street on its western end.

Chapter II

Project Need and Proposed Action

II. PROJECT NEED AND PROPOSED ACTION

A. DESCRIPTION OF PROJECT NEED

From a regional perspective, Wailuku-Kahului is the roadway "hub" of the island. Traffic between Makawao-Pukalani-Kula, Kihei-Makena, and Lahaina must pass through Wailuku-Kahului. As further growth in these regions occur, through traffic in Wailuku-Kahului is also expected to increase.

Traffic congestion in Wailuku-Kahului is generally attributed to system deficiencies. Existing roadways between Wailuku and Kahului are inadequate in terms of carrying capacity. During the PM peak hour, the intersection of Kaahumanu Avenue and Kahului Beach Road/Kane Street operate at capacity. Kahului Beach Road at Waiehu Beach Road and at Kanaloa Avenue operates at capacity at peak hour (Wilson Okamoto, September 1992).

The State Department of Transportation has initiated construction on the widening of Kahului Beach Road, from Kaahumanu Avenue to Waiehu Beach Road, to four lanes. The County of Maui has also initiated Phase I construction on the widening of Lower Main Street, from Waiehu Beach Road to Hala Place, to four lanes. Near major intersections, Lower Main Street would consist of 5 lanes, with an additional turning lane.

Widening of Lower Main Street, from Hala Place to Mill Street, is currently in the design phase. This comprises Phase II of Lower Main Street improvements with completion of design being projected for late 1995.

Widening of Lower Main Street and Waiale Drive, from Mill Street to the Mahalani Road Extension, is proposed for Phase III. Lower Main Street becomes Waiale Drive at the Kaahumanu Avenue Bridge. These are

longer term improvements which are proposed for implementation following Phase II.

The County of Maui is also proceeding with the Waiale Drive and Mahalani Street Extensions. This project consists of the extension of Waiale Drive, from the vicinity of Maui Memorial Park to Honoapiilani Highway across from Kuikahi Drive. Mahalani Street is proposed to be extended from Maui Memorial Hospital to the vicinity of Maui Memorial Park. These extensions involve implementation of two travel lanes. Design is scheduled for completion by late 1995.

The proposed intersection improvements at Lower Main Street and Mill Street would complement improvements already under construction or proposed along the Kahului Beach Road, Lower Main Street, and Waiale Drive corridor. It is also noted that the Lower Main Street/Mill Street intersection forms an acute angle which produces poor sight distances for vehicles on Mill Street. The proposed improvements realign the Mill Street approach to Lower Main to as close to 90 degrees as possible.

Moreover, the Urban Intersection Signal Priority Study done by Parsons Brinckerhoff Quade & Douglas, Inc. for the Department of Public Works and Waste Management recommends that a traffic signal be installed at the Lower Main Street/Mill Street intersection. The analysis of 22 critical intersections evaluated on the island of Maui noted that the Lower Main Street/Mill Street intersection commands the second highest priority. The study analyzed only those intersections which met traffic signal warrants. Traffic signal priorities were evaluated on the following criteria: (1) vehicular volumes and accident history; (2) traffic signal progression; (3) pedestrian demand and school crossing safety; (4) traffic speeds, sight distance and road curvature; and (5) severity of accidents.

B. *DESCRIPTION OF THE PROPOSED ACTION*

The proposed project consists of implementation of a new traffic signal, additional laneage improvements, and curb, gutter, and sidewalk improvements. See Figure 2.

The traffic signal would replace the existing stop control. As noted earlier, the Mill Street approach will be realigned to as close to 90 degrees as possible in order to improve sight distance.

The westbound approach on Lower Main Street involves a lengthening of the separate right turn lane. A through lane and a two-way center left turn lane are also proposed. See Figure 3. The eastbound approach on Lower Main Street would have a left turn lane, a through lane, and a right turn lane. Past the intersection, the right turn lane merges with the through lane. On the Mill Street approach, separate right-turn and left-turn lanes are retained.

New pavement is proposed on the eastern boundary of Lower Main Street. Curb, gutter and sidewalk improvements, as well as wheelchair ramps and driveways to abutting properties, are proposed.

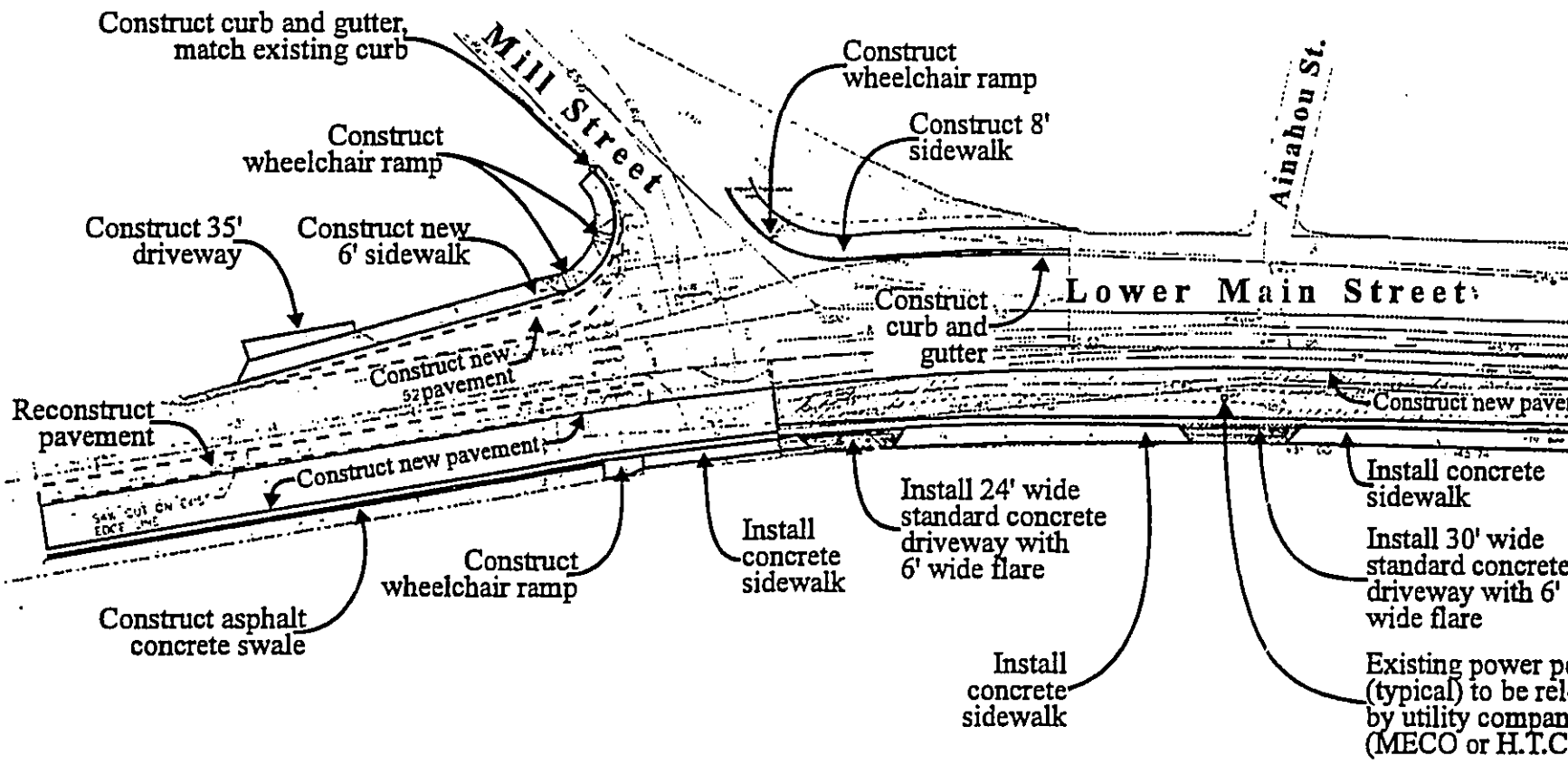
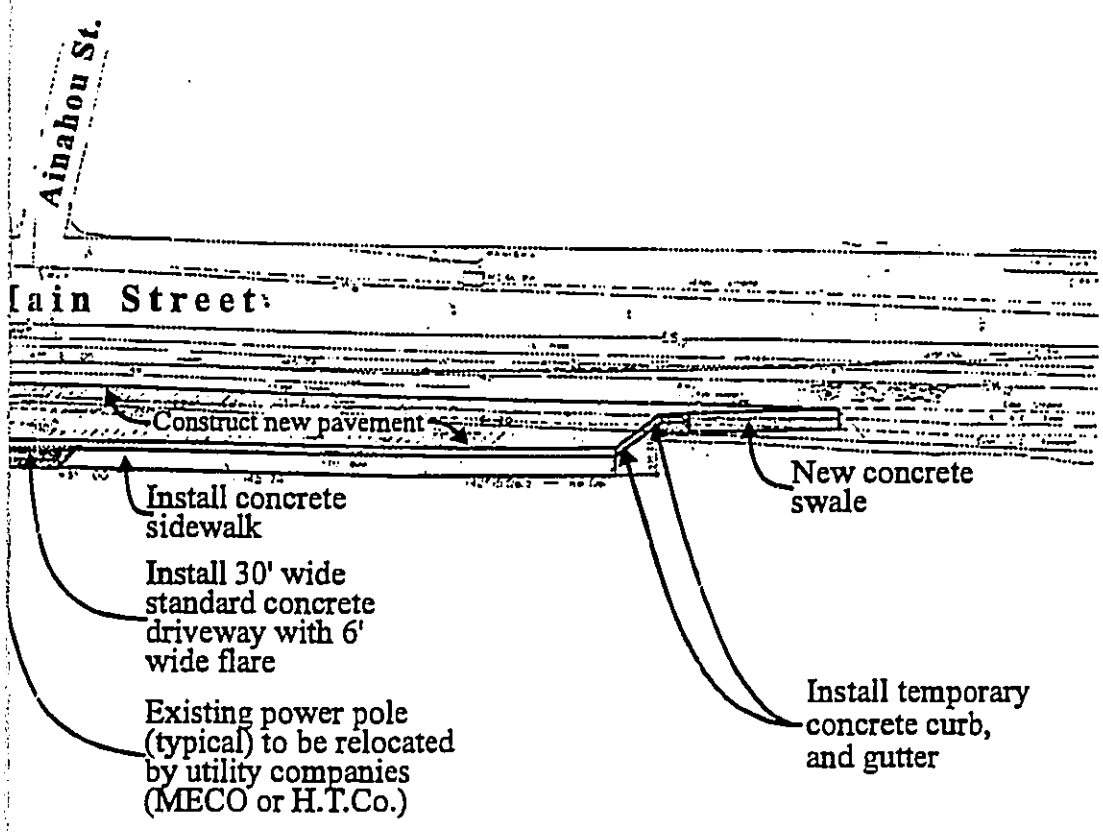


Figure 2

Lower Main Street Traffic Signal and Intersection Improvements at Mill Stree

Construction Plan

Prepared for: County of Maui, Dept. of Public Works and Waste Management



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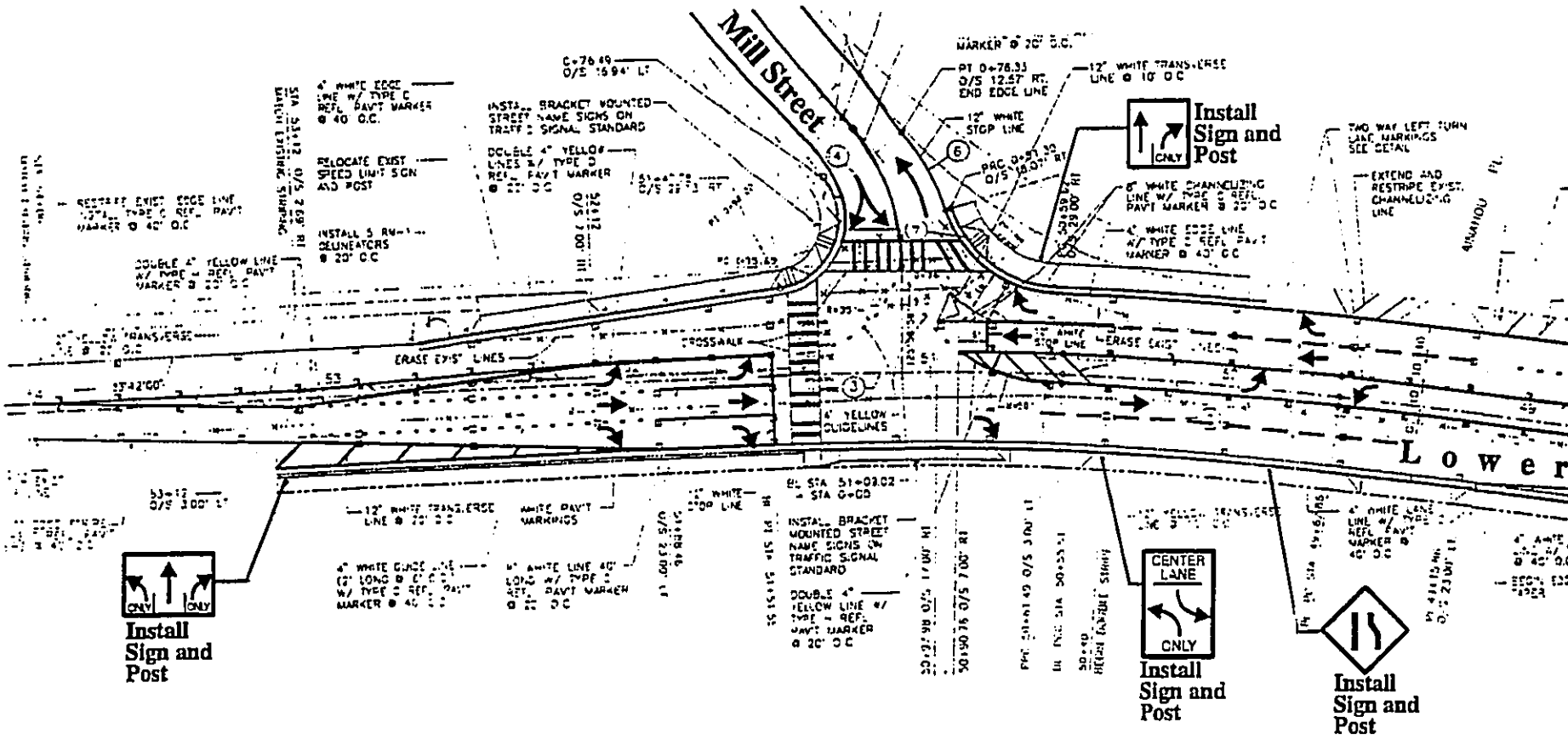

Figure 3

Lower Main Street Traffic Signal and
Intersection Improvements at Mill Stree
Striping Plan

Prepared for: County of Maui, Dept. of Public Works and Waste Management

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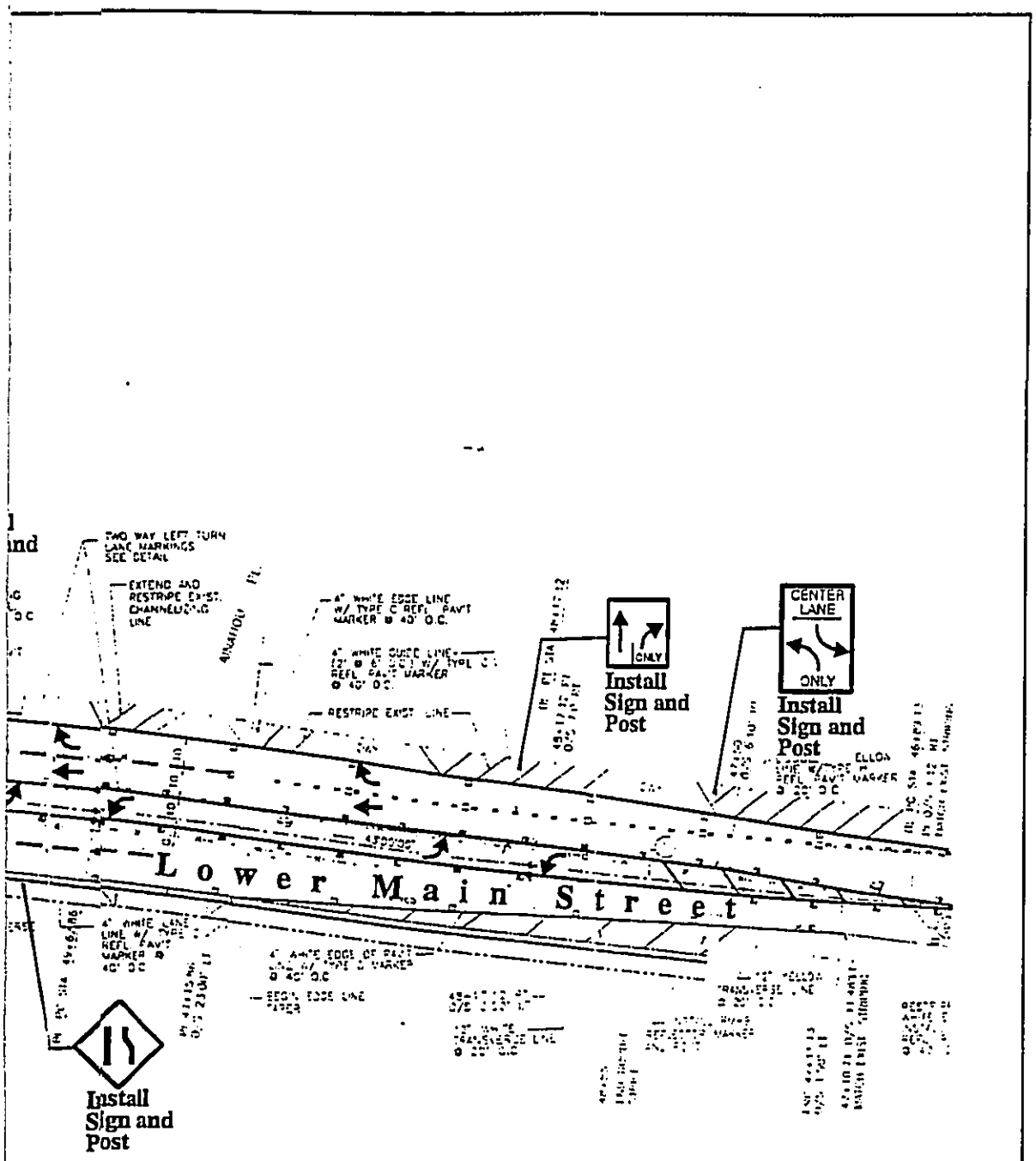

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Chapter III

Description of the Existing Environment

III. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The project site is located in Wailuku Town which is the governmental and business center for Maui. Wailuku is located on the foothills of the West Maui Mountains containing a diverse range of commercial, light industrial, and public uses, as well as established older residential areas in the midst of town.

To the north of the project area there are several office and commercial structures with frontages on Lower Main Street. To the east of the project site are vacant lands which slope upward to the Sand Hills residential area. To the south is an existing Maui Electric substation and a number of cemeteries, including the Wailuku Government Cemetery and Roman Catholic Church Cemetery. To the west of the project site, there is an older established residential neighborhood abutting one side of Mill Street. On the other side of Mill Street, there are business uses, the Hale Makua Intermediate Care Facility, and the St. Anthony School and Church.

2. Climate

Like most areas of Hawaii, Maui's climate is relatively uniform year-round. Characteristic of Hawaii's climate, the project site experiences mild and uniform temperatures year-round, moderate humidity and a relatively consistent northeasterly tradewind. Variation in climate on the island is largely left to local terrain.

Average temperatures at the project site (based on temperatures recorded at Kahului Airport) range from lows in the 60's to highs in

the 80's. August is historically the warmest month, while January and February are the coolest. Rainfall at the project site averages approximately 20 to 30 inches per year. Winds in the region are predominantly out of the north-northeast and northeast.

3. ***Topography and Soil Characteristics***

The project site is located at approximately the 150 to 160 foot elevation. The site slopes gently lower from the southwest to northeast.

Underlying the proposed site are soils of the Pulehu-Ewa-Jaucas association. See Figure 4. This soil association is characteristically deep and well-drained and located on alluvial fans and basins.

The soil types underlying the project site are Iao cobbly silty clay, 3 to 7 percent slopes (IbB) and Wailuku silty clay, 3 to 7 percent slopes (WvB). See Figure 5. The permeability of Iao cobbly silty clay is moderately slow. Runoff is medium and the erosion hazard is slight to moderate. The permeability of Wailuku silty clay is moderate. Runoff is slow to medium, and the erosion hazard is slight to moderate.

4. ***Flood and Tsunami Hazard***

The project site is located within Zone "C" as determined by the Flood Insurance Rate Map for the region. See Figure 6. Zone "C" is an area of minimal flooding. The property is located well beyond tsunami inundation areas.

LEGEND

① Pulehu-Ewa-Jaucas association

② Waiakoa-Keahua-Molokai association

③ Honolua-Olelo association

④ Rock land-Rough mountainous land association

⑤ Puu Pa-Kula-Pane association

⑥ Hydrandepts-Tropaquods association

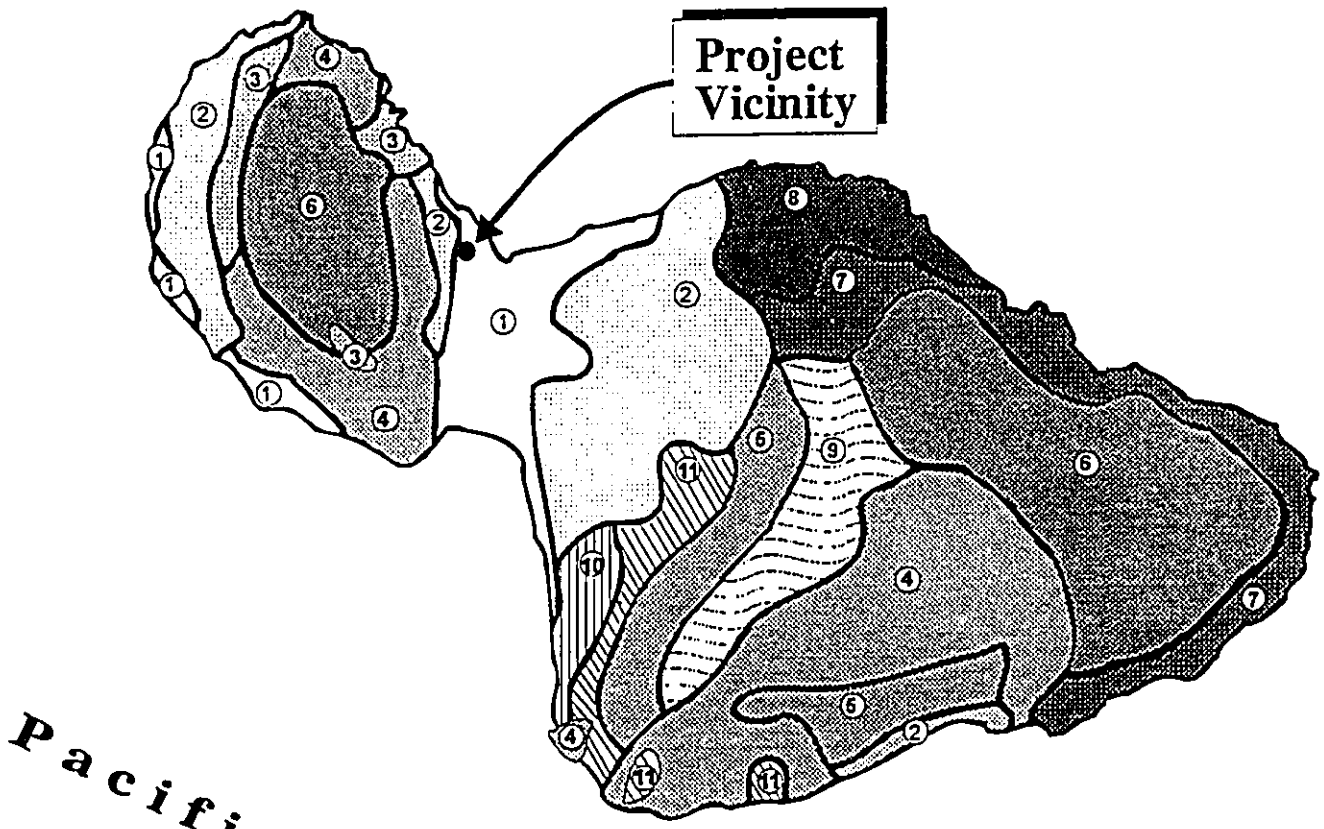
⑦ Hana-Makaalae-Kailua association

⑧ Pauwela-Haiku association

⑨ Laumaia-Kaipoipoi-Olinda association

⑩ Keawakapu-Makena association

⑪ Kamaole-Oanapuka association



Map Source: USDA Soil Conservation Service

Figure 4 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

Soil Association Map

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Prepared for: County of Maui, Department of Public Works and Waste Management

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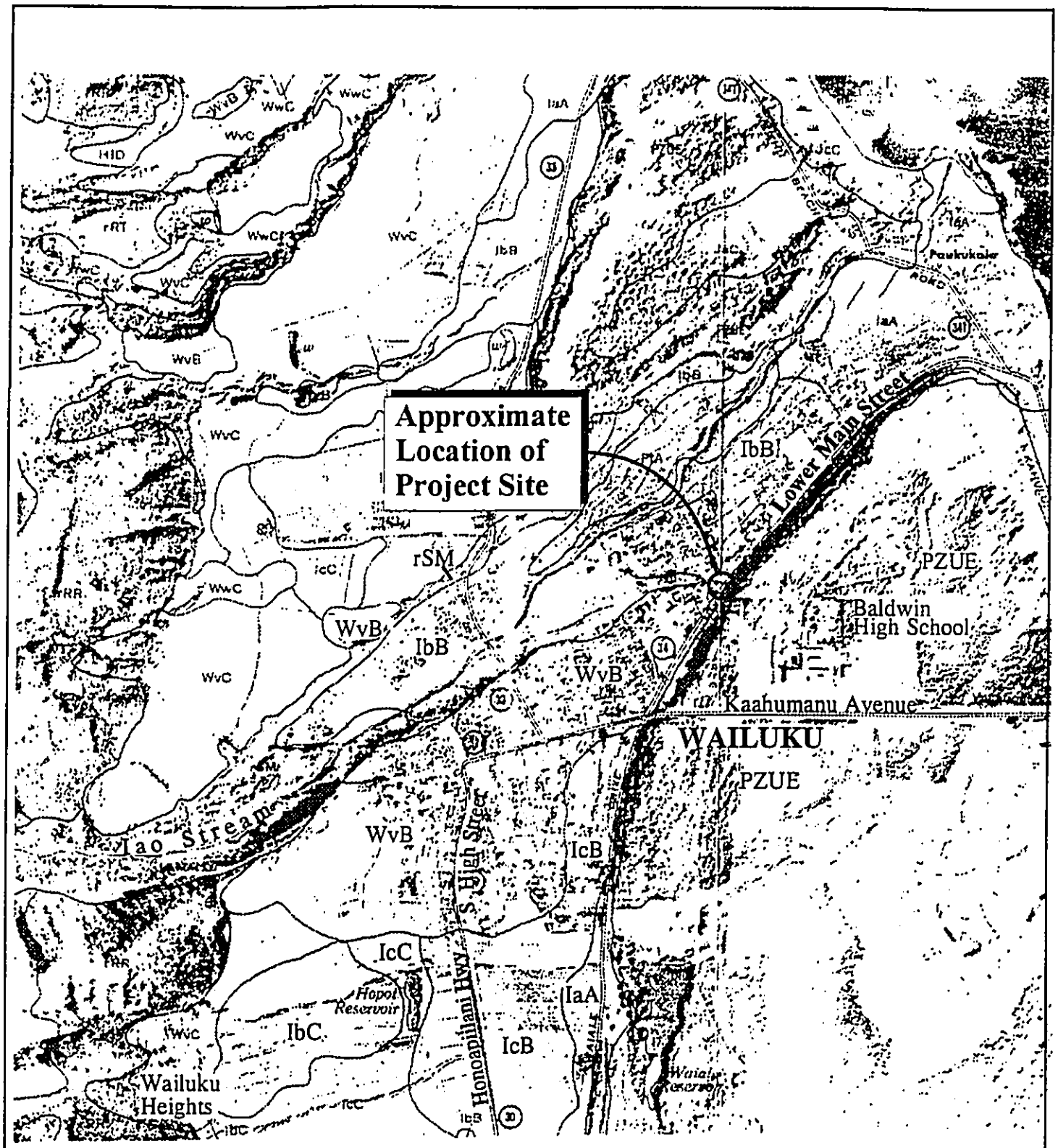

Figure 5 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

Soil Classification Map

Prepared for: County of Maui, Department of Public Works and Waste Management

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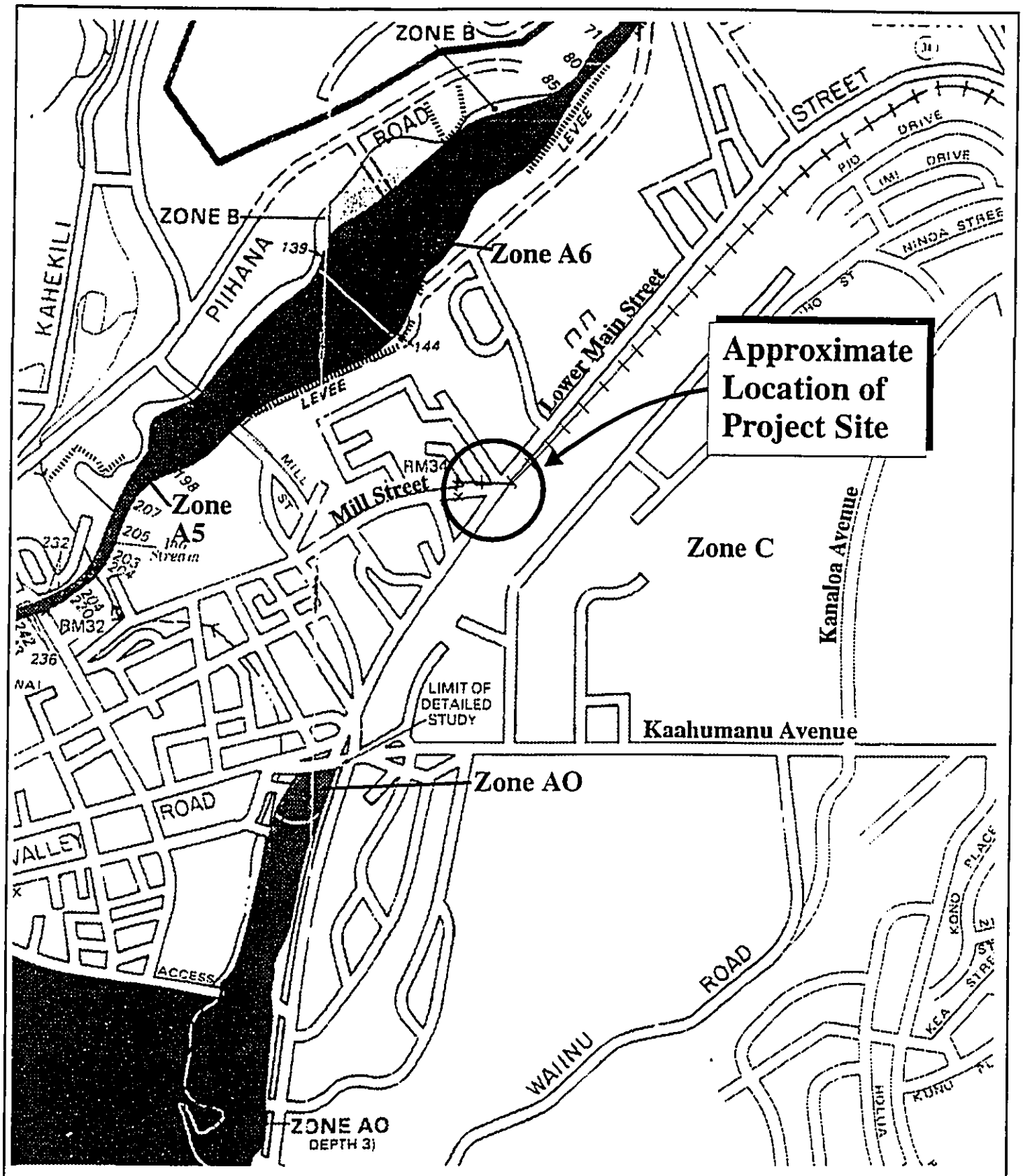

Figure 6 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

Flood Insurance Rate Map

Prepared for: County of Maui, Department of Public Works and Waste Management

0 500 1000 2000 Feet

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5. ***Flora and Fauna***

The project site is located in the midst of the urbanized district of Wailuku. Most of the project area is already being used for roadway purposes. Approximately ten (10) to seventeen (17) feet of the existing electric substation property (TMK 3-4-39:51) is proposed to be part of the project site. The length of the affected street frontage is approximately 232 feet. Most of the area is already paved, with the remainder currently grassed and landscaped with exotic vegetation. On the adjacent parcel (TMK 3-4-39:82), the project requires from approximately ten (10) to twenty (20) feet of frontage. The length of the affected street frontage is approximately 330 feet. The site is covered with kiawe and buffel grass vegetation. On the west side of the Lower Main Street-Mill Street intersection, there is an existing mature false kamani tree which provides shade for the adjacent parcel. There are no known rare, endangered or threatened species of plants within or surrounding the project site.

Fauna and avifauna found at the site are also characteristic of the surrounding urbanized region. Fauna typically found in the vicinity of the site include mongoose, rats, dogs, and cats. Avifauna typically include mynas, doves, cardinals, and house sparrows. There are no known rare, endangered or threatened species of fauna or avifauna found within the vicinity of the project site.

6. ***Air Quality***

Air quality in the Wailuku-Kahului region is considered good as point sources (e.g. Maui Electric Power Plant, HC&S Mill) and non-point sources (e.g. automobile emissions) of emission are not significant to generate high concentration of pollutants. The

relatively high quality of air can also be attributed to the region's constant exposure to winds which quickly disperse concentrations of emissions.

7. ***Noise Characteristics***

Traffic noise and activities of the surrounding urban area are the primary sources of background noise in the vicinity of the project site.

8. ***Visual Resources***

The property is currently utilized as an existing urban roadway. The existing roadway and the additional area needed for the widening are not part of any scenic corridor.

9. ***Archaeological/Historical Resources***

An archaeological inventory survey was done for the Wailuku Property Partners lot (TMK 3-4-39:82) in 1992. No cultural materials were found on that property. The survey noted that there had been extensive disturbance which included previous cutting and leveling of the sand dune and construction of a railroad track for the old Kahului Railroad.

Early consultation with the State Historic Preservation Division (SHPD) was conducted as part of this project. The SHPD noted that the project area is located along the western perimeter of Wailuku Pu'uone, and along the southern perimeter of Iao Valley, where irrigated taro lo'i were once highly concentrated. Recent construction activities by the County of Maui and private developers along the south side of Lower Main Street have indicated subsurface habitation deposits and features. The SHPD notes that

burials are often present in areas where undisturbed dune remnants are present.

Since the previous archaeological work did not include subsurface testing and nearby construction projects have uncovered subsurface deposits and features, an archaeological inventory survey with subsurface testing was recommended.

An archaeological inventory survey done by Xamanek Researches in July 1995 consisted of two (2) parts. See Appendix "A". A pedestrian surface survey covering the entire project site was first visually inspected for evidence of material culture remains. There was no surface evidence of intact architectural features other than the old railroad bed. However, portions of the study area contained disturbed material culture remains.

The second portion of the inventory survey consisted of subsurface testing primarily on lands designated as TMK 3-4-29:82. This area was chosen because surface evidence of disturbed culture remains was present and the area was accessible by backhoe.

Subsurface testing consisted of 5 auger tests, 1 manually excavated test unit and 7 backhoe trenches. Material culture remains were found along the northeastern extent of the project area. Two backhoe trenches yielded a partially intact cultural stratum approximately 10 to 20 centimeters thick (Site 50-50-04-4127). An unfinished bone fishhook and marine food midden were observed, along with a possible post hole and a pit feature. Stratigraphy observed in all of the backhoe trenches indicates that this area has been heavily disturbed in the past. Up to seven (7)

fill layers were present in test instances. In general, fill materials consisted of imported reddish brown sandy clays, clays and fill debris.

Subsurface investigation at the sampled portion of the study area indicates that much of the project area has been impacted by historic activities associated with the former Kahului Railroad and nearby Lower Main Street.

The other portion of the project site which is the site of the Maui Electric Company substation (TMK 3-4-39:51) was not tested. Portions of this parcel have been already altered as evidenced by landscaping and irrigation systems. Moreover, subsurface testing by backhoe adjacent to the boundary revealed fill materials to sterile, dark reddish brown clay subsoil.

Based on the inventory level findings, Site 50-50-04-4127 is considered significant under the Code of Federal Regulations, Criterion D, "likely to yield information important to prehistory or history". Data recovery work is recommended in the vicinity of Backhoe Trenches 1, 2, and 3 near the northeast extent of TMK 3-4-29:82. In addition, archaeological monitoring is recommended for the corridor during earth moving activities associated with the project.

Xamanek Researches completed a data recovery plan for the site in August 1995. The plan was approved by the State Historic Preservation Office in September 1995. See Appendix "B". Pursuant to the approved data recovery plan, data recovery fieldwork at Site 4127 was completed in March 1996. Fieldwork

findings indicate two (2) cultural components present at the site. See Appendix "C".

There were food midden remains recovered from the site, including shellfish, echinoderms, crustacea, and fish and pig bones. Additional cultural materials included artifacts, such as bone fish hook fragments and tabs, worked pieces of bone and shell, lithic flakes and tools, coral abraders and files, utilized volcanic glass flakes, and a few pieces of reddish brown jasper. Laboratory analysis of cultural materials recovered from sampled areas is currently underway.

In addition to the above material culture remains, over 20 features comprised of pits and what appear to be post holes were encountered. The pits ranged from oval to circular in shape from approximately 30 centimeters to a meter in diameter. However, no evidence of a habitation floor was encountered in the subsurface testing.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

The population of the County of Maui has exhibited relatively strong growth over the past decade with the 1990 population estimated to be 100,374, a 41.7% increase over the 1980 population of 70,847. Growth in the County is expected to continue, with resident population projections to the years 2000 and 2010, estimated to be 123,900 and 145,200, respectively (DBED,1990).

The Wailuku-Kahului Community Plan region follows the Countywide pattern of population growth, with the region's 1990

population of 32,816 projected to rise to 40,119 by the year 2000 and to 47,597 by the year 2010 (Community Resources, Inc., 1992).

2. *Economy*

As noted previously, the Wailuku region is the Island's center of governmental activities, as well as a focal point for professional and business services. Combined with neighboring Kahului, the region's economic character encompasses a broad range of commercial, service, and governmental activities. In addition, the region is surrounded by significant agricultural acreages which include sugar cane fields, pineapple fields, and macadamia nut orchards. The vast expanse of agricultural land, managed by Hawaiian Commercial & Sugar (HC&S) and Wailuku Agribusiness, is considered a key component of the local economy.

C. *PUBLIC SERVICES*

1. *Police and Fire Protection*

Police protection for the Wailuku-Kahului region is provided by the County Police Department headquartered at the Wailuku Station, approximately 1.5 miles from the project site. The region is served by the Department's Central Maui patrol.

Fire prevention, suppression, and protection services for the Wailuku-Kahului region is provided by the County Department of Fire Control's Wailuku Station, located in Wailuku Town, approximately 0.5 mile from the project site.

2. ***Health Care***

Maui Memorial Hospital, the only major medical facility on the Island, services the Wailuku-Kahului region. Acute, general and emergency care services are provided by the 145-bed facility. In addition, numerous privately operated medical/dental clinics and offices are located in the area to serve the region's residents.

3. ***Solid Waste***

Single-family residential solid waste collection service is provided by the County of Maui on a once-a-week basis. Residential solid waste collected by County crews are disposed at the County's 55-acre Central Maui Landfill, located four (4) miles southeast of the Kahului Airport. In addition to County-collected refuse, the Central Maui Landfill accepts commercial waste from private collection companies.

4. ***Recreation Resources***

The Wailuku-Kahului region encompasses a full range of recreational opportunities, including shoreline and boating activities at the Kahului Harbor and adjoining beach parks, and individual and organized athletic activities offered at numerous County parks. The project site is in close proximity to Iao Valley State Park, the Wailuku Community Center, Wells Park, and Papohaku Park.

5. ***Schools***

The Wailuku-Kahului region is served by the State Department of Education's public school system as well as several privately operated schools accommodating elementary, intermediate and high school students. Department of Education facilities in the Wailuku-Kahului area include Lihikai and Kahului Schools (Grades

K to 5), Maui Waena Intermediate School (Grades 6 to 8), and Maui High School (Grades 9 to 12). Schools in the Wailuku area include Wailuku Elementary School (Grades K to 5), Iao Intermediate School (Grades 6 to 8), and Baldwin High School (Grades 9 to 12). The Maui Community College, a branch of the University of Hawaii, serves as the Island's only Community College.

D. INFRASTRUCTURE

1. Wastewater

Domestic wastewater generated in the Wailuku-Kahului region is conveyed to the County's Wailuku-Kahului Wastewater Reclamation Facility located one-half mile south of Kahului Harbor. The design capacity of the facility is 7.9 million gallons per day. The cumulative wastewater flow which has been allocated is approximately 6.2 million gallons per day.

There are 10-inch sewer lines along Mill Street and the segment of Lower Main Street abutting the existing electric substation. The two (2) lines then connect with a 12-inch sewer line at the intersection. The 12-inch line then proceeds in a northeasterly direction within the Lower Main Street right-of-way.

2. Water

The Wailuku-Kahului region is served by the Board of Water Supply's (BWS) domestic water system. Water drawn from the Iao Aquifer System is conveyed to this region for distribution and consumption.

Along Mill Street, there is an existing 4-inch waterline. Along Lower Main Street, an existing 6-inch waterline provides service to consumers.

3. ***Drainage***

Runoff from the subject segments of Mill Street and Lower Main Street flow into an existing drain inlet across Puaala Place. From there, water flows into a ditch which extends across Wailuku Industrial Park Phase II and flows into Iao Stream.

4. ***Electrical and Telephone Service***

Electrical and telephone service is currently provided to the adjacent properties via overhead power lines which are located along Mill and Lower Main Streets.

Chapter IV

Potential Impacts and Mitigation Measures

IV. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The project site is located within the urbanized district of Wailuku. As previously noted, the Wailuku region is the governmental and business center of Maui containing a diverse range of commercial, light industrial and public uses, as well as an older established residential area in the midst of the town. Land uses surrounding the project site are characteristic of the region. The proposed project will be complementary to surrounding land uses.

2. Flora and Fauna

There are no known significant habitats or rare, endangered or threatened species of flora and fauna at the subject property. The existing false kamani tree on the west side of the Lower Main Street-Mill Street intersection will not be affected by the project. The removal of existing flora and the displacement of fauna from the proposed road widening lots on the east side of Lower Main Street are not considered a negative impact upon these environmental features.

3. Air Quality and Noise

Air quality impacts attributed to the project will include dust generated by short-term construction-related activities. Site work such as clearing and grubbing within the area of the road widening strip, for example, will generate air-borne particulates. Dust control measures, such as regular watering and sprinkling, will be implemented, as necessary, to minimize wind-blown emissions.

Once the project is completed, vehicular traffic utilizing the roadway will generate automotive emissions. However, vehicular emissions are not expected to adversely impact local and regional ambient air quality conditions.

Ambient noise conditions will also be temporarily impacted by construction activities. Construction equipment would be the dominant source of noise during the construction period. All construction activities will be limited to normal daylight working hours.

4. ***Archaeological Resources***

An archaeological inventory survey with subsurface testing was conducted for the subject project. A cultural layer (Site 50-50-04-4127) was found near the northeastern extent of the project corridor on TMK 3-4-39:82. Although nearby areas contained subsurface habitation deposits and features, areas along Lower Main Street have also been heavily disturbed by historic activities associated with the former Kahului Railroad and construction along and within the street.

Data recovery fieldwork on Site 4127 has been completed. Subsurface investigation at the site indicates that the cultural layers are not uniform in a spatial context. Rather, the cultural deposits appear to be very thin and apparently discontinuous. Moreover, there was no evidence of occupation floors during subsurface testing. The evidence from the fieldwork indicates that the site was most likely used for temporary, short-term habitation.

While Site 4127 is still considered significant under Criterion D of Federal and State historic preservation guidelines, it is no longer considered significant for its information content.

During construction within TMK 3-4-39:51 and 82, archaeological monitoring will be conducted.

Should any human remains be found during archaeological monitoring, excavation will be halted and applicable procedures relating to the discovery of burials will be followed in consultation with the State Historic Preservation Office.

B. *IMPACTS TO SOCIO-ECONOMIC ENVIRONMENT*

1. *Local Economy and Population*

On a short-term basis, the project will support construction and construction-related employment. Accordingly, the project will have a beneficial impact on the local economy during the period of construction.

The traffic signal and intersection improvements address safety considerations as well as additional laneage to accommodate traffic at this busy intersection. The proposed project is not anticipated to have an adverse impact upon the local economy or population.

2. *Police, Fire and Medical Service*

Medical, police, and fire protection services are not expected to be adversely impacted by the proposed project. The project will not extend existing service area limits for emergency services.

3. *Solid Waste*

A solid waste management plan will be developed in coordination with the Solid Waste Division of the County Department of Public Works and Waste Management for the disposal of clearing and grubbing material from the site during construction.

C. *INFRASTRUCTURE*

1. *Roadways*

During the period of construction, employee parking is proposed to be accommodated on Lower Main Street adjacent to the electric substation. There is a paved shoulder parking area located across from Hale Makua which is relatively underutilized.

In order to minimize construction impacts, no work will occur during peak traffic hours, between 6:30 a.m. to 8:30 a.m. and between 3:30 p.m. to 6:00 p.m., on weekdays. No night construction activities are planned. Access to businesses in the vicinity of the project will be maintained and one lane of traffic will be open at all times during construction. Public notices of construction activities will be required to be placed in a newspaper of general circulation to provide notice to neighboring businesses and residents.

In the long-term, the proposed improvements should conform to area-wide roadway and traffic improvements either in the planning or implementation stage. It is noted that the project already can accommodate four-lane improvements which are in the process of being implemented in other segments of Lower Main Street.

Existing driveways located along the project limits are being maintained. Also, the proposed laneage and striping will be

coordinated with these driveways, for safe ingress/egress. In the case of the Wailuku Property Partners' property (TMK 3-4-39:82), commercial uses and a gas station/convenience store are proposed for the site. A change in zoning from R-3, Residential District to B-2, Community Business District, for the site was conditionally approved by the County of Maui on March 10, 1993 (Ord. No. 2212). The road widening lot fronting the property will be dedicated to the County of Maui. Wailuku Property Partners also paid for the cost of the design of the Lower Main Street/Mill Street traffic signal and intersection improvements as its pro rata share of the project cost. Driveway locations on the Wailuku Property Partners parcel have also been coordinated with the County of Maui.

2. ***Wastewater***

There will be no net increase in the average daily flow of wastewater to the Kahului Wastewater Treatment Facility as a result of the proposed project. As such, the project is not anticipated to have an adverse impact upon the region's wastewater system.

3. ***Water***

As a result of the project, there will be no net increase in water usage to the County water system serving the area. The project's impact upon the water system is expected to be negligible.

4. ***Drainage and Erosion Control***

Runoff generated by the project will follow existing drainage patterns. Since the increase in impermeable surface is relatively small, the proposed improvements are not anticipated to have an

adverse drainage impact upon existing drainage systems. No significant adverse drainage impacts to downstream properties should result from the proposed project.

Appropriate erosion control measures will be incorporated during the construction phase to minimize soil loss associated with construction activities.

Chapter V

Relationship to Governmental Plans, Policies, and Controls

V. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes the four (4) major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The subject parcel is within the "Urban" district. See Figure 7. The proposed action involves the continuation and expansion of roadway use which is compatible with the "Urban" designation.

B. MAUI COUNTY GENERAL PLAN

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter, "The purpose of the General Plan is to recognize and state the major problems and opportunities concerning the needs and the development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns and characteristics of future development".

The proposed action is in keeping with the following General Plan objective and policy:

Objective: To develop a program for anticipating and enlarging the local street and highways systems in a timely response to planned growth.

Policy: Ensure that transportation facilities are anticipated and programmed for construction in order to support planned growth.

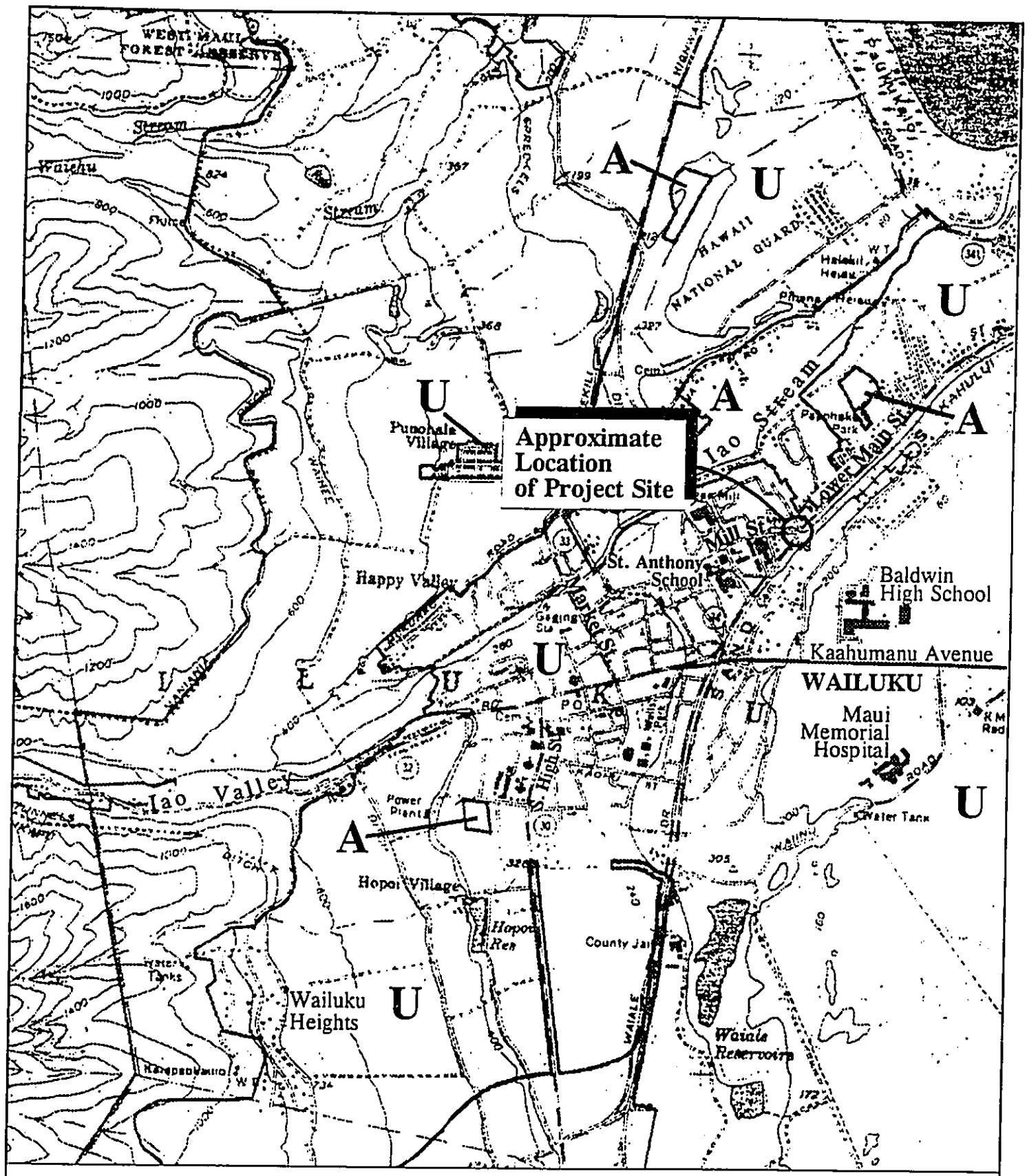


Figure 7 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

State Land Use District Classifications

Prepared for: County of Maui, Department of Public Works and Waste Management

1000 0 2000 4000 Feet

MUNEKIYO & ARAKAWA, INC.

C. *WAILUKU-KAHULUI COMMUNITY PLAN*

The project site is located in the Wailuku-Kahului Community Plan region which is one of nine Community Plan regions established in the County of Maui. Planning for each region is guided by the respective Community Plans, which are designed to implement the Maui County General Plan. Each Community Plan contains recommendations and standards which guide the sequencing, patterns and characteristics of future development in the region.

The project site is adjacent to properties designated as Business Industrial (BI), Business (B), and Public (P). See Figure 8. The proposed project is not inconsistent with the Community Plan.

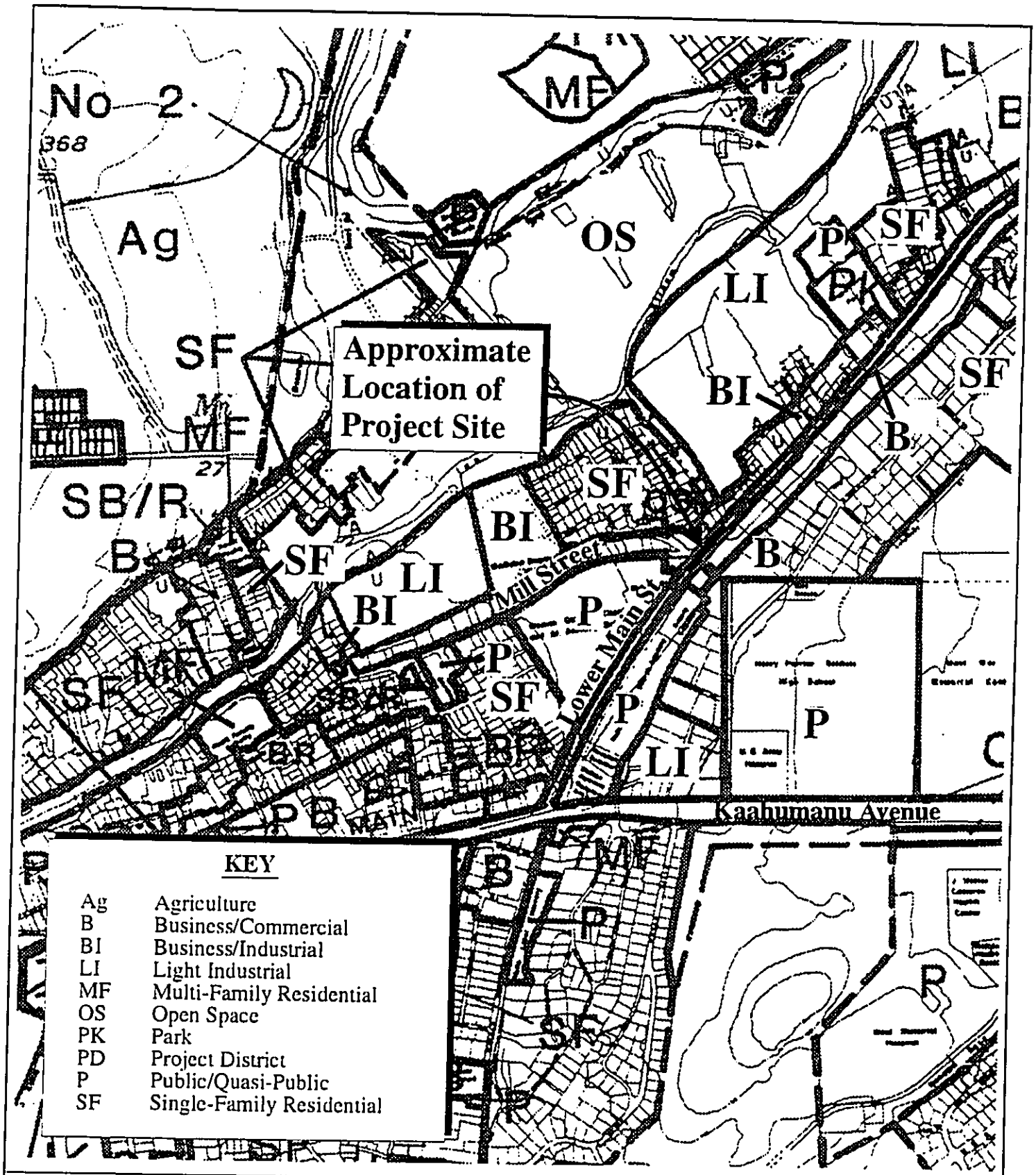


Figure 8 Lower Main St. Traffic Signal and Intersection Improvements at Mill St.

Wailuku-Kahului Community Plan

Prepared for: County of Maui, Department of Public Works and Waste Management

MUNEKIYO & ARAKAWA, INC.

Chapter VI

Findings and Conclusion

VI. FINDINGS AND CONCLUSION

The proposed project will involve earthwork and construction activities. In the short-term, these activities may create temporary nuisances normally associated with construction activities. However, dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. All construction activities are anticipated to be limited to normal daylight working hours. At least one (1) lane of traffic is anticipated to be open at all times. Impacts generated from construction activities are not considered adverse.

From a long-term perspective, the proposed project is not anticipated to result in adverse environmental impacts. There are no known significant habitats or rare, endangered or threatened species of flora or fauna located on the project site. With regard to archaeology, data recovery has been completed and the site is no longer significant for its information content. Archaeological monitoring will also be conducted during the construction phase of the project. Should any human remains be found, applicable procedures regarding discovery will be followed.

The proposed project conforms with area-wide roadway and traffic improvements either underway or in the planning stages. Appropriate erosion control measures are being incorporated during the construction phase to minimize soil loss associated with construction activities. With regard to other infrastructural systems and public services, the proposed project should have no adverse environmental impact.

In light of the foregoing findings, it is concluded that the proposed action will not result in any adverse environmental impacts.

Chapter VII

Agencies Contacted in the Preparation of the Environmental Assessment and Responses Received

VII. AGENCIES CONTACTED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT AND RESPONSES RECEIVED

The following agencies were contacted during the preparation of the Environmental Assessment:[a]

1. Robert Siarot, Maui District Engineer
   Department of Transportation
   650 Palapala Drive
   Kahului, Hawaii 96732

2. Ms. Theresa Donham
   Department of Land and Natural Resources
   State Historic Preservation District
   1325 Lower Main Street, #108
   Wailuku, Hawaii 96793

3. Brian Miskae, Director
   Planning Department
   250 South High Street
   Wailuku, Hawaii 96793

4. Wailuku Main Street Association
   2062 Main Street
   Wailuku, Hawaii 96793

[a] Substantive comments raised by agencies are addressed in the body of the EA document.

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

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

RECEIVED
COUNTY OF MAUI
'95 DEC 14 P3:01
ENGINEERING
DEPT. OF PUBLIC WORKS

IN REPLY REFER TO:

HWY-DS
2.8397

December 8, 1995

Mr. Charles Jencks, Director
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Attention: Ms. Charlene Shibuya

Dear Mr. Jencks:

Subject: Lower Main Street - Traffic Signal and Intersection Improvements at Mill Street
FAP No. STP-3830(4)

We have been informed by the Federal Highway Administration (FHWA) that an Environmental Assessment (EA) for their approval is not necessary. Under federal environmental documentation guidelines, this project qualifies for a categorial exclusion, which was granted earlier by FHWA.

Therefore, the EA should be processed only to comply with State requirements.

Should you have any question, please call Mr. Kenneth Umemoto at 587-2121.

Very truly yours,

for HUGH Y. ONO
Administrator
Highways Division

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

MAR 1 3 1995

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT COLOMA-AGARAN

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

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

March 8, 195

Milton Arakawa
Munekiyo & Arakawa, Inc.
1823 Wells Street, Suite 3
Wailuku, Hawaii 96793

LOG NO: 14075 ✓
DOC NO: 9503KD04

Dear Mr. Arakawa:

SUBJECT: **National Historic Preservation Act, Section 106 Review - Lower Main Street Traffic Signal and Intersection Improvements at Mill Street Wailuku**
Wailuku, Wailuku Distrcit, Maui TMK: 3-4-39

Thank you for the opportunity to provide early comments on the proposed Lower Main Street improvement project, prior to the completion of the Environmental Assessment for this project. The proposed improvements are located along both sides of the existing Lower Main and Mill Streets in the vicinity of the present intersection. The road is to be widened and new sidewalks, curbs, wheelchair ramps and a traffic signal are to be installed. A concrete swale is proposed for the southeast side of Lower Main Street at the intersection.

The project area is located along the western perimeter of the Wailuku Pu'uone, and along the southern perimeter of Iao Valley, where irrigated taro *lo'i* were once highly concentrated. At least 66 Land Commission Awards to Native Hawaiians were present in the area between Lower Main Street and Iao Stream, from Mill Street to Waiehu Beach Road. The Wailuku Pu'uone was a central feature of the royal center of Wailuku, and contained *heiau* sites, habitation sites, and numerous burials. Use of the Pu'uone area for burial has continued through the nineteenth and twentieth centuries.

Previous archaeological/historical work conducted in the immediate project vicinity includes a surface inventory survey of TMK 3-4-39: 82, located along the southeast side of Lower Main Street, across

from the existing intersection with Mill Street (*Letter Report on an Inventory Survey, TMK 3-4-39: 82, Lower Main and Mill Street, Wailuku*, Walter and Demaris Fredericksen 1992).

During the surface survey, a feature containing a concentration of water-worn basalt boulders and cobbles and coral was identified along Lower Main Street. The age and function of the feature could not be ascertained, however, it was hypothesized that it may be associated with the former Kahului Railroad bed. Oral tradition information provided by Mr. Charles Keau indicated that a *heiau* site was once located near the proposed project site, possibly to the south of the existing power substation. The report also states that the stones observed on Parcel 82 could have been obtained from the former *heiau* structure. No subsurface testing was conducted at the feature during the inventory survey; however, subsurface testing of the property was recommended by Mr. Keau.

Recent construction activities by the County of Maui and private developers along the south side of Lower Main Street have indicated that subsurface habitation deposits and features and often burials are present in areas where undisturbed dune remnants are present. We therefore believe that historic sites are very likely to occur in undisturbed portions of the Wailuku Puuone that extend into the County of Maui right-of-way at Mill Street. We also believe that buried deposits and features could occur beneath Lower Main Street in this area.

We cannot determine the impacts of this project on significant historic sites, given the information available for the project area. Because the previous work in the area did not include subsurface testing, we are not certain whether all historic sites in the area have been identified. Based on a field inspection of the area, it appears that portions of the boulder feature and the sand dune remnant are within the road widening right-of-way.

We recommend that as part of the Environmental Assessment (EA) study for this project a subsurface archaeological inventory survey be conducted of the dune areas which extend into the County of Maui right-of-way along the southeast side of Lower Main Street. A draft report of the survey findings should be attached to the EA document. The draft report will be reviewed by our office along with the EA document, or prior to EA submittal, depending upon scheduling constraints.

We will provide further review comments for this project, pending completion of the inventory survey, and acceptance of the final report of findings.

If you have any questions, please contact Ms. Theresa K. Donham at 243-5169.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

KD:jen

LINDA CROCKETT LINGLE
Mayor

BRIAN W. MISKAE
Director

GWEN Y. OHASHI
Deputy Director

COUNTY OF MAUI
PLANNING DEPARTMENT
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 1, 1995

Mr. Milton Arakawa
1823 Wells Street, Suite 3
Wailuku, Maui, Hawaii 96793

Dear Mr. Arakawa:

RE: Lower Main Street Traffic Signals and Intersection Improvements at Mill Street

The Planning Department has reviewed the proposed plans and description for the above project. We are concerned about how the intersection improvements will tie in with the four (4) lane roadway planned for Lower Main Street. Is the proposed project an interim measure which must be upgraded to accommodate four (4) lanes in the future? If so, it is recommended that the proposed improvements reflect the needed right-of-way width for a four (4) lane roadway.

In addition, a change in zoning was granted for TMK: 3-4-039:082 which is across the street from the proposed improvements. We are enclosing the conditions of approval of the change in zoning as well as the site plan which was proposed at the zoning level. Proposed project plans contain two (2) driveways into the property from Lower Main Street. The proposed driveway entrances appear to affect the intersection improvements at Mill and Lower Main Streets. There are specific conditions attached to the zoning which directly affect Driveways "A" and "B".

Another condition of the zoning approval is that the declarant shall design the traffic signals at the intersection of Mill Street and Lower Main Street, and the cost of such design shall be credited toward Declarant's pro-rata share for the installation of traffic signals at the Mill and Lower Main Streets' intersection.

The status of the above project should be pursued in order to obtain all variables which may affect the County's project.

Thank you for the opportunity to comment. If further clarification is required, please contact Ms. Ann Cua of this office.

Yours truly,

BRIAN MISKAE
Planning Director

BM:AC:sc
Enclosure
cc:Colleen Suyama
Ann Cua
Project file

f:lowermai.ltr

EXHIBIT "2"

CONDITIONS

Pursuant to Section 19.510.050 of the Maui County Code, the zoning established for the parcels of land shall be subject to the following conditions:

1. That no structures or buildings on the property shall exceed elevation 213 feet, the lowest height of the rim of the dunes adjacent to the property.

2. That a road widening lot shall be provided for the adjoining half of Lower Main Street to provide a future minimum 60-foot right-of-way and improved to county standards, to include but not be limited to pavement widening, construction of curb, gutter and sidewalk, and relocation of utilities underground. Said lot shall be dedicated to the County upon completion of the improvements.

3. That a crosswalk warning signal be installed prior to the issuance of the occupancy permit unless traffic signals have already been installed at the Mill Street/Lower Main Street intersection.

4. That a qualified archaeologist shall monitor all ground disturbing activities. A monitoring plan shall be submitted to the State Historic Preservation Division for approval prior to implementation.

5. That based on the proposed site plan showing Driveway A across the Mill Street intersection, the project's driveway geometrics shall include the following:

Driveway "A"	--	Restricted right turn in and right turn out.
Driveways "A" and "B"	--	Auxillary lane or lanes designed in accordance with County standards and the ITE Manual of Traffic Signal Design.

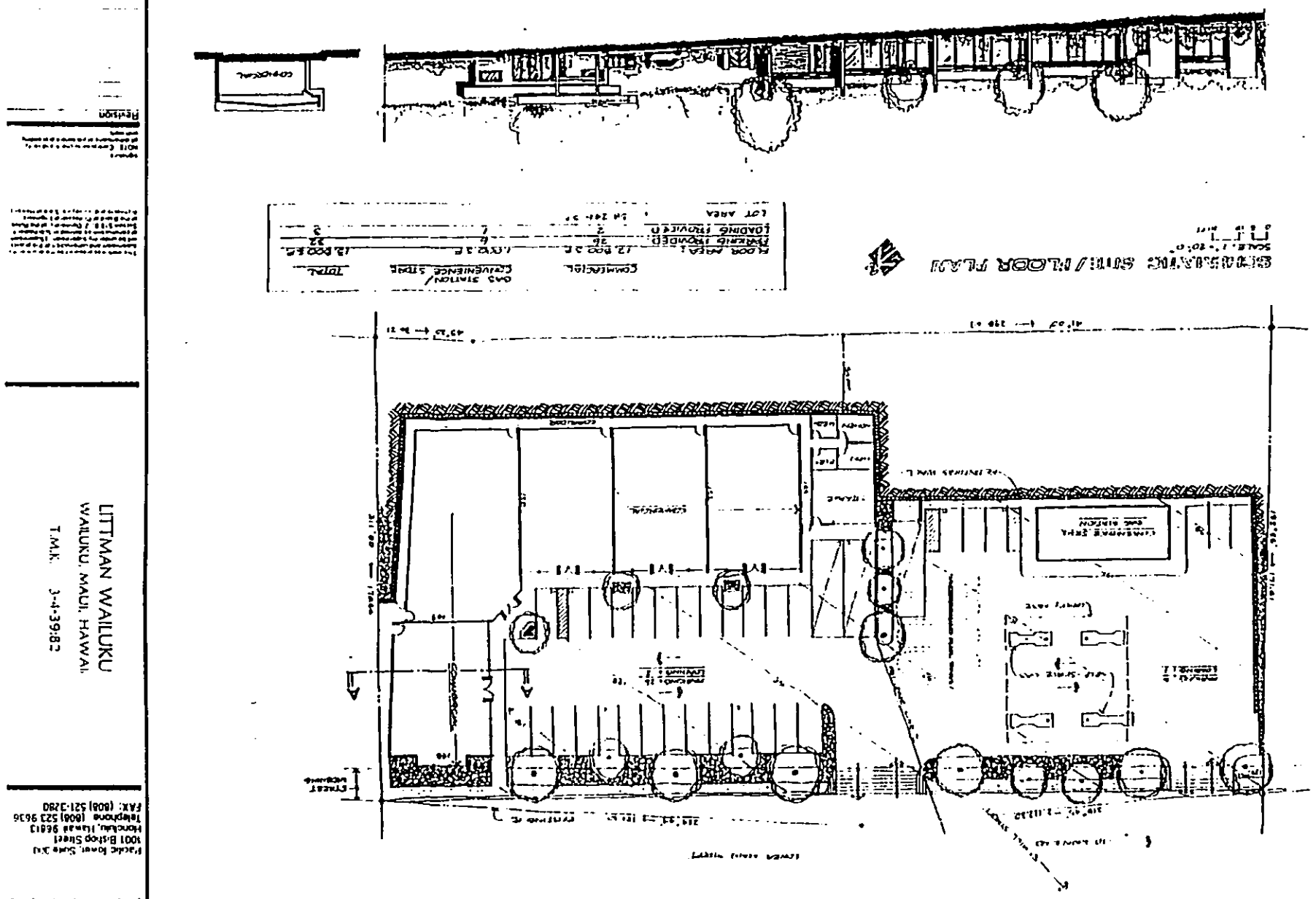
6. That the Declarant shall design the traffic signals at the intersection of Mill Street and Lower Main Street, and the cost of such design shall be credited toward Declarant's pro-rata share for the installation of traffic signals at the Mill and Lower Main Streets intersection.

7. That low flow devices and plants suitable for xeriscaping in any landscaping be used.

8. That no category #3 and #4 liquor licenses shall be located on the premises unless situated in a sound proof area.

9. That the retaining wall at the rear boundary of the property be designed and constructed to prevent loss of land of the adjacent properties.

4767A/M



LITTMAN WAILUKU
WAILUKU, MAUI, HAWAII
T.M.K. 3-4-39:82

ARCHITECTS
HAWAII
LIMITED

Pacific Tower, Suite 310
1001 Bishop Street
Honolulu, Hawaii 96813
Telephone (808) 523-9636
FAX: (808) 521-3280

Revision

Designed by AM/CC
Drawn by CC
Project No 3714
Date May 2, 91
Drawing No

Sk-1
Sheets
of

MAR 1 7 1995

Wailuku Main Street Association, Inc.
Tri-Isle Main Street Resource Center
A Non-Profit Organization
2062 Main St., Wailuku, Maui, HI 96793 • Tel (808) 244-3888 • Fax (808) 242-2710

To: Munekiyo & Arakawa
1823 Wells Street, Suite 3
Wailuku, Hawaii 96793

From: Wailuku Main Street Association, Inc.

Date: March 14, 1995

RE: Lower Main Street Traffic Signals & Improvements at Mill Street

Attn: Milton Arakawa

The Wailuku Main Street Association's Structure & Design Committee reviewed the above project submittal, which seems appropriate and in the best interest of the traveling public. In order to maintain the environmental character, alleviate traffic congestion to up town Wailuku and cause minimum disruption to businesses in the area the committee submits the following recommendations.

1. That the "false kamani" tree located at the intersection of Mill and Lower Main Streets be preserved or relocated nearby.

2. That the road between Waiehu Beach Road and Eha Street be open & accessible as an alternate traffic route, prior to initiation of this project.

3. That construction of the project occur during low traffic volume times, and take into consideration the hours of operation for businesses in the affected area.

Thank you for the opportunity to review and provide comment.

Jocelyn A. Perreira
Executive Director

Tom Cannon
Chairman, Design Review Committee

References

References

Community Resources, Inc., Maui County Community Plan Update Program Socio-Economic Forecast Report, March 1992.

County of Maui, The General Plan of the County of Maui, 1990 Update.

County of Maui, Wailuku-Kahului Community Plan, 1987.

Parsons, Brinckerhoff, Quade & Douglas, Inc., Final County of Maui Urban Signal Priority Study, *prepared for County of Maui, Department of Public Works and Waste* Management, December 1994.

State of Hawaii, Department of Business and Economic Development, Data Book, 1990.

U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, 1972.

University of Hawaii, Department of Geography, Atlas of Hawaii, Second Edition, 1982.

Wilson Okamoto & Associates, Inc., Maui Community Plan Update Infrastructure Assessment, prepared for County of Maui Planning Department, September 1992.

Appendices

Appendix A

Archaeological Inventory Survey

REPORT ON SUBSURFACE INVENTORY SURVEY AT LOWER MAIN AND MILL STREET, WAILUKU *AHUPUA'A*, WAILUKU DISTRICT, ISLAND OF MAUI (TMK: 3-4-39: por. 81, 82, 83)

Prepared for:

County of Maui
Department of Public Works
Wailuku

Prepared by:

Xamanek Researches
P.O. Box 131
Pukalani, Hawaii 96788

Erik M. Fredericksen
Demaris L. Fredericksen
Walter M. Fredericksen

July, 1995

ABSTRACT

An inventory survey of a portion of 3 properties (TMK: 3-4-39: 81. 82. 83) was done in June, 1995. The area surveyed runs about 450 feet along Lower Main Street. and extends into the properties about 20 feet. The road widening and traffic light installation project at the intersection with Mill Street will impact only this narrow strip of land.

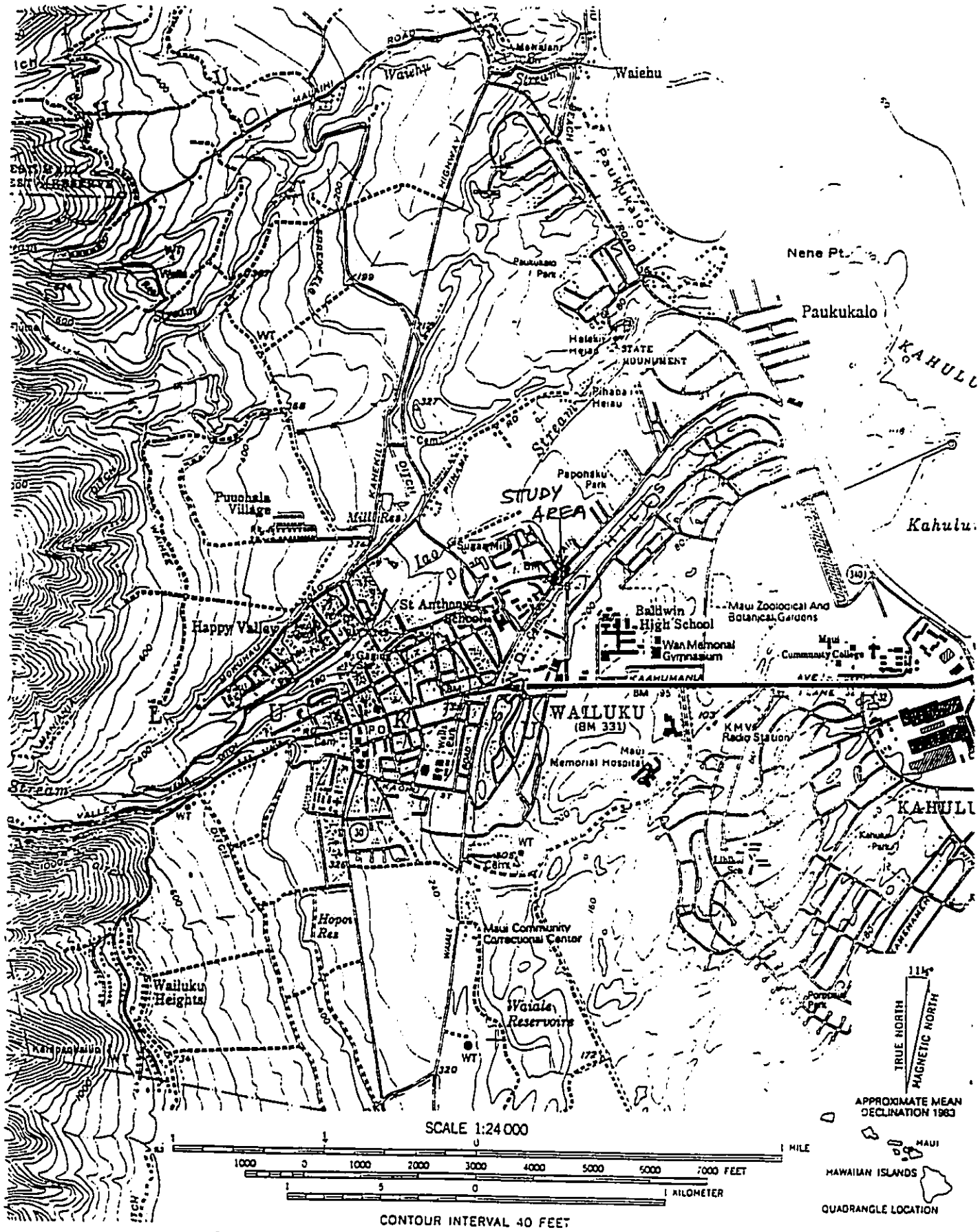
Subsurface testing was done primarily on parcel 82. A series of 7 backhoe trenches were dug. along with 5 auger tests and one manual test unit. Subsurface results indicate that the study area has been heavily impacted by earth moving activities in historic times. A minimum of 1.1 m. of fill was present in all backhoe trench tests. Backhoe Trench 1 contained nearly 3 m. of fill. The 2 most easterly subsurface tests located an *in situ* cultural deposit c. 0.3 to 0.4 m. below the level of Lower Main Street. In BT 1. an unfinished bone fishhook was recovered and marine food midden remains were noted in the profile. In BT 2. located c. 10 meters westward. the same stratum was identified. along with a pit feature which may contain a burial. The upper portion of the cultural layer in each instance appears to have been impacted by past earth moving activities.

Recent archaeological work on the southwestern side of Lower Main Street has found a number of habitation sites. many with associated burials.

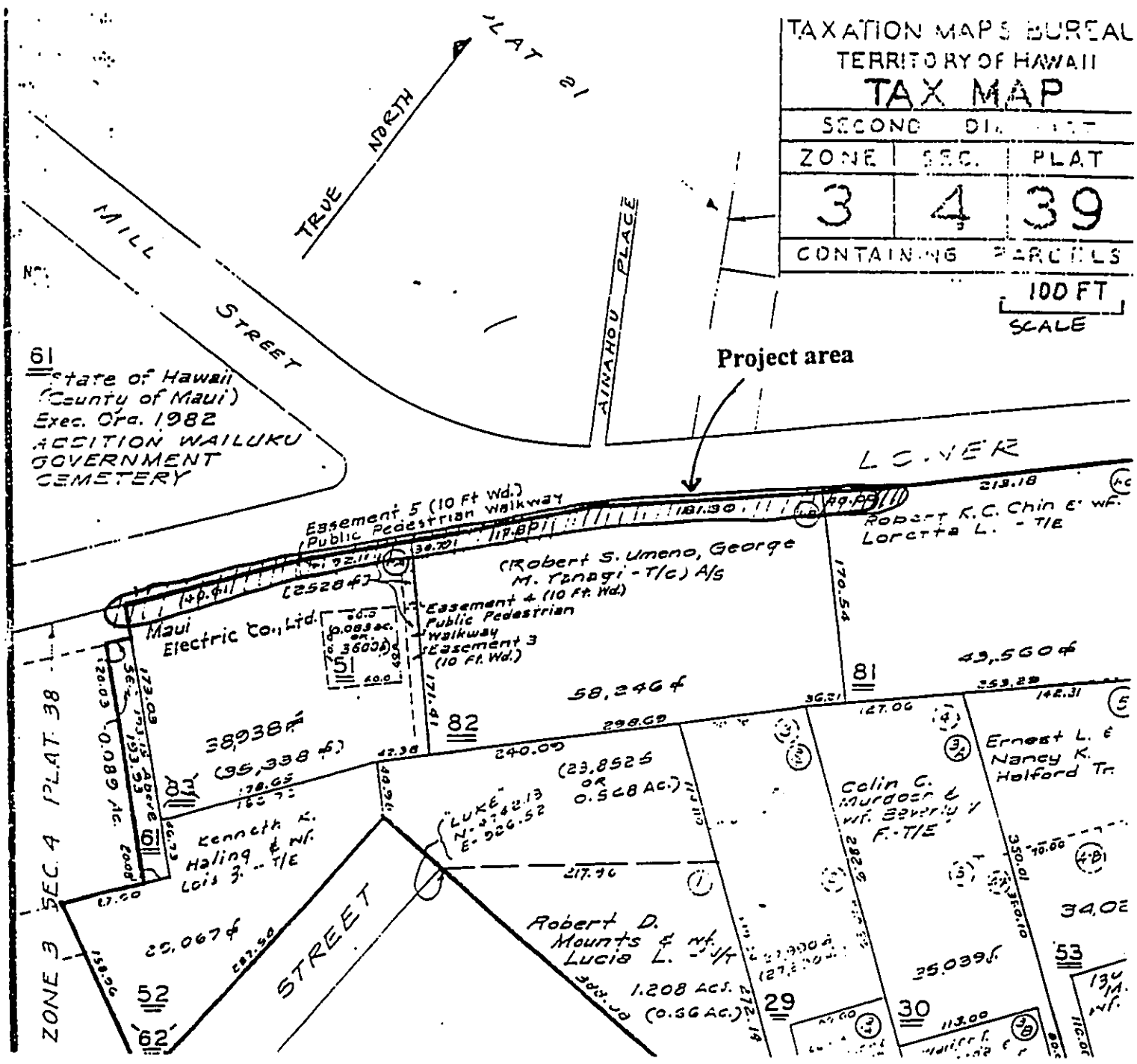
The cultural layer was assigned a site number. Site 50-50-04-4127. and deemed significant under Criterion D. important for information content. Data recovery is recommended prior to the beginning of the road widening and traffic light installation project activity.

TABLE OF CONTENTS

LIST OF MAPS, FIGURES AND PHOTOGRAPHS



Map 1 - Topographic Map, U.S.G.S. Wailuku Quadrangle, 1983.



Map 2 - Tax map, Zone 3, Section 4, Plat 39, State of Hawaii.

INTRODUCTION

Early in March of 1995, Xamanek Researches was contacted by Munekiyo & Arakawa, Inc., Wailuku, Hawaii 96793. They requested we prepare a proposal for an archaeological inventory survey for the County of Maui, Department of Public Works & Waste Management, Engineering Division. The Department of Land and Natural Resources, State Historic Preservation Division, had requested that an archaeological inventory survey be undertaken at the site for the county improvements project planned for Lower Main Street at its junction with Mill Street.

Subsequently, a March 21, 1995 letter from Lloyd P.C.W. Lee, Engineering Division Chief for the County of Maui, Department of Public Works and Waste Management, requested that an archaeological inventory survey proposal be prepared for them. Ms. Charlene Shibuya, Project Engineer for the county, was our contact person.

Discussion of the County of Maui proposed project for improvements and new traffic signals at the intersection of Lower Main and Mill Streets concluded the project would likely disturb possible subsurface archaeological materials at the site of the proposed improvements. We had surveyed TMK: 3-4-39: 82, a parcel located along the southeast side of Lower Main Street, and one of the parcels impacted by the present project, in 1992. At the time of our original survey, we were not required to do subsurface testing, and consequently we recommended it be done before any proposed future subsurface impact was to take place (Fredericksen and Fredericksen, 1992). Subsurface testing would therefore be required prior to the beginning of road excavation and related subsurface placement of pipes and electrical installations for servicing new traffic signals (Letter from Don Hibbard, SHPD Administer, March 8, 1995).

We prepared and submitted our proposal for the work on March 27, 1995. After subsequent discussions with the County, our proposal was accepted by a letter from Charles Jencks, Director of Public Works & Waste Management, dated May 15, 1995. We were authorized to undertake the survey work beginning June 1, 1995. Fieldwork was completed by June 28, 1995.

SURVEY AREA

The study parcel is located on the island of Maui. Hawaii. and is shown on the Wailuku Quadrangle. U.S.G.S. Topographic Map, 1983 (Map 1). It lies within the large *ahupua'a* of Wailuku. It is further identified as part of TMK: 3-4-39. with most of the proposed subsurface disturbed areas being shown on parcel 82 (Map 2). Portions of 81 and 83 will be impacted as well.

The survey area is c. 450 feet long by c. 15 feet wide. located along the south side of Lower Main Street. beginning at the existing Maui Electric facility at the junction of Lower Main and Mill Streets. and extending northeastward towards Kahului Harbor. (Map 3: Photos 1 and 2). Numbers of commercial buildings extend northward and eastward from the parcel boundary, while the Wailuku Government Cemetery (County Cemetery) borders to the south and west. The southern boundary of the parcel is presently undeveloped land with residential housing lying to the southeast of the undeveloped land atop Pu'uone Sand dune.

NATURAL HISTORY

The subject parcel lies c. 2 kilometers *mauka* (westward) of the Pacific Ocean and Kahului Harbor. It was geologically derived from the old Kula series of lava flows and is located in the interface of dominant *entisols*. volcanic ash/beach sand derived soils and the *oxisols*. exceptionally stable lowland soils (University of Hawaii. 1983, pp. 39-41). Foote (1972) describes the soil associations as Pulehu-Ewa-Jaucas. being deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse-textured subsoil or underlying material. occurring also on alluvial fans and in basins. The soils on portions of the survey area farthest inland fall into the category of Iao silty clay (IbB), which are present on 3 to 7 percent slopes (Ibid., p. 46). The dune area directly behind the study parcel is classified as Puuone Sand (PZUE) on 7 to 30 percent slopes, forming sand dunes near the ocean. The upper layers are grayish brown, calcareous sand. underlain by grayish-brown cemented sand which is moderately alkaline. Permeability is rapid above the cemented layer. and wind erosion is moderate to severe (Ibid.. p. 117).

The parcel is part of the extensive Pu'uone Sand Dune formation. made up primarily of aeolian sands. presently known as Sand Hills. The dune remnants have an elevation ranging from c. 30 feet AMSL nearest Kahului Harbor. and rising to nearly 200 feet AMSL in the area above the present study parcel. Most of the lower portions of the dune along Lower Main Street have been removed by previous construction and earth-moving activity. Lithification (cementing) processes have converted sand into soft

sandstone (or lithified sand) and strata of this material are commonly found throughout subsurface excavations in the area.

Flora vary throughout the area. but commonly observed species include Buffel grass (Cenchrus ciliaris), morning glory (Ipomoea indica), lantana (Lantana canara), castor bean (Ricinus communis), *kiawe* (Prosopis pallida), *koa haole* (Leucaena leucocephala) and occasional monkey pod trees. The section nearest the roadway on the subject parcel is dominated by *koa haole* and grasses. As on other parcels in the area. African land snail shells are commonly found.

The portion of parcel 82 which will be impacted by the present project is elevated above street level by 3 or 4 feet. and represents a part of the old Kahului Railroad Bed (Site 3112) which extended along Lower Main Street and up Mill Street to the old Wailuku Sugar Mill.[1] Much of this raised berm was expected to contain fill material associated with railway construction. but the presence of coral and waterworn boulders on the surface was noted.

BACKGROUND RESEARCH

Precontact Period

The *ahupua'a* of Wailuku is a large land unit stretching around Kahului Bay from Paukukalo to Kaukaulua. It includes Iao Valley and the northern half of the Kahului Isthmus. This single land division comprises nearly half of the District of Wailuku. The northern portion of the *ahupua'a* is noted as a place where chiefs were buried and wars were fought. The word *Wailuku* can be translated as "water of destruction" (Pukui. et. al.. 1974. p. 225). and the name refers to the battles which took place in the area.

The project site lies in an area along Lower Main Street. which is on the southeastern side of Iao Valley. This valley and the two associated dunes on the north and south side of the river. constituted the core area of Wailuku. and central place of religious and political power on Maui. culminating during the time of Pi'ilani (c. 1600 AD). During the late precontact period warfare increased as the chiefs from Maui. Oahu and Hawaii vied for political and military dominance. High Chief Pi'ilani unified the districts of Maui by warfare. but his sons fought with one another to establish their own political control. Eventually Kiha-a-Pi'ilani became victorious. and took political control of Maui (Speakman. 1978. pp. 9-13). Each succeeding generation of chiefs struggled through warfare to secure their political dominance.

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[1]There was also a train stop here. which allowed students from Paia and Kahului attending Baldwin High School to depart from the train. and go up a series of steps to the top of the dune. From there they accessed Baldwin High School Campus from its back side (Oral communication. Mr. Charles Keau. 1992). The wooden steps are partly intact and begin c. 15 m. southeast of Lower Main Street.

During the reign of the last powerful paramount chief or king, Kahekili (from 1765 to 1790), Wailuku again became the site of intense warfare. Kahekili's royal residence Kalanihale, was located in Wailuku, and in the mid-1770's it was marched upon by a Big Island chief, Kalani'opu'u and his *alapa* (the name given to his warriors). News of his coming preceded him, and Kahekili hid his warriors in the sand dunes above Haleki'i *heiau*, and surprised the invading troops. Kalani'opu'u's army was pushed to the sea and slaughtered (Speakman, pp. 16-17). By 1786 Kahekili controlled not only Maui, but Molokai, Lanai, and Oahu as well. This undisputed political control lasted only 4 years. Kamehameha the Great made his move on Kahekili's domain, the battle of Kepaniwai[2] ensued, and the Maui ruler was defeated. The term Kahului literally means "the winning", and the Bay takes this name because Kamehameha gathered his warriors there prior to fighting the battle in Iao Valley.

Early Post-Contact Period

The reign of Kamehameha was intertwined with the increasing presence of foreigners (*haoles*). The arrival of Captain Cook offshore at Kahului Bay in 1778 began the steady flow of outside influences which forever altered the indigenous population and environment. One of the first of these influences came with missionaries, whose charge it was to save heathen souls. The first missionaries arrived in Wailuku in 1832, and the old religion began to wane under their influence. A girls' seminary (Central Female Boarding School) was established by Rev. Jonathan Green in 1836, and taught young Hawaiian women the language and customs of the foreigners, as well as their religion (Fredericksen and Fredericksen, 1995, p. 3).

Another influence to bring change was foreign commercialism. The first sugar production in Wailuku *ahupua'a* was begun in 1828 when Kamehameha III established a water powered mill with the help of two Chinese technicians. .This was known as Hung tai Sugar Works, and its location was fairly close to the later location of the Wailuku Sugar Mill, which was established in 1862. Hung tai Sugar Works continued to operate until the opening of the new mill.

The population of the *ahupua'a* in 1831-32 was listed as 2,256, with most of it being in the northern portion, presumably in Iao Valley (Cordy, 1978, p. 59).

Post-1850s Period

After the Great Mahele in 1848, most of the *ahupua'a* of Wailuku was designated as Crown Land, to be used in support of the royal "state and dignity". The *ili* of Owa (comprised of 743.40 acres, LCA 420) was granted to Kuihelani, a steward to

[2]Kepaniwai means literally "water dam" in reference to Iao Stream, because the stream was choked with human bodies after the slaughter there (Pukui, et. al., 1972, p. 109).

Kamehameha I. The remainder of Crown Lands passed to Ruth Ke'elikolani, the sister of Kamehameha V, and to her half-sister Victoria Kamamalu (the *ili* of *Kolua*). The lands of Princess Ruth were traded to Claus Spreckels in order to settle his claim on one-half of the Crown Lands by King Kalakaua (Land Grant 3343) in 1878.

Environmental conditions in the lower Iao Valley in precontact times were ideal for agricultural support of a large population. These favorable conditions included a wide valley floor, rich alluvial soils, and a constant water supply from Iao Stream. These factors combined with the access to Kahului Harbor, rich in marine resources, made this the prime precontact location on West Maui for a political and religious center. The lower portion of Iao Valley contained some of the most productive taro land on the island, and the abundance of Land Commission Award's in the lower valley attest to this. There are 66 LCA's, primarily taro patch *kuleana*, and 39 *po'alima* between the old Wailuku Mill site and Paukukalo, on the southern side of Iao stream. In addition, 13 awards were made directly to individual chiefs by Kamehameha IV (Theresa Donham, Minutes of the County of Maui Cultural Resources Commission [CMCRC] meeting, June 1, 1995).

Lower Main Street was built along the route of an old government road, which very likely followed the course of existing transportation routes from the ocean to the inland portions of Iao Valley. Nearly all of the LCAs in this area have borders aligned with the road, indicating it was an important transportation corridor at the time the *kuleana* were granted (Ibid.). This corridor follows the natural boundary between the sand dune and the alluvial deposits of the valley. The Kahului Railroad paralleled Lower Main Street, and was one of the earliest known projects which impacted the dune itself.

The route of the railroad from Kahului Harbor to Wailuku Sugar Mill is shown of both the 1954 USGS map, and the 1937 Towill Map (see composit Map 4). The remnants of this old railroad bed form the dominant physical feature in the present study area. Railroad construction was begun in the late 1870s and continued for nearly 2 decades, as routes were added and service expanded. The railroad remained functional until October 1947. An article in **The Maui News** of October 15, 1957 bore the headline "Iron Horses Bow Out As Wailuku Sugar Company Discontinues Use of Railroad", thus ending 52 years of operation.

The commercial and residential growth along Lower Main Street is related, no doubt, to the growth of the railroad. After the railroad's closure, development on the southern side of the street began, and generally the dune was cut down to street level in the developed portions. At the time of this construction and development, little or no attention was paid to archaeological sites which were impacted by such construction. If burials were encountered, the bones were simply gathered up and turned over to the mortuary for disposal.

PREVIOUS ARCHAEOLOGICAL WORK

The earliest archaeological work in this area was part of the island-wide survey done by Walker in 1931. He reported that there were a number of *heiau* in the general area of Wailuku. Two lie on the northern side of Iao Stream atop the large dune formation there--Pihana and Haleki'i. Both have been restored and are designated as the Halekii-Pihana Heiau State Monument, under the supervision of the Division of State Parks (DLNR). Walker also reported that there were a number of *heiau* in this general area of Wailuku, which were said to have been consecrated by Liholiho during his visit to Maui for that purpose in 1801 (Walker, 1931, pp. 146-147). At the time of his survey, none of these reported *heiau* (named Keahuku, Olokua, Olopio, Malena, Pohakuokahi, Lelemako, Kawelowelo, Kaulupala, Palamaihiki, and Oloolokalani) could be found (Ibid., p. 148).

A personal communication (1990) from Mr. Charles Keau, a well-respected authority on history and prehistory of Maui, provides more information about these *heiau* which Walker could not find. By his account, there were 3 *heiau* located in the corridor from Kahului Harbor to the intersection of Main and Mill Streets. One was situated across from the Maui Soda Company *makai* or northeast of the study parcel. Another was located on parcel 83 between the Maui Electric Power Station and the County Cemetery. A third may have been located near the Home Maid Bakery. During the construction of the parking lot next to the bakery, Mr. Keau reported that Wesley Wong, a well-known local antiquity collector, found 5 adzes of "Tahitian" style. He did not specify when this was, but thought there might still be portions of the *heiau* there as well as some burials. Recent archaeological work has corroborated this latter supposition (see discussion below).

Other sites along the corridor have been identified. Site 1172 was identified by a Bishop Museum archaeological team in 1971, as the Lower Main Street site, and is located about one kilometer east of the present study area. It consists of at least one cultural layer containing shell (*opihi, pipipi,* drupe, cowrie and land shells), coral, charcoal and waterworn stones. Three precontact artifacts included a coral file, a hammerstone fragment, and a possible hammerstone, triangular in shape (Connolly, 1973). Later sand mining activity apparently uncovered burials which were reburied upslope from the existing excavation, but their exact location is not known (Donham, minutes CMCRC meeting, June 1, 1995). Two additional burials were discovered eroding from this site in June 1994. They were recorded and disinterred by Ms. Donham, and have since been reinterred on the property (Burgett and Spear, 1995, p. 17).

In 1990, the present authors surveyed a half-acre commercial parcel in the Lower Main corridor (TMK: 3-4-39: 77). At the time of the study a good portion of the dune had been excavated to street level. No significant surface archaeological finds were made, but monitoring was recommended during any subsurface excavation or sand

moving activity, since the inventory survey did not include subsurface testing (Fredericksen and Fredericksen, 1990).

Another surface survey was done on parcel 82, a portion of which contains the present study area. Again, no surface features were found, with the exception of the raised railroad bed directly adjacent to Lower Main Street. Again monitoring was recommended because of the lack of subsurface testing (Fredericksen and Fredericksen, 1992a).

In February of 1992, the present authors began an inventory survey on the site for the Nisei Veterans Memorial Center, a 2 acre parcel of land at the intersection of Lower Main and Waiehu Beach Road (Fredericksen and Fredericksen, 1992b). The most notable surface feature was the railroad bed which runs the length of the property (Site 3112). Another historic site (Site 3119A) was a refuse disposal area about 20 cm. below the surface. The predominant historic items were bottles and ceramics dating from the late 1800s, about the time the railroad was in use. A subsurface excavation which cut through the historic site located a subsurface precontact site designated as Site 3119B.[3] This site became extremely interesting when a very early radiocarbon date of AD 233-410 was obtained. However, later data recovery work which is ongoing at the site has not produced material of a comparable date. The deposits from which it was obtained turned out to have been previously disturbed soil, caused by excavations done during the construction of the railroad bed. The original source of the charcoal has not yet been located. It may be that the radiocarbon sample suffered contamination by coal associated with the overlying historic Site 3119.

In another area of Site 3120, test excavations produced a number of artifacts, including coral files, bone picks, an unfinished fishhook, and worked bone, along with large quantities of food midden. Subsequent data recovery has shown Site 3120 to be a large habitation site, which contains at least one cluster of human burials. The latter remain *in situ* and will be preserved as a permanent burial/grave site. A number of fire pit features have been recovered and a series of 12 radiocarbon dates have been obtained so far. They range from the very early date mentioned above (AD 233-410) to AD 1540-1740, with the majority of the precontact dates falling in a AD 1400 to 1700 range (See Table 1). Data recovery work is ongoing in the portion of the site at the Kahului or eastern end, which will be impacted by the construction of the Nisei Veterans Memorial Center. Data recovery work on the Wailuku or western side of the parcel has ceased, and it will be landscaped in such a way as to preserve the site.

Recent grading work at the Home Maid Bakery uncovered human remains. State Historic Preservation Division archaeologist, Theresa Donham ordered that an inventory survey be undertaken. During this survey, two sites were identified. Site 3924 contained 2 *in situ* burials, and a thin remnant of a cultural layer. Much of the cultural layer had

[3]Later data recovery work at this site has caused a revision in numbering. All precontact components of the site are designated as Site 3120, while the historic components bear the Site 3119 designation.

TABLE 1

Summary of Radiocarbon Dates
Data Recovery Phase I for Site 3120[1]
Nisei Veterans Memorial Center

XAMANEK RESEARCHES #	BETA #	PROVENIENCE	RCYBP	CALENDRICAL DATE RANGE	MATERIAL
1	56870	Site 3119B[2]	1790 ± 70	AD 90 - 230	0.6 gm. - charcoal
2	65692	Excavation Unit #1-D, 29 cm BD	160 ± 160	AD 1630 - 1950	Charcoal
3	65892	Excavation Unit #1-C, 77 to 79 cm. BD	40 ± 60	AD 1850 - 1970	10.0 gm. - wood
4	66016	Excavation Unit #1-K and L, 90 to 110 cm.	310 ± 100	AD 1540 - 1740	Scattered charcoal
5	66018	Excavation Unit #1-E, 110 to 120 cm. BD	520 ± 70	AD 1360 - 1500	Scattered charcoal
6	65560	BHT #2, 2.2 mbs, possible hearth	430 ± 80	AD 1440 -1600	Charcoal
7	66017	BHT #2, 95 to 98 cm. BD, Excavation Unit #2	360 ± 100	AD 1490 - 1690	Charcoal
8	66134	BHT #2, Excavation Unit #2, from hearth 109 to 115 cm. BD	420 ± 60	AD 1470 - 1590	Charcoal from stone-lined hearth
9	66814	BHT #3, @ 2.5 mbs	400 ± 70	AD 1480 - 1620	Scattered charcoal
10	66815	BHT #4, @ 1.9 mbs	570 ± 90	AD 1290 - 1470	Charcoal in hearth area
11	71168	Excavation Unit #4, BHT #4 extension	670 ± 80	AD 1200 - 1360 AD 1230 - 1420 at 2 sigma	Charcoal associated with human remains
12	83340	Excavation Unit #7	580 ± 70	AD 1285 - 1450 at 2 sigma (95% probability)	Fire hearth

[1]Site originally identified as Site 3119B during inventory survey.
[2]Date obtained from original inventory survey subsurface explorations, July through October 1992.

been displaced by previous bulldozer activity. Marine shell, 2 edge-altered flakes, small waterworn stones, 6 basalt flakes, and 6 pieces of volcanic glass were found, along with a piece of coal and a chert flake (Burgett and Spear, 1995, pp. 20-24), which most likely have an historic origin. Another site, Site 3925, represents a site with 2 primary cultural layers, and three very narrow, restricted cultural layers, along with 6 features. These are hearth features, pits, and a possible post hole. A radiocarbon date from one fire pit yielded a date of AD 1436 to 1671. Another fire pit produced charcoal dated at AD 1430 to 1529. Ninety-nine artifacts were recovered, including 87 pieces of basalt debitage, 4 basalt flakes with polish, 3 coral abraders, 2 edge-altered flakes, 1 adze perform, 1 chert flake, and 1 piece worked mammal bone (Ibid., pp. 24-30). Quantities of shell midden were also recovered.

At the June meeting of the Maui County Cultural Resources Commission, Theresa Donham reported on the recent work which is being carried out in the Lower Main Street and Waiale Road corridors. Much of the following is taken from her presentation and reflected in the minutes of that meeting, and a succeeding meeting in July 1995.

Donham feels that these 2 sites (Sites 3924 and 3925) are probably part of the same site which has been significantly disturbed. It was most likely part of a complex habitation and activity area which was associated with the reported heiau (Minutes, CMCRC meeting, June 1, 1995).

Another site, Site 4066 was identified during archaeological monitoring of a County of Maui road widening project along Lower Main, in 1995. A test trench, just 2 feet from the roadway bisected an intact portion of the dune which contained boulder alignments, fire pits, artifacts, and midden. There were 2 burials at the site as well. Radiocarbon samples were taken and dates will be forthcoming (Ibid.).

Other burial sites along Lower Main include Site 3556, which contained both historic and prehistoric burials; Site 3996 which is an identified human burial that is eroding from the face of the dune: Site 3928 is a remnant of a habitation site which also contained burials. A radiocarbon date from Site 3928 gives a range from AD 1424 to 1635 (Ibid.).

Along Waiale Road which forms the western border of Sand Hills, monitoring for a drainage project for C. Brewer found human remains which had been disturbed by a former pipe line trench that runs perpendicular to the road (Site 4005). Site 4126 is another burial site recently uncovered during road construction. Site 3502 also contains burials, an historic coffin burial and another disturbed burial that is thought to be precontact. Site 4067 is the remnant of a habitation site identified during the monitoring for the same pipe line that revealed Site 4005. Site 4068 is a habitation site with an associated cluster of human burials (Ibid.: Dunn and Spear, 1995).

Continuing down Waiale Road, 3 human burials were located on the Maui Homeless Shelter property (Site 2916) [Donham, 1992]. A large tract on the southern part of the dune, the Maui Lani Subdivision was surveyed by a Bishop Museum team, which discovered scattered skeletal remains on the surface and *in situ* human burials (Rotunno-Hazuka, et. al., 1993). Moving out of Wailuku *ahupua'a* into Waikapu *ahupua'a*, the present authors monitored the recovery of skeletal remains disturbed by sand mining activities at Maui Scrap Metal Company. In all, the remains of a minimum of 22 individuals were recovered and reinterred (Site 3525) [Fredericksen and Fredericksen, in preparation].

Summary of Settlement Pattern and Land Use

The lower Iao Valley portion of Wailuku *ahupua'a* was a central political and religious area of West Maui, because of its fertile taro lands, and close proximity to the sea. Given these conditions, a large population could be supported, and where ever large population clusters are found, the social framework of chiefly importance and religious expression are also found. This is attested to by the existence of the 2 *heiau* (Haleki'i and Pihana) atop the northern dune system, and others reported by Walker (1931) and Keau (1992, oral communication) within the Iao Stream corridor. The middle and upper reaches of Iao Valley were also rich in *lo'i* and *'auwai* which produced additional food stuffs to support political and religious activities. The Upper Iao Valley had been traditionally known as a very significant sacred place in the history of Maui (Donham, CMCRC minutes, June 1, 1995). Coastal sites, such as Site 3120, have been occupied since the 1200s, and possibly much earlier, and no doubt provided the complex with marine resources.

The intensification of usage seems to have occurred during the 16th century, and appears to have been completed around the time of Pi'ilani, ca. 1600 AD (Ibid.). Radiocarbon dates which have been recovered from the sites along this corridor, all fall into this temporal framework.

Given the abundant archaeological evidence, there was high expectation of finding cultural materials and possibly burials in subsurface exploration at the present project location.

ARCHAEOLOGICAL FIELD METHODS

Field work was undertaken by 2 to 4 personnel. The field director was Erik M. Fredericksen (M.A.), and project directors and coordinators were Walter M. Fredericksen (Professor emeritus) and Demaris L. Fredericksen (Professor emeritus).

The archaeological inventory level survey consisted of two phases. A pedestrian survey covering 100% of the study area was first conducted by field personnel. Dense grass cover was cleared from the corridor prior to this surface walk-over. Team members visually inspected the c. 480 ft. (164 m.) long by c. 20 ft. (6 m.) wide corridor for any evidence of exposed material culture remains. Following this first phase, approximately 80 m. of the study area which is elevated c. 1 to 2 m. above Lower Main Street was chosen for subsurface testing.

The second portion of the inventory survey consisted of subsurface testing along the southwestern half of the study area (primarily on Parcel 82). This area was chosen because surface evidence of disturbed material culture remains was present and the area was accessible to a backhoe. Parcel 81 was being utilized as a parking lot for local businesses on the northern side of Lower Main Street, and therefore was not generally accessible for subsurface testing. Parcel 83, which contains Parcel 51, the site of a Maui Electric Company substation, also was not tested. A decision not to test Parcel 83 was based on several factors. Portions of Parcel 83 which front the shoulder of Lower Main Street are landscaped and irrigated. In addition, the County of Maui plans to add only a sidewalk to this portion of the study area. Consequently, subsurface disturbance will be minimal. Finally, Backhoe Trench 7 which was placed near the boundary of Parcels 82 and 83 revealed fill materials to sterile, dark reddish brown clay subsoil.

Subsurface testing consisted of 5 auger tests (AT), 1 manually excavated test unit (TU) and 7 backhoe trenches (BT). The auger cores were c. 8 cm. wide and ranged in depth from 0.4 to 0.7 mbs. The test unit was 0.5 by 1 m. by 0.9 mbs. All soil from the cores and TU 1 was screened through 1/8" mesh hardware cloth. The 7 backhoe trenches were excavated to sterile clay subsoil. Backhoe Trench 1 dimensions were c. 1.2 m. wide by 6.0 m. long by 4.3 m. deep, BT 5 dimensions were c. 0.8 m. wide by 6.0 m. long by 2.6 m. deep, and BT 6 dimensions were c. 0.8 m. wide by 6.0 m. long by 2.9 m. deep. The remaining backhoe trenches were 5.0 m. long and ranged in depth from 2.5 to 2.9 mbs. Backhoe Trenches 2, 3 and 4 were c. 1.6 m. wide, while BT 7 was c. 0.8 m. wide. Back dirt from the above trenches was visually inspected and spot checked with 1/8" mesh screen. In addition, trench profiles were visually inspected and recorded. Food midden remains visible in the profiles of BTs 1 and 2 and were noted by species, but no samples were recovered. It was not possible to climb into BTs 6 and 7 due to unstable unit conditions. Mapping was carried out with metric survey tapes and hand bearing electronic compass. Written descriptive notes were kept in the field and photographs were taken with 35 mm. T-Max 400 black and white film. Material culture remains are presently curated by Xamanek Researches, Pukalani, Hawaii.

ARCHAEOLOGICAL FIELD RESULTS

The pedestrian survey yielded no surface evidence of intact architectural features, other than the old railroad bed (Site 3112). However, portions of the study area were found to contain disturbed material culture remains. Numerous waterworn basalt cobbles, a few small basalt boulders, several pieces of coral and a few pieces of cowrie (Cypraea sp.) and cone (Conus sp.) were observed. One artifact, a rounded coral abrader (150 mm. by 135 mm. by 90 mm. in diameter) was recovered during the surface inspection. The rounded abrader possessed a flattened bottom. In addition, historic materials including modern bottle glass, metal, plastic, wood, coal and refuse were found. During our surface inspection, it became apparent that the study area has been impacted by earth moving activities in relatively modern times.

The subsurface testing phase of the archaeological inventory survey was composed of 5 auger tests (AT), one manually excavated test unit (TU) and 7 backhoe trenches (BT). The 5 auger cores and TU 1 indicated that sampled portions of the study area had been built up with fill material to depths of at least 0.9 mbs in historic times. Compact and rocky conditions restricted the depths of the above tests. Following these results, backhoe trenches were excavated to further explore subsurface conditions at the study area.

Two of the seven backhoe trenches (BTs 1 and 2) yielded a partly intact cultural stratum c. 10 to 20 cm. thick. An unfinished bone fishhook and marine food midden were observed along with a possible post hole and a pit feature. In addition, a fine grained basalt core/hammerstone was recovered from an overlying reddish brown sandy clay fill layer near the interface with the cultural layer. Stratigraphy observed in all of the backhoe trenches indicates that this c. 80 m. portion of the study area has been heavily disturbed in the past. Up to 7 fill layers were present in test instances. In general, fill materials consisted of imported reddish brown sandy clays, clays and fill debris. Fill material ranged from c. 1 m. to nearly 3 m. thick. A brief discussion of subsurface test results follows below. Refer to Appendix A for soil profile descriptions. Subsurface test locations are shown on Map 3.

Auger Tests 1 through 5

Five auger tests were first cored at the study area in order to investigate subsurface conditions. The cores ranged in depth from 0.4 to 0.7 mbs. Auger test depths were restricted by the rockiness of fill that was encountered in all test instances. Layer I reddish brown (5 YR 5/4) sandy clay fill was encountered in all cores. This fill layer was present to the bottom of AT 1 and ranged from c. 0.2 to 0.5 cm. thick in ATs 2, 3, 4 and 5. Additional fill material occurred under Layer I in the latter 4 cores. Modern materials recovered in the screen included broken brown bottle glass, metal, plastic and paper. As

mentioned earlier, the rockiness of the fill hampered efforts to reach below a 0.7 mbs maximum.

Test Unit 1

One hand excavated unit was next placed in the study area in an effort to further explore subsurface conditions. This unit was 0.5 m. wide by 1.0 m. long by 0.9 m. deep. Two reddish brown sandy clay fill layers and a lens of road gravel and sand were encountered in TU 1 (Figure 1). Only historic materials were found in these fill layers.

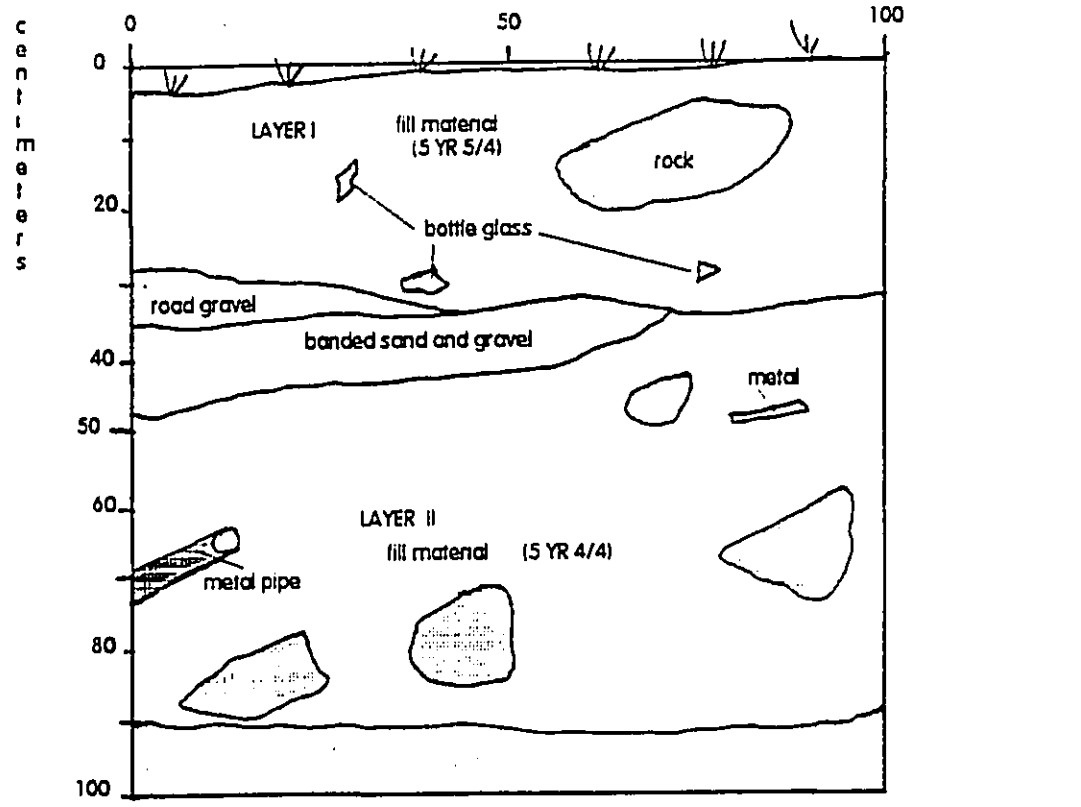


FIGURE 1 - East face profile, Test Unit 1.

Layer I (c. 0 to 0.35 mbs) consisted of reddish brown (5 YR 5/4) sandy clay fill. This fill soil contained modern materials including broken bottle glass, round head nails, rusted metal pieces, a carbon core from an automobile battery, plastic pieces and charred rubber. This layer was partly separated from Layer II by a sterile lens of road gravel and light gray (7.5 YR 7/6) sand.

Layer II (0.35 to 0.9 mbs) was composed of reddish brown (5 YR 4/4) sandy clay which was more compact than Layer I. Layer II yielded modern historic materials including broken bottle glass, concrete, rusted metal, a 1 inch diameter steel pipe, round head nails and a rusted Diamond Head soda can. This fill layer was extremely rocky and excavation was halted at 0.9 mbs. An attempt was made to place an auger core in the bottom of the unit. However, very rocky conditions prevented core penetration beyond a few centimeters.

Backhoe Trench 1

This trench was excavated at the extreme southwestern side of the unpaved parking lot that rests on Parcel 81, bordering Parcel 82. The parking lot lies at street level and a berm c. 2.6 m. high begins at the southwestern side of the lot and extends to the southwest along Parcel 82. Subsurface investigation of the berm face revealed nearly 3 m. of imported fill material which overlaid a partly intact cultural stratum. Trench orientation was 290 degrees magnetic and its dimensions were c. 0.8 m. wide by 6 m. long by 4.3 m. deep.

A total of 7 fill layers and 3 intact soil layers were encountered before excavation was halted at a maximum depth of 4.3 m. below the surface of the berm (Figure 2; Photos 3 & 4). Layer I extended from the surface to a maximum depth of 1.2 mbs. This fill layer consisted of reddish brown (5 YR 5/4) sandy clay mixed with road gravel and angular basalt rocks. Modern materials including brown bottle glass fragments, plastic, metal and metal beverage containers were noted in the backfill. A sterile lens (c. 0.4 m. maximum thickness) of road gravel and pinkish gray (7.5 YR 7/2) sand occurred under a portion of Layer I. Layer II extended to a maximum depth of c. 1.6 mbs. Layer III was composed of yellowish red (5 YR 4/6) sandy clay fill which extended to a maximum depth of 1.8 mbs. This stratum also contained modern historc materials. Layer IV consisted of pinkish white (7.5 YR 8/2) sand fill which contained modern materials such as metal, plastic and brown bottle glass. This layer extended to a maximum depth of c. 2.6 mbs. Layer V consisted of charcoal stained sandy clay and road gravel. This gray (10 YR 5/1) fill layer contained modern material, was c. 0.2 m. thick and extended to a maximum depth of c. 2.2 mbs. Layer VI was composed of reddish brown (5 YR 4/4) clay mixed with road gravel. This stratum was c. 0.6 m. thick and extended to a maximum depth of 2.4 mbs. Material culture remains observed were modern. A c. 0.1 m. thick portion of Layer IV pinkish white sand occurred under Layer VI. The last fill layer was composed of brown (5 YR 5/4) sandy clay. This fill stratum contained what appeared to be mixed historic and indigenous materials in the bottom 0.2 m. of this nearly meter thick fill layer. Layer VII extended to a maximum depth of c. 3.0 mbs. A dense basalt core c. 120 m. long by 85 mm. wide by 25 mm. thick was recovered from the southwest profile of BT 1 near the bottom of Layer VII (Figure 9).

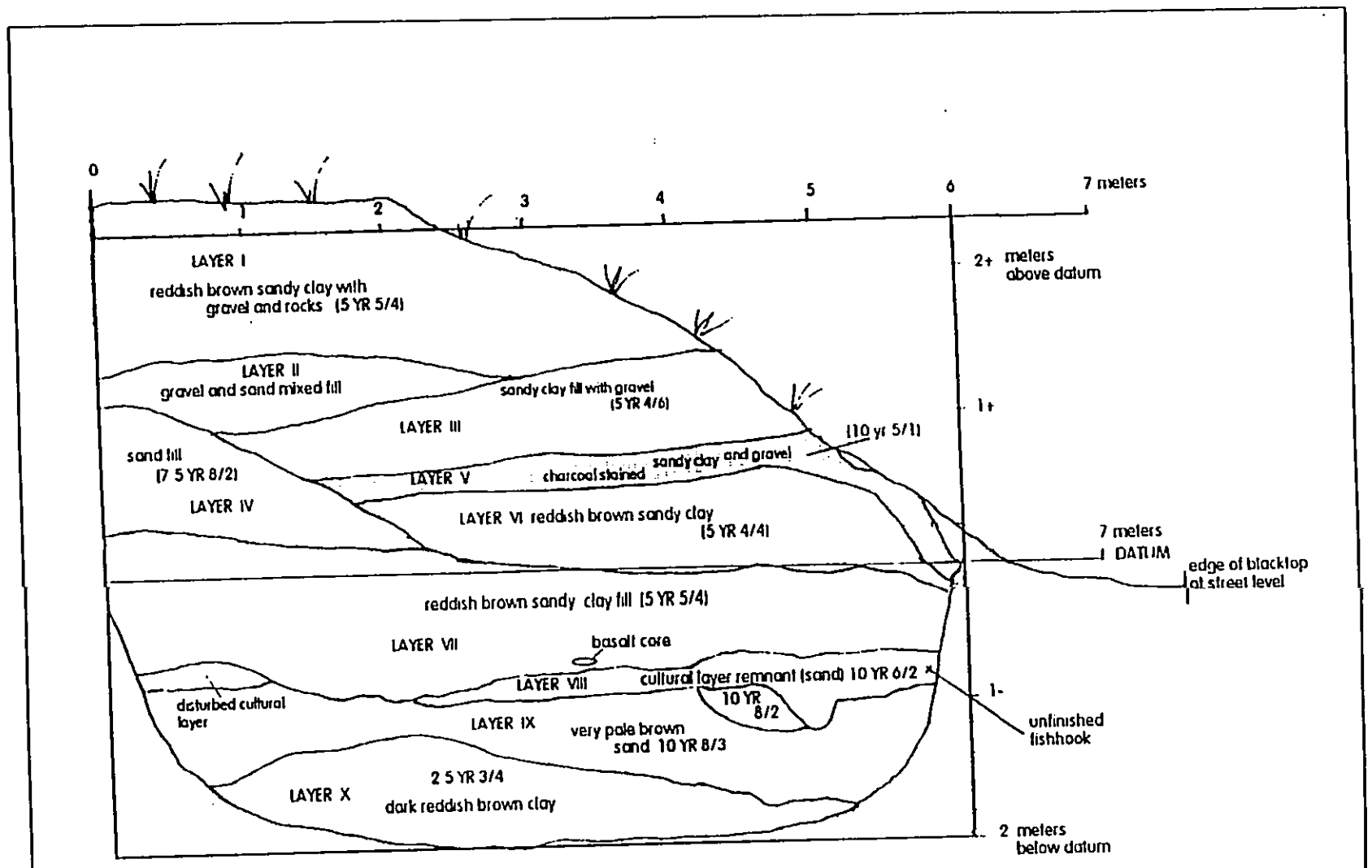


FIGURE 2 - West face profile, Backhoe Test Trench 1.
Site 50-50-04-4127 is shown as the cultural layer.

Layer VIII represents a c. 0.1 to 0.2 m. thick cultural stratum. This light brownish gray (10 YR 6/2) cultural layer extended from c. 3.0 mbs to 3.4 mbs a maximum depth. A possible post hole feature was present in the western face of BT 1 in the cultural layer. Material culture remains observed in the profile of the trench included *pipipi* (Nerita picea), cowrie (Cypraea sp.), cone (Conus sp.), bivalves (primarily Brachidontes sp.), echinoderm and crustacean. A one piece unfinished bone fishhook was recovered from the profile during inspection. It measures 35 mm. in length and 20 mm. in width (Figure 9).

The cultural layer lies approximately 0.3 to 0.4 m. below the level of Lower Main Street. It is likely that the upper portion of Layer VIII was impacted during railroad and/or road construction activities in the past.

It appears that the Layer VII reddish brown fill soil overlying the cultural stratum represents a former grading zone. Historic materials. food midden and the previously noted fine grained basalt core were noted in the lower 0.2 m. of Layer VII. Layer VIII graded into Layer IX very pale brown (10 YR 8/3) sand between 3.0 and 3.2 mbs. This sand stratum appeared to be sterile and ranged from 0.4 to 0.8 m. thick.

Layer X extended to the bottom of BT 1 at c. 4.3 mbs. This dark reddish brown (2.5 YR 3/4) clay was compact and hard. It appeared to be sterile.

Backhoe Trench 2

This trench was located c. 12 m. southwest of BT 1. Unit orientation was 313 degrees magnetic. and BT 2 dimensions were c. 1.6 m. wide by 5 m. long by a maximum of 2.4 m. deep. A total of 4 fill layers and 3 intact soil layers were encountered (Figure 3; Photo 5).

The 4 fill layers totaled c. 1.6 m. in depth. Layer I (0 to 0.4 mbs) consisted of the reddish brown (5 YR 5/4) sandy clay fill found in BT 1. Modern materials including rusted metal, road gravel. brown bottle glass and plastic were observed in the back dirt along with several waterworn cobbles. Layer II (0.3 to 0.8 mbs) consisted of banded very pale brown (10 YR 8/4) to yellow (10 YR 7/8) sand. This fill contained modern materials such as rusted metal, plastic. wood and bottle glass. Layer III fill extended from c. 0.3 to 1.1 mbs. This yellow red (5 YR 5/6) sandy clay stratum contained road gravel, broken brown bottle glass and metal. Layer IV (c. 1.1 to 1.6 mbs) also contained historic materials, including coal, steel beverage containers and broken brown bottle glass. This reddish brown (5 YR 5/4) sandy clay fill layer appeared to have also impacted the underlying cultural stratum and the bottom 0.1 to 0.2 m. of Layer IV contained mixed historic materials and midden.

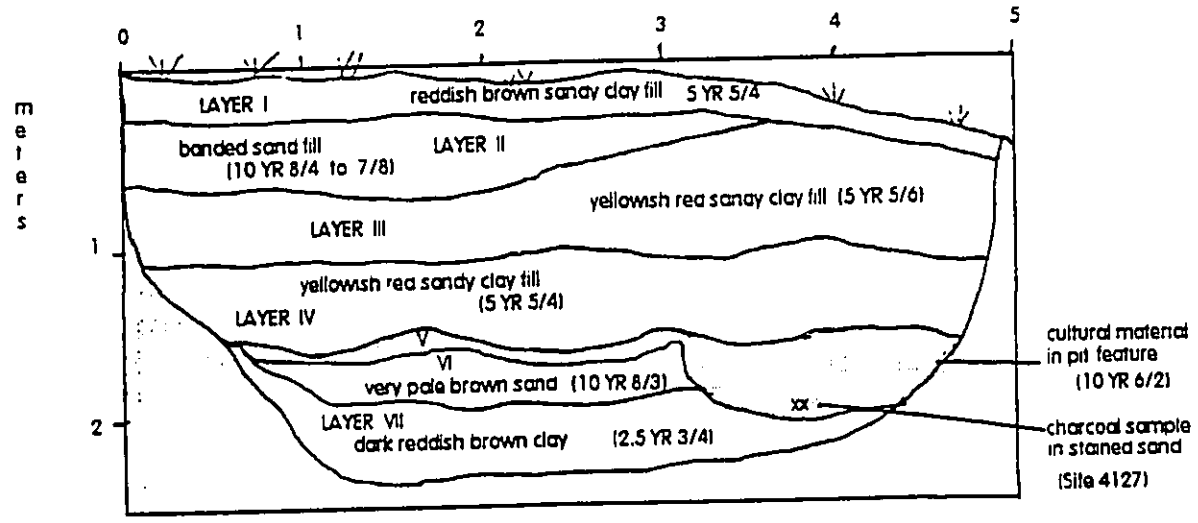


FIGURE 3 - West face profile of Backhoe Test Trench 2.

Layer V consisted of a light brownish gray (10 YR 6/2) sand stratum similar to the one located in BT 1. In general, Layer V was less than 0.2 m. in thickness. However, a pit feature on the Lower Main Street side (northern end) of the southwestern profile was nearly 0.4 m. thick. This feature contained scattered charcoal flecking along its bottom and measured nearly 1.3 m. across by 0.37 m. at its deepest point (Figure 3). A small charcoal sample was collected from the bottom of the feature and sent to Beta Analytic. Inc. for radiocarbon dating analysis. Unfortunately. this sample proved to be too small to date. It is possible that this feature is a burial pit. Midden observed in the cultural stratum included *pipipi* (Nerita picea), cowrie (Cypraea sp.), cone (Conus sp.), bivalves (primarily Brachidontes sp.) and traces of echinoderm. The top of the cultural layer was between 0.2 and 0.4 m. below Lower Main Street.

Two intact soil layers occurred under the cultural stratum. Layer VI very pale brown (10 YR 8/3) sand occurred under the cultural stratum and extended to c. 1.9 mbs. This stratum appeared to be sterile. It was underlain by compact subsoil. Layer VII extended to the bottom of BT 2 at c. 2.4 mbs. This red (2.5 YR 3/4) clay was similar to Layer X in BT 1. Layer VII was also sterile.

Backhoe Trench 3

This subsurface test was located c. 10 m. southwest of BT 2. Trench dimensions were c. 1.6 m. wide by 5 m. long by 2.5 m. maximum depth and BT 3 was oriented to 300 degrees magnetic. A total of 3 fill layers and 2 undisturbed layers were encountered before excavation of BT 3 was halted due to very compact and rocky clay subsoil (Figure 4).

The 3 fill layers extended to c. 1.6 mbs and all contained modern debris. Layer I (0 to 0.5 mbs) consisted of reddish brown (5 YR 5/4) clay fill. This fill contained a concentration of road gravel, concrete and fragments of black top c. 0.3 m. thick near the surface. In addition, a white (10 YR 8/2) sand lens was contained in Layer I. Historic items included broken bottle glass, rusted metal, plastic and a rusted railroad spike. A portion of a dog's jaw was located in the southwestern face of BT 3 between Layers I and II. In addition, scattered skeletal remains (dog) were located in the back dirt pile. Layer II (0.5 to 1.0 mbs) was composed of reddish brown (5 YR 4/4) sandy clay fill. Portions of the canine skeletal remains were also noted in the back dirt pile along with scattered

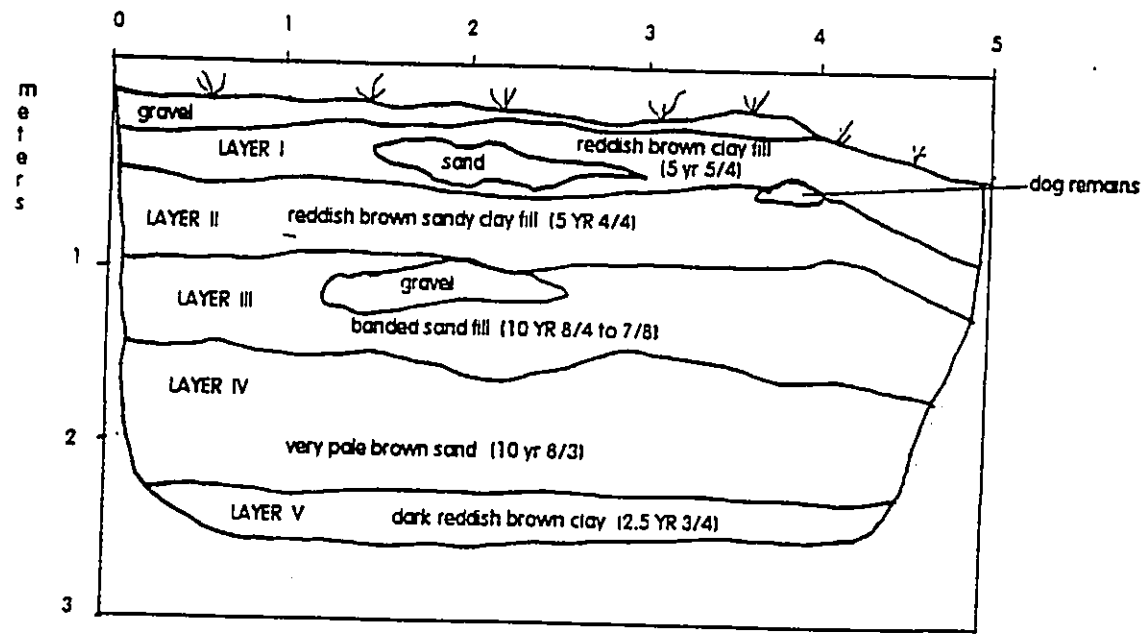


FIGURE 4 - East face profile of Backhoe Test Trench 3.

fragments of bottle glass, cans, plastic, a "D" cell battery and a piece of PVC pipe. Layer III (c. 0.9 to 1.6 mbs) consisted of banded very pale brown (10 YR 8/4) to yellow (10 YR 7/8) sand fill. This fill layer contained some modern refuse as well as a c. 0.2 m. thick lens of road gravel. Some scattered midden was noted in the profile of BT 3 with 0.2 to 0.3 m. above Layer IV. It is possible that this scattered material represents a portion of a former cultural deposit that was impacted during historic earth moving activities.

Layer III overlaid two apparently intact soil layers. Layer IV consisted of very pale brown (10 YR 8/3) sand. This stratum extended from c. 1.4 to 2.2 mbs. This sand layer appeared to be sterile. However, the lower 0.2 to 0.3 m. of the overlying fill layer (Layer III) did contain scattered midden mixed with historic materials. Layer IV overlaid the common reddish brown (2.5 YR 3/4) clay subsoil. Layer V (2.2 to 2.5 mbs) was very compact and appeared to be sterile. Excavation was halted when it became difficult for the backhoe to proceed because of very compact soil and rocky conditions.

Backhoe Trench 4

This trench was located c. 15 m. southwest of BT 3 near a utility pole support. Unit orientation was 310 degrees magnetic and BT 4 dimensions were 1.6 m. wide by 5.0 m. long by 2.7 m. at maximum depth. This unit contained 5 fill layers and one intact layer (Figure 5).

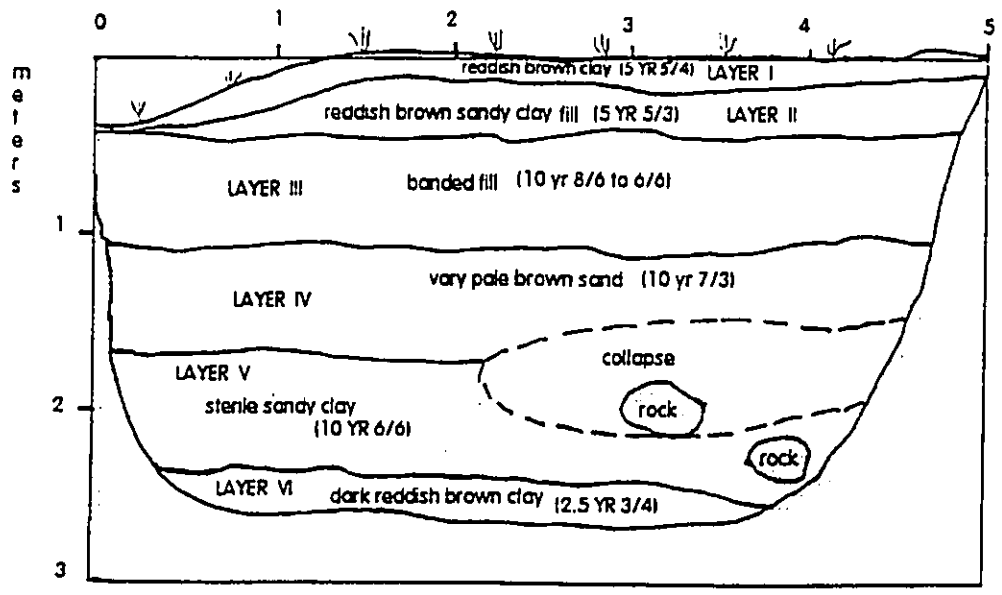


FIGURE 5 - West face profile of Backhoe Test Trench 4.

The five fill layers totaled c. 1.6 m. in thickness. Layer I (0 to 0.2 mbs) was composed of reddish brown (5 YR 5/4) clay which contained modern debris. It was underlain by Layer II which extended to c. 0.5 mbs. This reddish brown (5 YR 5/3) sandy clay also contained modern debris. Layer III (c. 0.5 to 1.1 mbs) was composed of banded yellow (10 YR 8/6) to brownish yellow (10 YR 6/6) sand fill. Historic materials observed included 2 railroad spikes, several pieces of coal, 2 round head nails, broken brown bottle glass, 2 steel beverage containers and paper. Several waterworn shells were also noted in this fill material. Layer IV (c. 1.1 to 1.7 mbs) consisted of very pale brown (10 YR 7/3) sand. This stratum contained a few pieces of coal, a drawn square nail and a few cone (Conus sp.) and cowrie (Cypraea sp.) shell fragments. This stratum was relatively homogenous and did not exhibit much evidence of historic disturbances. However, it was underlain by what appeared to be a fill layer. Layer V (c. 1.7 to 2.5 mbs) was composed of brownish yellow (10 YR 6/6) sandy clay which contained several large subangular "blue rock" cobbles and small boulders ranging from 0.5 to 0.9 m. in diameter. These rocks were not incorporated into an architectural feature and randomly occurred in Layer V soil. Layer V appeared to be sterile. However, two of the boulders possessed what appeared to be heavy equipment surface scars.

Layer V overlaid what appeared to be intact dark reddish brown (2.5 YR 3/4) clay subsoil. Layer VI extended to the bottom of BT 4 at a maximum depth of 2.7 mbs. This stratum was very compact and contained numerous fragments of what appeared to be decayed bedrock.

Backhoe Trench 5

This subsurface test was located c. 20 m. southwest of BT 4. Trench orientation was 280 degrees magnetic and BT 5 dimensions were 0.8 m. wide by 6.0 m. long by a maximum depth of 2.6 mbs. This unit contained 3 fill layers and 2 in place layers (Figure 6).

The upper 3 soil layers were a total of 1.2 m. deep at their thickest. Layer I (c. 0 to 0.3 mbs) consisted of reddish brown (5 YR 5/4) sandy clay fill. This layer contained modern debris such as rusted metal, brown bottle glass, road gravel and plastic. Layer II (c. 0.3 to 0.7 mbs) was composed of whitish (10 YR 8/2) sand fill which contained modern debris. Cultural materials observed in Layer III (c. 0.7 to 1.2 mbs) brown (7.5 YR 5/4) sandy clay fill included road gravel, modern debris, coal, one drawn square nail, and a few pieces of midden. In addition, a charcoal lens c. 1.2 m. long by 0.1 m. thick was present in the northwest profile of BT 5 at the interface between Layers III and IV. Several pieces of rusted metal were observed in this lens. It appears possible that earth moving activities associated with Layer III may have impacted a formerly intact cultural stratum.

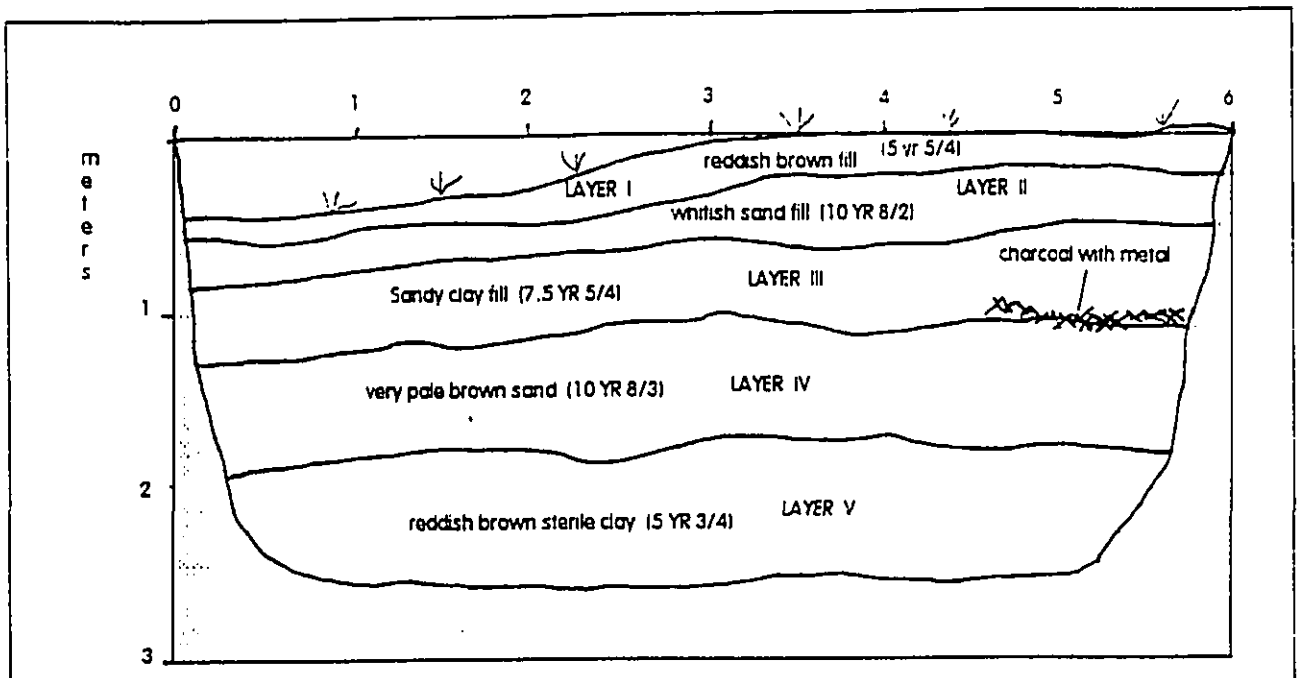


FIGURE 6 - East face profile, Backhoe Test Trench 5.

Both Layers IV and V appeared to be undisturbed strata. Layer IV (c. 1.2 to 1.8 mbs) was composed of very pale brown (10 YR 8/3) sand. This layer did not contain any evidence of material culture remains. Layer IV was underlain by Layer V reddish brown (5 YR 3/4) clay. This sterile subsoil contained fragments of decayed bedrock and extended to the bottom of BT 5 at a maximum of c. 2.6 mbs.

Backhoe Trench 6

Backhoe Trench 6 was excavated c. 10 m. to the southwest of BT 5. Unit orientation was 330 degrees magnetic and BT 6 dimensions were 0.8 m. wide by 6.0 m. long by a maximum depth of 2.9 mbs. A total of 4 fill layers which overlaid 2 intact strata were located before excavation was halted at very hard subsoil (Figure 7).

The 4 fill layers were a maximum of 1.4 m. thick. Layer I (c. 0 to 0.4 mbs) was composed of reddish brown (5 YR 4/4) sandy clay fill. This stratum contained modern debris. It was underlain by banded very pale brown (10 YR 8/3) to brown (10 YR 5/3) sand fill. Modern historic materials noted in Layer II (c. 0.4 to 0.9 mbs) include charred rubber, pieces of black top, road gravel, broken bottle glass, wood and aluminum foil. In

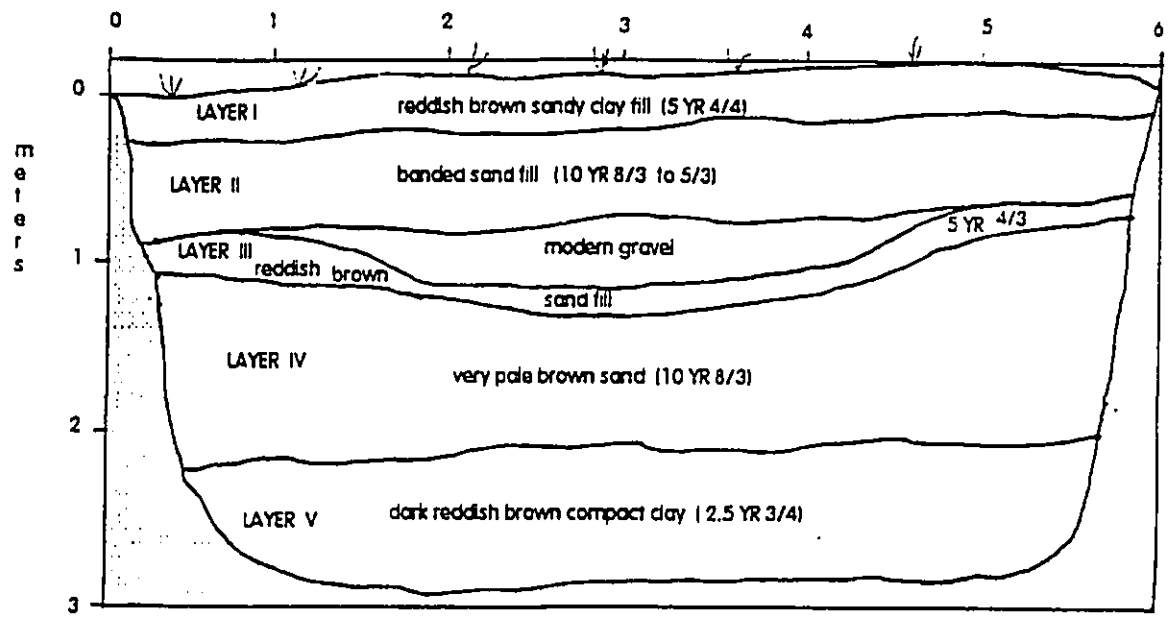


FIGURE 7 - East face profile. Backhoe Test Trench 6.

addition, scattered pieces of coal ranging from c. 10 to 30 mm. in diameter were also noted. Layer II was underlain by a broad lens of road gravel c. 3.5 to 4.0 m. wide by a maximum of 0.4 m. thick. This gravel lens rested on top of a c. 0.2 m. thick reddish brown (5 YR 4/3) sand fill layer. Layer III extend to a maximum depth of 1.4 mbs. This layer contained scattered pieces of coal ranging from 10 to 25 mm. in diameter.

It appeared that both the gravel lens and Layer III intruded into Layer IV which was composed of very pale brown (10 YR 8/3) sand. This stratum appeared to be partly intact and extended to a maximum depth of 2.2 mbs. No evidence of *in situ* material cultural materials was noted. This apparently sterile stratum overlaid Layer IV which extended to the bottom of BT 6 at 2.9 mbs. The compact, dark reddish brown (2.5 YR 3/4) clay subsoil layer appeared to be sterile. Excavation at BT 6 was halted due to very compact, rocky soil conditions.

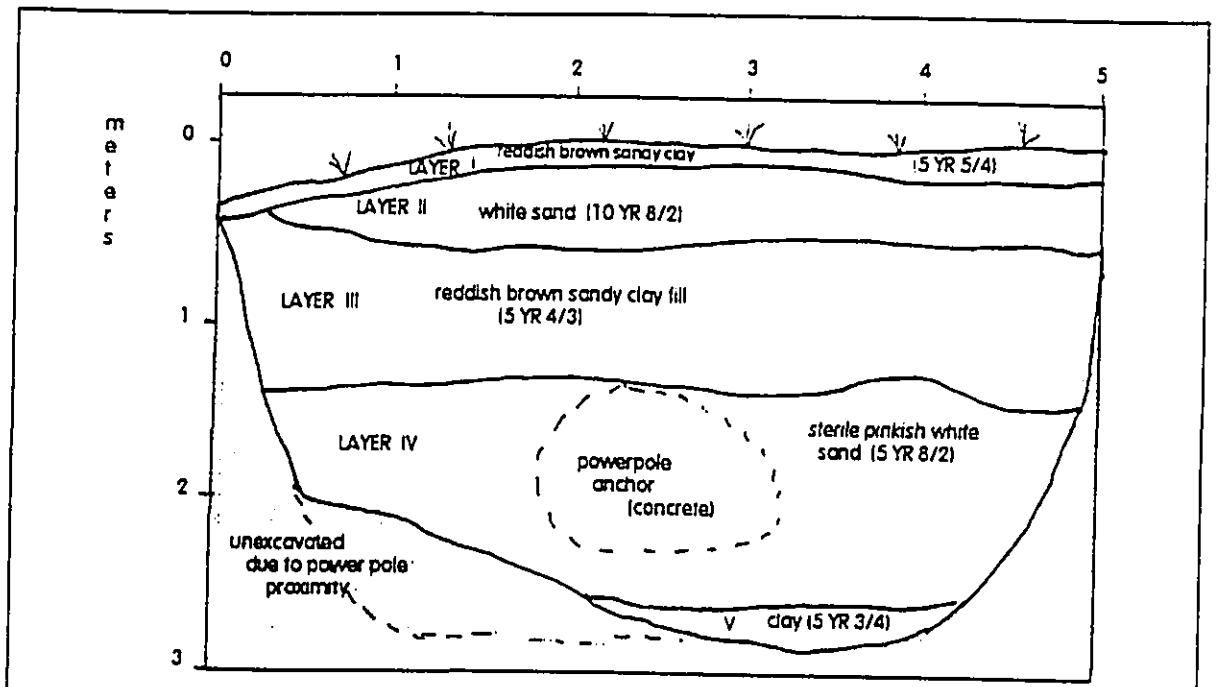


FIGURE 8 - East face profile, Backhoe Test Trench 7.

Backhoe Trench 7

This subsurface test was placed 1.5 m. southwest of a power pole and c. 10 m. southwest of BT 6. Unit dimensions were c. 0.8 m. wide by 5.0 m. long by a maximum depth of 2.9 mbs. A total of 5 soil layers were contained in BT 7 (Figure 8).

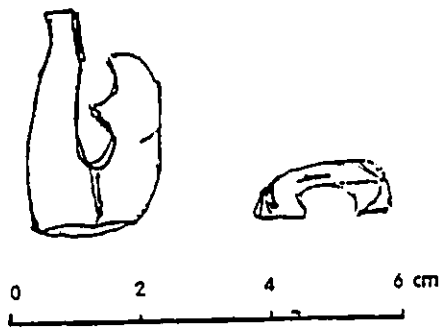
At least 3 fill layers and one possible fill layer overlaid subsoil. Total fill depth was at least 1.4 m. and may have been as much as 2.6 m. Layer I (0 to 0.2 mbs) consisted of reddish brown (5 YR 5/4) sandy clay. This fill layer contained modern debris such as plastic, broken bottles, metal and refuse. It was underlain by a white (10 YR 8/2) sand layer which also contained modern materials in it including rusted metal, plastic and wood. Layer II extended to c. 0.6 mbs. This sand fill overlaid reddish brown (5 YR 4/3) sandy clay fill. Layer III (c. 0.6 to 1.4 mbs) contained scattered modern refuse. Layer IV consisted of pinkish white (5 YR 8/2) sand which extended to 2.6 mbs. It was unclear ~~whether or not~~ this stratum was a fill layer or a disturbed layer. A concrete "dead man" pole support c. 0.8 m. by 0.5 m. by 0.5 m. and some rusted support cable fell out of the northeast profile of BT 7. There did not appear to be any other cultural materials associated with Layer IV.

Layer V consisted of sterile subsoil which was located c. 2.6 mbs. This reddish brown (5 YR 3/4) clay stratum was very compact and rocky. The trench was abandoned at c. 2.9 mbs due to difficult excavation conditions.

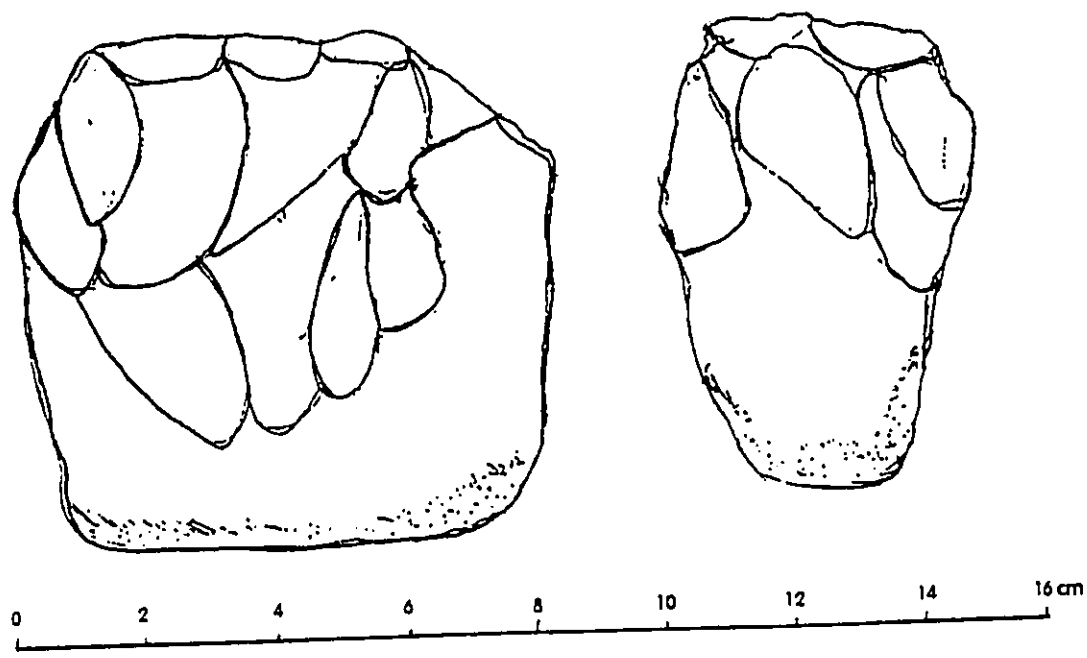
SUMMARY AND CONCLUSIONS

Subsurface investigation at the sampled portion of the study area indicates that much of the project area has been impacted by historic activities associated with the former Kahului Railroad and nearby Lower Main Street. Parcel 82 contains a partly intact indigenous site that is overlain by a disturbed remnant of the former Kahului Railroad which is in turn overlaid by modern fill ranging from c. 0.8 to nearly 2.0 m. thick. Subsurface investigation indicates that the Site 4127 cultural layer appears to have been heavily disturbed and possibly, destroyed in the area to the southwest of BT 2. The cultural deposit is partially intact in the area around BTs 1 and 2. It was not possible to test Parcel 81 with the backhoe northeast of BT 1 because the parcel is utilized as a parking lot. It appears possible that the cultural layer extends to the northeast (*makai*) of BT 1.

The results of the subsurface investigation indicate that Site 4127 is a remnant of an indigenous habitation area. Burials have been located on nearby parcels and a burial may be present in the pit located in BT 2. Based on the inventory level survey findings, Site 4127 is deemed significant under Criterion "D" of State and Federal historic preservation guidelines--"have yielded, or may be likely to yield, information important in prehistory or history". Data recovery work is recommended for the area in the vicinity of Backhoe Trenches 1, 2 and 3. In addition, archaeological monitoring is recommended for the corridor during earth moving activities associated with Lower Main Street improvements.



Unfinished Bone Fishhook



Dense basalt core/hammerstone

FIGURE 9 - Artifacts from Site 4127.

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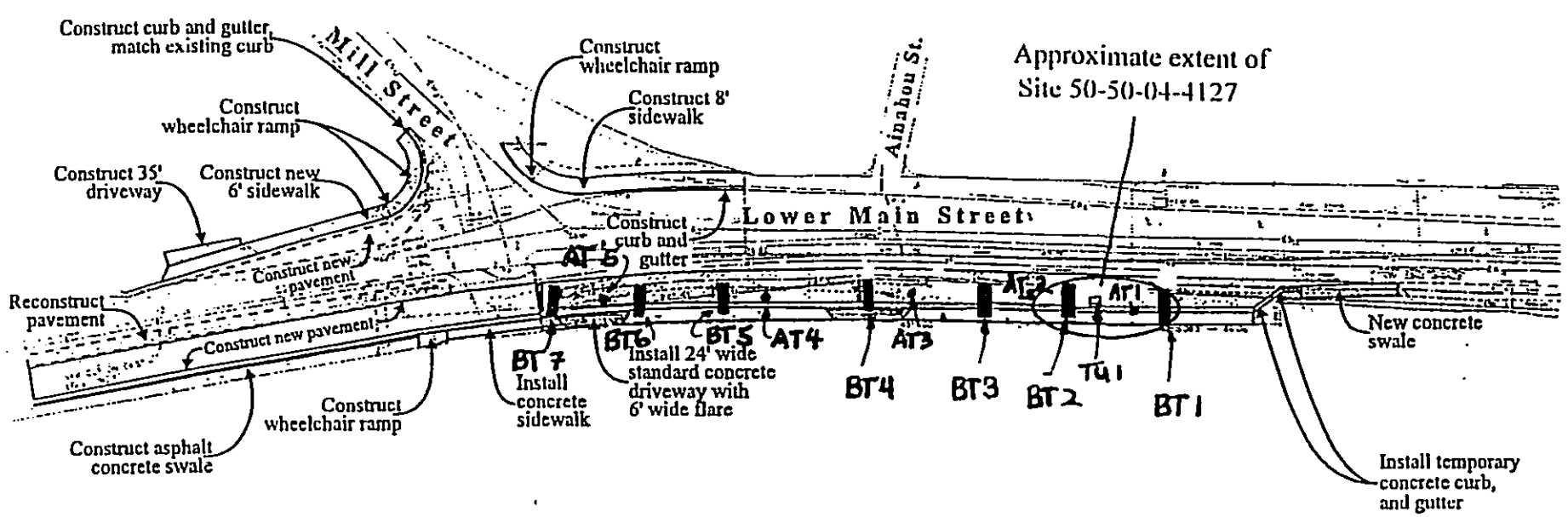
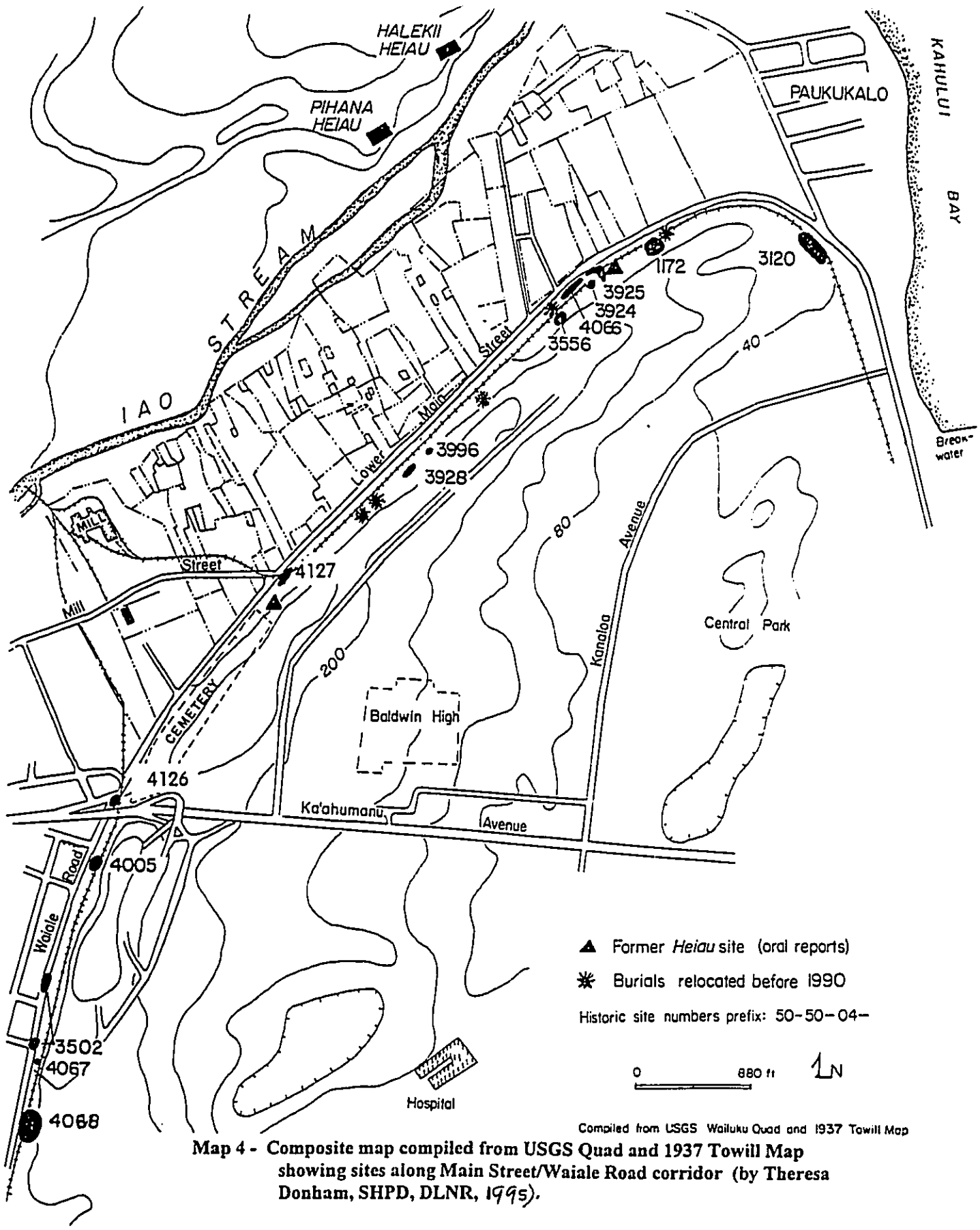


Lower Main Street Traffic Signal and Intersection Improvements at Mill Street

Construction Plan



Map 4 - Composite map compiled from USGS Quad and 1937 Towill Map showing sites along Main Street/Waiale Road corridor (by Theresa Donham, SHPD, DLNR, 1995).

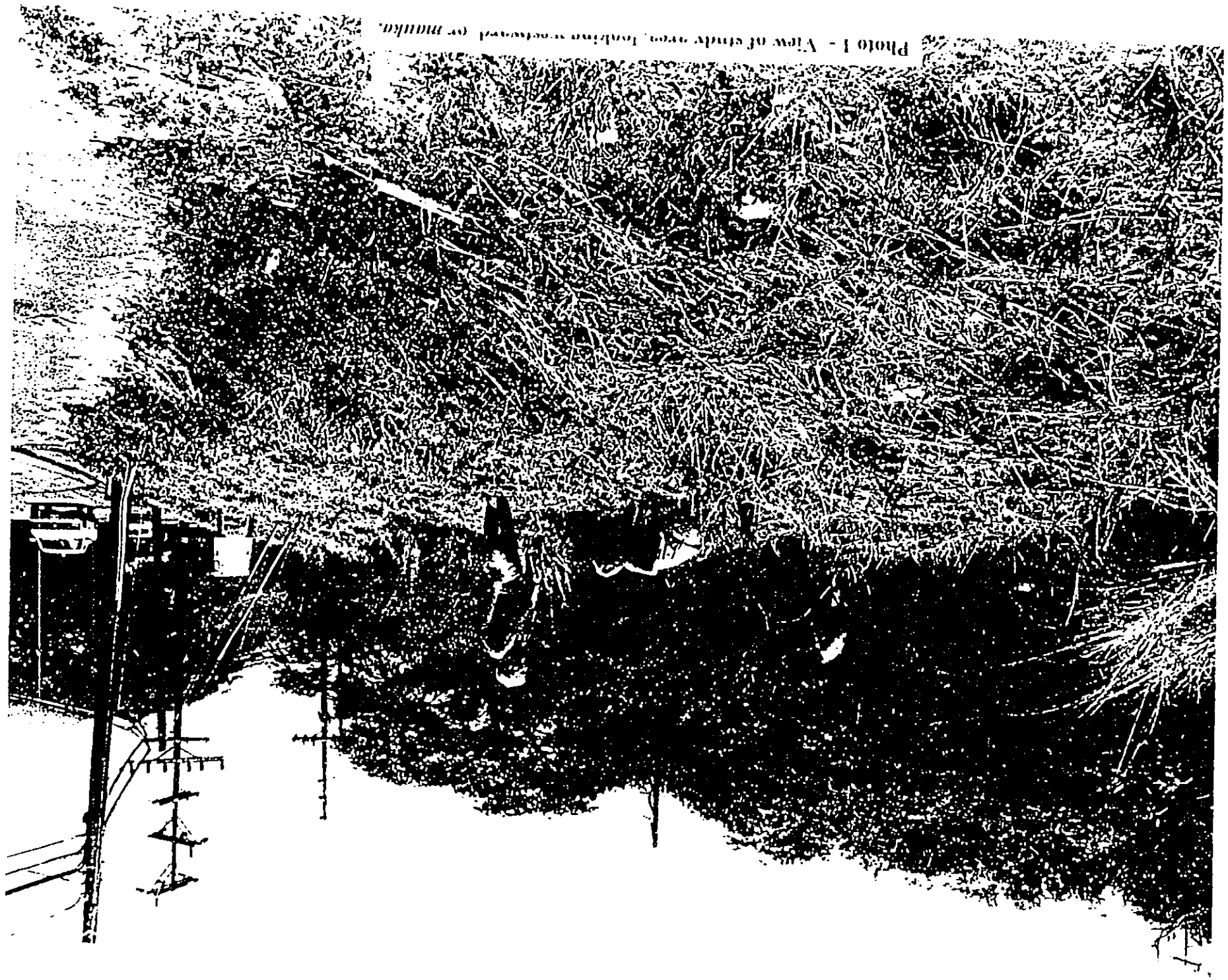


Photo 1 - View of study area looking westward at muskeg

Photo 2 - View of study area, looking eastward, or *makai*.

Photo 3 - Backhoe Trench #1, excavated to maximum depth, showing relationship of soil layers to street level

Photo 4 - Cultural layer, and possible posthole in Backhoe Trench #1.

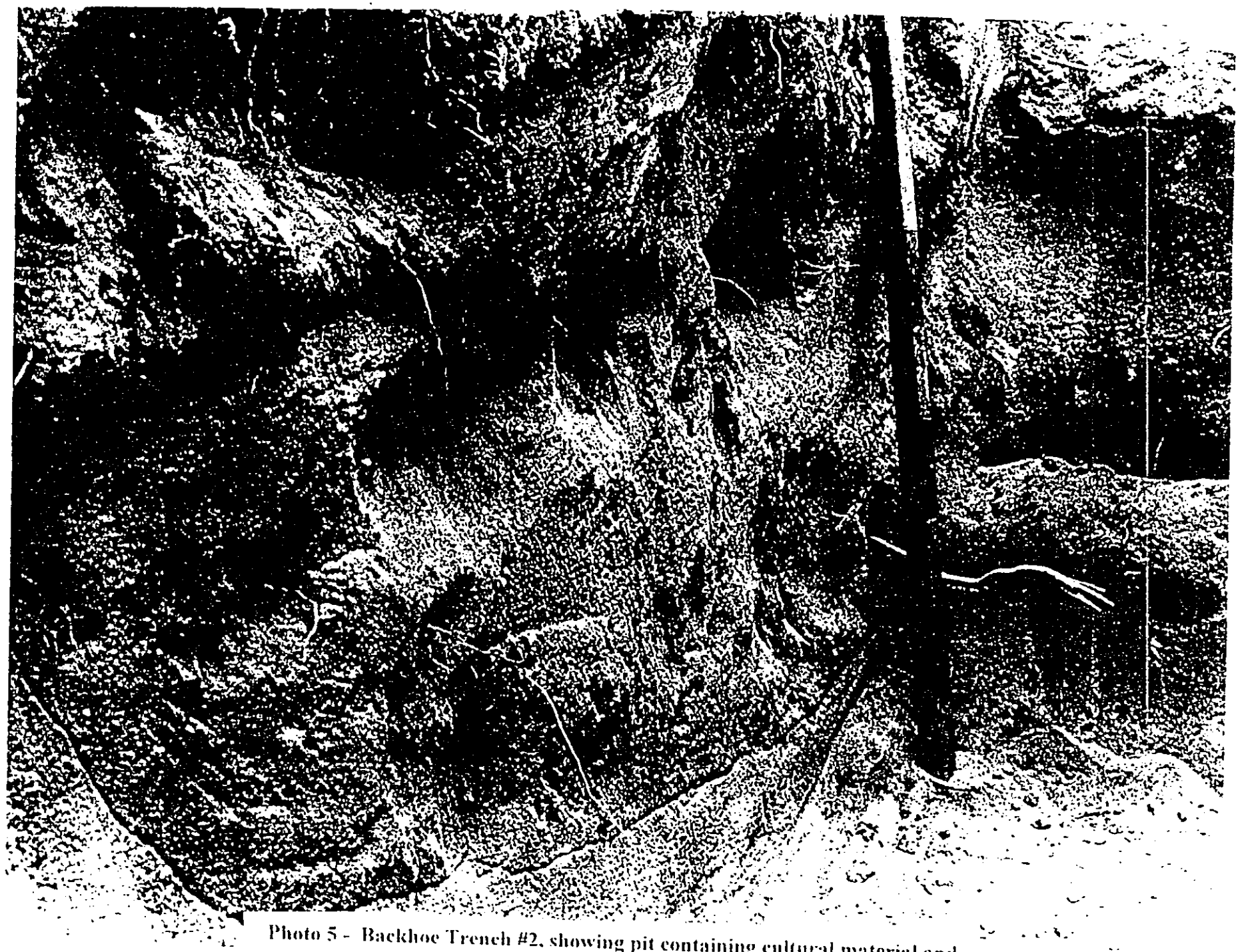


Photo 5 - Backhoe Trench #2, showing pit containing cultural material and a possible burial.

APPENDIX A

Profile Descriptions for the Study Area

Test Unit 1

Layer I: Reddish brown (5 YR 5/4); sandy clay fill; stony; moderately developed subangular blocky structure: medium texture: hard. dry consistency; common live rootlets: contains modern materials and refuse. Layer I fill is c. 0.35 m. thick.

Layer II: Reddish brown (5 YR 4/4): sandy clay fill: stony; moderately developed subangular blocky structure: medium texture; slightly hard. dry consistency: live rootlets present: contains modern materials and refuse. Layer II fill extends to the bottom of TU 1 at c. 0.9 mbs.

Backhoe Trench 1

Layer I: Reddish brown (5 YR 5/4); sandy clay fill: stony; moderately developed subangular blocky structure; medium texture; hard. dry consistency; common live rootlets; contains modern materials and refuse. Layer I fill is up to 1.2 m. thick.

Layer II: Pinkish gray (7.5 YR 7/2); sand with road gravel: apedal. single grain structure: medium texture: loose. dry consistency; live rootlets present. Layer II is apparently sterile and extends to a maximum of 1.6 mbs.

Layer III: Yellowish red (5 YR 4/6); sandy clay fill: stony; weakly developed subangular blocky structure: medium texture; slightly hard. dry consistency; few live rootlets present: contains modern materials. Layer III fill extends to a maximum depth of 1.8 mbs.

Layer IV: Pinkish white (7.5 YR 8/2); sand fill; slightly stony; apedal. single grain structure: fine texture: loose. dry consistency; few live rootlets present; contains modern materials. Layer IV extends to a maximum of 2.6 mbs.

Layer V: Gray (10 YR 5/1): sandy clay fill: slightly stony; weakly developed subangular blocky structure: fine to medium texture; slightly hard. dry consistency; few rootlets present: contains modern materials. Layer V extends to a maximum of 2.2 mbs.

Appendix A (cont.)

Layer VI: Reddish brown (5 YR 4/4); clay with gravel fill; few stones. weakly developed subangular blocky structure: fine texture: slightly hard. dry consistency: few rootlets present: contains modern materials. Layer VI extends to a maximum depth of 2.4 mbs.

Layer VII: Reddish brown (5 YR 5/4); sandy clay fill; few stones: weakly developed subangular blocky structure: fine to medium texture; slightly hard. dry consistency. Layer VII extends from c. 2.4 mbs to a maximum depth of 3.0 mbs.

Layer VIII: Light brownish gray (10 YR 6/2); sand with *in situ* indigenous cultural deposit: few stones: apedal. single grain structure: fine texture: loose. dry consistency: contains food midden. charcoal flecking and a bone fish hook blank. Layer VIII extends from c. 3.0 mbs to a maximum depth of 3.4 mbs.

Layer IX: Very pale brown (10 YR 8/3); sand: few stones. apedal. single grain structure: fine texture: loose. dry consistency. Layer IX is sterile and extends to a maximum depth of 4.0 mbs.

Layer X: Dark reddish brown (2.5 YR 3/4); clay; few stones; moderately developed. subangular blocky structure: fine texture: hard. dry consistency; sterile. Layer X extends to bottom of BT 1 at 4.3 mbs.

Backhoe Trench 2

Layer I: Reddish brown (5 YR 5/4); sandy clay fill: stony, moderately developed subangular blocky structure: medium texture; hard. dry consistency; common live rootlets: contains modern materials and refuse. Layer I fill is up to 0.4 m. thick.

Layer II: Very pale brown (10 YR 8/4) to yellow (10 YR 7/8); banded sand fill; apedal. single grain structure. medium texture; loose. dry consistency; live rootlets present: contains modern materials. Layer II extends from 0.3 to 0.8 mbs.

Layer III: Yellowish red (5 YR 5/6): sandy clay fill: common stones; weakly developed subangular blocky structure; medium texture; slightly hard. dry consistency; live rootlets present: contains modern materials. Layer III fill extends from 0.3 to 1.1 mbs.

Appendix A (cont.)

Layer IV: Reddish brown (5 YR 5/4); sandy clay fill: stony; weakly developed subangular blocky structure: medium texture; slightly hard. dry consistency; few rootlets; contains modern and historic materials and midden near interface with Layer V. Layer IV extends from c. 1.1 to 1.6 mbs.

Layer V: Light brownish gray (10 YR 6/2); sand with *in situ* indigenous cultural materials: few stones: apedal. single grain structure: fine texture: loose. dry consistency: few live rootlets: contains. food midden and a possible burial pit. Layer V extends from c. 1.6 to 1.8 mbs.

Layer VI: Very pale brown (10 YR 8/3); sand: few stones: apedal. single grain structure: fine texture; loose. dry consistency; few live rootlets. Layer VI extends to 1.9 mbs and appears sterile.

Layer VII: Dark reddish brown (2.5 YR 3/4); few stones. moderately developed subangular blocky structure: fine texture: hard. dry consistency; contains dead rootlets. Layer VII extends to the bottom of BT 2 at 2.4 mbs: sterile.

Backhoe Trench 3

Layer I: Reddish brown (5 YR 5/4) clay fill: stony; moderately developed subangular blocky structure: fine to medium texture: hard. dry consistency; common live rootlets; contains modern materials. Layer I fill is c. 0.5 m. thick.

Layer II: Reddish brown (5 YR 4/4): sandy clay fill: slightly stony; weakly developed subangular blocky structure: medium texture: slightly hard. dry consistency; some live rootlets: contains modern materials. Layer II fill is present between 0.5 and 1.0 mbs.

Layer III: Very pale brown (10 YR 8/4) to yellow (10 YR 7/8); banded sand fill; slightly stony: apedal. single grain structure: loose. dry consistency; live rootlets present; contains historic materials and scattered midden above Layer IV. Layer III fill extends from 0.9 to 1.6 mbs.

Layer IV: Very pale brown (10 YR 8/3); sand: few stones: apedal. single grain structure: fine texture: loose. dry consistency; few live rootlets: apparently sterile. Layer IV extends from c. 1.4 to 2.2 mbs.

Appendix A (cont.)

Layer V: Reddish brown (2.5 YR 3/4); clay; few stones; moderately developed subangular blocky structure; fine texture; hard. dry consistency; few live rootlets: apparently sterile. Layer V fill extends from c. 2.2 to 2.5 mbs.

Backhoe Trench 4

Layer I: Reddish brown (5 YR 5/4); clay fill; stony; moderately developed subangular blocky structure; fine to medium texture: hard. dry consistency; common live rootlets, contains modern materials. Layer I fill is c. 0.2 m. thick.

Layer II: Reddish brown (5 YR 5/3); sandy clay fill: stony; moderately developed subangular blocky structure; medium texture: hard. dry consistency; live rootlets present: contains modern materials. Layer I fill extends to c. 0.5 mbs.

Layer III: Banded yellow (10 YR 8/6) to brownish yellow (10 YR 6/6): sand fill; few stones: apedal. single grain structure; fine texture: loose. dry consistency; live rootlets present: contains historic materials. Layer III extends from c. 0.5 to 1.1 mbs.

Layer IV: Very pale brown (10 YR 7/3); sand; few stones: apedal. single grain structure: fine texture: loose. dry consistency; few rootlets: contains some historic material and a few marine shells. Layer IV extends from c. 1.1 to 1.7 mbs.

Layer V: Brownish yellow (10 YR 6/6); sandy clay fill: stony; weakly developed subangular blocky structure: medium texture: slightly hard, dry consistency: contains 2 small boulders with heavy equipment scars. Layer V extends from 1.7 to 2.5 mbs.

Layer VI: Dark reddish brown (2.5 YR 3/4); clay; stony; moderately developed. subangular blocky structure: fine texture; hard. dry consistency; sterile. Layer VI extends to a maximum depth of 2.7 mbs.

Backhoe Trench 5

Layer I: Reddish brown (5 YR 5/4); sandy clay fill: stony; moderately developed subangular blocky structure: fine to medium texture; hard. dry consistency: common live rootlets: contains modern materials. Layer I fill is c. 0.3 m. thick.

Appendix A (cont.)

Layer II: Whitish (10 YR 8/2); sand fill; few stones; apedal, single grain structure: fine texture: loose. dry consistency; live rootlets present; contains modern materials. Layer II extends from c. 0.3 to 0.7 mbs.

Layer III: Brown (7.5 YR 5/4); sandy clay fill; stony; weakly developed subangular blocky structure; fine texture: slightly hard. dry consistency; live rootlets present; contains modern and historic materials; scattered shell midden and a charcoal lens with rusted metal. Layer III fill extends from 0.7 to 1.2 mbs.

Layer IV: Very pale brown (10 YR 8/3); sand; few stones: apedal. single grain structure: fine texture: loose. dry consistency; few rootlets: sterile. Layer IV extends from c. 1.2 to 1.8 mbs.

Layer V: Reddish brown (5 YR 3/4); clay; few stones: moderately developed subangular blocky structure: fine texture: hard. dry consistency; sterile. Layer V extends from c. 1.8 t bottom of BT 5 at c. 2.6 mbs.

Backhoe Trench 6

Layer I: Reddish brown (5 YR 4/4); sandy clay fill; stony; weakly developed subangular blocky structure; medium texture; hard. dry consistency; common live rootlets: contains modern debris. Layer I fill is c. 0.4 m. thick.

Layer II: Banded very pale brown (10 YR 8/3) to brown (10 YR 5/3); sand fill; few stones: apedal. single grain structure; fine texture: loose. dry consistency; common live rootlets: contains modern debris. Layer II fill extends from c. 0.4 to 0.9 mbs.

Layer III: Reddish brown (5 YR 4/3); sand fill; contains road gravel: apedal. single grain structure: fine texture: loose. dry consistency; few live rootlets present: contains scattered pieces of coal c. 10 to 25 mm. in diameter. Layer III fill extends from c. 0.8 to a maximum depth of 1.4 mbs and appears to have disturbed Layer IV.

Layer IV: Very pale brown (10 YR 8/3); sand: few stones; apedal. single grain structure: fine texture: loose. dry consistency; few live rootlets present; sterile. Layer IV extends from c. 1 to 2.2 mbs.

Appendix A (cont.)

Layer V: Dark reddish brown (2.5 YR 3/4); clay; grades to decayed bedrock: moderately developed. subangular blocky structure; fine texture: hard. dry consistency: sterile. Layer V extends to the bottom of BT 6 at 2.9 mbs.

Backhoe Trench 7

Layer I: Reddish brown (5 YR 5/4); sandy clay fill: common stones: moderately developed subangular blocky structure; medium texture: hard. dry consistency; common live rootlets: contains modern materials. Layer I fill is c. 0.2 m. thick.

Layer II: White (10 YR 8/2): sand fill: few stones: apedal. single grain structure; fine texture: loose. dry consistency; live rootlets present: contains modern materials. Layer II fill extends from c. 0.2 to 0.6 mbs.

Layer III: Reddish brown (5 YR 4/3); sandy clay fill: common stones: weakly developed subangular blocky structure; slightly hard. dry consistency; few live rootlets present: contains scattered modern refuse. Layer III fill extends from c. 0.6 to 1.4 mbs.

Layer IV: Pinkish white (5 YR 8/2); sand: few stones: apedal. single grain structure; fine texture: loose. dry consistency; few rootlets present: contains a concrete "dead man" power pole support and a piece of cable. Layer IV extended from c. 1.4 to 2.6 mbs.

Layer V: Reddish brown (5 YR 3/4); clay; common stones: moderately developed subangular blocky structure: fine texture; hard. dry consistency; sterile. Layer V extends from c. 2.6 to the bottom of BT 7 at 2.9 mbs.

Appendix B

Data Recovery Plan and Letter from SHPD to Xamanek Dated 9/21/95

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

September 21, 1995

LOG NO: 15487
DOC NO: 9509SC16

Mr. Walter Fredericksen
Principal Investigator
Xamanek Researches
P.O. Box 131
Pukalani, Hawaii 96788

Dear Mr. Fredericksen:

SUBJECT: **Historic Preservation Review of a Data Recovery Plan for Site 50-50-04-4127**
Wailuku Ahupua'a, Wailuku District, Maui
TMK: 3-4-39: por. 81, 82, 83

Thank you for the submission of the draft plan for data recovery work at Site 50-50-04-4127 at Lower Main and Mill Streets in Wailuku, Maui (*Data Recovery Plan for Site 50-50-04-4127, Wailuku Ahupua'a, Wailuku District, Maui Island [TMK: 3-4-39: 81, 82, 83]*. 1995. Xamanek Researches). We provide the following comments

We believe that the data recovery plan will be acceptable with the following additions:

> Permanent curation of the cultural materials obtained from data recovery work shall be decided upon in consultation with the State Historic Preservation Division and the landowner.
>
> An acceptable report documenting the data recovery work shall be submitted to the State Historic Preservation Division no later than 180 days after the completion of fieldwork.

If you or your client have any objections to our proposed additions, please notify us immediately. Otherwise, we shall assume that our additions to the data recovery plan are acceptable, and have been incorporated.

Should you have any questions, please feel free to call Sara Collins at 587-0013.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

DATA RECOVERY PLAN
FOR SITE 50-50-04-4127,
WAILUKU *AHUPUA'A*, WAILUKU
DISTRICT, MAUI ISLAND
(TMK: 3-4-39: por. 81, 82, 83)

Prepared for:

State Historic Preservation Division
Department of Land and Natural Resources,
on behalf of
County of Maui
Department of Public Works

Prepared by:

Xamanek Researches
P.O. Box 131
Pukalani, Hawaii 96788

August, 1995

INTRODUCTION

In June of 1995, Xamanek Researches conducted an archaeological inventory survey on a strip of land approximately 20 feet wide and 450 long, adjacent to Lower Main Street at the intersection with Mill Street. Improvements including the widening of Main Street and the installation of traffic light signals will impact this portion only. Subsurface testing with a backhoe was undertaken, and the results reported in an inventory survey report (Fredericksen, et., al., July, 1995).

The three properties to be affected are TMK: 3-4-39: 81, 82, and 83 (Map 2). Subsurface testing was done primarily on parcel 82. A series of 7 backhoe trenches were dug, along with 5 auger tests and 1 manual test unit. Subsurface results indicate that the study area has been heavily impacted by earth moving activities in historic times. A minimum of 1.1 meters of fill was present in all backhoe trench tests. Backhoe Trench 1 contained nearly 3 meters of fill. The 2 most easterly subsurface tests located an *in situ* cultural deposit about 30 to 40 cm. below the level of Lower Main Street. In Backhoe Trench 1, and unfinished bone fishhook was recovered and marine food midden remains were noted in the profile. In Backhoe Trench 2, located about 10 meters westward, the same stratum was identified, along with a pit feature which may contain a burial. The upper portion of the cultural layer in each instance appears to have been impacted by past earth moving activities.

Recent archaeological work on the southwestern side of Lower Main Street has found a number of habitation sites, many with associated burials.

The cultural layer was assigned a site number Site 50-50-04-4127, and deemed significant under Criterion D, important for information content. Data recovery was recommended prior to the beginning of road widening and traffic light installation project activity.

DATA RECOVERY STRATEGY

Research questions to be addressed by present data recovery work

Based on the subsurface archaeological inventory survey recently completed, we propose the following research questions to be addressed during data recovery:

1. What is the nature of the pit feature in BT 2, which resembles a burial feature? Does it indeed contain human remains?
2. What kinds of portable cultural materials are included in the fill of this feature?
3. What is the temporal framework of the site?
4. What is the nature of the activity which took place here?
5. How does it fit into the settlement pattern of Lower Main Street/Waiale Road corridor area?

Data needed to answer research questions

The kinds of information/data needed to address the above questions include the following:

1. Manual excavation of the pit feature will produce information about the nature of this feature.
2. Screening of the excavated soil through 1/8 inch screen mesh will retrieve artifacts and food remains.
3. Charcoal or other datable material should be obtained for radiocarbon analysis.
4. Portable remains will be analyzed for type, function, etc.
5. Comparative data recovered from other sites in the Lower Main Street/Waiale Road corridor will provide the basis for answering this question.

Methods proposed to gather and analyze the data

The cultural layer is covered with 1 to 2 meters of fill associated with the construction of the old Kahului Railroad, and more recent activity. A backhoe will be used to clear off this material.

In the area between BT 1 and 2, and about 5 meters to the southwest of BT 2, a trench c. 1 to 1.5 meters in width will be dug through the fill material, exposing the cultural layer. Manual excavation of a 1 x 2 meter test unit within the cultural layer in the vicinity of the pit feature will be made. All soil will be screened through 1/8 inch mesh screen for maximum recovery of portable remains. In the event the pit does contain human remains, excavation will be halted, and the procedures set forth concerning the discovery of burials during data recovery followed.

Another 1 x 2 meter test unit will be placed approximately 5 meters to the northeast (midway between BT 1 and 2), and another 1 x 2 meter test unit in the vicinity of BT 1.

Conventional methods of data collection and recording will be followed throughout the data recovery phase. Artifacts will be described, measured and weighed. Food midden will be analyzed according to standard methods as well. Cultural materials will be temporarily curated by Xamanek Researches, in Pukalani, Hawaii, until permanent curation measures are settled upon.

Lastly, comparison of finds with other recent archaeological work done in the Lower Main /Waiale Road corridor will be done to determine the place of Site 4127 within the general temporal and spatial settlement pattern framework.

REFERENCES

Fredericksen, Erik M., Demaris L. and Walter M.
July 1995 Report on Subsurface Inventory Survey at Lower Main and Mill Street, Wailuku *Ahupua'a*, Wailuku District, Island of Maui (TMK: 3-4-39: por. 81, 82, 83), prepared for County of Maui, Department of Public Works, by Xamanek Researches, Pukalani.

Appendix C

Preliminary Report on Data Recovery Findings

XAMANEK RESEARCHES
P.O. BOX 131
PUKALANI, HAWAII 96788
Phone/FAX: 572-8900

March 22,1996

ATTN: Mr. Milton Arakawa
Munekiyo and Arakawa, Inc.
FAX: 244-8729

Subject: A preliminary report summarizing results of field research for an archaeological data recovery project at site to satisfy requirements of SHPD at Site 50-50-04-4127 in Wailuku ahupua'a, Wailuku District, Maui Island (TMK 03-04-39: 83). (Note: Laboratory analysis is underway and final report is pending).

We recently completed data recovery project field work at Site 4127 along Lower Main Street in Wailuku. Site 4127 lies under c. 1 to 3 m. of imported fill soil. Historic activities which have impacted the general area include railroad and road construction. It appears probable that portions of the site were impacted by grading activities associated with the railroad and/or road. While radiocarbon dates for the site are pending, there appear to be 2 cultural components present at the site.

A total of seven 1 by 1 m. test units were excavated during the data recovery project. In all, nearly 6 cubic meters of soil were sifted through 1/4 inch and 1/8 inch nested screens. Recovered food midden remains included shellfish, echinoderms, crustacea, and fish and pig bones. Additional cultural materials included artifacts such as bone fish hook fragments and tabs, worked pieces of bone and shell, lithic flakes and tools, coral abraders and files, utilized volcanic glass flakes, and a few pieces of reddish brown jasper. Laboratory analysis of cultural materials recovered from sampled areas is currently underway.

In addition to the above material culture remains, over 20 features comprised of pits and what appear to be post holes were encountered. The generally circular to oval pits ranged from c. 30 cm. to about a meter in diameter. The features interpreted as post holes tended to be 20 to 30 cm. in diameter and generally were deeper than the pit features. Several of these smaller features were also slanted, further suggesting a post hole function. However, it is interesting to note that no evidence of a habitation floor was encountered in any of our subsurface testing. This may indicate that habitation was temporary and short term in nature.

Subsurface investigation indicates that deposits overlying Site 4127 have been disturbed by historic activities likely associated with railroad and road construction. A backhoe was utilized to remove the 1 to 3 m. of fill which covers the site. Following removal of the fill, strata containing cultural materials were located. The upper stratum consists of reddish brown (7.5 YR 4/6) compact sandy clay. This layer contains historic materials including coal and occasional metal and bottle glass pieces along with small amounts of shell midden in its upper 10 to 20 cm. The upper portion of this layer may have directly been impacted by past grading activities. The lower 10 to 20 cm. of this soft to compact sandy clay layer contains only indigenous cultural materials along with a few pit and possible post hole features which extend into the next layer.

The above stratum is underlain by light grayish brown to brown (10 YR 6/2 to 10 YR 4/3) sand which contains indigenous cultural materials and several features including pits and post holes. The large pit located during the earlier inventory survey that was identified as a possible burial was investigated. This feature did not contain a burial and proved to be a cooking pit. The majority of the other pits encountered in this sandy cultural layer also contained food midden and fire-cracked rocks. However, a pit which contained an articulated Hawaiian monk seal (Monachus schauinslandi) skeleton was also located in this second stratum. This pit did not contain any charcoal nor did the juvenile seal skeleton exhibit any bone breakages which would indicate that the animal had been utilized for food. It may be possible that the seal was placed as some sort of an offering, although the pit did not contain any material culture remains which would further indicate this function.

Subsurface investigation at Site 4127 indicates that the cultural layers are not uniform in a spatial context. Rather, it appears that portions of the site contain very thin cultural deposits. In one instance, a test unit (TU 2B) yielded very low quantities of cultural materials. One other unit, TU 3B, was essentially sterile in its southern half. This apparent discontinuity of the cultural layers may be a further indicator of low intensity use of the site in general.

As noted earlier, no evidence of occupation floors were located during subsurface testing at Site 4127. The relatively modest material cultural remains recovered from excavations at Site 4127 indicate that the site was not heavily utilized. Rather, results from the data recovery project indicate that the site was most likely used for temporary, short-term habitation.

While Site 4127 is still considered significant under Criterion D of Federal and State historic preservation guidelines, it is no longer considered significant for its information content. Although no human burials were located during the earlier inventory survey and the present data recovery project, the possibility exists that there may be burials in unsampled portions of the study area. Therefore, we recommend archaeological monitoring during Lower Main Street improvements along TMK 03-04-39: 83.

If there are any questions, please contact us.

Sincerely,

Erik Fredericksen