ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

RECEIVED
'03 SEP 10 P2:44
OFC. OF ENVIRONMENTAL
QUALITY CONTROL

September 9, 2003

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

Dear Ms. Salmonson:

RE: Waipuilani Estates - Re-Submittal of the Final Supplemental Environmental Assessment (EA) for Community Plan Amendment for Eight (8) Acres of Twenty-Acre Site from Multi-Family to Single-Family for an RO-Overlay District, of a 96-Lot Residential Subdivision with 95 Single-Family Dwellings, One (1) Lot for Retention Basin/Open at Tax Map Key: 3-9-001:009, and County of Maui Roadway Improvements Kulanihakoi Street and the County Roadway Reserve Identified as Government Road Lot C, Originally Part of Tax Map Key: 3-9-001:011, and Related Improvements, Kihei, Maui, Hawaii (EA 2002/009)

Transmitted herewith are four (4) copies of the Final Supplemental Environmental Assessment (EA) for a Community Plan Amendment Waipuilani Estates 96-Lot R-0 Lot Line Subdivision and related improvements, at Kulanihakoi Street and South Kihei Road, Tax Map Key: 3-9-001:009. Related improvements will include County infrastructure improvements including, but not limited to the roadway improvements at Kulanihakoi Street and the County Roadway Reserve identified as Lot C, originally part of Tax Map Key: 3-9-001:011, Kihei, Island of Maui, Hawaii. The applicant withdrew it's original application on August 2, 2002, for an SMA Permit due to extenuating circumstances arising from the Maui Planning Commission meeting held on June 10, 2002. In addition, the applicant was notified that due to the language in the Subdivision Ordinance (Title 18, Maui County Code), a Community Plan Amendment from Multi-Family to Single-Family is required to permit single-family residential uses.

In the May 23, 2003, OEQC Bulletin, the Maui Planning Department (Department) issued a FONSI on the subject EA. However, the Department was advised by the County's Corporation Counsel that as a result of Judge Joel August's summary judgment on another

project, the Planning Commissions are the accepting authority of Environmental Assessments or Environmental Impact Statements.

Therefore, on June 4, 2003, the Maui Planning Department notified OEQC requesting withdrawal of the FONSI published in the May 23, 2003, OEQC Bulletin. Subsequently, the withdrawal of the FONSI determination was published in the June 23, 2003, OEQC Bulletin.

On June 24, 2003, at its regular meeting, the Maui Planning Commission (Commission) reviewed the Final EA and requested additional information on drainage and alternatives. Additional drainage information was provided to the Commission at its August 26, 2003, meeting. After due deliberation, the Commission determined that this project will not have significant environmental effects and has issued a Findings of No Significant Impact (FONSI). Appropriate mitigative measures to limit the impact of the project on the environment have been proposed by the applicant, however, the Commission noted for the record that the issuance of a FONSI does not preclude the Department or the Maui Planning Commission from requiring additional mitigative measures to limit the impacts of the project during the subsequent Special Management Area Use Permit (SMA) application process. Further, there are specific criteria established in granting the SMA permit and the issuance of the FONSI does not mean that during the SMA process additional information may determine that the application does not meet these criteria. Please publish this notice in the September 23, 2003, OEQC Environmental Notice.

We have enclosed four copies of the Final Supplemental EA. The OEQC Publication Form and project summary have been e-mailed to your office by the applicant's consultants, Chris Hart & Partners.

Please call Ms. Julie Higa, Staff Planner, of this office at 270-7814 if you have any questions.

Sincerely yours,

STAR MEDEIROS, Chair
Maui Planning Commission

MWF:JH
Enclosures
c: Clayton Yoshida, AICP, Planning Program Administrator
Michael Summers, Planner, Chris Hart & Partners
Ruth Dodson
Maureen Bond
Fr. Morley Fretch
Dave Maxwell
Isaac Hall, Esq.
Patricia Hamamoto, Superintendent of Education
George Tengan, Director, Department of Water Supply
Gilbert Coloma-Agaran, Director, Department of Public Works and Environmental Management
Glenn Correa, Director, Department of Parks and Recreation
Freddie Cajugal, Maui District Engineer, State Department of Transportation
Herbert Matsubayashi, Maui District Health Office
Julie Higa, Staff Planner
Project File
General File
K:\WP_DOCS\PLANNING\EA\02ea009.waipuilani\FinalEA.wpd

3.4 Roadway

Kihei Road fronting the project has a right-of-way of 50 feet. County's master plan calls for an ultimate right-of-way of 60 feet. Towards this end the developer will be dedicating a 5-feet road widening strip along Kihei Road. In addition, concrete curb, gutter and sidewalk as well as a storm drain system will be installed on the mauka side of Kihei Road fronting the project.

A second access to the project will be provided from Kulanihakoi Street approximately 950 feet east of Kihei Road. The existing 60-feet wide right-of-way reserve which is owned by the County of Maui will be improved in accordance with County Standards with minor modification, subject to the approval of the County. The total length of this access road from Kulanihakoi Street is 420 feet.

3.5 Electricity/Telephone/CATV

These facilities will be installed underground and extended into the subdivision along the shoulders of the subdivision streets. Street lights will also be installed along the subdivision streets at intervals deemed appropriate by the electrical engineer and in accordance with the County's recently revised streetlight standards.

4.0 CONCLUSION

Based on the foregoing, it is our professional opinion that project-related impacts on existing infrastructure will be minimal and can be mitigated with the installation of improvements proposed. All improvements within the flood hazard area will be in accordance with the provisions of Chapter 19.62 of the Maui County Code.

Established 1969

Preliminary Drainage Report

Waipuilani Subdivision

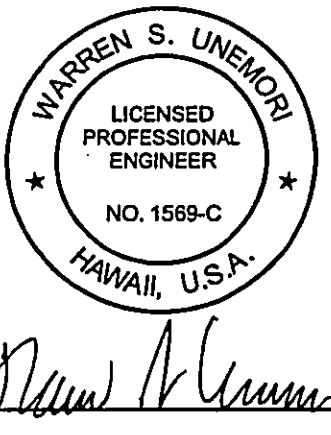
Kihei, Maui, Hawaii
TMK: (2) 3-9-01: 09

Prepared For:

South Kihei Inc.
915 South Kihei Road
Kihei, Maui, Hawaii 96753

and

Betsill Brothers Construction
635 Kenolio Road
Kihei, Maui, Hawaii 96753



Warren S. Unemori Engineering, Inc.
Civil and Structural Engineers - Land Surveyors
2145 Wells Street, Suite 403
Wailuku, Hawaii 96793

Date: March, 2001
Revised: December, 2002

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TABLE OF CONTENTS

Preliminary Drainage Report
for
Waipuilani Subdivision

I. INTRODUCTION

This report has been prepared to examine both the existing drainage conditions and the proposed drainage plan for the subject development.

II. PROPOSED PROJECT

A. *Site Location*:

The project site is located in Kihei, on the island of Maui, and in the State of Hawaii. It is situated approximately 800 feet west of Piilani Highway and approximately 400 feet south of Kulanihakoi Road. South Kihei Road and Piilani Development Subdivision - Phase I (File Plan 2058) borders its westerly and easterly boundary, respectively. (see Exhibit 1).

The project site occupies an area of approximately 20 acres.

B. Project Description:

The proposed plan for the Waipuiulani Subdivision is to develop the project site into a single family residential subdivision consisting of approximately 95 house lots with a minimum lot size of 4,000 sq. ft. Proposed improvements include asphalt paved roadways, concrete curb and gutter, concrete sidewalks and landscaping. A park site is proposed along the southwesterly boundary which will also serve as a retention basin.

Utility improvements will consist of underground sewer, drainage and water distribution systems and underground electrical, telephone and cable-television distribution systems.

II. EXISTING CONDITIONS:

A. Topography and Soil Conditions:

The project site is undeveloped and not being used for any particular purpose. The project site generally slopes from an elevation of approximately (+) 26± feet M.S.L. to approximately (+) 6± feet M.S.L. in a westerly to easterly direction. Waipuilani Gulch is immediately adjacent to the southwesterly portion of the project site.

According to the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* [1], prepared by the United States Department of Agriculture, Soil Conservation Service, the soil classification found on the project site is the Alae sandy loam, 3 to 7 percent slopes (AaB). The Alae sandy loam is characterized as having slow runoff with a slight erosion hazard. (See Exhibit 2).

B. Drainage:

According to our pre-development calculations, the project site presently generates approximately 14.1 cfs of onsite surface runoff during a 50-year recurrence interval 1-hr. duration storm. Existing onsite surface runoff sheet flows across the project site in a easterly to westerly direction and onto South Kihei Road and into the adjacent downstream properties.

Offsite surface runoff generated by Waipuilani Gulch sheet flows in an existing natural drainageway along the southwesterly portion of the property and crosses South Kihei Road via an existing 3' x 7' box culvert. From there, an existing open grassed drainage ditch convey the surface runoff to the ocean. According to our calculations, Waipuilani Gulch has an existing 100 yr. 24 hr. flow of approximately 9,388 cfs. Due to the small capacity of the drainage facilities, flooding around the adjoining properties occur as shown on the FIRM maps.

C. Flood and Tsunami Zone:

According to Panel Number 150003 0265C dated September 6, 1989 of the Flood Insurance Rate Map[2], prepared by the United States Federal Emergency Management Agency, the project site is situated within Zones A3, AO and C. Zone A3 is an area of 100-year flood where base flood elevations and flood hazard factors have been determined. Zone AO is an area of 100-year shallow flooding where depths are between one (1) and three (3) feet, where average depths of inundation are shown, but no flood hazard factors are determined. Zone C is designated as an area which is subject to minimal flooding. It is expected that all habitable structures will be constructed above the base flood elevations. (See Exhibit 3)

IV. DRAINAGE PLAN

A. General:

The design criteria that will be utilized to minimize the impact of increased surface runoff on the existing downstream properties are as follows:

a. There will be no significant change to the natural drainage pattern in the onsite and offsite drainage areas. Onsite surface runoff will continue to flow from the easterly portion of the project site to the westerly portion of the project site, while Waipuilani Gulch will continue to flow toward the existing culvert crossing South Kihei Road and open ditch beyond to the ocean.

b. It is expected that an increase in surface runoff will be generated due to the proposed development. However, the increase in surface runoff will be mitigated by an onsite retention basin system, resulting in a zero net increase in peak discharge due to the proposed subdivision.

According to our calculations, the post development peak runoff from the project site is expected to be approximately 34.1 cfs for a 50 year recurrence interval 1-hour duration storm. This translates to a net increase of approximately 20 cfs due to the project. This increase in onsite surface runoff will be intercepted by new curb inlet type catch basins and conveyed by means of a new underground drainage system located within the subdivision roadways. This surface runoff will be directed into a park/retention basin that will be constructed within the southwesterly portion of the project site. A small diameter release pipe from the park/retention basin will be installed to drain this basin after

flow in Waipuilani Gulch subsides. The release pipe will discharge the impounded runoff to a new storm drainage system on South Kihei Road or to the existing Waipuilani Gulch drainage channel makai of Kihei Road. Therefore, there will be no increase of surface peak discharge to South Kihei Road and the adjoining downstream properties.

As requested by the County of Maui Planning Department, the park/retention basin within the proposed subdivision will be designed to accommodate the increase in surface runoff volume from the entire Waipuilani Gulch drainage basin, including the project site, during a 100 year-24 hr. storm. Using the U.S. Department of Agriculture, Soil Conservation Service (SCS) TR-20 Hydrograph *Method for computing the 100-year* recurrence interval, 24 hour duration storm, our calculations indicate that the total post development surface runoff rate for Waipuilani Gulch will be approximately 9,393 cfs. The park/retention basin will be designed to accommodate the increase in surface runoff rate from 9,388 to 9,393 cfs, due to the development. The storage volume required in the retention basin to handle this increase is approximately 126,300 cu. ft. or 2.9 acre-ft. As mentioned earlier, a small diameter release pipe from the park/retention basin will be used to drain the basin after flow in Waipuilani Gulch subsides.

A table of pre-development and post-development runoff parameters for Waipuilani Gulch drainage basin used in the TR-20 Hydrograph calculation is shown:

Project Phase	Curve Number (CN)	Tc (hrs.)	Peak Flow (cfs)	Runoff Volume (acre-ft.)
Pre-Dev.	72	4.28	9,388	5,829.8
Post-Dev.	72.03	4.28	9,393	5,832.7
			Difference: + 5 cfs	+ 2.9 acre-ft.

B. Hydrologic Calculations:

The onsite hydrologic calculations are based on the "Rules for the Design of Storm Drainage Facilities in the County of Maui", Title MC-15, Chapter 4 and the "Rainfall Frequency Atlas of the Hawaiian Islands", Technical Paper No. 43, U. S. Department of Commerce, Weather Bureau.

Rational Formula used:

$$Q = CIA$$

Where
- Q = Rate of Flow (cfs)
- C = Runoff Coefficient
- I = Rainfall Intensity (inches/hour)
- A = Area (Acres)

The hydrologic calculations for this project may be found in Appendix A.

The offsite hydrologic calculations are based on procedures by the U.S. Department of Agriculture, Soil Conservation Service (SCS). This procedure is described in detail in the SCS National Engineering Handbook, Section 4, Hydrology (NEH-4). Hydrologic calculations were computed by utilizing computer software simulating "SCS

Computer Program for Project Formulation, Hydrology (TR-20)", which is based on the procedures outlined in NEH.

C. Conclusion:

The construction of the park/retention basin, will provide the necessary storage to safely accommodate the net peak increase in onsite surface runoff for a 100 year-24 hr. storm. The net peak discharge that currently sheet flows onto South Kihei Road will remain unchanged. Waipuilani Gulch will continue to flow in the same general direction it is currently flowing. Consequently it is our professional opinion that the proposed development will not have any additional adverse effect on the downstream properties. The drainage plan is in accordance with the provisions of the "Rules For The Design of Storm Drainage Facilities in the County of Maui".

The applicant also retained Engineering Methods and Applications Inc. of Jacksonville, Florida to determine whether the proposed development as planned will cause a rise in flood surface elevations. The conclusion was that there will be no rise in the flood surface elevations even after full development. Three copies of the report were submitted to the Planning Department on December 15, 2002.

Report Prepared By:

Carlos R. Rivera

Carlos R. Rivera

Report Reviewed By:

Warren S. Unemori, P.E.

VII. REFERENCES

1. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.* August 1972. United States Department of Agriculture, Soil Conservation Service.

2. *Flood Insurance Rate Map, Maui County, Hawaii.* Community-Panel Number 150003 0265 C, September 6, 1989. Federal Emergency Management Agency, Federal Insurance Administration.

3. *Rainfall Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43.* 1962. U.S. Department of Commerce, Weather Bureau.

4. *Rules for the Design of Storm Drainage Facilities in the County of Maui.* July 1995. Department of Public Works and Waste Management, County of Maui.

EXHIBITS

1 Location Map

2 Soil Survey Map

3 Flood Insurance Rate Map

4 Waipuilani Gulch Drainage Area

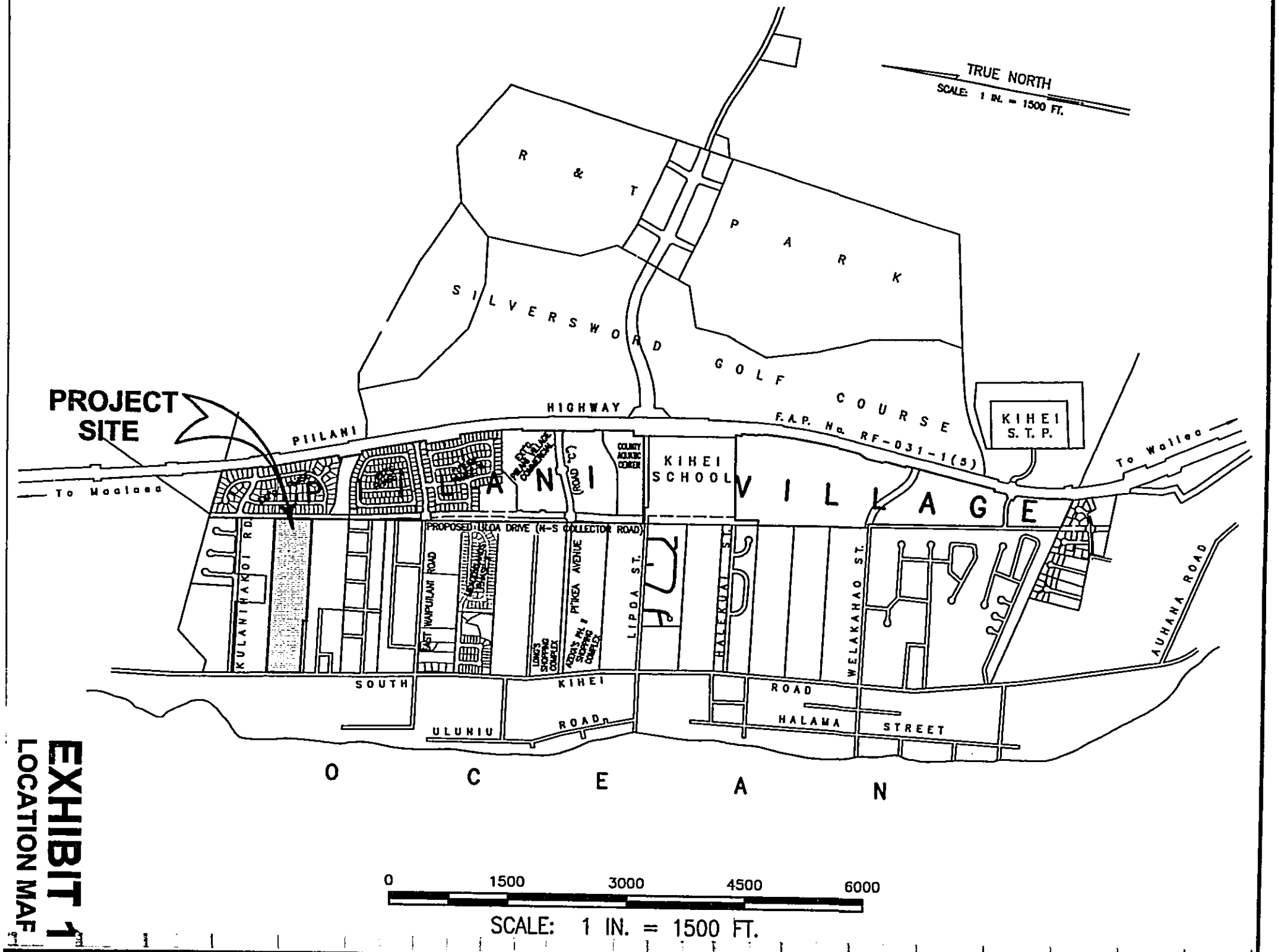

EXHIBIT 1

LOCATION MAP

TRUE NORTH

SCALE: 1 IN. = 1200 FT.

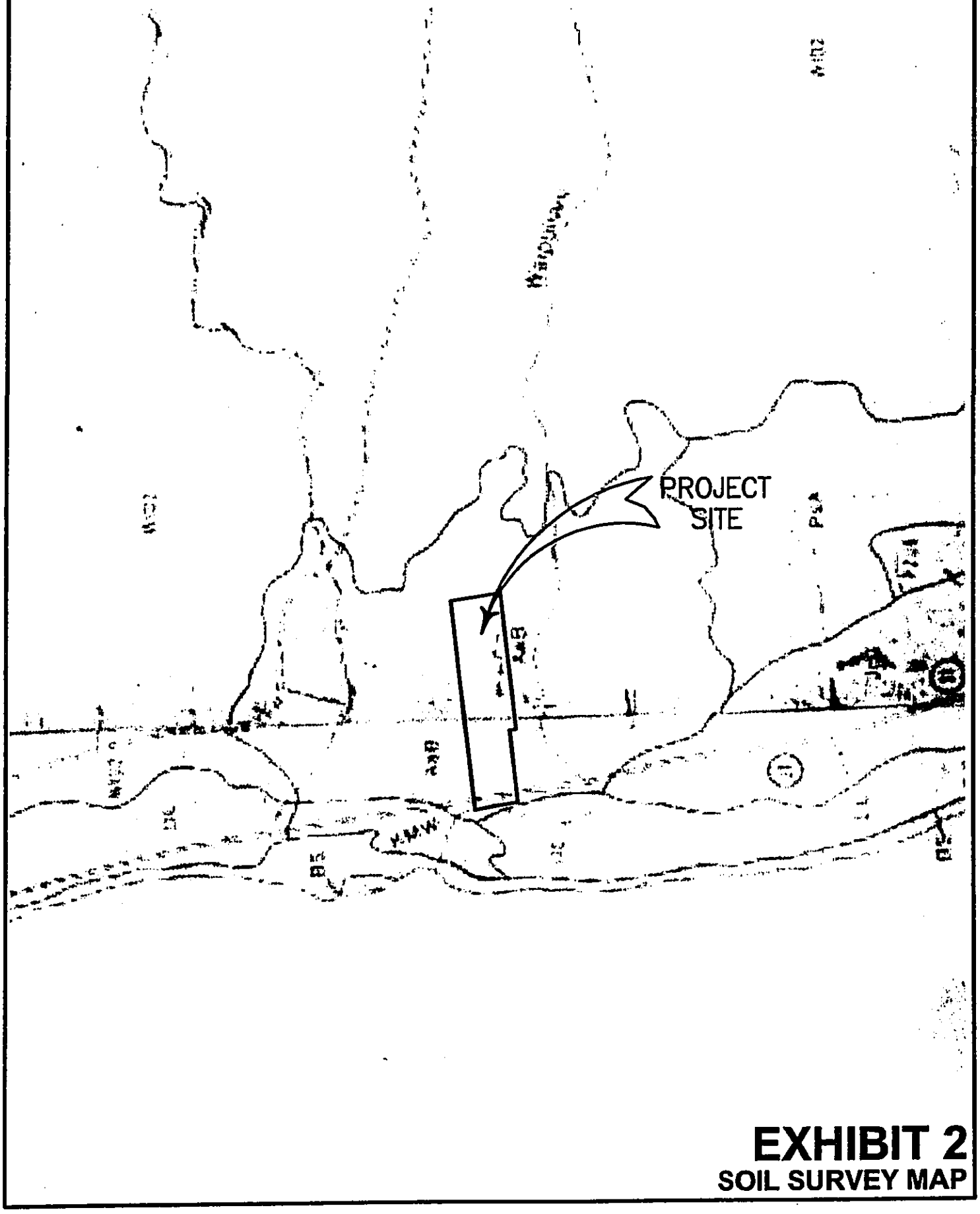

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EXHIBIT 2
SOIL SURVEY MAP

TRUE NORTH

SCALE: 1 IN. = 1200 FT.

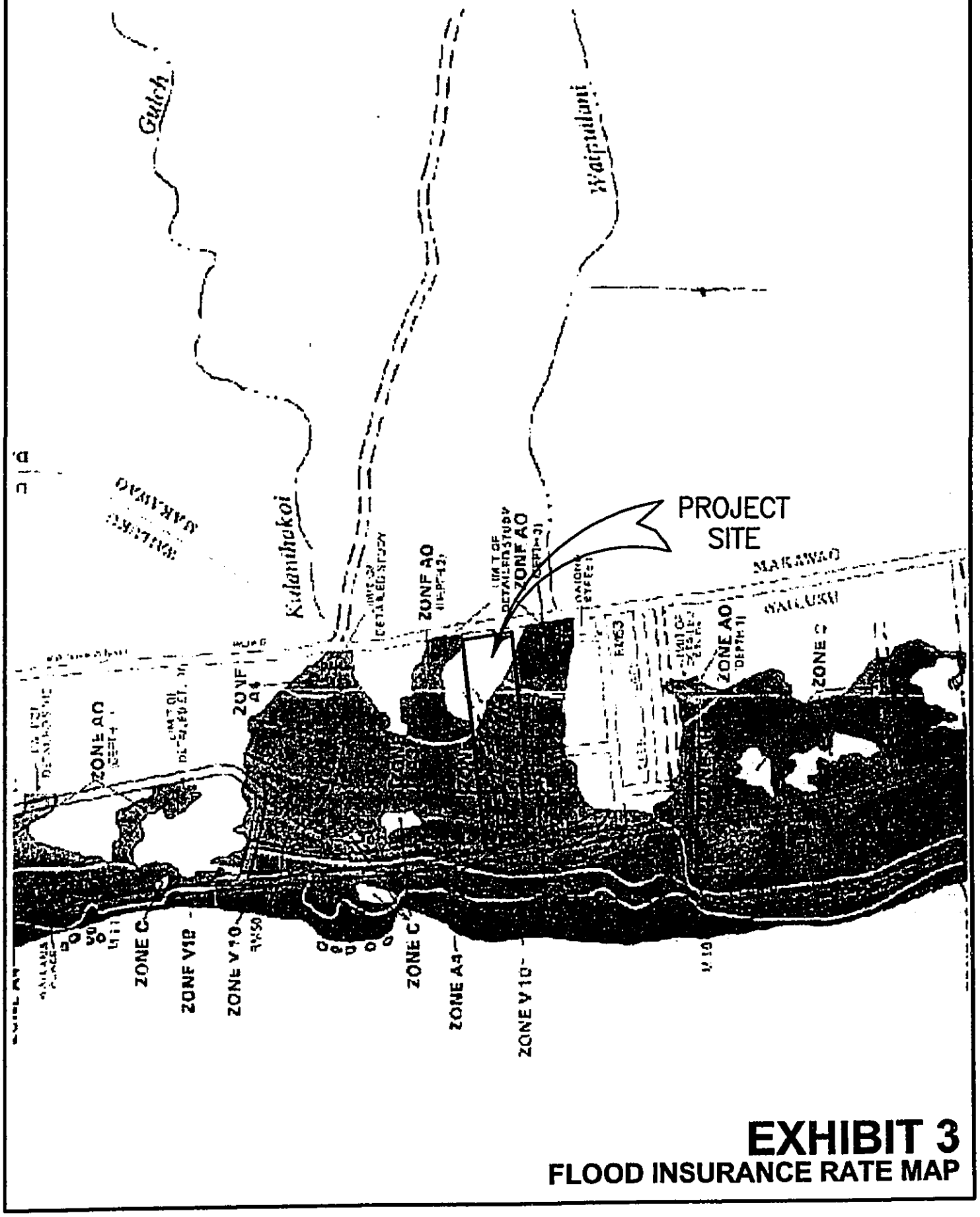


EXHIBIT 3
FLOOD INSURANCE RATE MAP

00proj/00150/dwg/exhibits/floodins.dwg

DOCUMENT CAPTURED AS RECEIVED

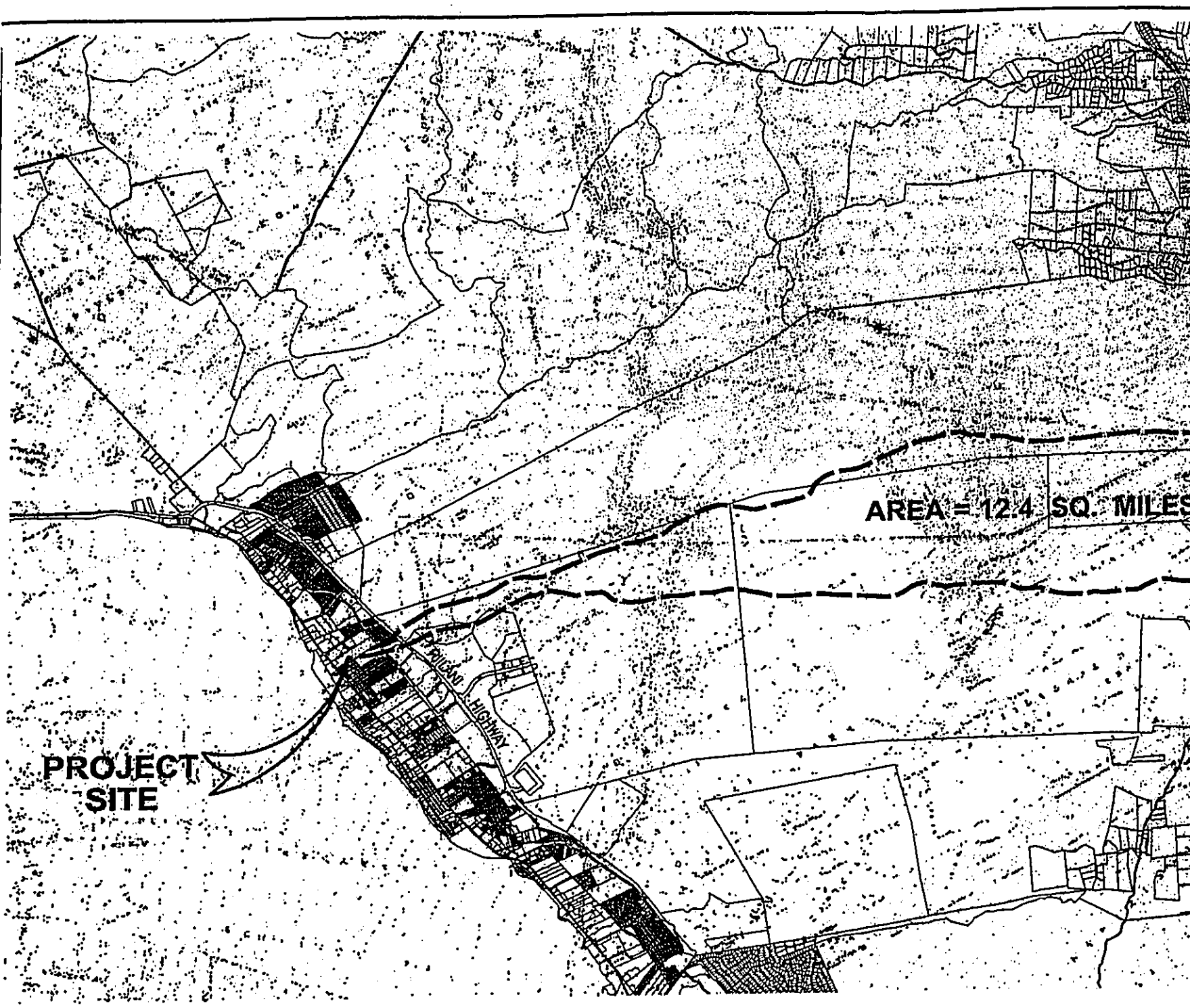
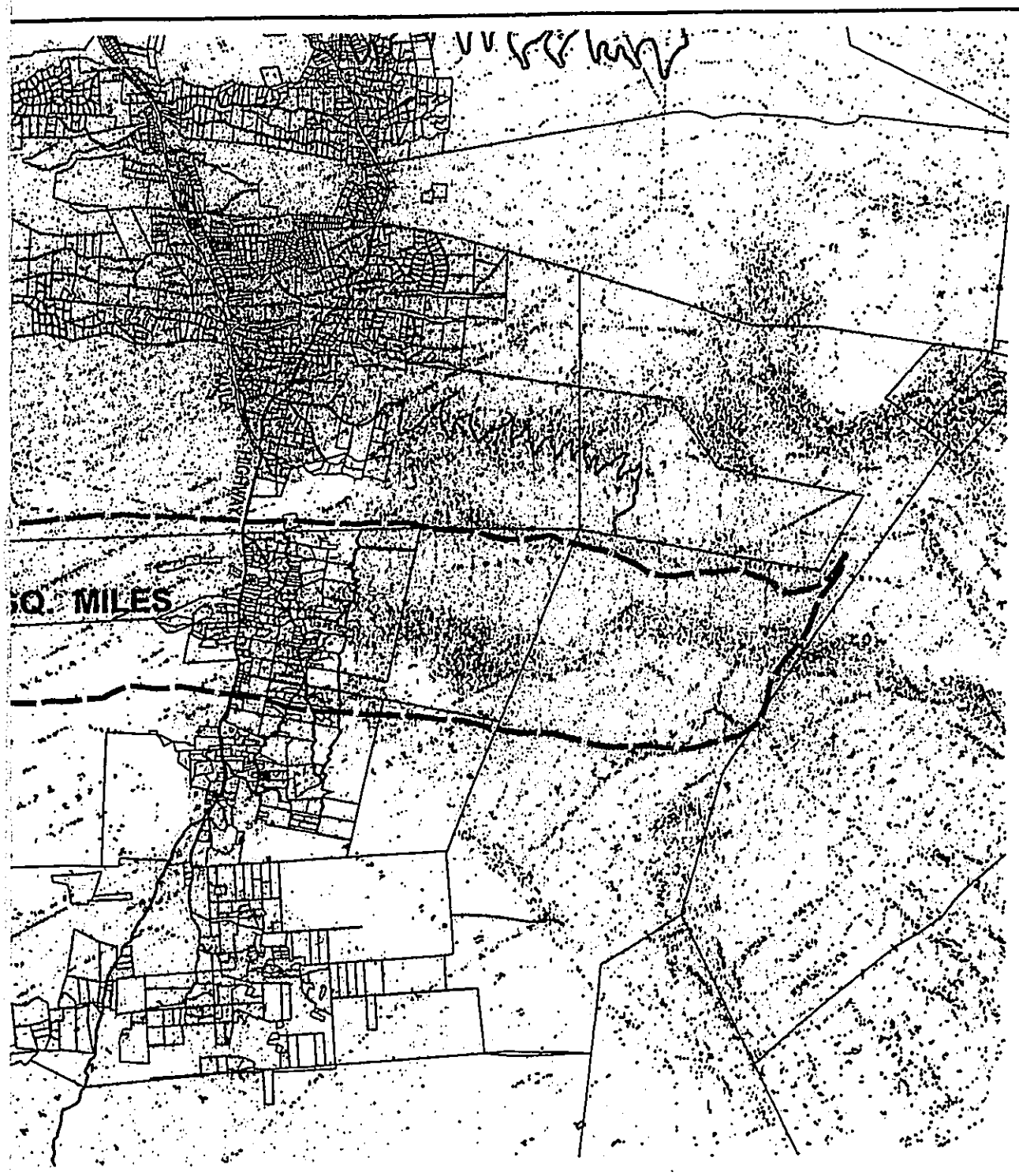


EXHIBIT 4 - WAIPUILANI GULCH DR

SCALE: 1 IN. = 5000 FT.

DOCUMENT CAPTURED AS RECEIVED



TRUE NORTH

SCALE: 1 IN. = 5000 FT.

.CH DRAINAGE AREA

)0 FT.

LEGEND:

DRAINAGE AREA

WARREN S. UNEMORI ENGINEERING, INC.

CIVIL & STRUCTURAL ENGINEERS / LAND SURVEYORS

January 23, 2001

APPENDIX A

HYDROLOGIC CALCULATIONS

Warren S. Unemori Engineering, Inc.
Wells Street Professional Center
2145 Wells Street , Suite 403
Wailuku, Maui , Hawaii 96793

Date: January 10, 2001

HYDROLOGIC CALCULATIONS: PRE-DEVELOPMENT

Objective: To determine the pre-development onsite surface runoff.

I. 50-Yr. - 1 Hr. Rainfall:

From "Rainfall Frequency Atlas of the Hawaiian Islands", for Kihei, Maui,
R(50 Yr.-1Hr.) = 2.00 inches

2. Total Area:

Area (Ac.):		20.00

3. Runoff Coefficents:

Runoff Coeff., c for unimproved areas:		0.30

4. Time of Concentration:

Approx. Elev. Diffl. (ft.)		16.00
Higher Elev. (ft.):	22.00	
Lower Elev. (ft.):	6.00	
Approx. Runoff Length (ft.):		1800.00
Average Slope:		0.89%
Time of Concentration (min.):		45.00

5. Intensity:

Intensity (in./hr.):	2.35

6. Total Runoff:

Q = C x I x A (cfs):	**14.10**

Warren S. Unemori Engineering, Inc.
Wells Street Professional Center
2145 Wells Street , Suite 403
Wailuku, Maui , Hawaii 96793

Date: January 10, 2001

HYDROLOGIC CALCULATIONS: POST-DEVELOPMENT

Objective: To determine the post-development onsite surface runoff.

1. 50-Yr. - 1 Hr. Rainfall:

From "Rainfall Frequency Atlas of the Hawaiian Islands", for Kihei, Maui,

- R(50 Yr.-1Hr.) = 2.00 inches

2. Total Area:

Area (Ac.):	20.00

3. *Runoff Coefficents:*

Runoff Coeff., c for residential areas:	0.55

4. Time of Concentration:

Approx. Elev. Diff'l. (ft.)		10.00
Higher Elev. (ft.):	22.00	
Lower Elev. (ft.):	12.00	
Approx. Runoff Length (ft.):		1100.00
Average Slope:		0.91%
Time of Concentration (min.):		25.00

5. Intensity:

Intensity (in./hr.):	3.1

6. Total Runoff:

Q = C x I x A (cfs):	**34.10**

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20 waipuila  ECON                                SUMMARY   GRAPHICS
TITLE    100 year, 24-hour storm
TITLE
 6 RUNOFF 1   1       1        12.42       72.00        4.281 1 1 1 1 1 1B
   ENDATA
 7 INCREM 6                     0.10
 7 COMPUT 7   1     1                      12.50       1.00 1 2   1   1
   ENDCMP 1
   ENDJOB 2
```

**********END OF 80-80 LIST**********

1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1
STARTING TIME = .00 RAIN DEPTH = 12.50 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
12.72	9388.7	

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .100 hr, DRAINAGE AREA = 12.42 SQ.MI.

HRS								
3.90 CFS	.36	.65	1.06	1.64	2.43	3.46	4.78	6.44
4.70 CFS	8.51	11.03	14.08	17.71	21.99	26.96	32.68	39.19
5.50 CFS	47	55	64	74	84	96	108	122
6.30 CFS	136	151	167	184	202	220	240	261
7.10 CFS	282	305	328	353	378	405	433	462
7.90 CFS	493	524	557	591	626	663	702	742
8.70 CFS	785	829	876	926	978	1034	1094	1158
9.50 CFS	1228	1305	1392	1496	1624	1777	1957	2164
10.30 CFS	2397	2653	2931	3232	3559	3911	4289	4692
11.10 CFS	5116	5557	6005	6447	6870	7270	7640	7975
11.90 CFS	8276	8539	8762	8949	9099	9217	9305	9363
12.70 CFS	9388	9378	9339	9278	9198	9101	8986	8854
13.50 CFS	8704	8536	8350	8148	7935	7719	7508	7305
14.30 CFS	7113	6932	6759	6593	6432	6277	6127	5982
15.10 CFS	5844	5711	5582	5457	5335	5214	5096	4982
15.90 CFS	4871	4765	4663	4566	4473	4383	4296	4213
16.70 CFS	4133	4056	3982	3911	3843	3778	3716	3657
17.50 CFS	3599	3543	3490	3440	3392	3346	3302	3260
18.30 CFS	3219	3179	3141	3104	3068	3034	3001	2968
19.10 CFS	2936	2905	2874	2845	2816	2788	2760	2733
19.90 CFS	2707	2681	2656	2631	2606	2582	2558	2535
20.70 CFS	2512	2490	2468	2446	2424	2402	2380	2359

21.50 CFS	2337	2316	2295	2274	2252	2231	2210	2189
22.30 CFS	2168	2147	2127	2106	2085	2065	2045	2025
23.10 CFS	2006	1987	1968	1949	1930	1912	1893	1874
23.90 CFS	1856	1837	1818	1798	1778	1758	1736	1713
24.70 CFS	1689	1664	1638	1609	1580	1548	1514	1479
25.50 CFS	1441	1401	1359	1315	1271	1225	1178	1131
26.30 CFS	1084	1037	990	943	897	852	808	764
27.10 CFS	723	682	643	605	569	534	501	470
27.90 CFS	440	412	387	363	340	319	300	282
28.70 CFS	265	248	233	219	206	193	182	171
29.50 CFS	160	150	141	132	124	116	109	102

1

TR20 ---------- SCS -
Waipuila — 00 year, 24-hour storm — VERSION 2.04TEST
00/00/** — PASS 1 JOB NO. 1 — PAGE 2
00:00:00

30.30 CFS	96.07	90.10	84.49	79.21	74.25	69.59	65.21	61.10
31.10 CFS	57.24	53.61	50.21	47.02	44.00	41.18	38.53	36.06
31.90 CFS	33.74	31.57	29.52	27.60	25.79	24.09	22.50	21.00
32.70 CFS	19.59	18.27	17.02	15.85	14.75	13.71	12.74	11.83
33.50 CFS	10.98	10.18	9.42	8.72	8.07	7.45	6.87	6.33
34.30 CFS	5.82	5.34	4.89	4.48	4.10	3.74	3.39	3.07
35.10 CFS	2.76	2.48	2.20	1.95	1.71	1.49	1.28	1.10
35.90 CFS	.92	.76	.62	.49				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.80 WATERSHED INCHES; 70545 CFS-HRS; 5829.8 ACRE-FEET.

DURATION(HRS)	3	6	9	12	15	18	21	24
FLOW(CFS)	6759	3982	2816	2168	1624	829	328	108
DURATION(HRS)	27	30	32					
FLOW(CFS)	27	5	0					

--- XSECTION 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

1

TR20 ---------- SCS -
Waipuila — 00 year, 24-hour storm — VERSION 2.04TEST
00/00/** — SUMMARY, JOB NO. 1 — PAGE 3
00:00:00

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)

RAINFALL OF 12.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .100 HOURS

ALTERNATE 1 STORM 1

```
 XSECTION   1  RUNOFF    12.42     8.80        ---      12.72      9389     756.0
1
 TR20 ------------------------------------------------------------------------ SCS -
 Waipuila                      00 year, 24-hour storm                       VERSION
 00/00/**                                                                   2.04TEST
 00:00:00                       SUMMARY, JOB NO.   1                        PAGE   4

                               SUMMARY TABLE 3
                               ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1


 XSECTION    1        12.42
 ---------------------------
    ALTERNATE    1                  9389
1                                  ECON2 DATA FILE


 ECON2
 TITLE                         00 year, 24-hour storm
 FLOW-FREQ      1          9389.                                    ALT  1   1
1
 TR20 ------------------------------------------------------------------------ SCS -
 Waipuila                      00 year, 24-hour storm                       VERSION
 00/00/**                                                                   2.04TEST
```

```
 END OF  1 JOBS IN THIS RUN
```

```
                        SCS  TR-20,  VERSION 2.04TEST
                               Waipuila  FILES

     INPUT  = D:\WMS61Data\WaipuilaniGulch5\TR20.dat   , GIVEN DATA FILE
     OUTPUT = D:\WMS61Data\WaipuilaniGulch5\TR20.out   , DATED 00/00/**,00:00:00

               FILES GENERATED - DATED 00/00/**,00:00:00

     FILE D:\WMS61Data\WaipuilaniGulch5\TR20.TEC CONTAINS ECON2 INFORMATION

     FILE D:\WMS61Data\WaipuilaniGulch5\TR20.TRD CONTAINS READHD INFORMATION

     FILE D:\WMS61Data\WaipuilaniGulch5\TR20.TS1 CONTAINS SUMMARY TABLE # 1
INFORMATION

     FILE D:\WMS61Data\WaipuilaniGulch5\TR20.TS2 CONTAINS SUMMARY TABLE # 2
INFORMATION
```

FILE D:\WMS61Data\WaipuilaniGulch5\TR20.TFL CONTAINS FLOW DURATION INFORMATION

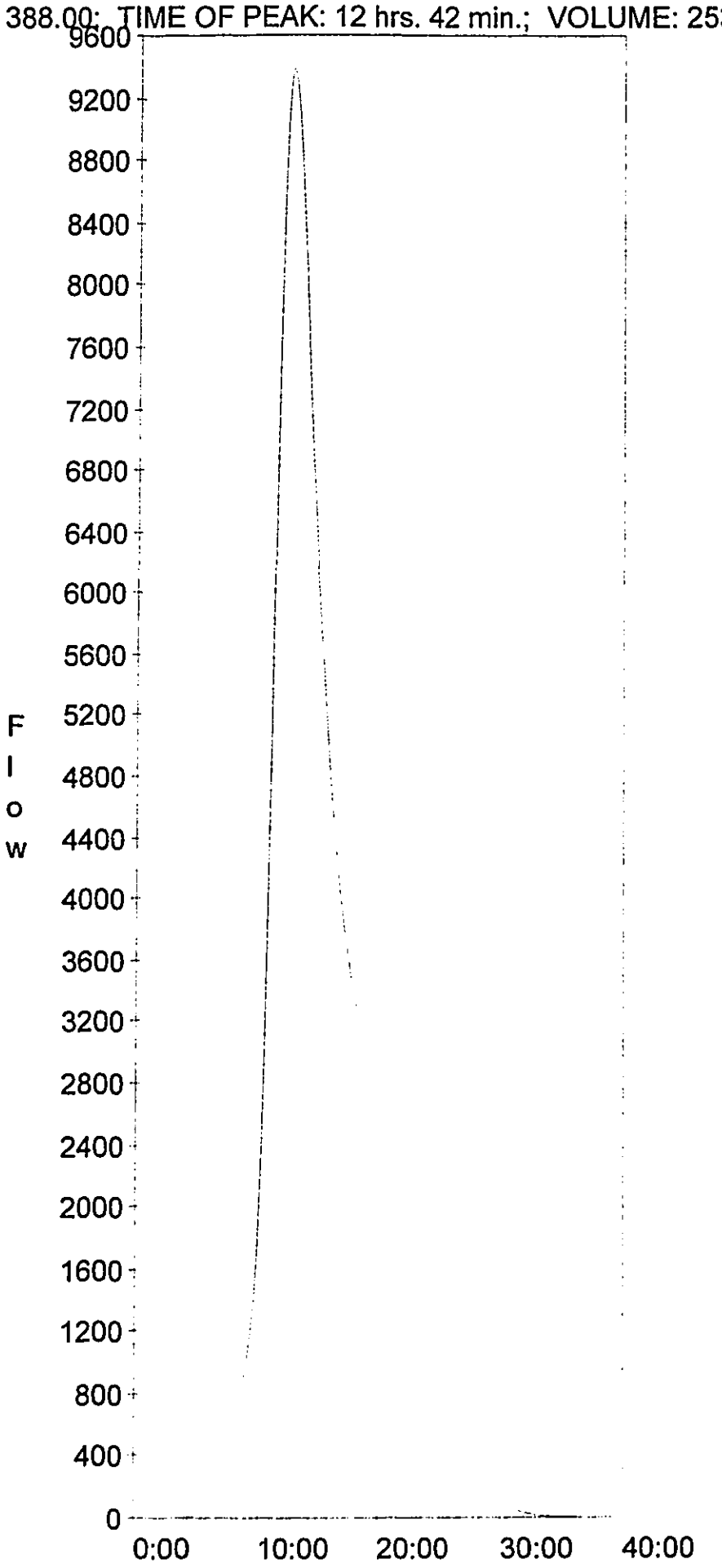
FILE D:\WMS61Data\WaipuilaniGulch5\TR20.THY CONTAINS HYDROGRAPH INFORMATION

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Flow vs. Time

388.00; TIME OF PEAK: 12 hrs. 42 min.; VOLUME: 253



Post-Development

TR20b.out Q = 5 cfs and 2.9 acre-ft.

1

```
**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

JOB TR-20 Waipuila  ECON                              SUMMARY   GRAPHICS
TITLE    100 year, 24-hour storm
TITLE
 6 RUNOFF 1    1       1        12.42       72.03        4.281 1 1 1 1 1 1B
   ENDATA
 7 INCREM 6                     0.10
 7 COMPUT 7    1     1                      12.50       1.00 1 2   1   1
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
1
TR20 ------------------------------------------------------------------ SCS -
Waipuila                      00 year, 24-hour storm                  VERSION
00/00/**                                                              2.04TEST
00:00:00                      PASS   1   JOB NO.   1                 PAGE   1
```

```
--------    NOTE - TR-20 USER NOTE FILE (TR20NOTE.TEX) NOT FOUND.    --------
1
TR20 ------------------------------------------------------------------ SCS -
Waipuila                      00 year, 24-hour storm                  VERSION
00/00/**                                                              2.04TEST
00:00:00                      PASS   1   JOB NO.   1                 PAGE   2


EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =    .100 HOURS


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00       RAIN DEPTH = 12.50       RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =    .100 HOURS
                                     Page 1
```

ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) 12.72 PEAK DISCHARGE(CFS) 9393.9 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .100 hr, DRAINAGE AREA = 12.42 SQ.MI.

HRS								
3.90 CFS	.37	.66	1.08	1.67	2.47	3.51	4.84	6.53
4.70 CFS	8.61	11.16	14.23	17.89	22.20	27.21	32.97	39.51
5.50 CFS	47	55	64	74	85	97	109	122
6.30 CFS	137	152	168	185	203	221	241	262
7.10 CFS	283	306	329	354	380	407	434	464
7.90 CFS	494	526	558	592	628	665	704	744
8.70 CFS	787	831	878	928	980	1036	1096	1160
9.50 CFS	1230	1307	1394	1498	1626	1779	1959	2167
10.30 CFS	2400	2656	2934	3235	3562	3914	4293	4696
11.10 CFS	5120	5561	6010	6451	6875	7275	7645	7980
11.90 CFS	8281	8544	8768	8954	9104	9222	9310	9368
12.70 CFS	9393	9383	9344	9283	9203	9105	8991	8859
13.50 CFS	8709	8540	8354	8152	7939	7723	7511	7308
14.30 CFS	7116	6935	6762	6596	6435	6279	6129	5985
15.10 CFS	5846	5713	5584	5459	5337	5216	5098	4983
15.90 CFS	4873	4766	4665	4568	4474	4384	4298	4214
16.70 CFS	4134	4057	3983	3912	3844	3779	3718	3658
17.50 CFS	3600	3544	3491	3441	3393	3347	3303	3260
18.30 CFS	3219	3180	3142	3105	3069	3035	3001	2969
19.10 CFS	2937	2905	2875	2846	2817	2788	2761	2734
19.90 CFS	2708	2682	2657	2632	2607	2583	2559	2535
20.70 CFS	2513	2490	2468	2446	2424	2402	2381	2359
21.50 CFS	2338	2317	2295	2274	2253	2232	2211	2190
22.30 CFS	2169	2148	2127	2106	2086	2065	2045	2025
23.10 CFS	2006	1987	1968	1949	1931	1912	1893	1875
23.90 CFS	1856	1837	1818	1799	1779	1758	1736	1713
24.70 CFS	1689	1664	1638	1610	1580	1548	1515	1479
25.50 CFS	1441	1401	1359	1316	1271	1225	1178	1131
26.30 CFS	1084	1037	990	943	897	852	808	765
27.10 CFS	723	682	643	605	569	535	501	470
27.90 CFS	440	413	387	363	340	319	300	282
28.70 CFS	265	249	233	219	206	193	182	171
29.50 CFS	160	150	141	132	124	116	109	102

1

TR20 ---------- SCS -
Waipuila 00 year, 24-hour storm VERSION 2.04TEST
00/00/** PASS 1 JOB NO. 1 PAGE 3
00:00:00

30.30 CFS	96.08	90.12	84.51	79.23	74.26	69.60	65.22	61.11
31.10 CFS	57.25	53.62	50.22	47.02	44.01	41.18	38.53	36.06
31.90 CFS	33.75	31.57	29.53	27.60	25.79	24.10	22.50	21.00
32.70 CFS	19.59	18.27	17.03	15.85	14.75	13.71	12.74	11.83
33.50 CFS	10.98	10.18	9.43	8.72	8.07	7.45	6.87	6.33
34.30 CFS	5.82	5.34	4.89	4.48	4.10	3.74	3.39	3.07
35.10 CFS	2.77	2.48	2.20	1.95	1.71	1.49	1.28	1.10
35.90 CFS	.92	.76	.62	.49				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.81 WATERSHED INCHES; 70580 CFS-HRS; 5832.7 ACRE-FEET.

DURATION(HRS)	3	6	9	12	15	18	21	24
FLOW(CFS)	6762	3983	2817	2169	1626	831	329	109

```
   DURATION(HRS)  27      30      32
   FLOW(CFS)      27       5       0

--- XSECTION   1, ALTERNATE  1, STORM  1, HYDROGRAPH ADDED TO READHD FILE ---


EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1
1
TR20 ------------------------------------------------------------------- SCS -
Waipuila                    00 year, 24-hour storm                    VERSION
00/00/**                                                             2.04TEST
00:00:00                     SUMMARY, JOB NO.   1                    PAGE   4


                            SUMMARY TABLE 1
                            ---------------
   SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
   A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH   T-TRUNCATED HYDROGRAPH   R-RISING TRUNCATED HYDROGRAPH

XSECTION/  STANDARD                                        PEAK DISCHARGE
STRUCTURE   CONTROL    DRAINAGE   RUNOFF   ------------------------------------
   ID       OPERATION    AREA     AMOUNT   ELEVATION   TIME      RATE     RATE
                        (SQ MI)    (IN)      (FT)      (HR)      (CFS)    (CSM)

RAINFALL OF  12.50 inches AND  24.00 hr DURATION, BEGINS AT     .0 hrs.
RAINTABLE NUMBER  1,     ARC 2
MAIN TIME INCREMENT    .100 HOURS

   ALTERNATE     1   STORM     1
   ----------------------------
XSECTION    1  RUNOFF    12.42     8.81        ---     12.72     9394    756.4
1
TR20 ------------------------------------------------------------------- SCS -
Waipuila                    00 year, 24-hour storm                    VERSION
00/00/**                                                             2.04TEST
00:00:00                     SUMMARY, JOB NO.   1                    PAGE   5


                            SUMMARY TABLE 3
                            ---------------
     STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
     QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/          DRAINAGE
STRUCTURE            AREA       STORM NUMBERS.....
  ID                (SQ MI)          1


XSECTION    1        12.42
---------------------------
   ALTERNATE    1                 9394
1                                ECON2 DATA FILE


ECON2
TITLE                          00 year, 24-hour storm
FLOW-FREQ     1          9394.                                    ALT  1   1
1
TR20 ------------------------------------------------------------------- SCS -
Waipuila                    00 year, 24-hour storm                    VERSION
00/00/**                                                             2.04TEST
```

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
Waipuila FILES

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OUTPUT = D:\WMS61Data\WaipuilaniGulch5\TR20b.out , DATED 00/00/**,00:00:00

FILES GENERATED - DATED 00/00/**,00:00:00

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.TEC CONTAINS ECON2 INFORMATION

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.TRD CONTAINS READHD INFORMATION

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.TS1 CONTAINS SUMMARY TABLE # 1 INFORMATION

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.TS2 CONTAINS SUMMARY TABLE # 2 INFORMATION

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.TFL CONTAINS FLOW DURATION INFORMATION

FILE D:\WMS61Data\WaipuilaniGulch5\TR20b.THY CONTAINS HYDROGRAPH INFORMATION

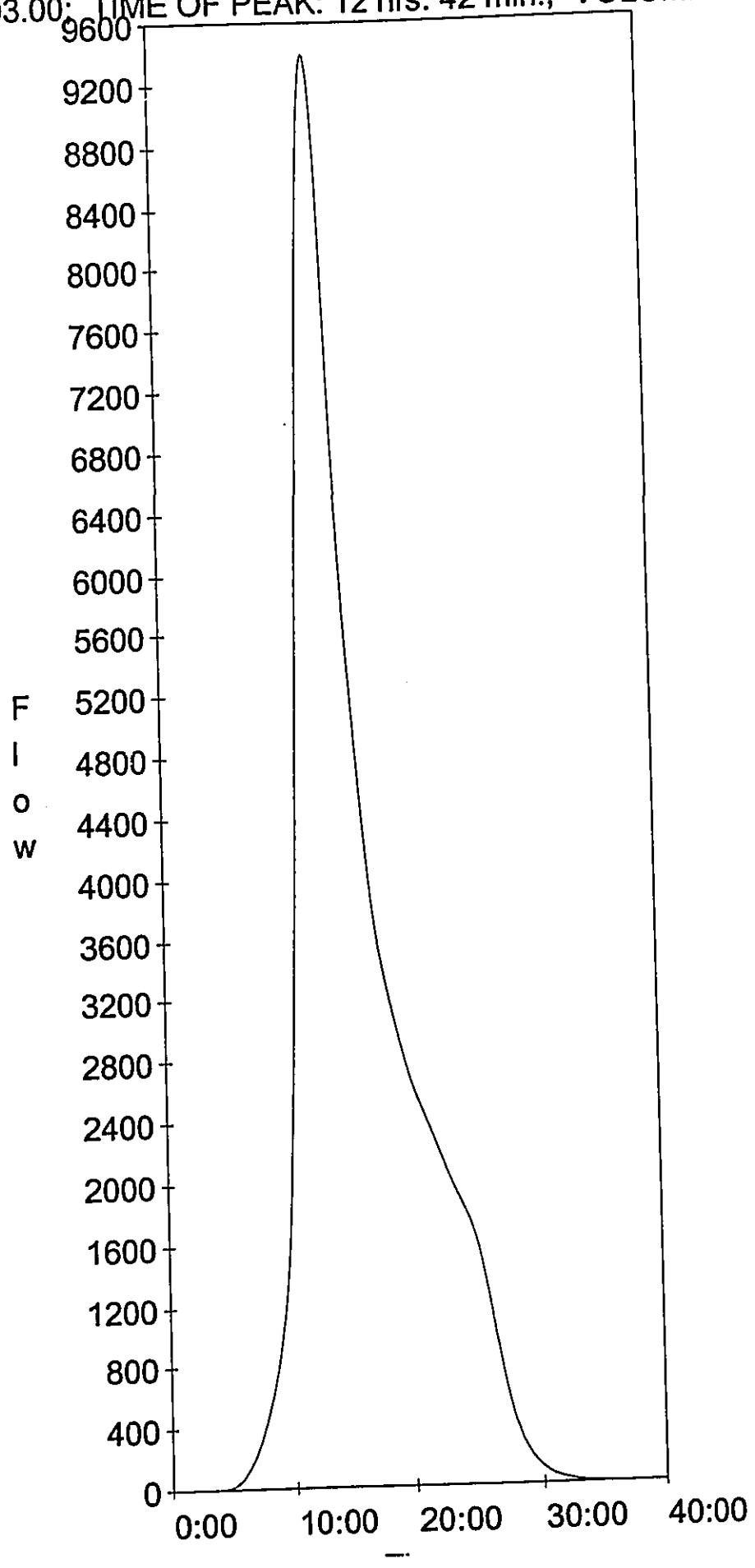
TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Post Development

Flow vs. Time

? 393.00; TIME OF PEAK: 12 hrs. 42 min.; VOLUME: 25



Established 1969

Addendum
to
Preliminary Drainage Report

Waipuilani Subdivision

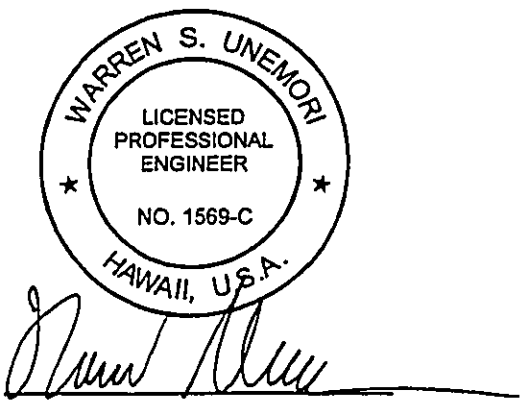
Kihei, Maui, Hawaii
TMK: (2) 3-9-01: 09

Prepared For:

South Kihei Inc.
915 South Kihei Road
Kihei, Maui, Hawaii 96753

and

Betsill Brothers Construction
635 Kenolio Road
Kihei, Maui, Hawaii 96753



Warren S. Unemori Engineering, Inc.
Civil and Structural Engineers - Land Surveyors
2145 Wells Street, Suite 403
Wailuku, Hawaii 96793

Date: August, 2003

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Addendum\cover001.cdr

TABLE OF CONTENTS
PRELIMINARY DRAINAGE REPORT

ADDENDUM TO THE PRELIMINARY ENGINEERING REPORT DATED MARCH 2001.

At its meeting of June 24, 2003, the Planning Commission requested additional information concerning the offsite runoff in Waipuilani Gulch. This addendum to the preliminary drainage report attempts to address some of the concerns and questions raised.

A. BACKGROUND

The Kihei District of Maui is a long and narrow coastal lowland located at the western base of Mount Haleakala. The Waipuilani project site is located within the coastal lowland area of Kihei. Runoff from the northwestern slopes of Haleakala generally end up in this coastal lowland area. Consequently, the entire coastal area bordering Kihei Road between Kealia Pond to the north and Kalama Park at the south end, is in the flood plain as established by FEMA. Within this area, four major drainageways serve as the conduit to convey runoff from the slopes of Haleakala to the ocean. They are Waiakoa Gulch, Kulanihakoi Gulch, Waipuilani Gulch and Keokea Gulch. Ponding in the coastal lowlands is exacerbated by inadequate drainageways, by sand berms that has formed along the seashore and development that took place before the enactment of the U.S. National Flood Insurance Act of 1968 and the U.S. Flood Disaster Protection Act of 1973.

Exhibit A shows the four major drainage basins and the extent of the flood plain in the lowland coastal area of Kihei.

B. PAST STUDIES

The first study conducted by the U.S. Corps of Egineers (C of E) in 1964 concluded that Federal involvement in flood control improvements for the Kihei District was infeasible at that time.

A second study was also conducted by the C of E in 1981. This second study reviewed various alternatives to convey flows in the four major gulches to the ocean. Most of

these improvements consisted of trapezoidal or rectangular concrete or rip rap lined channels between Piilani Highway and the ocean. The approximate alignment of these channels are shown on Exhibit A.

Following the study, the District Engineer of the C of E determined that the improvements proposed could not be justified. He therefore recommended that the study be terminated.

C. ESTIMATED CONSTRUCTION COST TO CHANNELIZE

Design Parameters Assumed to Channelize Waipuilani Stream

- Strive to minimize displacement of homes.
- Reinforced Concrete rectangular channel 70 feet wide with 13 feet high side walls.
- Minimum slope = 0.25%
- Triple cell box culvert will be installed along Kihei Road to pass 100 yr. storm across it.
- Height of water in channel = 9 feet ±
- Octagonal piles required to support structures because of poor soil conditions.
- Channel below Kihei Road will be covered for a distance of 350 feet to serve as a replacement parking lot for Kauhale Kai Condomimium.
- The estimated construction cost does not include a debris basin that will probably have to be built above Piilani Highway also.

Waipuilani Stream between N/S Collector Road and the ocean. L-2900' ±

1. See Estimated Construction Cost Exhibit B
2. See Estimated Right-of-way Cost Exhibit C
   (Based on Tax Assessment Values)

D. SITE SPECIFIC INFORMATION

As stated previously, approximately 78% of the project site lies within the flood plain. According to FEMA, the depth of water in the flood plain across the project site is expected to vary between zero and three (3) feet during a 100 year storm (see exhibit E). This was verified by the no-rise analysis conducted by Engineering Methods and Applications (EMA) of Jacksonville, Florida. EMA also determined that the velocities along the north bank of the existing channel are expected to range between 1.60 and 7.21 feet per second (see exhibit D).

Structures within the designated flood plain will be constructed in accordance with the following Standards of Development prescribed in Chapter 19.62.060 of the Maui County Code:

1. All structures will be built on poured-in-place reinforced concrete columns.
2. Floor joists and support beams will be bolted to cast-in-place steel brackets embedded on top of each column.
3. The bottom of the floor joist or structural member will be elevated a minimum of 12 inches above the base flood elevation. This means that the finish floor will be approximately 24 inches above the base flood elevation.
4. Each column will be structurally designed to withstand the bending and shear forces exerted by the moving water.
5. Conduits for utility lines will either be embedded in the concrete columns or strapped to each column.
6. To extent practical, sewer lines will be designed to minimize infiltration of flood waters into the wastewater systems.
7. Backflow preventers will be installed after each water meter to prevent contaminants from entering the potable water system.
8. It is reasonable to expect that people living in the low lying flood plain areas of Kihei will be forewarned through the State and County Civil Defense network. According to our calculation, a 100 yr - 24 hour storm will take around 13 hours to reach its peak flow of approximately 10,000 cfs.

9. Regarding vehicles parked outside of garages, anchor rings embedded within the concrete driveways and garages will be provided to anchor each vehicle if the owner elects not to move out of the flood plain area during heavy storms.

E. SUMMARY AND CONCLUSION

Although the Waipuilani Residential Subdivision is located within the flood plain, construction of single and multi-family homes as proposed, is permitted subject to compliance with the Standards of Development as outlined in Section 19.62.060 of the Maui County Flood Hazard Ordinance (see page 629 of Chapter 19.62 which is attached as Appendix B).

As explained earlier, flooding of the low lying coastal areas in Kihei is caused by offsite runoff which the applicant has no control over. However, the applicant is committed to complying with standard guidelines for development within flood plains as prescribed by FEMA to safeguard the health and safety of the residents of the proposed project. Also, based on the "No Rise Analysis" conducted by EMA, which substantiates the status quo after development, there should be no additional adverse affect on the downstream properties due to the project.

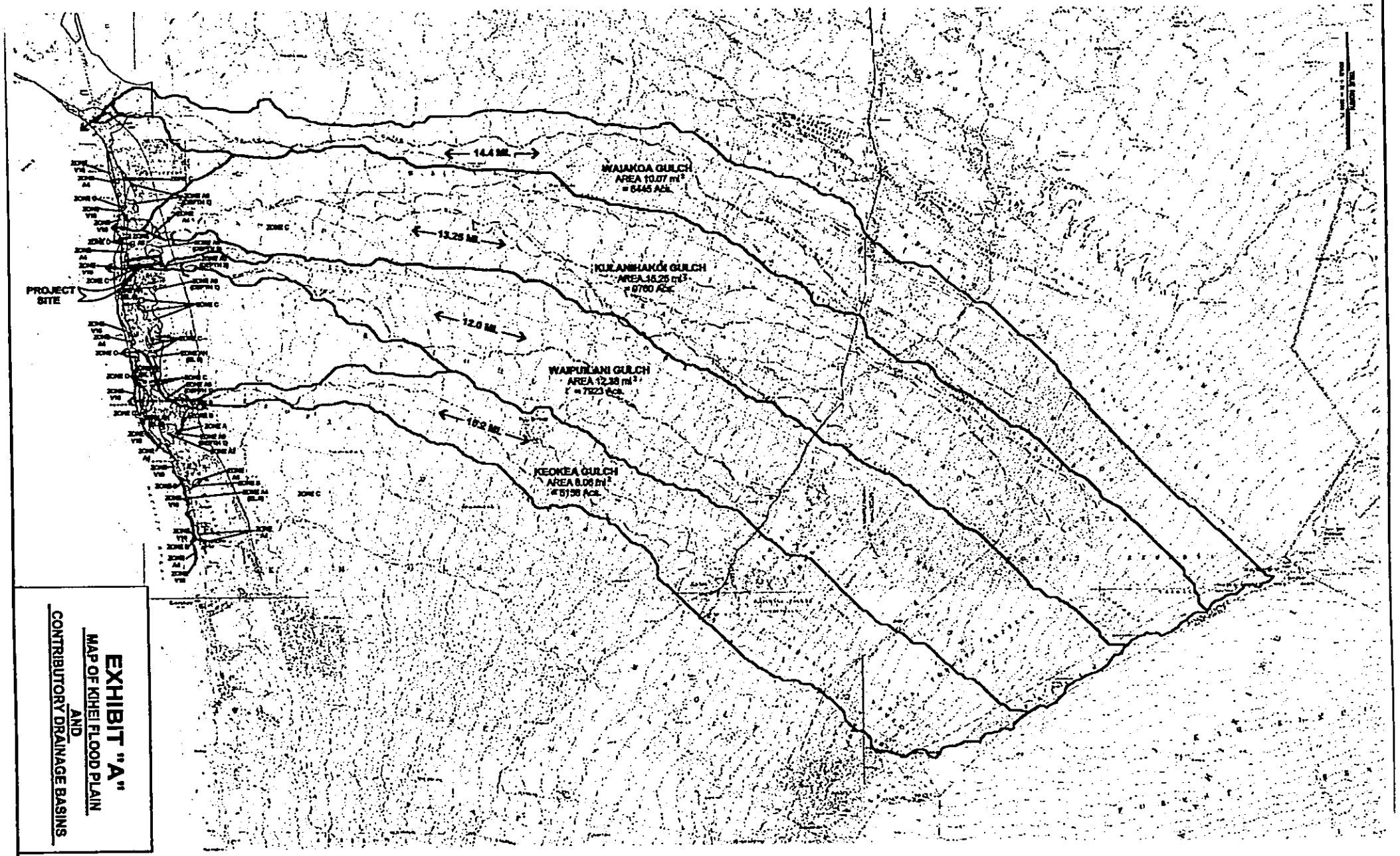

EXHIBIT "A"

MAP OF KIHEI FLOOD PLAIN

AND

CONTRIBUTORY DRAINAGE BASINS

WATERSHED BASINS OF WAIAKOA, KULANIHAKOI, WAIPUILANI, AND KEOKEA GULCHES WITH FEMA FLOOD ZONES

SCALE: 1 INCH = 2000 FEET

Estimated Cost to Install a Flood Control Channel along Waipuilani Stream

August 7, 2003

Roadway Retaining Walls (including pilings and relocation of sewer, water and powerlines)	$ 4,073,180
Box culvert across Kihei Road (including ramps and pilings)	$ 1,006,400
Parking deck over channel (including stairs and pilings)	$ 3,424,480
Channel Walls and Slab (including pilings)	$ 12,564,020
Mobilization	$ 135,000
Total	$ 21,203,080
15% Contingency	$ 3,180,462
Probable Construction Cost	$ 24,383,542
Right-of-way acquisition Cost based on tax Assessment:	$ 1,801,528
Total Estimated Cost including Right-of-way cost:	$ 26,184,070

V:\PROJDATA\00PROJ\00150\Reports\Addendum to PER 3-2001\Est Cost to install Flood Control Channel.wpd

EXHIBIT B

R.O.W. Costs for
Waipuilani Bridge and Channel Improvements

August 7, 2003

TMK	OWNER	LAND AREA	CofM TAX APPRAISAL	TOTAL
3-9-01:75	Kauhale Makai	23,800 s.f.	$28.00	$ 666,400.00
3-9-01:1	State of Hawaii	38,400 s.f.	$0.37/s.f.	$ 14,208.00
3-9-01:6	Luana Kai	3,500 s.f.	$43/s.f.	$ 150,500.00
3-9-01:07	Maui Waiohuli Prtns	101,850 s.f.	$2.92/s.f.	$ 297,402.00
3-9-01:9	Max Soriano	2,800 s.f.	$3.02/s.f.	$ 8,456.00
3-9-34:16-25	various owners	7,160 s.f.	$13/s.f.	$ 93,080.00
3-9-34:27	T. Gusukuma Tr.	40,946 s.f.	Land & House	$ 336,500.00

* Subtotal	$1,566,546.00
15%	$ 234,982.00
Total R.O.W. Cost	$1,801,528.00

* Based on property tax appraisal values.

Note: That one dwelling unit on TMK 3-9-34:27 will be displaced.

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EXHIBIT C

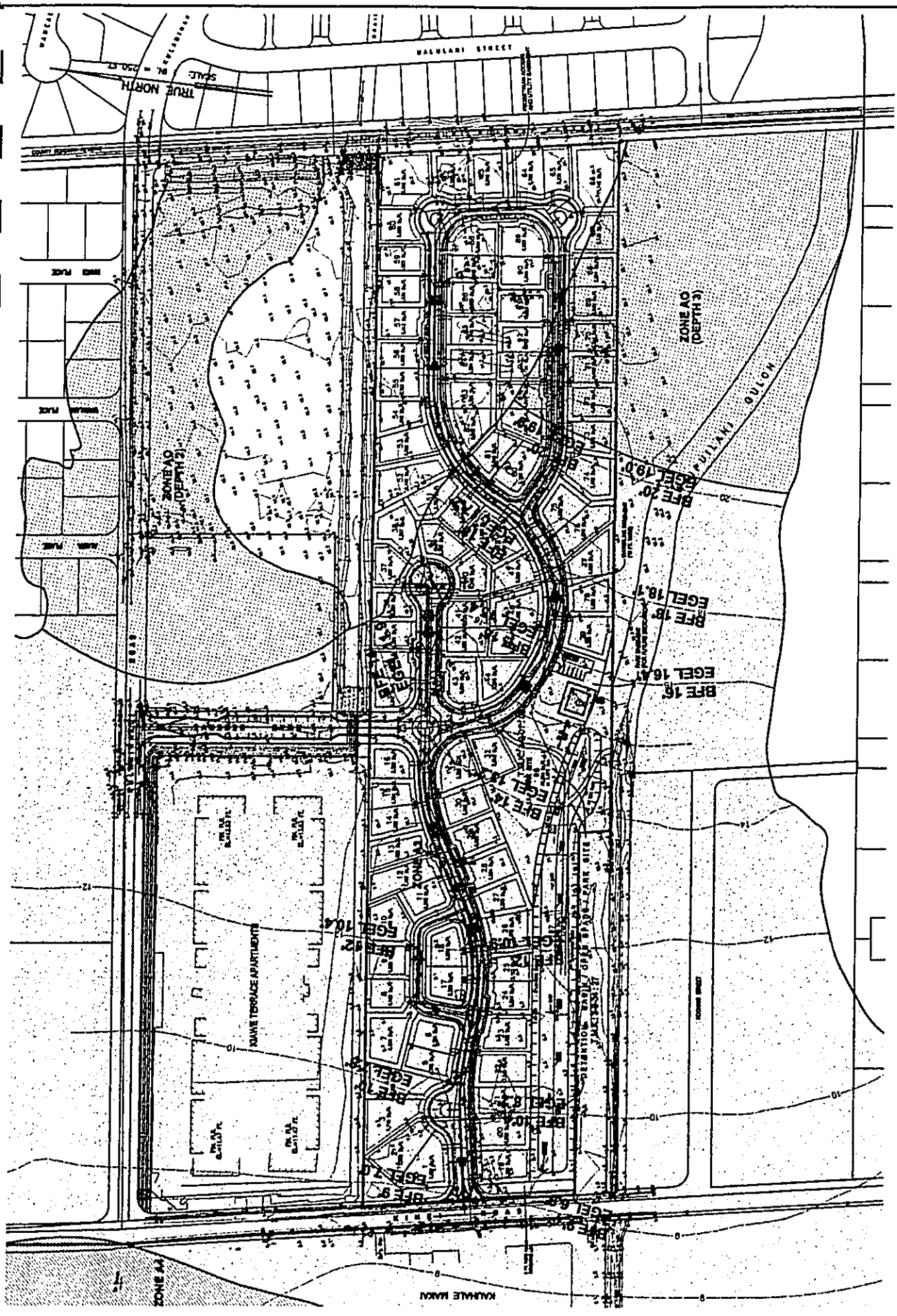
HEC-RAS Plan: proposed River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Vel Left	Vel Right
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft/s)	(ft/s)
Reach-1	1	10-YR	5400.00	3.40	5.65	5.39	5.91	0.010007	4.23	1343.73	1617.52	0.60	0.59	4.05
Reach-1	1	50-YR	13800.00	3.40	6.47	6.20	6.74	0.010004	5.42	3373.73	3202.97	0.64	2.50	4.33
Reach-1	1	100-YR	19200.00	3.40	6.77	6.51	7.08	0.010013	5.92	4408.77	3494.88	0.66	3.09	4.57
Reach-1	1	500-YR	37000.00	3.40	7.61	7.06	7.94	0.010002	7.01	7146.39	3883.42	0.68	4.22	5.37
Reach-1	2	10-YR	5400.00	4.00	7.19		7.20	0.001516	2.43	5917.14	3762.18	0.26	0.66	0.95
Reach-1	2	50-YR	13800.00	4.00	8.29		8.32	0.002033	3.53	10318.19	4356.43	0.32	1.05	1.39
Reach-1	2	100-YR	19200.00	4.00	8.76		8.80	0.002294	4.05	12436.29	4642.01	0.35	1.23	1.60
Reach-1	2	500-YR	37000.00	4.00	9.88		9.95	0.002898	5.32	17726.58	4772.35	0.40	1.77	2.15
Reach-1	2.5		Culvert											
Reach-1	3	10-YR	5400.00	4.00	7.19	6.58	7.22	0.002649	3.21	4496.27	3494.24	0.34	0.87	1.27
Reach-1	3	50-YR	13800.00	4.00	8.30	6.87	8.34	0.003030	4.32	8671.67	4213.21	0.39	1.29	1.68
Reach-1	3	100-YR	19200.00	4.00	8.77	6.94	8.82	0.003208	4.80	10735.95	4494.58	0.41	1.46	1.88
Reach-1	3	500-YR	37000.00	4.00	9.92	7.49	10.01	0.003556	6.92	15988.20	4625.35	0.45	1.98	2.39
Reach-1	3.5	10-YR	5400.00	9.97	8.94	8.94	9.59	0.021864		831.05	649.08	0.00		6.50
Reach-1	3.5	50-YR	13800.00	9.97	10.23	10.23	10.98	0.023998	1.30	1986.74	1338.04	0.64		6.94
Reach-1	3.5	100-YR	19200.00	9.97	10.67	10.67	11.47	0.026587	2.84	2665.06	1675.73	0.79		7.21
Reach-1	3.5	500-YR	37000.00	9.97	11.63	11.58	12.77	0.023381	4.77	4758.33	1888.43	0.87		7.79
Reach-1	4	10-YR	5400.00	14.00	13.67	12.50	13.76	0.004090		2274.25	1547.66	0.00		2.37
Reach-1	4	50-YR	13800.00	14.00	15.20		15.31	0.004157	1.51	5244.49	2227.32	0.34		2.64
Reach-1	4	100-YR	19200.00	14.00	15.82		15.95	0.004181	2.01	6855.87	2305.39	0.37		2.89
Reach-1	4	500-YR	37000.00	14.00	17.19		17.40	0.004606	3.27	10194.87	2688.40	0.43		3.64
Reach-1	7	10-YR	5400.00	13.30	18.00	18.00	18.67	0.020607	8.99	1020.15	782.31	0.98	1.34	4.29
Reach-1	7	50-YR	13800.00	13.30	19.10	19.10	20.01	0.020995	11.45	2247.19	1271.84	1.05	1.81	5.64
Reach-1	7	100-YR	19200.00	13.30	19.61	19.61	20.63	0.020556	12.34	2921.84	1363.03	1.06	2.22	6.33
Reach-1	7	500-YR	37000.00	13.30	20.74	20.74	22.25	0.022803	15.23	4475.14	1377.06	1.16	3.78	8.33
Reach-1	8	10-YR	5400.00	18.00	22.69		22.88	0.003899	4.18	1582.76	527.62	0.43		3.38
Reach-1	8	50-YR	13800.00	18.00	24.71		25.09	0.005095	6.00	2803.69	676.82	0.52		4.81
Reach-1	8	100-YR	19200.00	18.00	25.57		26.04	0.005857	6.78	3531.39	1165.04	0.55		5.30
Reach-1	8	500-YR	37000.00	18.00	27.53	25.75	28.07	0.005938	7.84	6608.36	1718.91	0.58	1.39	5.73
Reach-1	9	10-YR	2600.00	19.50	23.44		23.53	0.001961	2.93	1125.58	415.04	0.29		2.26
Reach-1	9	50-YR	6600.00	19.50	25.74		25.87	0.002038	3.86	2278.11	589.36	0.31		2.82
Reach-1	9	100-YR	8500.00	19.50	26.72		26.88	0.001868	3.73	2893.84	660.53	0.30		2.88
Reach-1	9	500-YR	17700.00	19.50	28.80		28.98	0.002287	4.66	5447.73	1491.20	0.35	0.39	3.19

EXHIBIT D

Tabulation of Velocities at various locations along North Stream Bank

ref. source: EMA "No Rise Analysis"



LEGEND:

BFE Base Flood Elevation
EGEL Existing Ground Elevation

EXHIBIT "E"

MAP OF BFE AND EGEL

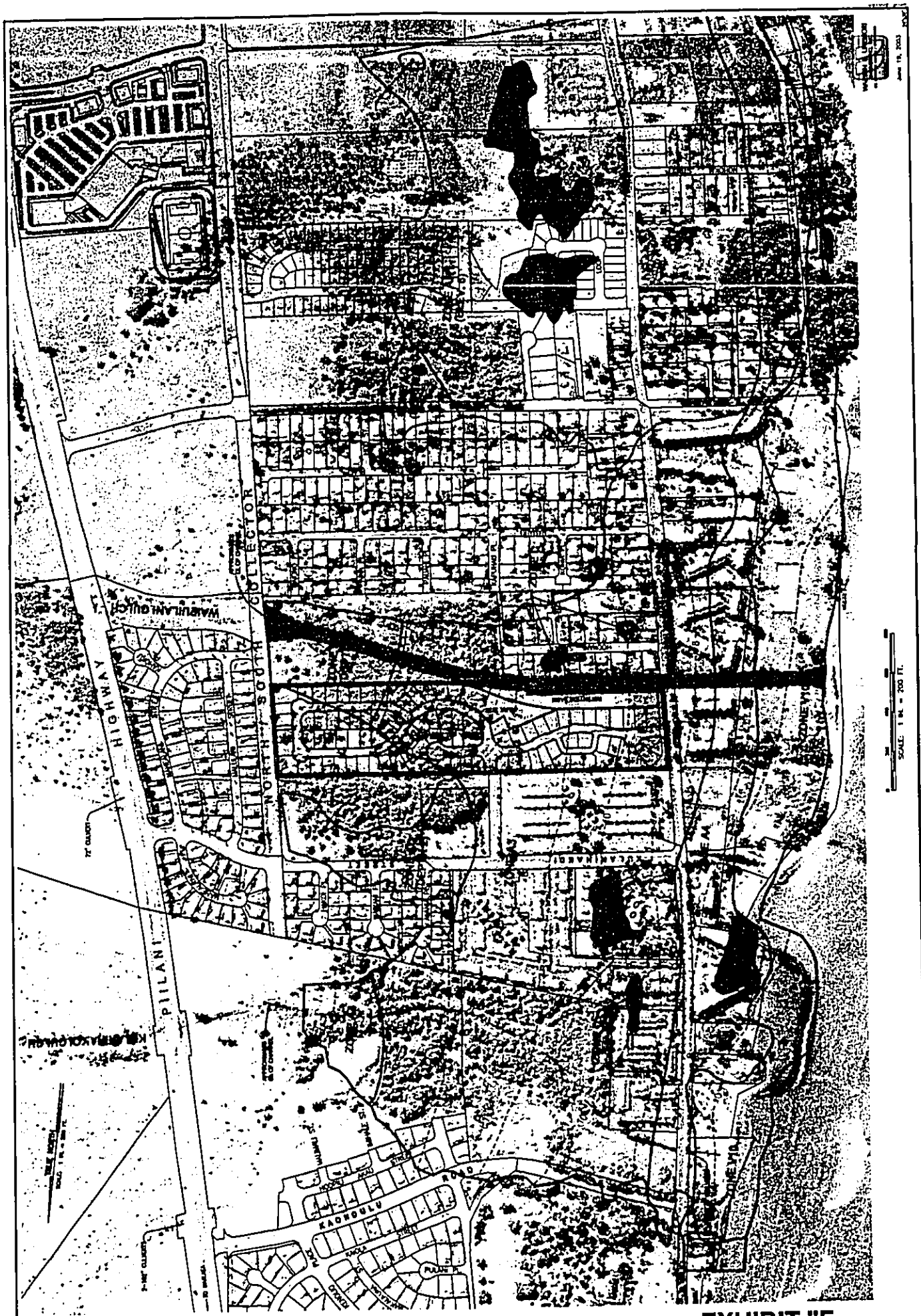


EXHIBIT "F

AERIAL PHOTO MAP
OF PROJECT SITE AND VICINITY

Chapter 19.62
Flood Hazard Areas

APPENDIX B

Chapter 19.62

FLOOD HAZARD AREAS

Sections:

19.62.010 Legislative intent.

A. Within the county of Maui, certain areas are subject to periodic inundation by flooding or tsunami or both, resulting in loss of life and property, creation of health and safety hazards, disruption of commerce and governmental services as well as extraordinary public expenditures for flood and tsunami protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

B. The flood losses are caused by the cumulative effect of obstructions in areas of special flood hazard that increase flood heights and velocities, and, when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

C. Congress has determined that regulation of construction in areas subject to flood hazards is necessary for the protection of life and property and reduction of public costs for flood control, rescue and relief efforts, thereby promoting the safety, health, convenience and general welfare of the community. In order to achieve these purposes, this chapter establishes flood hazard areas and imposes restrictions upon manmade changes to improved and unimproved real estate within the areas. These restrictions are necessary to qualify the county of Maui for participation in the federal flood insurance program.

D. Failure to participate in the program would result in the denial of federal financial assistance for acquisition and construction purposes, and jeopardize the making, securing, extension, and renewal of loans secured by improved real estate by lending institutions regulated by the federal government.

E. This chapter is designed to:

1. Protect human life and health and promote the general welfare;

2. Minimize expenditure of public money for costly flood control projects;

3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

4. Minimize prolonged business interruptions;

5. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;

6. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard;

7. Ensure that potential buyers are notified that property is in an area of special flood hazard; and

8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.020 Statutory authority.

This chapter is enacted pursuant to the U.S. National Flood Insurance Act of 1968 (public laws 90-448 and 91-152), as amended, and the U.S. Flood Disaster Protection Act of 1973 (public law 93-234), as amended, and chapter 46, Hawaii Revised Statutes. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.030 Definitions.

Definitions contained in regulations governing the National Flood Insurance Program, 44 CFR 59 through 77, as amended, are incorporated by reference and made a part of this chapter as though set forth fully herein. Where terms are not defined in this chapter, they shall have their ordinary accepted meanings within the context in which they are used or as they are defined in chapter 19.04. The following words and terms used herein are only applicable to this chapter and are defined as follows:

"Architect" means a person who has a license to practice architecture in the State of Hawaii.

"Base flood" means the flood having a one percent chance of being equalled or exceeded in any given year (also called the "100-year flood").

"Base flood elevation" means the water surface elevation of the base flood.

"Basement" means any area of a building having its floor below ground level on all sides.

"Breakaway wall" means any type of wall, whether solid or lattice, and whether constructed of concrete, masonry, wood, metal, plastic, or any other suitable building material, that is not part of the structural support of a building and

which is designed to break away without damaging the structural integrity of the building or other buildings to which it might be carried by floodwaters.

"Coastal high hazard area" means a special flood hazard area subject to high velocity wave action from storms or seismic sources and designated on a flood insurance rate map (FIRM) as zone V1-V30, VE, or V.

"Development" means any manmade change to improved or unimproved real estate, including, but not limited to, walls, buildings, or other structures, filling, grading, excavation, mining, dredging, paving, or storage of equipment or materials.

"Director" means the director of the department of public works, county of Maui or the director's authorized representative.

"Encroachment" means the advance or infringement of uses, plant growth, fill, excavation, walls, buildings, permanent structures, or development into a floodplain which may impede or alter the flow capacity of a floodplain.

"Engineer" means a person who is licensed to practice civil or structural engineering in the State of Hawaii.

"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters, resulting from any source, such as tsunamis, or the unusual and rapid accumulation of runoff of surface waters or mud from any source.

"Flood hazard boundary map (FHBM)" means the map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated the special flood hazard areas.

"Flood insurance rate map (FIRM)" means the map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated both the special flood hazard areas and the risk premium zones applicable to the community.

"Flood insurance study" means the report provided by the Federal Insurance Administration that includes flood profiles, the flood insurance rate map, the flood hazard boundary map, and the water surface elevation of the base flood.

"Floodproofing" means any combination of structural and nonstructural additions, changes, or adjustments to structures and properties that reduces flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

"Floodway" means the channel or watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

"Highest adjacent grade" means the highest natural elevation of the ground surface before construction next to the proposed walls of a structure.

"Historic structure" means a structure that is: (a) listed individually in the National Register of Historic Places or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (b) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the secretary to qualify as a registered historic district; (c) individually listed on a state inventory of historic places pursuant to a historic preservation program approved by the Secretary of Interior; or (d) individually listed on a local inventory of historic places pursuant to a historic preservation program certified either (1) by an approved state program as determined by the Secretary of the Interior or (2) directly by the secretary.

"Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building's lowest floor.

"Manufactured home" means a structure (other than a recreational vehicle), transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities.

"Mean sea level" means the national geodetic vertical datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's flood insurance rate map are referenced.

"New construction" means structures for which the "start of construction" commenced on or after the effective date of the ordinance codified in this chapter, as amended, and includes any subsequent improvements to such structures.

"Recreational vehicle" means a vehicle which is (a) built on a single chassis; (b) 400 square feet or less when measured at the largest horizontal projection; (c) designed to be self-propelled or permanently towable by a light duty truck; and (d) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

"Special flood hazard area (SFHA)" means an area having special flood or flood-related erosion hazards, and shown on an FHBM or FIRM as zone A, AO, A1-A30, AE, A99, AH, V1-V30, VE, or V.

"Start of construction" includes substantial improvement and other proposed new development and means the date

the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within one hundred eighty days from the date of the permit. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footing, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erections of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

"Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed fifty percent of the market value of the structure (excluding land) before the damage occurred.

"Substantial improvement" means any reconstruction, rehabilitation, addition, or other proposed new development of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure (excluding land) before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either (1) any project for improvement of a structure to correct existing violations of state or county health, sanitary, or safety specifications or (2) any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

"Surveyor" means a person who is licensed to practice surveying in the State of Hawaii.

"Watercourse" means a stream, wash, channel, or other topographic feature on or over which waters flow at least periodically.

"Water surface elevation" means the height, in relation to the national geodetic vertical datum (NGVD) of 1929 (or other datum, where specific), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

"Zoning district" means a zoning district as established by the county of Maui zoning ordinances and a land use district as established by the State Land Use Commission, as applicable. (Ord. 2223 § 1 (part), 1993: Ord. 1743 § 1, 1988; Ord. 1624 § 1, 1987: Ord. 1292 § 1, 1983; Ord. 1145 § 2 (part), 1981)

19.62.040 Special flood hazard areas.

A. Applicability. This chapter shall apply to all special flood hazard areas, flood-related erosion hazard areas, and mudslide (i.e., mudflow) hazard areas within the county.

B. Identification of Special Flood Hazard Areas. The special flood hazard areas identified by the Federal Insurance Administration (FIA) or the Federal Emergency Management Agency (FEMA) in the flood insurance study (FIS) as amended are incorporated by reference and made part of this chapter. The director shall keep the flood insurance study on file.

C. Abrogation and Greater Restrictions. This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another title or chapter of the Maui County Code, easement, covenant, or deed restriction conflict, the more stringent restrictions shall prevail.

D. *Interpretation. All provisions of this chapter shall* be considered as minimum requirements and liberally construed in favor of the county. This chapter neither limits nor repeals any powers granted under state statute. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.050 Administration.

A. Special Flood Hazard Area Development Permit. A special flood hazard area development permit shall be obtained from the director before construction of any development begins within any special flood hazard area, flood-related erosion hazard area, or mudslide (i.e., mudflow) area. Application for a permit shall be made on forms furnished by the director that may require, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question, existing or proposed structures, fill, stockpiles, and drainage facilities. The application shall require the following:

1. Proposed elevation, in relation to mean sea level, of the lowest floor (including basement) of all structures. In zone AO, elevation of highest adjacent grade and proposed elevation of lowest floor of all structures;

2. Proposed elevation, in relation to mean sea level, to which any structure will be floodproofed;

3. All appropriate certifications required under section 19.62.060; and

4. Description of any anticipated watercourse alteration or relocation as a result of the proposed development.

B. Permit Review. The director shall review all permit applications to determine that the requirements of this

chapter have been satisfied, that the site is reasonably safe from flooding, and that, where base flood elevations have been determined but a floodway has not been designated, the cumulative effect of the proposed development (as certified by a civil engineer) when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood by more than one foot at any point.

C. Use of Other Base Flood Data. Where base flood elevation has not been determined, the director shall obtain, review, and reasonably use any base flood elevation and floodway data available from a federal or state agency, or other source, in administering section 19.62.060.

D. Flood Map Revisions. Whenever base flood elevations may increase or decrease due to a proposed development, the owner of the property shall obtain a conditional letter of map revision (CLOMR) from the Federal Emergency Management Agency (FEMA) before the approval or issuance of any development permit or any increase or decrease of base flood elevations. A letter of map revision (LOMR) shall be obtained from FEMA whenever a development has increased or decreased the base flood elevation within any special flood hazard area. An application for a LOMR shall be submitted to FEMA no later than six months after the completion of a development.

E. Watercourse Alteration. Whenever a watercourse is to be altered or relocated, the director shall:

1. Require the applicant to notify the State of Hawaii department of land and natural resources, division of water resource management, before such alteration or relocation, and submit evidence of such notification to the Federal Insurance Administration, Federal Emergency Management Agency (FEMA);

2. Require that the flood-carrying capacity of the altered or relocated portion of the watercourse be maintained.

F. Certifications. The director shall obtain and maintain for public inspection the certifications required under section 19.62.060.

G. Boundary Determinations. The director shall determine, where needed, the exact location of boundaries of special flood hazard areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions).

1. Where interpretation is needed as to whether or not a development lies within a special flood hazard area or as to the base flood elevation affecting a development, a request for such interpretation shall be submitted to the director. The request shall include a description of the development site, a location plan showing the property lines and dimensions of the development and a copy of the tax map showing the parcel upon which the development is proposed to be constructed. The director shall, where interpretation is possible from the information shown on the FHBM or FIRM, issue written determination of the specific area boundaries and the base flood elevation.

2. Where, in the opinion of the director, interpretation is not possible from the information shown on the FHBM or FIRM, the director shall require the applicant to provide more detailed information concerning the request for determination of flood boundaries and the base flood elevation. The additional information shall be submitted to the director and shall contain a recommendation certified by a civil engineer as to the flood area and base flood elevation that should apply to the proposed development and shall include three sets of documents certified by the engineer containing adequate data consistent with this chapter, such as flood and hydrology studies, project site and location plans, property maps showing lines and dimensions, tax maps and topographic data including contours or spot heights based upon mean sea level. After review, the director shall, in writing;

a. Inform the applicant that the detailed request contains inadequate data to make a determination as to flood area boundaries and base flood elevations, and specify the specific lack of data needed to resolve the question and decline to make a determination; or

b. Based upon the supporting data submitted with the request for interpretation and other available data, determine the flood area boundaries and the base flood elevations affecting the development; or

c. Instruct the applicant to submit the request for interpretation directly to the Federal Emergency Management Agency.

3. None of the provisions of this section shall prevent an applicant from requesting an appeal or resubmitting a request for a determination of the flood area boundaries or the base flood elevations directly from the director of the Federal Emergency Management Agency. Any such written determination from the Federal Emergency Management Agency shall be sufficient in lieu of a determination from the director. (Ord. 2223 § 1 (part), 1993: Ord. 1624 § 2, 1987: Ord. 1145 § 2 (part), 1981)

19.62.060 Standards for development.

A. Standards of Construction. In special flood hazard areas the following standards shall be required:

1. Anchoring.

a. New construction and substantial improvements shall be adequately anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

2. Construction Materials and Methods.

a. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

b. New construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

c. New construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, air conditioning, and other service facilities that are designed or located so as to prevent the entry and accumulation of floodwater.

d. New construction and substantial improvements within zones AH or AO shall include adequate drainage paths to guide floodwaters around and away from structures on slopes.

3. Elevation and Floodproofing.

a. New construction and substantial improvements (except those in zone AO) shall have the lowest floor, including basement, elevated to, or above, the base flood elevation. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a civil engineer or surveyor. FEMA's "elevation certificate" form, as amended, shall be used for the certification, and a copy provided to the director.

b. New construction and substantial improvements in zone AO shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM, or at least two feet if no depth number is specified. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a civil engineer or surveyor. FEMA's "elevation certificate" form, as amended, shall be used for the certification, and a copy provided to the director.

c. Nonresidential construction shall either be elevated to conform with subparagraphs a or b of this paragraph or, together with attendant utility and sanitary facilities:

i. Be floodproofed so that walls below the base flood level are substantially impermeable to the passage of water;

ii. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

iii. Be certified by a structural engineer or architect as satisfying the standards of this subparagraph. FEMA's "floodprooding certificate" form, as amended, shall be used for the certification, and a copy provided to the director.

d. New construction and substantial improvements of fully enclosed areas below the lowest floor that are usable solely for vehicular parking, building access, or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must be either certified by an engineer or architect or meet or exceed one of the following minimum criteria:

i. Provide a minimum of two openings, having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding, with the bottom of all openings no higher than one foot above grade. (Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater.); or

ii. Be certified by an engineer as complying with a county floodproofing standard approved by the Federal Insurance Administration, Federal Emergency Management Agency (FEMA).

4. Building Height Allowance. Building heights in the agricultural and residential zoning districts may be increased by a height equal to the base flood, up to a maximum of five feet above the maximum building height permitted by the zoning regulations for the zoning district in which the building is located.

5. Certification shall be provided by an architect or engineer that all new construction and substantial improvements meet or exceed applicable standards for flood hazard reduction, including, but not limited to, those regarding anchoring, construction materials and methods, elevation and floodproofing, utilities, subdivisions, and manufactured homes.

B. Utilities.

1. New and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into such systems and discharge from such systems into floodwaters.

2. On-site waste disposal systems shall be located to avoid impairment to, or contamination from, such systems during flooding.

C. Subdivisions. Subdivisions proposals shall:

1. Identify any special flood hazard areas affected and the base flood elevation of such areas;

2. Provide the elevation of proposed structures and pads. If the site is filled above the base flood elevation, the final first floor and pad elevations shall be certified by an engineer or surveyor and provided to the director;

3. Be consistent with the need to minimize flood damage;

4. Have utilities, such as sewer, gas, electric, and water systems, located and constructed to minimize flood damage;

5. Provide adequate drainage to reduce exposure to flood hazards.

D. Manufactured Homes. Manufactured homes that are placed or substantially improved within special flood hazard areas that are not coastal high hazard areas shall

be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to, or above, the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement. Manufactured homes that are place or substantially improved within coastal high hazard areas shall meet the requirements of subsection G of this section.

E. Recreational Vehicles. Recreational vehicles placed on sites within zones A1-30, AH, and AE, or within coastal high hazard areas, shall either:

1. Be on site for fewer than thirty consecutive days;

2. Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on wheels or a jacking system, is attached to the site only by a quick disconnect type utilities and security device, and has no permanently attached additions); or

3. Meet the permit requirements of section 19.62.050 and the requirements for manufactured homes under subsection D of this section.

F. Floodways. No encroachments, including fill, new construction, substantial improvement, or other new development, shall be allowed within floodways unless certification by a civil engineer is provided to the director demonstrating that the encroachments will not result in any increases in base flood levels.

G. Coastal High Hazard Areas. Within coastal high hazard areas:

1. New construction and substantial improvements shall be elevated on adequately anchored pilings or columns and securely anchored to such pilings or columns so that the lowest horizontal portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level. The pile or column foundation and the structure attached thereto shall be anchored to resist flotation, collapse, and lateral movement due to the simultaneous action of wind and water loads on all building components. Water loading values used for purposes of meeting this requirement shall be those associated with the base flood. Wind loading values used shall be those required by the Uniform Building Code, as amended.

2. New construction and substantial improvements shall be located on the landward side of the reach of mean high tide.

3. New construction and substantial improvements shall have the space below the lowest floor free of obstructions or constructed with breakaway walls. Such space shall not be used for human habitation, but shall be useable solely for vehicular parking, building access, or storage. A breakaway wall shall have a safe design loading resistance of not less than ten and no more than twenty pounds per square foot. Breakaway wall collapse shall be designed to result from a water load less than that which would occur during a base flood and the elevated portion of the building shall be designed so as not to incur any structural damage from wind and water loads acting simultaneously during a base flood.

4. Fill shall not be used for structural support of buildings.

5. Manmade alteration of sand dunes shall not increase potential flood damage.

6. The director shall be provided and shall maintain the following records:

a. Certification by an engineer or architect that the proposed structure complies with paragraphs 1 through 5 of this subsection;

b. Certification by a structural engineer or surveyor of the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings or columns) of all new and substantially improved structures, and information regarding whether such structures contain basements. FEMA's "elevation certificate" form, as amended, shall be used for the certification. (Ord. 2223 § 1 (part), 1993: Ord. 1743 § 2, 1988: Ord. 1624 § 3, 1987: Ord. 1292 § 2, 1983: Ord. 1145 § 2 (part), 1981)

19.62.100 Developments adjacent to drainage facilities.

A. Applications involving developments encompassing or adjoining any stream, river, or drainage facility shall be subject to review by the director. Upon determination by the director that the development may adversely affect a special flood hazard area, the application shall include information, signed and stamped by an engineer or architect in accordance with sections 19.62.050 and 19.62.060, to evaluate the potential flooding of the area.

B. The director shall not issue any permit involving modification, construction, lining, or alteration of any drainage facility, river, or stream unless such modification, construction, lining, or alteration does not reduce the capacity of the drainage facility, river, or stream, or adversely affect any downstream property. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.140 Variances and appeals.

A. The board of variances and appeals shall hear and decide appeals alleging an error in any requirement or determination by the director and requests for variances from the requirements of this chapter.

B. Application. Applications for variances and appeals shall conform to the requirements of chapter 19.520. The application shall be certified by an architect or engineer, and shall include three sets of the following documentation:

1. Plans and specifications showing: the site and location; dimensions of all property lines and topographic elevation of the lot; existing and proposed structures and improvements, fill, and storage areas; location and elevations of existing and proposed streets and utilities; floodproofing measures; relationship of the site to flood boundaries; and existing and proposed flood control measures and improvements.

2. Cross-sections and profile of the area and the base flood elevations based on mean sea level.

3. Flood study and drainage report.

4. Description of surrounding properties and existing structures and uses, and the effect of a base flood as a result of the variance.

5. Justification for the variance with consideration of the intent and provisions of this chapter and information on the impact the variance would have on the factors listed in subsection C of this section and proposed mitigative measures.

6. An agreement to insert and record covenants in the conveyance and title documents of the property that the property is located in a special flood hazard area and is subject to flooding and flood damage. The covenants shall contain statements attesting to all adverse effects resulting from the variance. The covenants shall also state that the property owner or owners and assigns shall not file any lawsuit or action against the county for costs or damages or any claim, and shall indemnify and save harmless the county from any liability when such loss, damage, injury, or death results due to the flood hazard variance and flooding of the property. Upon approval of the flood hazard variance, such covenants shall be fully executed and submitted to the director for approval. Upon approval, the applicant shall file the covenants with the bureau of conveyances.

C. In passing upon variance applications, the board of variances and appeals shall consider:

1. The danger that materials may be swept onto other lands to the injury of others;

2. The danger to life and property due to flooding or erosion damage;

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the existing owner and future owners of the property;

4. The importance of the services provided by the proposed facility to the community;

5. The necessity, if any, to the facility of a waterfront location;

6. The availability of alternative locations for the proposed use that are not subject to flooding or erosion damage;

7. The compatibility of the proposed use with existing and anticipated development;

8. The relationship of the proposed use to the community plan and floodplain management program for that area;

9. The safety of access to the property in time of flood for ordinary and emergency vehicles;

10. The expected heights, velocity, duration, rate of rise, and sediment transport of floodwaters expected at the site;

11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of utilities and facilities, such as sewer, gas, electric, and water systems, and streets and bridges.

D. Conditions for Variances.

1. Variances shall be issued only upon a determination that the variance is peculiar to the property involved and is the minimum necessary to afford relief to the applicant with minimum deviation from the requirements of this chapter.

2. Variances shall be issued only upon (a) a showing of good and sufficient cause; (b) a determination that failure to grant the variance would result in exceptional hardship to the applicant; and (c) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, defraud or victimize the public, or conflict with existing county or state laws. Mere economic or financial hardship, or inconvenience, or aesthetic preferences, shall not, by themselves, constitute a finding of exceptional hardship.

3. Variances shall not be issued within any designated floodway if any increase in base flood levels would result.

4. Variances may be issued for new construction, substantial improvements, and other proposed new developments to be erected on a lot of one-half acre or less in size contiguous to, and surrounded by, lots with existing structures constructed below the base flood level, provided that the procedures of sections 19.62.050 and 19.62.060 have been fully considered. For lots greater than one-half acre, the technical justification required for issuing the variance shall be greater.

5. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

6. Variances may be issued for new construction, substantial improvements, and other proposed new developments necessary for the conduct of a use that cannot perform its intended purpose unless located in close proximity to water. Such uses shall include only docking facilities,

port facilities necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities (but not long-term storage or manufacturing facilities); provided that the provisions of subsection B of this section are satisfied and that the structure or other development is protected by methods that minimize base flood damage and create no additional threats to public safety.

7. Upon consideration of the factors of subsection B of this section and the purposes of this chapter, the board of variances and appeals may attach such conditions to the granting of a variance as it deems necessary to further the purposes of this chapter.

E. Any applicant to whom a variance is granted shall be given written notice over the signature of the director that (a) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage and (b) such construction below the base flood level increases risks to life and property. A copy of the notice shall be recorded by the applicant in the bureau of conveyances of the State of Hawaii in a manner that appears in the chain of title of the affected parcel.

F. The director shall maintain a record of all variance actions, including justification for their issuance, and report such variances issued in its biennial report submitted to the Federal Insurance Administration, Federal Emergency Management Agency. (Ord. 2223 § 1 (part), 1993: Ord. 1743 § 7, 1988: Ord. 1145 § 2 (part), 1981)

19.62.160 Warning and disclaimer of liability.

A. The degree of flood and tsunami protection required by this chapter is considered reasonable for regulatory purposes and is based on standard engineering methods of study. Larger floods or tsunamis than the base flood as designated on the flood maps, may occur on occasions, or flood or tsunami elevations may be increased by man-made or natural causes. This chapter does not imply that areas outside the flood hazard area will be free from flooding or damage.

B. This chapter shall not create liability on the part of the county or any officer, official, or employee for any flood or tsunami damages that result from reliance on this chapter or any administrative decision lawfully made thereunder. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.170 Other laws and regulations.

All construction and improvements subject to this chapter shall comply with other applicable laws and regulations. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

19.62.180 No exemptions.

Neither the county itself nor any agency, department, or division under its control shall be exempted from compliance with the provisions of this chapter. (Ord. 2223 § 1 (part), 1993: Ord. 1145 § 2 (part), 1981)

Appendix – F
Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT FOR

WAIPUILANI ESTATES

AN AFFORDABLE HOUSING PROJECT IN KIHEI

IN KIHEI, MAUI, HAWAII

FINAL REPORT

Prepared For

BETSILL BROTHERS CONSTRUCTION COMPANY

Kihei, Maui, Hawai'i

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Revised February 4, 2003

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1. INTRODUCTION

Phillip Rowell and Associates has been retained by Betsill Brothers Construction Company of Kihei to perform a traffic impact analysis for a proposed residential development in Kihei, Maui, Hawaii. The purpose of this study is to identify the traffic impacts of the proposed project.

This introductory chapter discusses the location of the project, the proposed development, and the study methodology.

Project Location and Description

The general location in the Kihei area of Maui is shown in Figure 1. A detail of the TMK map of the area is shown in Figure 2. The following is a summary of the project:

1. The proposed project is located between South Kihei Road and the proposed North-South Collector in the Kihei area of Maui. The parcel is the second parcel south of Kulanihakoi Road.

2. The project will be 95 single-family affordable dwelling units.

3. Access will be via a driveway along the south side of Kulanihakoi Road approximately 800 feet east of South Kihei Road. A second driveway entrance and exit is proposed along South Kihei Road. This driveway will be restricted to right turns in and right turns out only in order to minimize the project's impacts on traffic flow along South Kihei Road. See Figure 3.

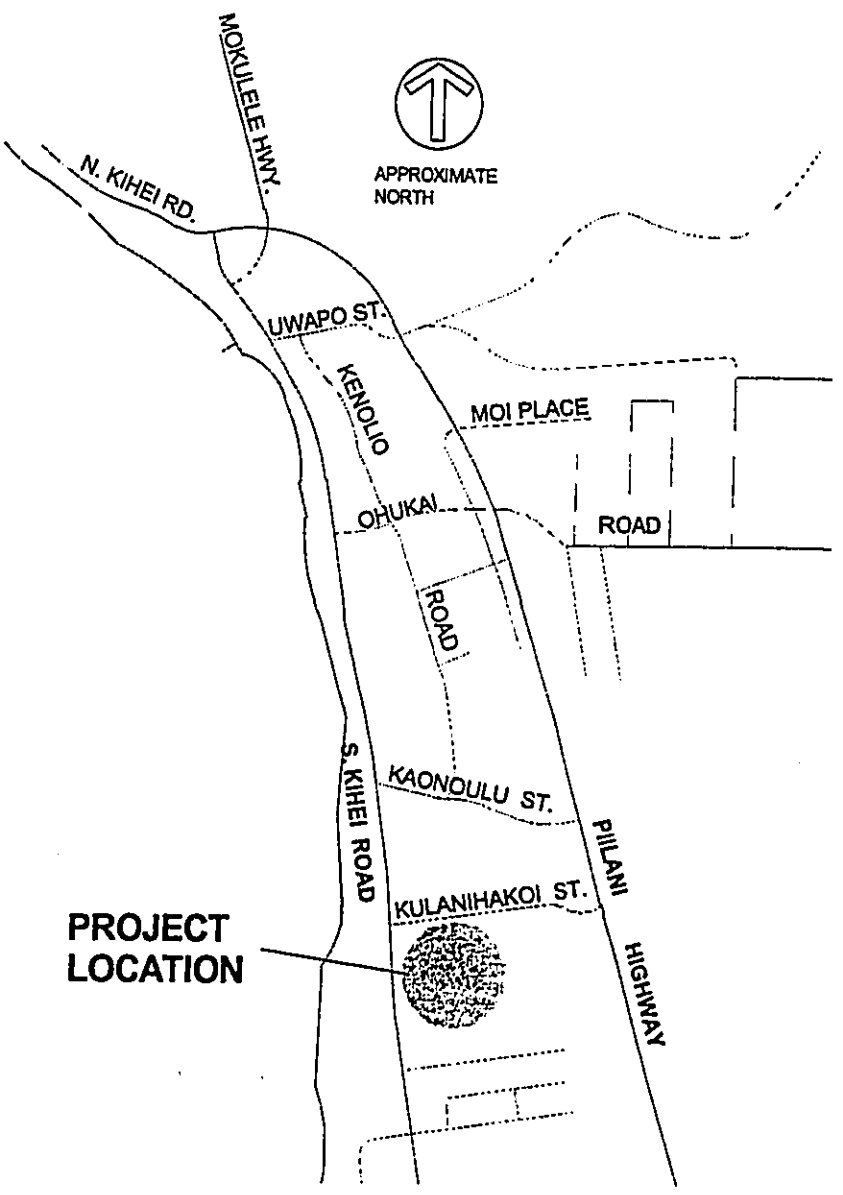

Figure 1

PROJECT LOCATION MAP

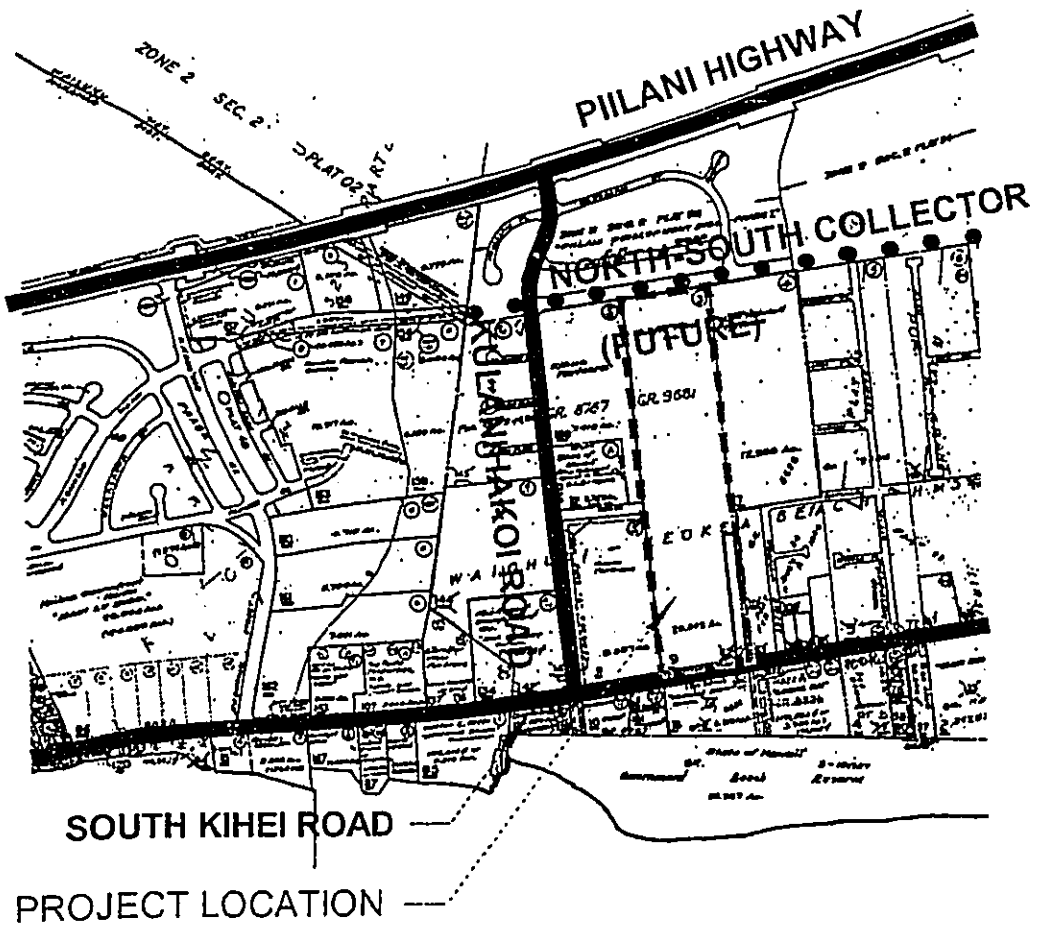

Figure 2

TMK MAP OF STUDY AREA

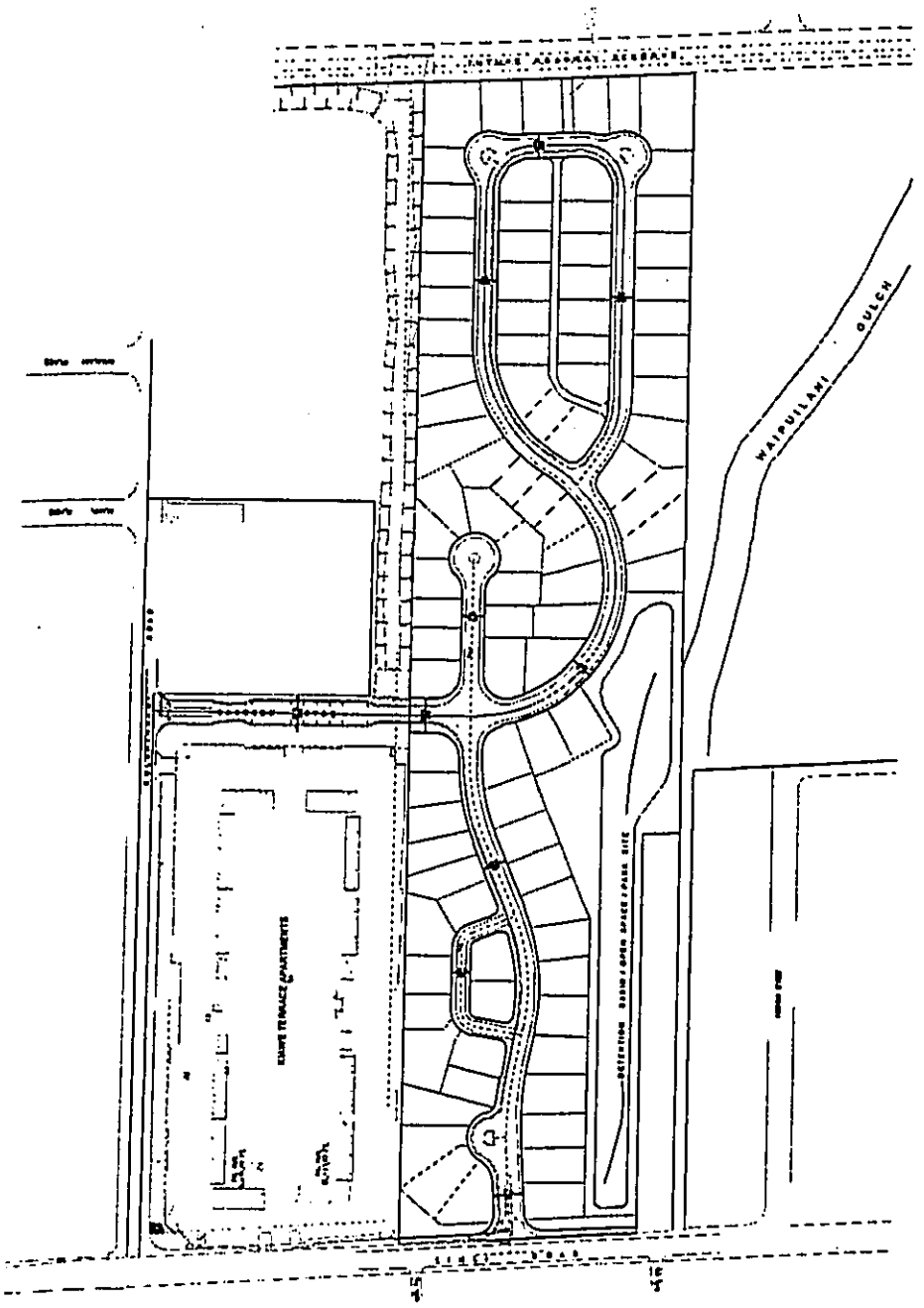

Figure 3

PRELIMINARY LOT LAYOUT AND STREET ALIGNMENT

Study Methodology and Order of Presentation

1. Analysis of Existing Traffic Conditions

Existing traffic volumes at the study intersections were determined from traffic counts performed during February, 2001. A follow-up count was performed during August 2002. Intersection configurations and traffic control information were also collected in the field at the time of the traffic counts. Other data collected included speed limits and right-of-way controls.

Using the data collected, existing traffic operating conditions in the vicinity of the project were determined. The methodology for signalized and unsignalized intersections described in the 2000 *Highway Capacity Manual* (HCM) [1] was used to determine the level-of-service (LOS) at the study intersections.

Existing traffic conditions, the LOS concept and the results of the LOS analysis for existing conditions are presented in Chapter 2.

2. Determination of Background, or Cumulative Traffic Projections

The design, or horizon, year of a project is the future year for which background traffic conditions are estimated. For the projects the size of the study project, the anticipated opening or completion year is suggested by the Transportation Engineers[2].

Therefore, the year 2005 was used as the design year. This is the date for which background traffic conditions without the project are estimated. Cumulative traffic conditions are defined as future traffic conditions without the proposed project. A description of the process used to estimate 2005 cumulative traffic volumes and the resulting cumulative traffic projections is presented in Chapter 3.

3. Analysis of Project-Related Traffic Impacts

The next step in the traffic analysis was to estimate the peak-hour traffic that would be generated by the proposed project. This was done using standard trip generation procedures outlined in *Trip Generation*[3]. The procedure is described in Chapter 4.

These trips were distributed based on the available approach and departure routes. The project-related traffic was then superimposed on 2005 cumulative traffic volumes at the study intersections. The HCM methodology was used again to conduct a LOS analysis for cumulative plus project conditions. The results of this analysis were compared to 2005 cumulative conditions to determine the incremental impacts of this project. The analysis of the project-related impacts and the conclusions of the analyses are presented in Chapter 5.

---

[1] Institute of Transportation Engineers, *Highway Capacity Manual*, Washington, D.C., 1997

[2] Institute of Transportation Engineers, *Transportation and Land Development*, 2nd Edition, Washington, D.C., 2002, p. 3-13.

[3] Institute of Transportation Engineers, *Trip Generation*, Washington, D.C., 1997

2. ANALYSIS OF EXISTING CONDITIONS

This chapter presents the existing traffic conditions on the roadways adjacent to the proposed project. The level-of-service (LOS) concept and the results of the LOS analysis for existing conditions are also presented. The purpose of this analysis is to establish the base conditions for the determination of the impacts of the project which are described in a subsequent chapter.

Description of Existing Streets and Intersection Controls

The following is summary of the major roadways in the study area:

Piilani Highway

Piilani Highway is a major State highway connecting Kihei and Wailea. In the vicinity of the proposed project, the highway is a two-lane, two-way facility with separate left turn lanes. The posted speed limit is 45 miles per hour (mph). The intersection of Piilani Highway at Kulanihakoi Road is unsignalized. Piilani Highway is currently being improved to provide one additional northbound and southbound lane during the peak hours. This is discussed further in Chapter 3.

South Kihei Road

South Kihei Road is a two-lane, two-way north-south County road along the western boundary of the project connecting Kihei with Wailea. The posted speed limit is 30 mph. There is a separate southbound left turn lane at the intersection with Kulanihakoi Road. This intersection is unsignalized.

Kulanihakoi Road

Kulanihakoi Road Street is a two-way street connecting South Kihei Road and Piilani Highway. The abutting land use is residential except for a short section abutting a park and church parking lot. The posted speed limit is 20 mph.

Figure 4 is a schematic of the roadway conditions adjacent to the project. A photographic inventory is presented as Appendix A.

Existing Peak Hour Traffic Volumes

Traffic counts for the study intersections was performed on a Monday afternoon and Tuesday morning during February 2001. Follow-up counts were performed during August 2002. With the exception of the northbound through movement along Piilani Highway during the morning peak hour, the February 2001 traffic counts were higher than the 2002 counts. The higher of the two counts was used for the analysis.

The AM and PM peak hour traffic volumes at the study intersections are shown in Figure 5. The traffic volumes include large trucks, buses and motorcycles. They do not include mopeds or bicycles. The traffic count summary worksheets are presented as Appendix B.

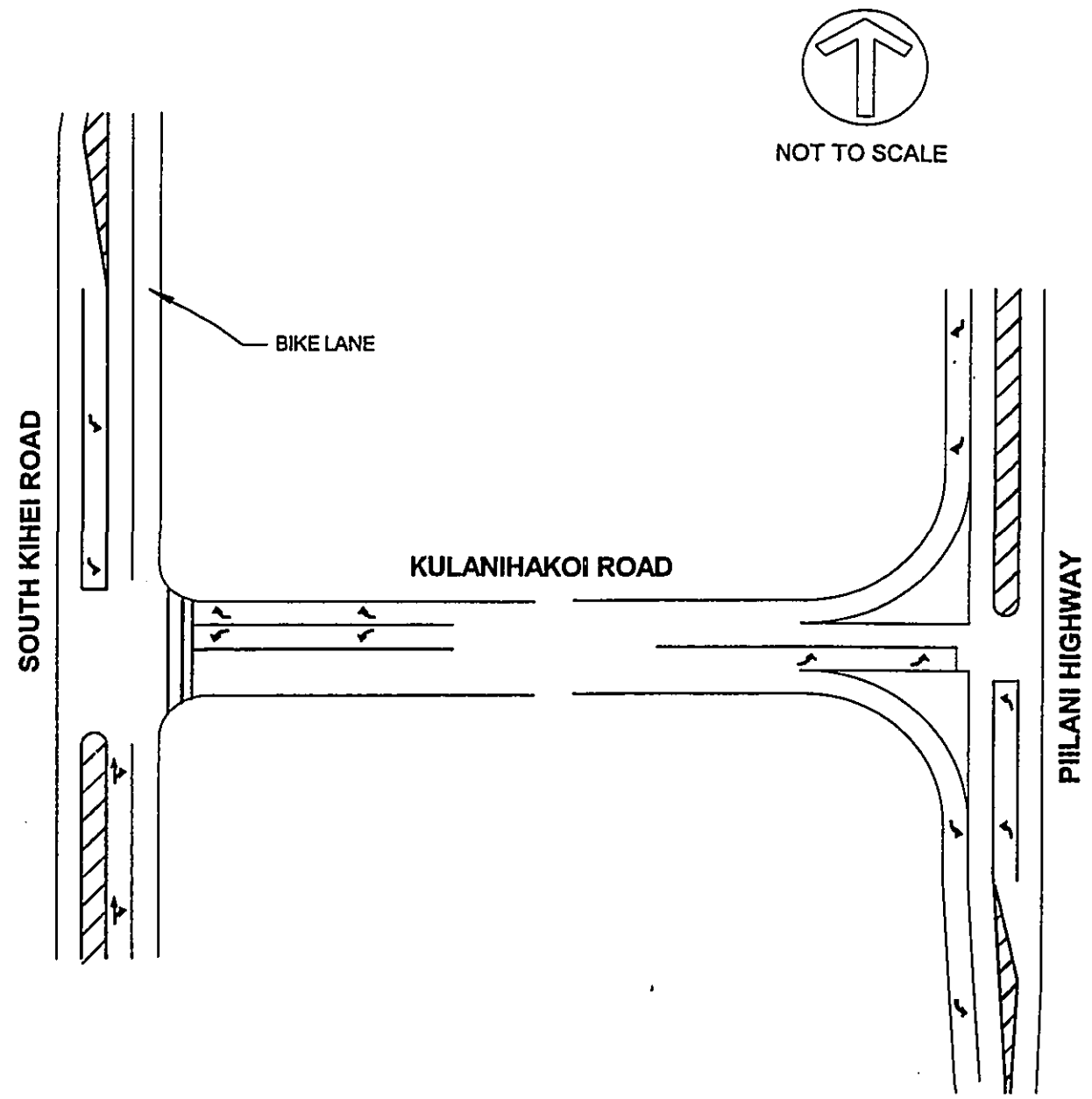

Figure 4

SCHEMATIC OF EXISTING LANE CONFIGURATIONS

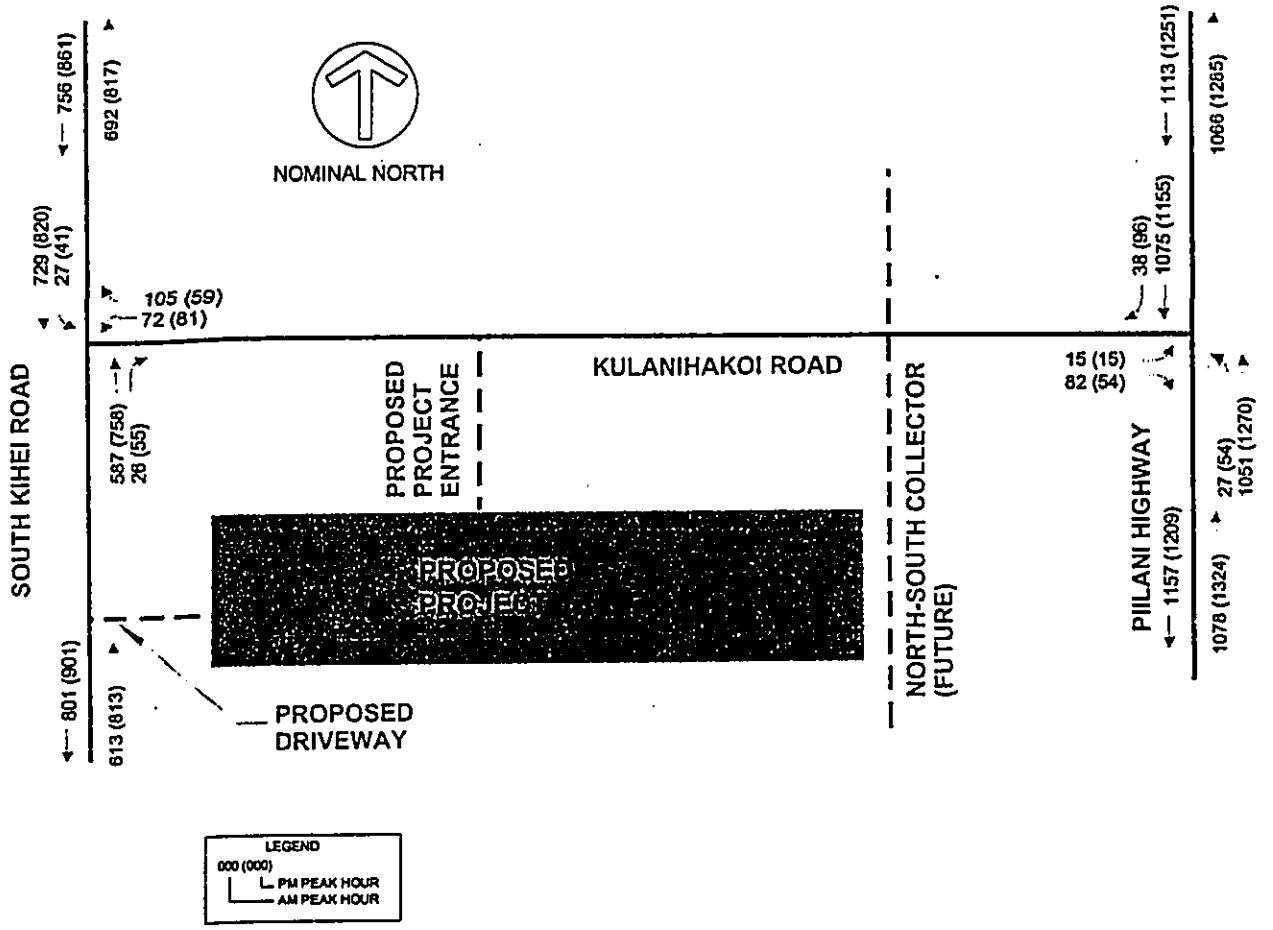

Figure 5
EXISTING PEAK HOUR TRAFFIC VOLUMES

Level-of-Service Concept

Signalized Intersections

The operations method described in the *2000 Highway Capacity Manual* (HCM) was used to analyze the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio and the average vehicle delay which is related to a level-of-service.

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 1. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions. LOS D is typically considered acceptable for peak hour conditions in urban areas.

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

Table 1 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding delay.

Table 2 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	*Expected Delay to Minor Street* Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

Level-of-Service Analysis of Existing Conditions

The results of the Level-of-Service analysis for the study intersections are shown in Table 3.

Table 3 Existing Levels-of-Service(3)

Intersection and Movement	AM Peak Hour		PM Peak Hour	
	Delay [1]	LOS [2]	Delay	LOS
Kulanihakoi Road at South Kihei Road				
Westbound Left	101.9	F	311.9	F
Westbound Right	16.6	C	16.6	C
Southbound Left	9.0	A	10.0	B
Kulanihakoi Road at Piilani Highway				
Eastbound Left	140.7	F	305.0	F
Eastbound Right	30.8	D	24.9	C
Northbound left	11.3	B	11.7	B

NOTES:
(1) Delay is in seconds per vehicle.
(2) denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-Service is based on delay.
(3) See Appendix C for level-of-service calculation worksheet

The conclusions of this analysis are:

1. There are significant delays to left turns from Kulanihakoi Road to northbound Piilani Highway and southbound South Kihei Road. These left turn movements operate at Level-of-Service F during both the morning and afternoon peak periods.

2. Left turning vehicles from Kulanihakoi Road to northbound Piilani Highway use the median of Piilani Highway as a refuge area.

3. The delay to left turning vehicles observed in the field during the traffic counts were significantly shorter than those calculated. This indicates that left turning vehicles are able to merge into shorter gaps in the opposing traffic streams than those used in the calculations.

The level-of-service calculation worksheets are presented as Appendix C.

3. PROJECTED CUMULATIVE TRAFFIC CONDITIONS

The purpose of this chapter is to discuss the assumptions and data used to estimate 2005 cumulative traffic conditions. Cumulative traffic conditions are defined as future traffic volumes without the proposed project.

Future traffic growth consists of two components. The first is ambient background growth that is a result of regional growth and cannot be attributed to a specific project. The second component is estimated traffic that will be generated by other development projects in the vicinity of the proposed project.

Background Traffic Growth

Data provided in the *Kihei Master Traffic Plan*[4] was used to estimate the background growth rate of traffic along Piilani Highway and South Kihei Road. The report for this plan provided traffic growth projections for the existing roadway network in Kihei. The AM and PM peak hour traffic growth estimates for the study intersections along South Kihei Road and Piilani Highway are shown in Figure 6. These estimates of background growth are not for specific projects and therefore may include development projects that may also be on the list of related projects.

[4] Kaku Associates, October 1996, Page 19

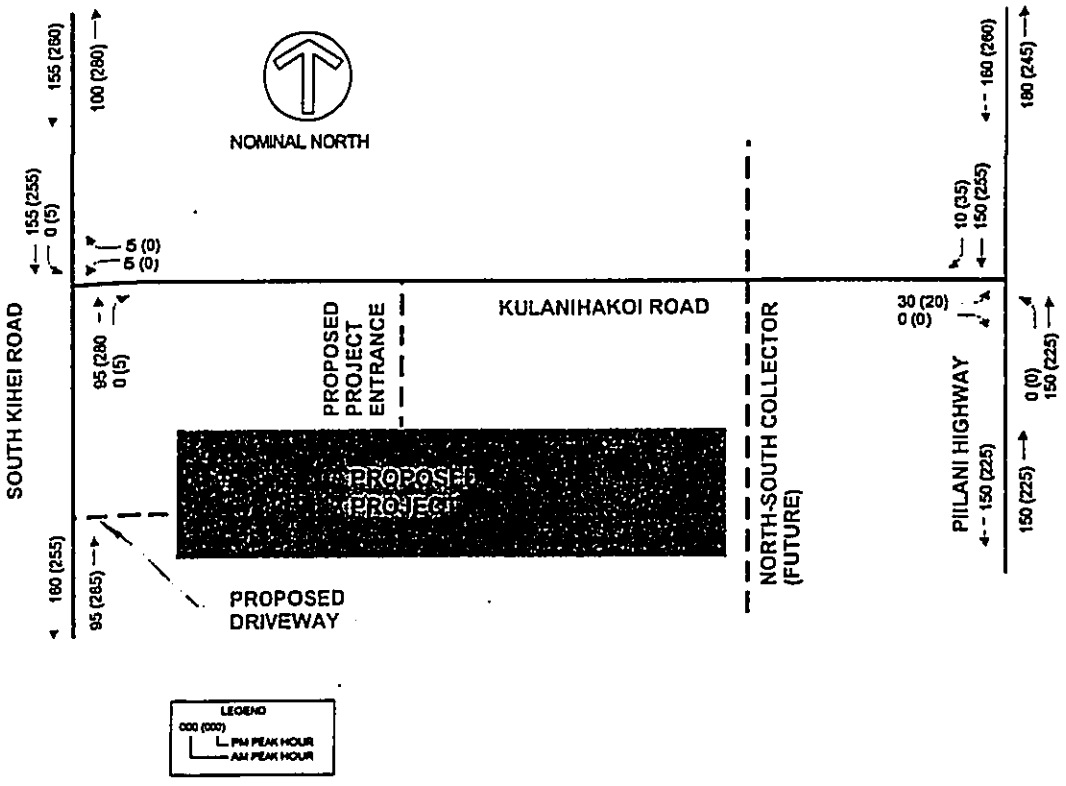

Figure 6
1995 TO 2005 BACKGROUND GROWTH

Related Projects

The second component in estimating background traffic volumes is traffic resulting from other proposed projects in the vicinity. Related projects are defined as those projects that are under construction or have been approved for construction and would significantly impact traffic in the study area. Related projects may be development projects or roadway improvements.

A review of the data used to develop the traffic projections in the *Kihei Traffic Master Plan* concluded that a number of projects have been proposed in the vicinity of the study project since the *Kihei Traffic Master Plan* was completed. Since traffic associated with these projects is most likely not included in the traffic forecast of the Master Plan, the peak hour trips that they would generate were estimated and added to the 2005 background traffic projections from the *Kihei Traffic Master Plan*.

The projects that were identified as related projects and the estimated number of peak hour trips generated by each are summarized in Table 4. The locations of these projects are shown in Figure 7.

Table 4 Summary of Related Projects

Related Project	Description	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Maui Nui Park	Theme Park	16	16	0	334	190	144
Kenolio Place	12 Single-Family Units	11	2	9	12	8	4
Villas at Kenolio	140 Single-Family Units	108	27	81	143	92	51
Alii Village	30 Single-Family Units	23	6	17	31	20	11
Piilani Village 2	Single-Family and Multi-Family Residential	411	92	319	530	341	189
Kai Makani	113 Miluti-Family Units	74	19	55	98	63	35
Expansion of Parking at Memorial Park	28 Off-Street Spaces & 36 On-Street Spaces	100	58	42	100	47	53
Totals		743	220	523	1,248	761	487

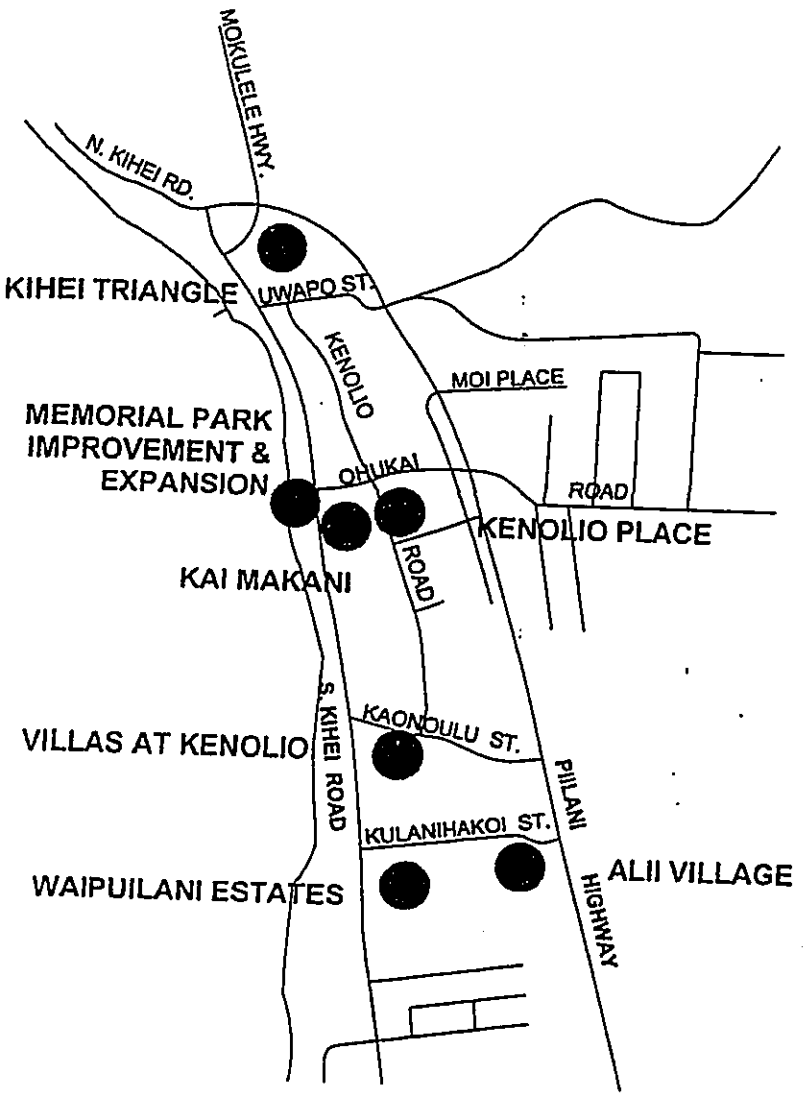

Figure 7
LOCATIONS OF RELATED PROJECTS

Roadway Improvement Projects

There are several roadway improvement projects planned for the study area. A brief discussion of these projects follows:

1. It was recently reported that the County will begin construction of the North-South Collector, which is along the eastern boundary of the project. As of this date, no timetable for construction has been established. Based on the conclusions and recommendations presented in the *Kihei Master Traffic Plan* and the *Maui Long Range Land Transportation Plan*, completion of the North-South Collector will have a positive impact on the study intersections since it will attract traffic from Piilani Highway and South Kihei Road. A traffic study for the County to determine traffic volumes along the North-South Collector and to determine a typical cross-section is underway by another consultant. Preliminary results of this study could not be obtained to incorporate into our traffic analysis.

   Since there is no firm date for completion of this project, it was assumed that the North-South Collector will not be completed before the design year for Waipuilani Estates, which is 2005. Therefore, the conditions analyzed in this traffic impact study *represent worse-case conditions since* traffic volumes along Piilani Highway and South Kihei Road should be reduced upon completion of the North-South Collector. The level-of-service analysis of the intersection of Kulanihakoi Road at the North-South Collector should be addressed in the Environmental Assessment for the North-South Collector and the appropriate right-of-way control determined at that time.

2. Modification of Piilani Highway so that the shoulders may be used during the morning and afternoon peak hours is under construction. This project will also have a positive impact on the intersection of Piilani Highway at Kulanihakoi Drive since it provides additional northbound and southbound capacity. Since this project will most likely be completed within the year, the level-of-service calculations included this improvement.

3. A traffic signal warrant analysis was performed for existing conditions. This analysis determined that a traffic signal is warranted at the intersection of South Kihei Road at Kulanihakoi Road as a result of current conditions. This issue was discussed with the Department of Public Works during a pre-consultation meeting at the beginning of the traffic study. We were advised that since this traffic signal is warranted for existing conditions, it should be assumed that the intersection will be signalized for purposes of the level-of-service analysis of future conditions. The warrant analysis is discussed in Chapter 5.

2005 Cumulative Traffic Projections

2005 cumulative traffic projections were calculated by adding existing traffic volumes, total background growth and traffic generated by related projects. The resulting 2005 cumulative peak hour traffic volumes are shown in Figure 8. In summary, the assumptions used to estimate the cumulative traffic volumes for existing roadway conditions are:

1. Existing traffic along Piilani Highway and South Kihei Road was increased by the total growth shown in the *Kihei Traffic Master Plan* for 1995 to 2005.

2. Seven related development projects were identified. The traffic that these projects will generate was estimated and superimposed on the background traffic to estimate cumulative traffic volumes.

3. Piilani Highway will have two northbound and southbound through lanes during the peak hours.

4. The intersection of Kulanihakoi Road at South Kihei Road will be signalized.

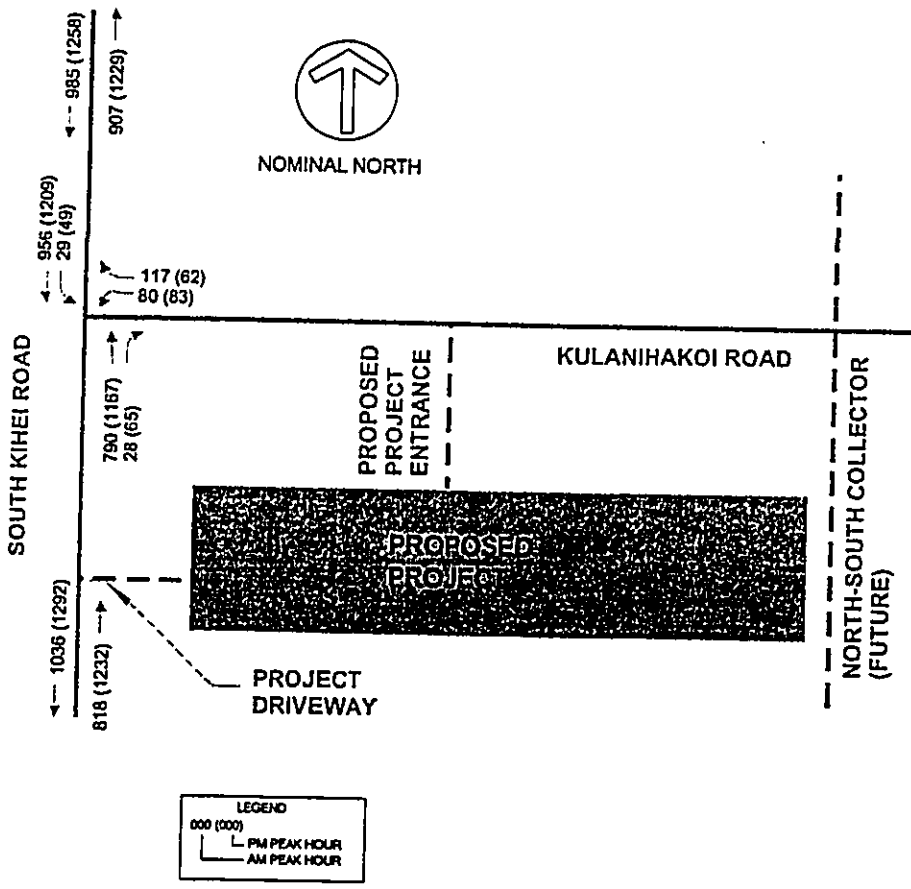

Figure 8
2005 CUMULATIVE PEAK HOUR TRAFFIC VOLUMES

4. PROJECT-RELATED TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. Generally, the process involves the determination of weekday peak-hour trips that would be generated by the proposed project, distribution and assignment of these trips on the approach and departure routes, and finally, determination of the levels-of-service at affected intersections and driveways subsequent to implementation of the project. This chapter presents the generation, distribution and assignment of project generated traffic and the cumulative plus project traffic projections. The results of the level-of-service analysis of cumulative plus project conditions is presented in the following chapter.

Project Trip Generation

Future traffic volumes generated by a project are typically estimated using the procedures described in the *Trip Generation Handbook,*[5] published by the Institute of Transportation Engineers. This method uses trip generation rates to estimate the number of trips that a proposed project will generate during the morning and afternoon peak hours.

The proposed project will consist of 95 affordable housing units. There are no trip generation rates for this category of housing. The category of trips rates that most closely corresponds the affordable housing is "single-family detached housing." Therefore, trip generation rates for this category were used to estimate the number of trips generated by the project. "Single-family detached housing" is defined by the Institute of Transportation Engineers as follows:

[5] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., 1998, p. 7-12

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.[6]

The trip rates and the estimated number of AM and PM peak hour trips that the proposed development will generate are shown in Table 5. The trips shown are the peak hourly trips generated by the project, which typically coincide with the peak hour of the adjacent street.

Table 5 Trip Generation Summary of Proposed Project

Time Period	Direction	Rate or Factor	Units	New Peak Hour Trips
AM Peak Hour	Total Trips per Unit	0.77	95	73
	% Inbound	25%		18
	% Outbound	75%		55
PM Peak Hour	Total Trips per Unit	1.02	95	97
	% Inbound	64%		62
	% Outbound	36%		35

Trip Distribution and Assignments

The project-related trips were distributed along the anticipated approach routes to the project site based on the directional distribution of existing peak hour traffic along Piilani Highway and South Kihei Road. The trip distribution and project related trip assignments are shown in Figure 9.

2005 Cumulative Plus Project Projections

Cumulative plus project traffic conditions are defined as 2005 background traffic conditions plus project related traffic. The incremental difference between cumulative and cumulative plus project is the traffic impact of the project under study.

2005 cumulative plus project traffic volumes with the project were estimated by superimposing the peak hourly traffic generated by the proposed project on the 2005 cumulative peak hour traffic volumes presented in Chapter 3. The traffic projections for 2005 cumulative plus project conditions are shown on Figure 10.

The background traffic growth estimates obtained from the *Kihei Master Traffic Plan* and used to estimate background traffic growth in the previous chapter includes development of housing in the vicinity of the proposed project. However, this data is not site specific and therefore cannot be used to estimate future turning movements are specific intersections. This means that traffic generated by the proposed project is double counted along the major arterials such as Piilani Highway and South Kihei Road.

The traffic projections worksheets are presented as Appendix D.

[6] Institute of Transportation Engineers, *Trip Generation*, Washington, D.C., 1997, p. 262

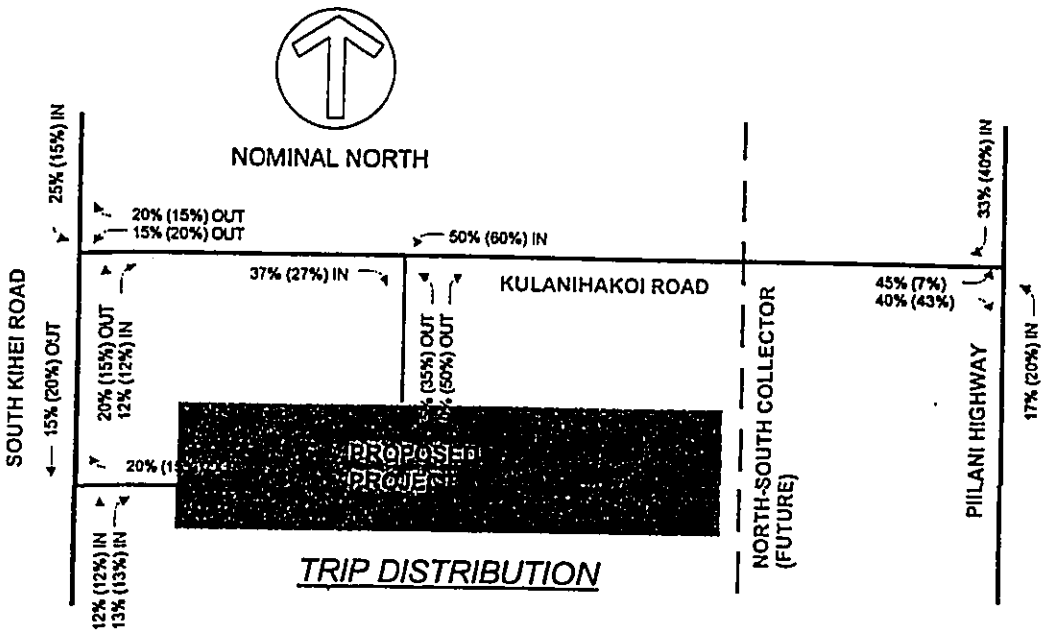

Figure 9
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

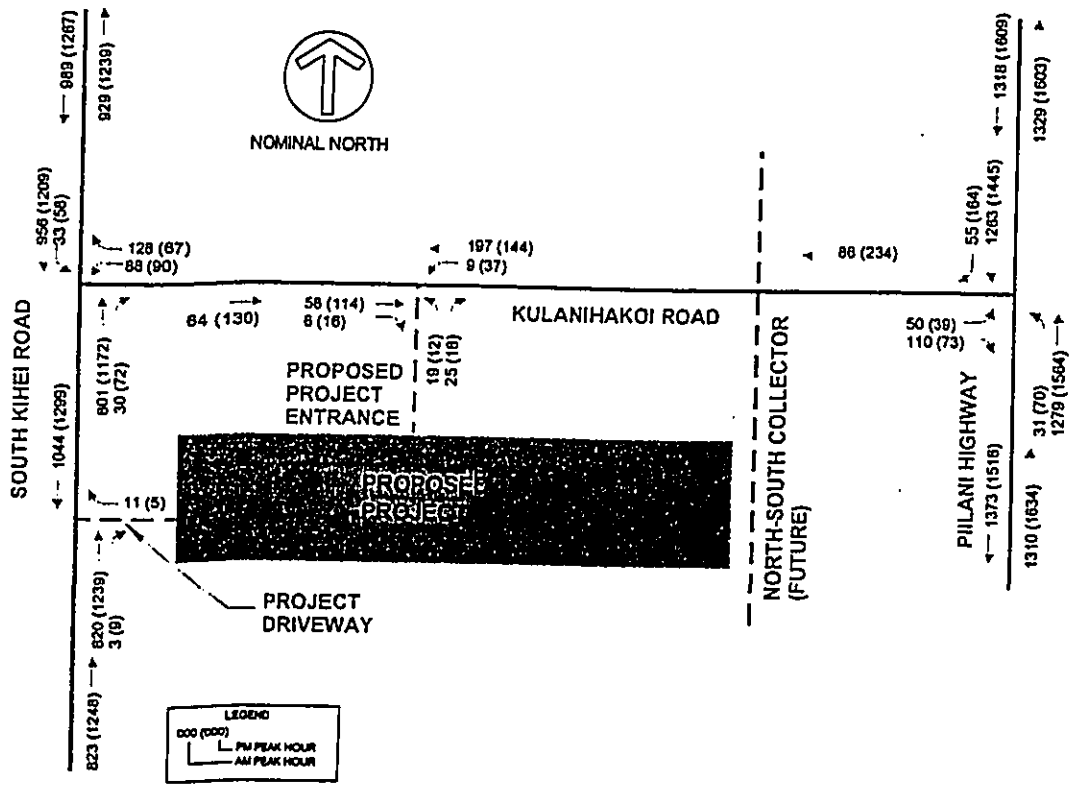

Figure 10
2005 CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

5. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to summarize the results of the level-of-service analysis, which identifies the project-related impacts. In addition, any mitigation measures necessary and feasible are identified and other access, egress and circulation issues are discussed.

Definition of Significant Impacts

Since there is no local criteria defining a significant traffic impact, criteria for determining if a project has a significant traffic impact for which mitigation measures must be identified used by Los Angeles Department of Transportation was used for this study. The criteria shown in Table 6 are used to define a significant impact for a signalized intersection:

Table 6 Definition of a Significant Traffic Impact[1]

Final V/C Ratio	Project Related Increase in V/C
0.700-0.800	equal to or greater than 0.040
0.800 - 0.900	equal to or greater than 0.020
> 0.900	equal to or greater than 0.010

NOTES:

(1) Los Angeles Department of Transportation, *Traffic Study Policies and Procedures*, 1993, page 10

There are no similar criteria for unsignalized intersections. The *Traffic Study Policies and Procedures* suggest that (1) unsignalized intersections be analyzed assuming signalized conditions so that intersections are evaluated using comparable criteria and (2) the volume-to-capacity ratio for the overall intersection, rather than each traffic movement, be used to evaluate the intersection.

In calculating the volume-to-capacity ratio for the overall intersection, deficient traffic movements may be overlooked because poor and good levels-of-service may balance, resulting in an acceptable level-of-service. Therefore, the criteria shown in Table 6 is used to define a significant impact for each traffic movement as well as the overall intersection.

Lastly, it should be noted that the criteria shown in Table 6 were developed before the latest revision to the *Highway Capacity Manual*, which now defines level-of-service based on delay rather than volume-to-capacity ratio.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis was performed for the intersection of Kulanihakoi Road at South Kihei Road to determine if a traffic signal is warranted. The traffic signal warrant analysis was performed using the warrants and procedures described in the *Manual of Uniform Traffic Control Devices* (MUTCD)[7].

The following eight warrants are described in the MUTCD:

Warrant 1	Eight-Hour Vehicular Volume
Warrant 2	Four-Hour Vehicular Volume
Warrant 3	Peak Hour
Warrant 4	Pedestrian Volume
Warrant 5	School Crossing
Warrant 6	Coordinated Signal System
Warrant 7	Crash Experience
Warrant 8	Roadway Network

If the traffic conditions satisfy any of the warrants, then a traffic signal should be considered. The MUTCD clearly states that satisfaction of a warrant is not necessarily justification for a traffic signal. Conversely, a signal may be warranted even though no warrants may be satisfied. Other considerations may require signals to address safety and geometric issues. Delay, congestion, confusion or other evidence of the need of right-of-way assignment must also be shown.

The only warrant for which sufficient data were available to perform an analysis was Warrants 3, Peak Hour Delay.

The warrant analysis was performed for morning and afternoon peak hour conditions of existing conditions. The warrant analysis worksheets are presented as Appendix G.

The conclusion of the warrant analysis is that the Peak Hour Warrant (Warrant 3) is satisfied for existing conditions. Since the warrant is satisfied for existing conditions, the warrant would also be satisfied for cumulative and cumulative plus project conditions.

[7] Federal Highway Administration, *Manual of Uniform Traffic Control Devices*, Washington, D.C. 2001

Project Related Traffic Impacts

The traffic impact of the proposed project was assessed by analyzing the changes in traffic volumes and Levels-of-Service. The change in traffic volumes along the roadway links serving the project is summarized in Table 7.

As shown the change in volumes along Piilani Highway is greatest along the southbound approach to Kulanihakoi Road where the afternoon traffic increases almost 2%. This is because traffic approaching the project site has little or no delay in making the right turn onto Kulanihakoi Road, whereas if South Kihei Road were used, the average vehicle could expect a delay of approximately 10 seconds to turn left. Therefore, traffic would adjust to the route with the least delay.

Table 7 Traffic Volume Changes Along Study Streets

Roadway	Location and Direction		AM Peak Hour Without Project	AM Peak Hour With Project	AM Peak Hour Change	AM Peak Hour Percent Change	PM Peak Hour Without Project	PM Peak Hour With Project	PM Peak Hour Change	PM Peak Hour Percent Change
Piilani Highway	North of Kulanihakoi Road	NB	1326	1329	3	0.23%	1601	1603	2	0.12%
		SB	1312	1318	6	0.46%	1584	1609	25	1.58%
	South of Kulanihakoi Road	NB	1307	1310	3	0.23%	1622	1634	12	0.74%
		SB	1351	1373	22	1.63%	1503	1518	15	1.00%
South Kihei Road	North of Kulanihakoi Road	NB	907	929	22	2.43%	1229	1239	10	0.81%
		SB	985	989	4	0.41%	1258	1267	9	0.72%
	South of Kulanihakoi Road	NB	818	823	5	0.61%	1232	1248	16	1.30%
		SB	1036	1044	8	0.77%	1292	1299	7	0.54%
Kulanihakoi Road	East of South Kihei Road	EB	57	64	7	12.28%	114	130	16	14.04%
		WB	197	216	19	9.64%	145	157	12	8.28%
	West of Piilani Highway	EB	135	160	25	18.52%	95	112	17	17.89%
		WB	77	86	9	11.69%	197	234	37	18.78%

The level-of-service analysis was performed for cumulative and cumulative plus project conditions. The incremental difference between the two conditions is the impact of the project. The assumptions used for the level-of-service analysis are:

1. The intersection of Kulanihakoi Road at South Kihei Road is signalized based on the results of the traffic signal warrant analysis discussed previously.

2. Piilani Highway is two lanes northbound and two lanes southbound.

3. The project entrance driveway at Kulanihakoi Road is a two-lane, two-way roadway. There is no separate left turn lane from Kulanihakoi Road to the project's entrance.

4. The project driveway along South Kihei Road allows right turns in and right turns out only.

The results of the level-of-service analysis is discussed separately for each study intersection and the project driveways. The level-of-service worksheets for cumulative and cumulative plus project conditions are presented as Appendices E and F, respectively.

Kulanihakoi Road at South Kihei Road

The results of the level-of-service analysis of the intersection of Kulanihakoi Road at South Kihei Road is summarized in Table 8. The analysis was performed using the procedures for signalized intersections based on the results of the traffic signal warrant analysis discussed previously.

Table 8 Level-of-Service Analysis - Kulanihakoi Road at South Kihei Road

Intersection and Movement	Cumulative			Cumulative Plus Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour	0.680	9.7	A	0.690	10.0	B	0.010	0.3
Westbound Left	0.340	28.7	C	0.374	29.4	C	0.034	0.7
Westbound Right	0.389	30.2	C	0.440	31.5	C	0.051	1.3
Northbound Thru	0.673	8.7	A	0.682	8.9	A	0.009	0.2
Northbound Right	0.014	3.3	A	0.016	3.3	A	0.002	0.0
Southbound Left	0.069	3.3	A	0.081	3.4	A	0.012	0.1
Southbound Thru	0.732	7.5	A	0.732	7.5	A	0.000	0.0
PM Peak Hour	0.840	20.9	C	0.860	21.1	C	0.020	0.2
Westbound Left	0.318	37.7	D	0.346	38.2	D	0.028	0.5
Westbound Right	0.127	34.8	C	0.151	35.1	D	0.024	0.3
Northbound Thru	0.934	23.5	C	0.937	24.0	C	0.003	0.5
Northbound Right	0.032	3.5	A	0.039	3.5	A	0.007	0.0
Southbound Left	0.172	5.6	A	0.204	5.9	A	0.032	-5.6
Southbound Thru	0.911	18.0	B	0.911	18.0	B	0.000	0.0

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized intersections.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.

As shown in the table, all traffic movements will operate at Level-of-Service C or better during the morning peak hour. Traffic along South Kihei Road will operate at Level-of-Service A and traffic approaching along Kulanihakoi Road will operate at Level-of-Service C. There is no change in the Level-of-Service as a result of the project and there are no significant changes in the volume-to-capacity ratios.

During the afternoon peak hour, traffic along South Kihei Road will operate at Level-of-Service A or B, whereas traffic along Kulanihakoi Road will operate at Level-of-Service D. However, the Level-of-Service is a result of delay to traffic waiting at the signal and not a capacity constraint as indicated by the low volume-to-capacity ratio. There are no significant changes in the volume-to-capacity ratio.

Because there are no significant impacts, no mitigation measures are recommended.

Kulanihakoi Road at Piilani Highway

The results of the Level-of-Service analysis for the intersection of Kulanihakoi Road at Piilani Highway is summarized on Table 9. Left turns from Kulanihakoi Road to northbound Piilani Highway will operate at Los E during the morning and LOS F during the afternoon, without and with the project. Note that the morning and afternoon change in delay is 0.8 and 3.2 seconds, respectively. It should also be noted that the morning and afternoon peak hour volume making this left turn us only 47 and 37 vehicles, respectively.

Table 9 Level-of-Service Analysis - Kulanihakoi Road at Piilani Highway

Intersection and Movement	Cumulative		Cumulative Plus Project		Change
	Delay[3]	LOS[4]	Delay	LOS	Delay
AM Peak Hour					
Northbound Left	12.7	B	12.7	B	0.0
Eastbound Left	44.7	E	45.5	E	0.8
Eastbound Right	17.5	C	18.8	C	1.3
PM Peak Hour					
Northbound Left	14.0	B	14.3	B	0.3
Eastbound Left	52.8	F	56.0	F	3.2
Eastbound Right	16.8	C	17.4	C	0.6

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity. V/C ratio is not calculated *for unsignalized intersections.*
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual.* LOS is based on delay.

Project Driveways

The results of the Level-of-Service analysis of the project driveways are summarized in Table 10. The intersection of Kulanihakoi Road at the project driveway will operate at Level-of-Service B or better without any improvement under unsignalized conditions. A left turn storage lane is not required.

The right turns from the project driveway to northbound South Kihei Road will operate at Level-of-Service C during the morning peak hour and D during the afternoon peak hour.

Table 10 Level-of-Service Analysis for Project Driveways

Intersection and Movement	AM Peak Hour		PM Peak Hour	
	Delay[3]	LOS[4]	Delay	LOS
Kulanihakoi Road at Project Entrance				
Westbound Left & Thru	7.4	A	7.6	A
Northbound Left & Right	9.7	A	10.0+	B
South Kihei Road at Project Entrance				
Westbound Right	17.0	C	28.2	D

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized intersections.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual.* LOS is based on delay.

Traffic Calming

1. Kulanihakoi Road between South Kihei Road and Piilani Highway has residential development along both sides except for a short portion. As traffic increases along Piilani Highway, traffic along Kulanihakoi can be expected to increase as traffic seeks a route with less delay. This will probably result in a request for some form of traffic calming along Kulanihakoi Road. Speed humps and four-way STOP signs should be considered. All approaches to the intersection of Kulanihakoi Road would operate at Level-of-Service A for all-way STOP conditions, indicating that there would be no adverse impact on the levels-of-service. However, these measures have not been recommended because these traffic control measures should be installed only after the County's petition requirements have been satisfied. This will insure that the traffic calming measure is wanted by a majority of the affected residents.

2. The internal street network within the proposed project consists of a curvilinear roadway with a driveway from Kulanihakoi Road and a driveway from South Kihei Road. This alignment and the turn prohibition at the driveway along South Kihei Road will discourage use of the project's streets by through traffic. Therefore, no traffic calming measures for the internal streets have been recommended.

3. No vehicular connection from the project to the future North-South Collector, which will be located along the eastern boundary of the project, has been proposed. This connection would encourage non-residential traffic intrusion into the project.

Conclusions

1. There is no change in the overall levels-of-service at the study intersections as a result of the proposed project. The deficiency is left turns from Kulanihakoi Road onto Piilani Highway and South Kihei Road. Left turns from Kulanihakoi Road to South Kihei Road will operate at Level-of-Service F until the intersection is signalized. It is understood that left turns from Kulanihakoi Road to Northbound Piilani Highway may be prohibited by HDOT when the North-South Collector is constructed. The impacts of this prohibition would be analyzed in the Environmental Assessment for the North-South Collector if this is part of the proposed plans.

2. Background traffic growth was estimated using traffic projections from the *Kihei Master Traffic Plan*, which considered residential development within the study area, and then superimposed on traffic projections estimated from current traffic surveys plus potential development projects in the vicinity of the proposed project. However, this background traffic growth was not associated with a specific development within the traffic analysis zone for this area. Therefore, traffic from the proposed project has probably been double counted along the Piilani Highway and South Kihei Road corridors, resulting in conservative estimates of future traffic conditions in the study area.

3. An analysis of the peak hour related traffic signal warrants for the intersections of Kulanihakoi Road at South Kihei Road indicate that traffic signals are warranted at the intersection of Kulanihakoi Road at South Kihei Road under existing conditions. It is important to note that these warrants are not met by future development, but as the result of existing traffic conditions. Of the future morning and afternoon peak hour, only 1.8% and 1.2%, respectively, of the total traffic is project generated.

4. No traffic calming measures have been recommended for Kulanihakoi Road as a result of anticipated traffic growth. Traffic calming measures should be initiated only after the petition requirements of Maui County have been satisfied. Traffic calming within the project is provided by the curvilinear design of the street alignment and the restricted access to and egress from the project along South Kihei Road.

APPENDIX A

PHOTOGRAPHS OF STUDY INTERSECTIONS

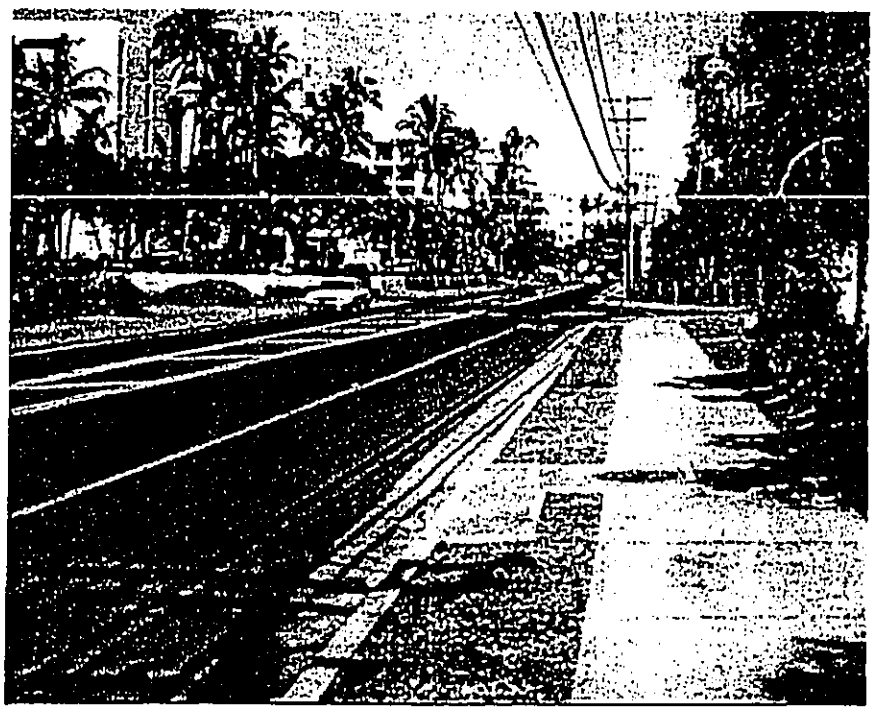

Figure A-1. Looking north along South Kihei Road toward Kulanihakoi Road

Figure A-2. Looking north along South Kihei Road from south side Kulanihakoi Road.

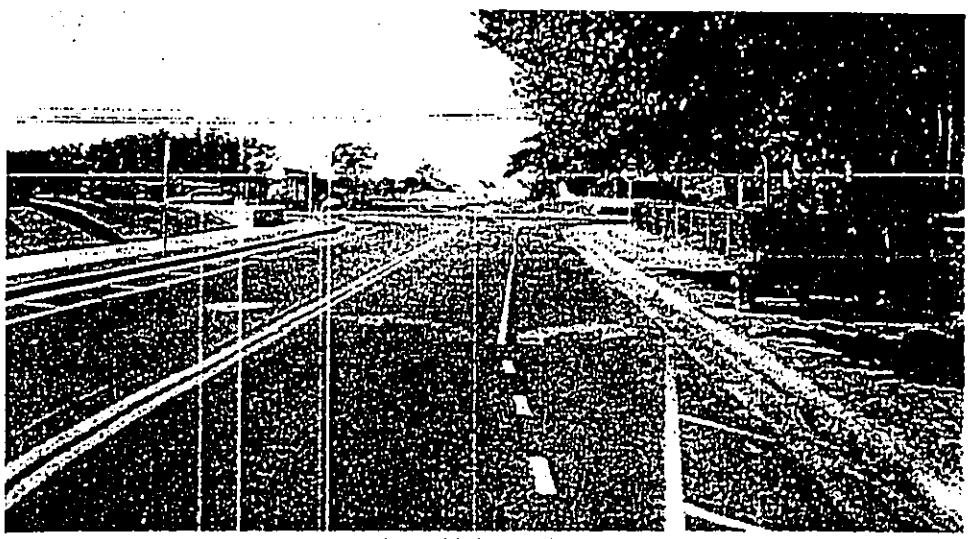

Figure A-3 Looking west along Kulanihakoi Road toward intersection with South Kihei Road.

Figure A-4 Looking north along Piilani Highway toward intersection with Kulanihakoi Road.

Figure A-5. Looking east along Kulanihakoi Road toward intersection with Piilani Highway.

APPENDIX B

TRAFFIC COUNT SUMMARY WORKSHEETS

EXISTING TRAFFIC COUNTS (2001)

Count. 1pm

← 820
↶ 41

758 →
55 ↷

↶ 85
181

Count. 3pm

54 ↷ 15 ↶ ← 96
← 1155

54 →
1270 →

Count. 3pm, A

~~46~~ ↷ ↶ ~~54~~
← ~~1125~~

~~46~~ →
1270 →

Count. 3am

15
54 ↷ ↶ ← 96
← 1155

54 →
~~1168~~ →

Count. 3am, A

~~82~~ ↷ 15 ↶ ~~26~~
← 1075

27 →
~~872~~ →

Count. 3am

South Kihei Road

← 729
↶ 27

587 →
26 ↷

↶ 105
72

Kulanihakei Rd

28 ↷ ↶ ← 38
← 1075

27 →
1051 →

15
~~68~~ ↷ ↶ ~~38~~
← ~~1059~~

~~20~~ →
1051 →

Piilani Highway

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: South Kihei Road at Kulanihakoi Road
DAY/DATE: Wednesday, January 17, 2001
START TIME: 6:45 AM
END TIME: 8:45 AM

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
Interval	Interval Start	Right 1	Thru 2	Left 3	Right 4	Thru 5	Left 6	Right 7	Thru 8	Left 9	Right 10	Thru 11	Left 12	Total
1	6:45 am	0	115	3	16	0	8	5	132	0	0	0	0	279
2	7:00 am	0	143	7	43	0	20	5	131	0	0	0	0	349
3	7:15 am	0	188	11	29	0	13	3	160	0	0	0	0	404
4	7:30 am	0	228	5	17	0	16	7	147	0	0	0	0	420
5	7:45 am	0	170	4	13	0	22	10	149	0	0	0	0	368
6	8:00 am	0	121	3	11	0	21	6	111	0	0	0	0	273
7	8:15 am	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
9	8:45 am	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9:00 am	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9:15 am	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	0	228	11	43	0	22	10	160	0	0	0	0	420

Hourly Volumes

		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
6:45 am	7:45 am	0	674	26	105	0	57	20	570	0	0	0	0	1452
7:00 am	8:00 am	0	729	27	102	0	71	25	587	0	0	0	0	1541
7:15 am	8:15 am	0	707	23	70	0	72	26	567	0	0	0	0	1465
7:30 am	8:30 am	0	519	12	41	0	59	23	407	0	0	0	0	1061
7:45 am	8:45 am	0	291	7	24	0	43	16	260	0	0	0	0	641
8:00 am	9:00 am	0	121	3	11	0	21	6	111	0	0	0	0	273
8:15 am	9:15 am	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 am	9:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 am	9:45 am	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	0	729	27	105	0	72	26	587	0	0	0	0	1541
Per Hour Calculations														
Volume		0	729	27	105	0	72	26	587	0	0	0	0	1546
Per Cent		0%	96%	4%	59%	0%	41%	4%	96%	0%	??	??	??	
Peak Hour Factor		0.00	0.80	0.61	0.61	0.00	0.82	0.65	0.92	0.00	0.00	0.00	0.00	0.92
Total Arrivals			756			177			613			0		
Total Departures			692			53			801			0		
Leg Totals			1448			230			1414			0		

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January 30, 2003
File: Count.1am.wpd

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: South Kihei Road at Kulanihakoi Road
DAY/DATE: Tuesday, January 16. 2001
START TIME: 3:30 pm
END TIME: 5:30 pm

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
	Interval	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Interval	Start	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	3:30 pm	0	166	11	14		27	10	166					394
2	3:45 pm	0	181	2	15		25	10	178					411
3	4:00 pm	0	216	8	15		12	14	192					457
4	4:15 pm	0	194	13	13		17	8	205					450
5	4:30 pm	0	223	7	14		14	17	183					458
6	4:45 pm	0	187	7	17		11	14	170					406
7	5:00 pm	0	203	14	8		7	12	170					414
8	5:15 pm	0	176	10	6		14	12	182					400
9	5:30 pm	0												0
10	5:45 pm	0												0
11	6:00 pm	0												0
12	6:15 pm	0												0
	Maximum	0	223	14	17		27	17	205					458

Hourly Volumes

		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
3:30 pm	4:30 pm	0	757	34	57	0	81	42	741	0	0	0	0	1712
3:45 pm	4:45 pm	0	814	30	57	0	68	49	758	0	0	0	0	1776
4:00 pm	5:00 pm	0	820	35	59	0	54	53	750	0	0	0	0	1771
4:15 pm	5:15 pm	0	807	41	52	0	49	51	728	0	0	0	0	1728
4:30 pm	5:30 pm	0	789	38	45	0	46	55	705	0	0	0	0	1678
4:45 pm	5:45 pm	0	566	31	31	0	32	38	522	0	0	0	0	1220
5:00 pm	6:00 pm	0	379	24	14	0	21	24	352	0	0	0	0	814
5:15 pm	6:15 pm	0	176	10	6	0	14	12	182	0	0	0	0	400
5:30 pm	6:30 pm	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	0	820	41	59	0	81	55	758	0	0	0	0	1776
Per Hour Calculations														
Volume		0	820	41	59	0	81	55	758	0	0	0	0	1814
Per Cent		0%	95%	5%	42%	0%	58%	7%	93%	0%	??	??	??	
Peak Hour Factor		0.00	0.92	0.73	0.87	0.00	0.75	0.81	0.92	0.00	0.00	0.00	0.00	0.99
Total Arrivals			861			140			813			0		
Total Departures			817			96			901			0		
Leg Totals			1678			236			1714			0		

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January 30, 2003
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TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: Piilani Highway at Kulanihakoi Road
DAY/DATE: Tuesday, February 6, 2001
START TIME: 6:45 AM
END TIME: 8:45 AM

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
Interval	Interval Start	Right 1	Thru 2	Left 3	Right 4	Thru 5	Left 6	Right 7	Thru 8	Left 9	Right 10	Thru 11	Left 12	Total
1	6:45 am	4	276						197	6	18		2	503
2	7:00 am	7	278						246	5	12		8	556
3	7:15 am	7	263						302	5	14		3	594
4	7:30 am	14	242						264	4	17		2	543
5	7:45 am	6	235						239	5	17		2	504
6	8:00 am	11	242						215	3	20		4	495
7	8:15 am	6	230						221	7	13		6	483
8	8:30 am													0
9	8:45 am													0
10	9:00 am													0
11	9:15 am	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	14	278	0	0	0	0	0	302	7	20	0	8	594

Hourly Volumes

		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
6:45 am	7:45 am	32	1059	0	0	0	0	0	1009	20	61	0	15	2196
7:00 am	8:00 am	34	1018	0	0	0	0	0	1051	19	60	0	15	2197
7:15 am	8:15 am	38	982	0	0	0	0	0	1020	17	68	0	11	2136
7:30 am	8:30 am	37	949	0	0	0	0	0	939	19	67	0	14	2025
7:45 am	8:45 am	23	707	0	0	0	0	0	675	15	50	0	12	1482
8:00 am	9:00 am	17	472	0	0	0	0	0	436	10	33	0	10	978
8:15 am	9:15 am	6	230	0	0	0	0	0	221	7	13	0	6	483
8:30 am	9:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 am	9:45 am	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	38	1059	0	0	0	0	0	1051	20	68	0	15	2197
Per Hour Calculations														
Volume		38	~~1059~~	0	0	0	0	0	1051	~~20~~	~~68~~	0	15	2251
Per Cent		3%	97%	0%	??	??	??	0%	98%	2%	82%	0%	18%	
Peak Hour Factor		0.68	0.95	0.00	0.00	0.00	0.00	0.00	0.87	0.71	0.85	0.00	0.47	0.95
Total Arrivals			1097			0			1071			83		
Total Departures			1066			0			1127			58		
Leg Totals			2163			0			2198			141		

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File: Count.3am.wpd

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: Piilani Highway at Kulanihakoi Road
DAY/DATE: Tuesday, January 16, 2001
START TIME: 4:00 pm
END TIME: 6:00 pm

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
Interval	Interval Start	Right 1	Thru 2	Left 3	Right 4	Thru 5	Left 6	Right 7	Thru 8	Left 9	Right 10	Thru 11	Left 12	Total
1	4:00 pm	14	279						275	8	11		3	590
2	4:15 pm	18	307						299	10	12		5	651
3	4:30 pm	18	271						279	14	17		4	603
4	4:45 pm	18	298						291	18	9		3	637
5	5:00 pm	21	271						279	12	16		0	599
6	5:15 pm	23	284						319	10	10		1	647
7	5:30 pm	32	288						252	7	14		3	596
8	5:45 pm	20	292						183	8	11		3	517
9	6:00 pm													0
10	6:15 pm													0
11	6:30 pm													0
12	6:45 pm													0
	Maximum	32	307						319	18	17		5	651

Hourly Volumes

		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
4:00 pm	5:00 pm	68	1155	0	0	0	0	0	1144	50	49	0	15	2481
4:15 pm	5:15 pm	75	1147	0	0	0	0	0	1148	54	54	0	12	2490
4:30 pm	5:30 pm	80	1124	0	0	0	0	0	1168	54	52	0	8	2486
4:45 pm	5:45 pm	94	1141	0	0	0	0	0	1141	47	49	0	7	2479
5:00 pm	6:00 pm	96	1135	0	0	0	0	0	1033	37	51	0	7	2359
5:15 pm	6:15 pm	75	864	0	0	0	0	0	754	25	35	0	7	1760
5:30 pm	6:30 pm	52	580	0	0	0	0	0	435	15	25	0	6	1113
5:45 pm	6:45 pm	20	292	0	0	0	0	0	183	8	11	0	3	517
6:00 pm	7:00 pm	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	96	1155	0	0	0	0	0	1168	54	54	0	15	2490
Per Hour Calculations														
Volume		96	1155	0	0	0	0	0	~~1168~~	54	54	0	15	2542
Per Cent		8%	92%	0%	??	??	??	0%	96%	4%	78%	0%	22%	
Peak Hour Factor		0.75	0.94	0.00	0.00	0.00	0.00	0.00	0.92	0.75	0.79	0.00	0.75	0.98
Total Arrivals			1251			0			1222			69		
Total Departures			1183			0			1209			150		
Leg Totals			2434			0			2431			219		

Phillip Rowell and Associates

January 30, 2003
File: Count.3pm.wpd

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: Pillani Highway at Kulanihakoi Road
DAY/DATE: Tuesday, July 30, 2002
START TIME: 6:45 AM
END TIME: 8:45 AM

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
Interval	Interval Start	Right 1	Thru 2	Left 3	Right 4	Thru 5	Left 6	Right 7	Thru 8	Left 9	Right 10	Thru 11	Left 12	Total
1	6:45 am	5	271						171	3	20		3	473
2	7:00 am	4	249						208	5	9		4	479
3	7:15 am	4	269						212	3	9		4	501
4	7:30 am	8	252						209	2	17		4	492
5	7:45 am	10	290						210	8	26		3	547
6	8:00 am	3	264						229	10	25		0	531
7	8:15 am	5	231						224	7	14		3	484
8	8:30 am													0
9	8:45 am													0
10	9:00 am													0
11	9:15 am													0
12	9:30 am													0
	Maximum	10	290						229	10	26		4	547

Hourly Volumes

		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
6:45 am	7:45 am	21	1041	0	0	0	0	0	800	13	55	0	15	1945
7:00 am	8:00 am	26	1060	0	0	0	0	0	839	18	61	0	15	2019
7:15 am	8:15 am	25	1075	0	0	0	0	0	860	23	77	0	11	2071
7:30 am	8:30 am	26	1037	0	0	0	0	0	872	27	82	0	10	2054
7:45 am	8:45 am	18	785	0	0	0	0	0	663	25	65	0	6	1562
8:00 am	9:00 am	8	495	0	0	0	0	0	453	17	39	0	3	1015
8:15 am	9:15 am	5	231	0	0	0	0	0	224	7	14	0	3	484
8:30 am	9:30 am	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 am	9:45 am	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	26	1075	0	0	0	0	0	872	27	82	0	15	2071

Per Hour Calculations

Volume	~~26~~	1075	0	0	0	0	0	~~872~~	27	82	0	~~15~~	2097
Per Cent	2%	98%	0%	??	??	??	0%	97%	3%	85%	0%	15%	
Peak Hour Factor	0.65	0.93	0.00	0.00	0.00	0.00	0.00	0.95	0.68	0.79	0.00	0.94	0.96
Total Arrivals		1101			0			899			97		
Total Departures		887			0			1157			53		
Leg Totals		1988			0			2056			150		

Phillip Rowell and Associates

January 30, 2003
File: Count.3am.A.wpd

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: Waipuilani Estates v.3
INTERSECTION: Piilani Highway at Kulanihakoi Road
DAY/DATE: Tuesday, July 30, 2002
START TIME: 3:30 pm
END TIME: 5:00 pm

15-Minute Volumes

		North Approach			East Approach			South Approach			West Approach			
Interval	Interval Start	Right 1	Thru 2	Left 3	Right 4	Thru 5	Left 6	Right 7	Thru 8	Left 9	Right 10	Thru 11	Left 12	Total
1	3:30 pm	12	289						313	12	10		1	637
2	3:45 pm	12	288						323	15	14		0	652
3	4:00 pm	12	263						298	8	12		3	596
4	4:15 pm	4	281						329	8	6		2	630
5	4:30 pm	16	293						320	15	14		0	658
6	4:45 pm	22	281						284	11	13		1	612
7	5:00 pm													0
8	5:15 pm													0
9	5:30 pm													0
10	5:45 pm													0
11	6:00 pm													0
12	6:15 pm													0
	Maximum	22	293						329	15	14		3	658

Hourly Volumes

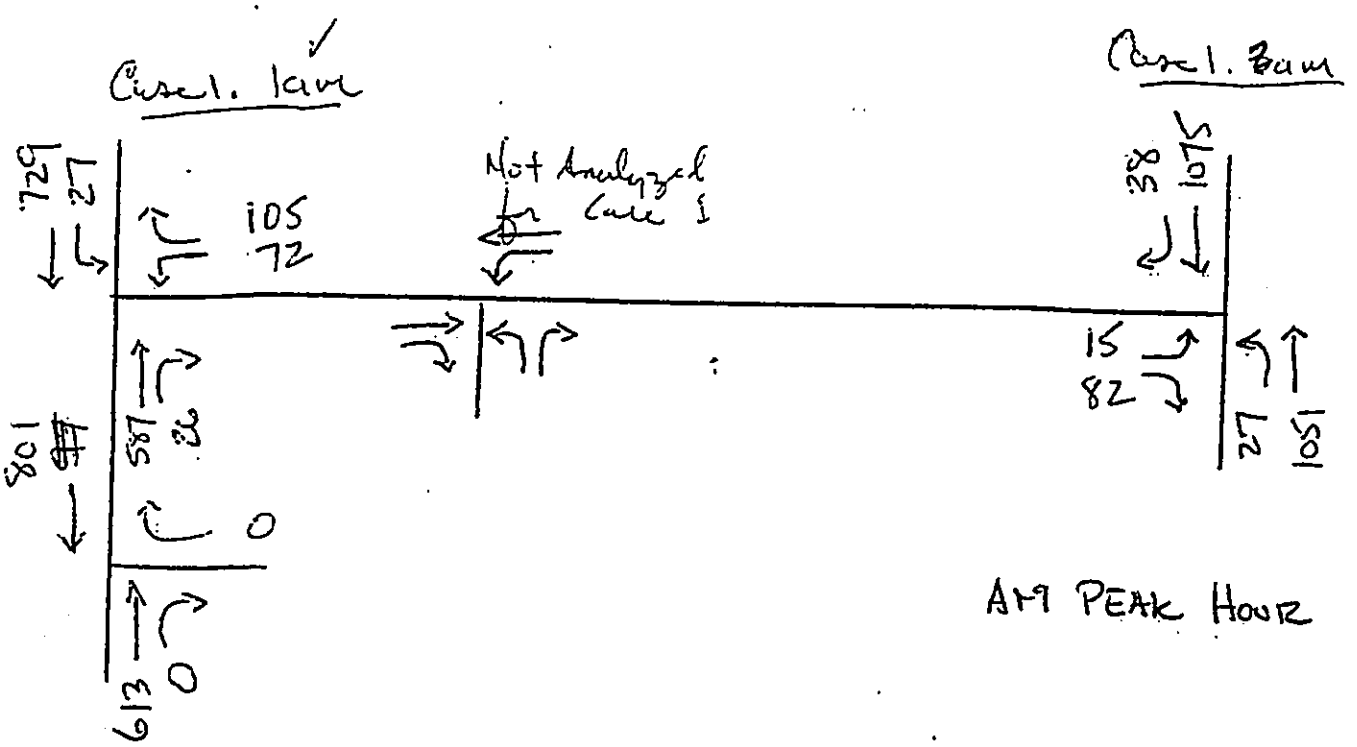
		North Approach			East Approach			South Approach			West Approach			
Time Period		Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
From	To	1	2	3	4	5	6	7	8	9	10	11	12	Total
3:30 pm	4:30 pm	40	1121	0	0	0	0	0	1263	43	42	0	6	2515
3:45 pm	4:45 pm	44	1125	0	0	0	0	0	1270	46	46	0	5	2536
4:00 pm	5:00 pm	54	1118	0	0	0	0	0	1231	42	45	0	6	2496
4:15 pm	5:15 pm	42	855	0	0	0	0	0	933	34	33	0	3	1900
4:30 pm	5:30 pm	38	574	0	0	0	0	0	604	26	27	0	1	1270
4:45 pm	5:45 pm	22	281	0	0	0	0	0	284	11	13	0	1	612
5:00 pm	6:00 pm	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 pm	6:15 pm	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 pm	6:30 pm	0	0	0	0	0	0	0	0	0	0	0	0	0
	Maximum	54	1125	0	0	0	0	0	1270	46	46	0	6	2536
Per Hour Calculations														
Volume		~~54~~	~~1125~~	0	0	0	0	0	1270	~~46~~	~~46~~	0	~~6~~	2547
Per Cent		5%	95%	0%	??	??	??	0%	97%	3%	88%	0%	12%	
Peak Hour Factor		0.61	0.96	0.00	0.00	0.00	0.00	0.00	0.97	0.77	0.82	0.00	0.50	0.97
Total Arrivals			1179			0			1316			52		
Total Departures			1276			0			1171			100		
Leg Totals			2455			0			2487			152		

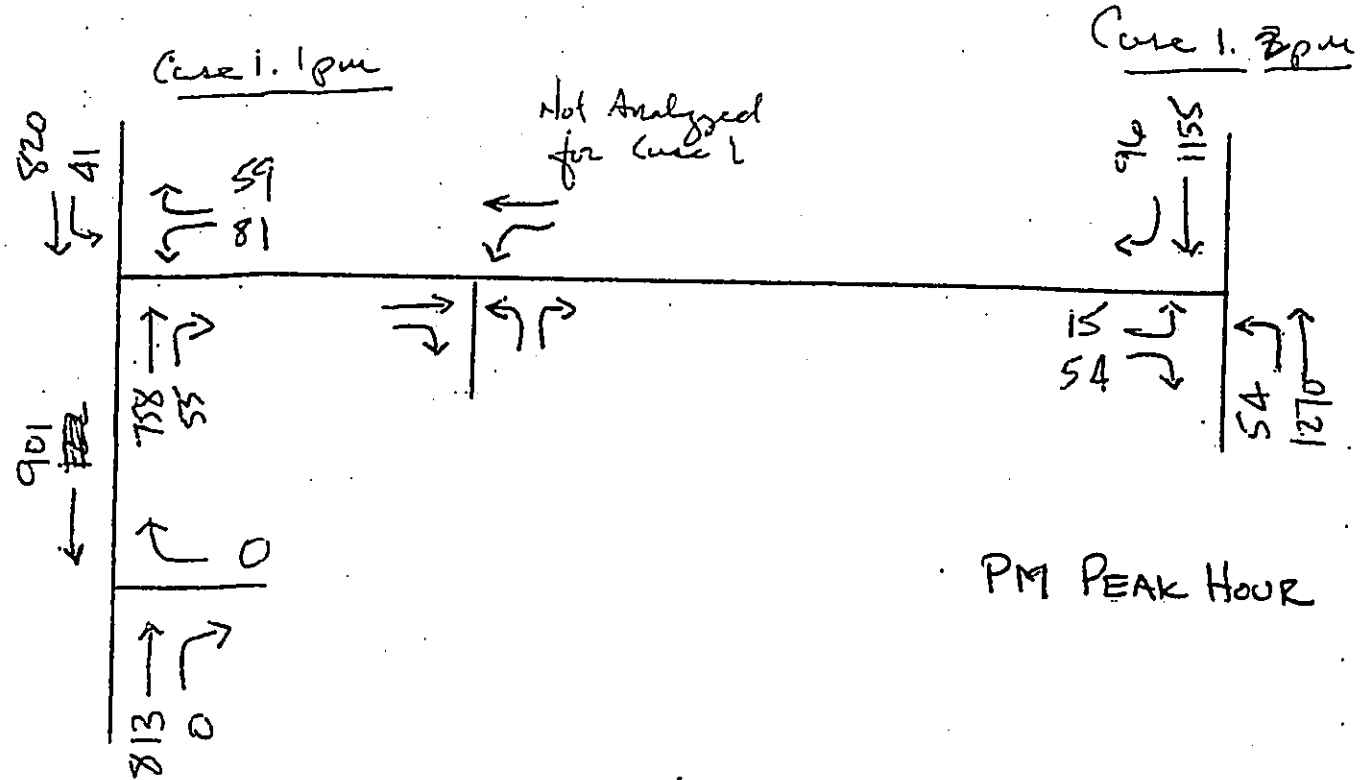
Phillip Rowell and Associates

January 30, 2003
File: Count.3pm.A.wpd

APPENDIX C

LEVEL-OF-SERVICE CALCULATIONS FOR EXISTING CONDITIONS





LOS CALCS - CASE 1
(EXISTING)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case1.1am*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Waipuilani Estates*
East/West Street: *Kalaniahakoi Road*	North/South Street: *South Kihei Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*587*	*26*	*27*	*729*	*40*
Peak-Hour Factor, PHF	*0.90*	*0.92*	*0.65*	*0.96*	*0.80*	*0.90*
Hourly Flow Rate, HFR	*0*	*639*	*40*	*27*	*912*	*0*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*72*	*0*	*105*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.82*	*0.90*	*0.61*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*88*	*0*	*172*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*27*	*88*		*172*			
C (m) (vph)		*923*	*114*		*480*			
v/c		*0.03*	*0.77*		*0.36*			
95% queue length		*0.09*	*4.34*		*1.61*			
Control Delay		*9.0*	*101.9*		*16.6*			
LOS		*A*	*F*		*C*			
Approach Delay	–	–	*45.5*					
Approach LOS	–	–	*E*					

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case1.1pm*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		

Project Description *Waipuilani Estates*

East/West Street: *Kalaniahakoi Road* | North/South Street: *South Kihei Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*758*	*55*	*41*	*820*	*40*
Peak-Hour Factor, PHF	*0.90*	*0.92*	*0.81*	*0.73*	*0.92*	*0.90*
Hourly Flow Rate, HFR	*0*	*819*	*68*	*55*	*892*	*0*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*81*	*0*	*59*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.75*	*0.90*	*0.87*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*108*	*0*	*68*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*55*	*108*		*68*			
C (m) (vph)		*772*	*80*		*379*			
v/c		*0.07*	*1.35*		*0.18*			
95% queue length		*0.23*	*8.35*		*0.65*			
Control Delay		*10.0+*	*311.9*		*16.6*			
LOS		*B*	*F*		*C*			
Approach Delay	–	–	*197.8*					
Approach LOS	–	–	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case1.2am
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	Kihei
Date Performed	3/9/2001	Analysis Year	Existing
Analysis Time Period	AM Peak Hour		
Project Description	Waipuilani Estates		
East/West Street:	Kalaniahakoi Road	North/South Street:	Piilani Highway
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	27	1051	18	0	1075	38
Peak-Hour Factor, PHF	0.68	1.00	0.90	0.90	0.93	0.95
Hourly Flow Rate, HFR	39	1052	0	0	1160	40
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			1
Lanes	1	1	0	0	1	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	38	153	125	15	129	82
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.79
Hourly Flow Rate, HFR	0	0	0	16	0	103
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	39					16		103
C (m) (vph)	610					41		240
v/c	0.06					0,39		0.43
95% queue length	0.20					1,34		2.02
Control Delay	11.3					140.7		30.8
LOS	B					F		D
Approach Delay	--	--				45.6		
Approach LOS	--	--				E		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case1.2pm*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Waipuilani Estates*		
East/West Street:	*Kalaniahakoi Road*	North/South Street:	*Piilani Highway*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*54*	*1270*	*18*	*0*	*1155*	*96*
Peak-Hour Factor, PHF	*0.90*	*0.97*	*0.90*	*0.90*	*0.98*	*1.00*
Hourly Flow Rate, HFR	*60*	*1316*	*0*	*0*	*1178*	*96*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*1*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*38*	*153*	*125*	*15*	*129*	*54*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.90*	*0.96*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*16*	*0*	*55*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*60*					*16*		*55*
C (m) (vph)	*600*					*24*		*235*
v/c	*0.10*					*0.67*		*0.23*
95% queue length	*0.33*					*2.00*		*0.88*
Control Delay	*11.7*					*305.0*		*24.9*
LOS	*B*					*F*		*C*
Approach Delay	–	–				*88.1*		
Approach LOS	–	–				*F*		

>

APPENDIX D

TRAFFIC PROJECTION WORKSHEETS

Part 1

Trip Assignment Worksheet

Waipulani Estates Traffic Study
September 2001

INTERSECTION NO 1
INTERSECTION OF Kalanihakoi Road at South Kihei Road

No	Approach & Mvt	Existing AM	Existing PM	Background Growth AM	Background Growth PM	Related Projects Trips AM	Related Projects Trips PM	Cumulative Trips AM	Cumulative Trips PM	Project Trips AM	Project Trips PM	Cumulative Plus Project Trips AM	Cumulative Plus Project Trips PM
1	N- RT	0	0			0	0	0	0	0	0	0	0
2	TH	729	820	155	255	72	134	956	1209	0	0	956	1209
3	LT	27	41		5	2	3	29	49	4	9	33	58
4	E- RT	105	59	5	0	7	3	117	62	11	5	128	67
5	TH	0	0			0	0	0	0	0	0	0	0
6	LT	72	81	5	0	3	2	80	83	8	7	88	90
7	S- RT	26	55		5	2	5	28	65	2	7	30	72
8	TH	587	758	95	280	108	129	790	1167	11	5	801	1172
9	LT	0	0			0	0	0	0	0	0	0	0
10	W- RT	0	0			0	0	0	0	0	0	0	0
11	TH	0	0			0	0	0	0	0	0	0	0
12	LT	0	0			0	0	0	0	0	0	0	0
TOTAL		*1546*	*1814*	*260*	*545*	194	276	2000	2635	36	33	2036	2668

Approach Totals

From North	756	861	155	260	74	137	985	1258	4	9	989	1267
From East	177	140	10	0	10	5	197	145	19	12	216	157
From South	613	813	95	285	110	134	818	1232	13	12	831	1244
From West	0	0	0	0	0	0	0	0	0	0	0	0
Total	1546	1814	260	545	194	276	2000	2635	36	33	2036	2668

Departure Totals

To North	692	817	100	280	115	132	907	1229	22	10	929	1239
To East	53	96	0	10	4	8	57	114	6	16	63	130
To South	801	901	160	255	75	136	1036	1292	8	7	1044	1299
To West	0	0	0	0	0	0	0	0	0	0	0	0
Total	1546	1814	260	545	194	276	2000	2635	36	33	2036	2668

Leg Totals

North	1448	1678	255	540	189	269	1892	2487	26	19	1918	2506
East	230	236	10	10	14	13	254	259	25	28	279	287
South	1414	1714	255	540	185	270	1854	2524	21	19	1875	2543
West	0	0	0	0	0	0	0	0	0	0	0	0
Total	3092	3628	520	1090	388	552	4000	5270	72	66	4072	5336

Part 2

Trip Assignment Worksheet

Waipuilani Estates Traffic Study
September 2001

INTERSECTION NO 2
INTERSECTION OF Kalanihakol Road at Piilani Highway

No	Approach & Mvt	Existing AM	Existing PM	Background Growth AM	Background Growth PM	Related Projects Trips AM	Related Projects Trips PM	Cumulative Trips AM	Cumulative Trips PM	Project Trips AM	Project Trips PM	Cumulative Plus Project Trips AM	Cumulative Plus Project Trips PM
1	N- RT	38	96	10	35	1	8	49	139	6	25	55	164
2	TH	1075	1155	150	225	38	65	1263	1445	0	0	1263	1445
3	LT	0	0			0	0	0	0	0	0	0	0
4	E- RT	0	0			0	0	0	0	0	0	0	0
5	TH	0	0			0	0	0	0	0	0	0	0
6	LT	0	0			0	0	0	0	0	0	0	0
7	S- RT	0	0			0	0	0	0	0	0	0	0
8	TH	1051	1270	150	225	78	69	1279	1564	0	0	1279	1564
9	LT	27	54	0	0	1	4	28	58	3	12	31	70
10	W- RT	82	54	0	0	6	4	88	58	22	15	110	73
11	TH	0	0			0	0	0	0	0	0	0	0
12	LT	15	15	30	20	2	2	47	37	3	2	50	39
TOTAL		2288	2644	340	505	126	152	2754	3301	34	54	2788	3355

Approach Totals

From North	1113	1251	160	260	39	73	1312	1584	6	25	1318	1609
From East	0	0	0	0	0	0	0	0	0	0	0	0
From South	1078	1324	150	225	79	73	1307	1622	3	12	1310	1634
From West	97	69	30	20	8	6	135	95	25	17	160	112
Total	2288	2644	340	505	126	152	2754	3301	34	54	2788	3355

Departure Totals

To North	1066	1285	180	245	80	71	1326	1601	3	2	1329	1603
To East	0	0	0	0	0	0	0	0	0	0	0	0
To South	1157	1209	150	225	44	69	1351	1503	22	15	1373	1518
To West	65	150	10	35	2	12	77	197	9	37	86	234
Total	2288	2644	340	505	126	152	2754	3301	34	54	2788	3355

Leg Totals

North	2179	2536	340	505	119	144	2638	3185	9	27	2647	3212
East	0	0	0	0	0	0	0	0	0	0	0	0
South	2235	2533	300	450	123	142	2658	3125	25	27	2683	3152
West	162	219	40	55	10	18	212	292	34	54	246	346
Total	4576	5288	680	1010	252	304	5508	6602	68	108	5576	6710

Part 3

Trip Assignment Worksheet

Waipuilani Estates Traffic Study
September 2001

INTERSECTION NO 3
INTERSECTION OF Kalanihakoi Road at Project Driveway

No	Approach & Mvt	Existing AM	Existing PM	Background Growth AM	Background Growth PM	Related Projects Trips AM	Related Projects Trips PM	Cumulative Trips AM	Cumulative Trips PM	Project Trips AM	Project Trips PM	Cumulative Plus Project Trips AM	Cumulative Plus Project Trips PM
1	N- RT	0	0			0	0	0	0	0	0	0	0
2	TH	0	0			0	0	0	0	0	0	0	0
3	LT	0	0			0	0	0	0	0	0	0	0
4	E- RT	0	0			0	0	0	0	0	0	0	0
5	TH	177	140	10	0	10	4	197	144	0	0	197	144
6	LT	0	0			0	0	0	0	9	37	9	37
7	S- RT	0	0			0	0	0	0	25	18	25	18
8	TH	0	0			0	0	0	0	0	0	0	0
9	LT	0	0			0	0	0	0	19	12	19	12
10	W- RT	0	0			0	0	0	0	6	16	6	16
11	TH	53	96	0	10	5	8	58	114	0	0	58	114
12	LT	0	0			0	0	0	0	0	0	0	0
TOTAL		*230*	*236*	*10*	*10*	*15*	12	255	258	59	83	314	341

Approach Totals

From North	0	0	0	0	0	0	0	0	0	0	0	0
From East	177	140	10	0	10	4	197	144	9	37	206	181
From South	0	0	0	0	0	0	0	0	44	30	44	30
From West	53	96	0	10	5	8	58	114	6	16	64	130
Total	230	236	10	10	15	12	255	258	59	83	314	341

Departure Totals

To North	0	0	0	0	0	0	0	0	0	0	0	0
To East	53	96	0	10	5	8	58	114	25	18	83	132
To South	0	0	0	0	0	0	0	0	15	53	15	53
To West	177	140	10	0	10	4	197	144	19	12	216	156
Total	230	236	10	10	15	12	255	258	59	83	314	341

Leg Totals

North	0	0	0	0	0	0	0	0	0	0	0	0
East	230	236	10	10	15	12	255	258	34	55	289	313
South	0	0	0	0	0	0	0	0	59	83	59	83
West	230	236	10	10	15	12	255	258	25	28	260	286
Total	460	472	20	20	30	24	510	516	118	166	628	682

Part 4

Trip Assignment Worksheet

Waipuilani Estates Traffic Study
September 2001

INTERSECTION NO 4
INTERSECTION OF South Kihei Road at Project Driveway

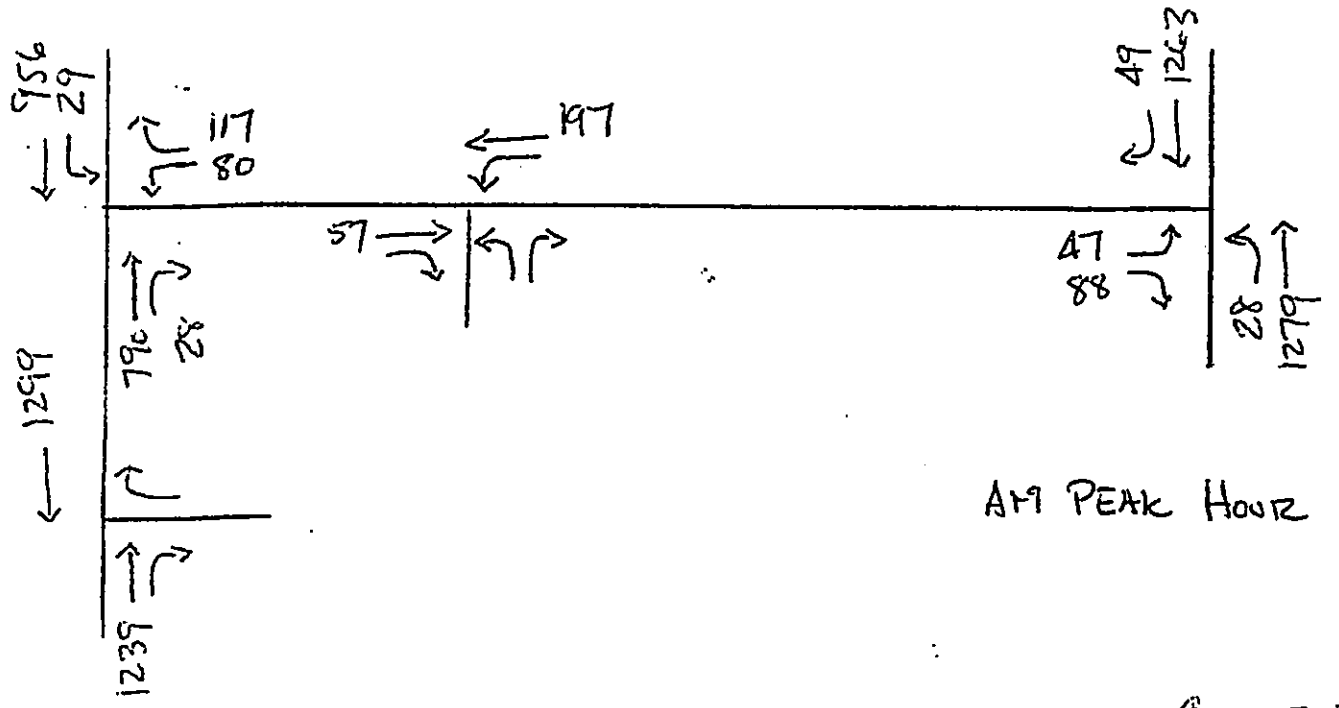
No	Approach & Mvt	Existing AM	Existing PM	Background Growth AM	Background Growth PM	Related Projects Trips AM	Related Projects Trips PM	Cumulative Trips AM	Cumulative Trips PM	Project Trips AM	Project Trips PM	Cumulative Plus Project Trips AM	Cumulative Plus Project Trips PM
1	N- RT	0	0			0	0	0	0	0	0	0	0
2	TH	801	901	160	255	75	136	1036	1292	8	7	1044	1299
3	LT	0	0			0	0	0	0	0	0	0	0
4	E- RT	0	0			0	0	0	0	11	5	11	5
5	TH	0	0			0	0	0	0	0	0	0	0
6	LT	0	0			0	0	0	0	0	0	0	0
7	S- RT	0	0			0	0	0	0	3	9	3	9
8	TH	613	813	95	285	110	134	818	1232	2	7	820	1239
9	LT	0	0			0	0	0	0	0	0	0	0
10	W- RT	0	0			0	0	0	0	0	0	0	0
11	TH	0	0			0	0	0	0	0	0	0	0
12	LT	0	0			0	0	0	0	0	0	0	0
TOTAL		1414	1714	255	540	185	270	1854	2524	24	28	1878	2552
Approach Totals													
From North		801	901	160	255	75	136	1036	1292	8	7	1044	1299
From East		0	0	0	0	0	0	0	0	11	5	11	5
From South		613	813	95	285	110	134	818	1232	5	16	823	1248
From West		0	0	0	0	0	0	0	0	0	0	0	0
Total		1414	1714	255	540	185	270	1854	2524	24	28	1878	2552
Departure Totals													
To North		613	813	95	285	110	134	818	1232	13	12	831	1244
To East		0	0	0	0	0	0	0	0	3	9	3	9
To South		801	901	160	255	75	136	1036	1292	8	7	1044	1299
To West		0	0	0	0	0	0	0	0	0	0	0	0
Total		1414	1714	255	540	185	270	1854	2524	24	28	1878	2552
Leg Totals													
North		1414	1714	255	540	185	270	1854	2524	21	19	1875	2543
East		0	0	0	0	0	0	0	0	14	14	14	14
South		1414	1714	255	540	185	270	1854	2524	13	23	1867	2547
West		0	0	0	0	0	0	0	0	0	0	0	0
Total		2828	3428	510	1080	370	540	3708	5048	48	56	3756	5104

APPENDIX E

LEVEL-OF-SERVICE CALCULATIONS FOR CUMULATIVE CONDITIONS

Case 2 1am ✓

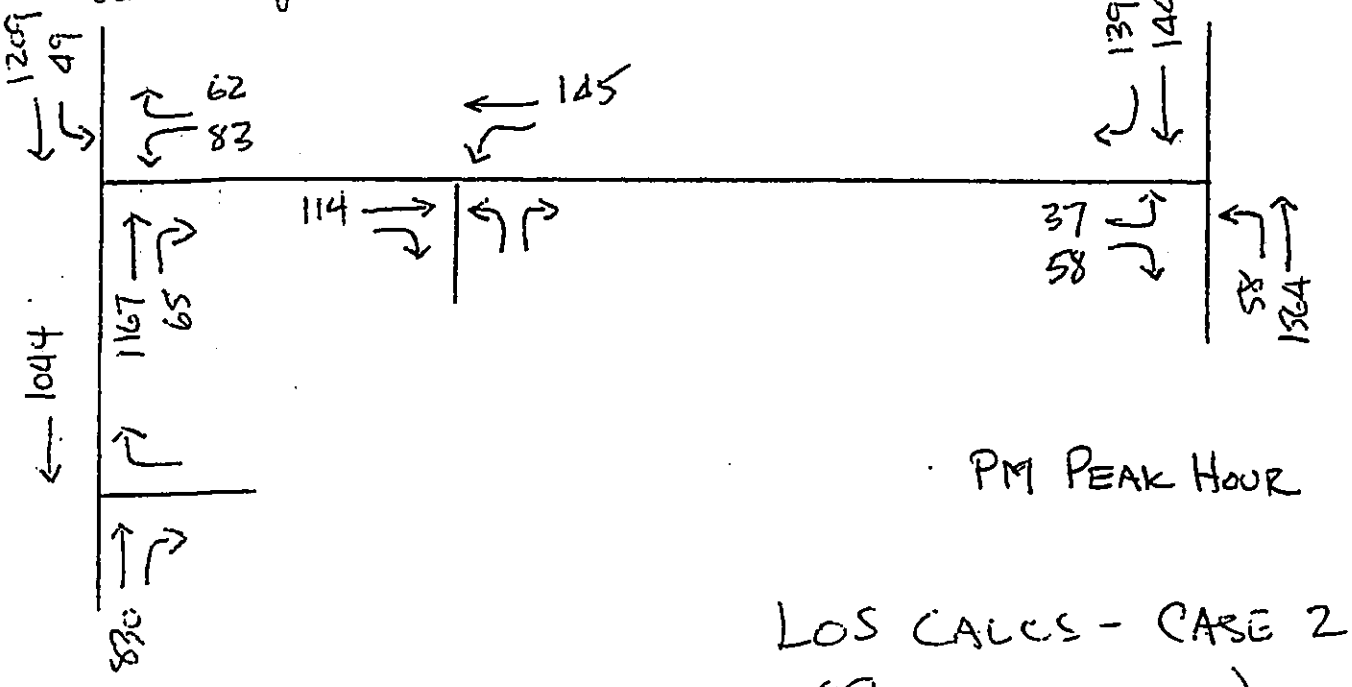
Case 2 2am ✓



AM PEAK HOUR

Case 2. 1pm ✓

Case 2. 2pm



PM PEAK HOUR

LOS CALCS - CASE 2
(BACKGROUND)

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Case2.1am*

Capacity Analysis

	EB		WB		NB		SB	
Lane group			L	R	T	R	L	T
Adj. flow rate			89	91	878	16	32	1062
Satflow rate			1805	1615	1900	1615	1805	1900
Lost time			2.0	2.0	2.0	2.0	2.0	2.0
Green ratio			0.15	0.15	0.69	0.69	0.76	0.76
Lane group cap.			262	234	1305	1110	462	1450
v/c ratio			0.34	0.39	0.67	0.01	0.07	0.73
Flow ratio			0.05	0.06	0.46	0.01		0.56
Crit. lane group			N	Y	N	N	N	Y
Sum flow ratios	0.62							
Lost time/cycle	6.00							
Critical v/c ratio	0.68							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB		SB	
Lane group			L	R	T	R	L	T
Adj. flow rate			89	91	878	16	32	1062
Lane group cap.			262	234	1305	1110	462	1450
v/c ratio			.340	.389	.673	.014	.069	.732
Green ratio			0.15	0.15	0.69	0.69	0.76	0.76
Unif. delay d1			25.2	25.4	6.0	3.2	3.0	4.2
Delay factor k			0.50	0.50	0.50	0.50	0.50	0.50
Increm. delay d2			3.5	4.8	2.8	0.0	0.3	3.3
PF factor			1.000	1.000	1.000	1.000	1.000	1.000
Control delay			28.7	30.2	8.7	3.3	3.3	7.5
Lane group LOS			C	C	A	A	A	A
Apprch. delay			29.4		8.7		7.3	
Approach LOS			C		A		A	
Intersec. delay	9.7		Intersection LOS				A	

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Case2.1pm*

Capacity Analysis

	EB			WB			NB		SB		
Lane group				L		R	T	R	L	T	
Adj. flow rate				92		33	1297	38	54	1343	
Satflow rate				1805		1615	1900	1615	1805	1900	
Lost time				2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio				0.16		0.16	0.73	0.73	0.78	0.78	
Lane group cap.				289		259	1389	1181	314	1474	
v/c ratio				0.32		0.13	0.93	0.03	0.17	0.91	
Flow ratio				0.05		0.02	0.68	0.02		0.71	
Crit. lane group				Y		N	Y	N	N	N	
Sum flow ratios	0.76										
Lost time/cycle	9.00										
Critical v/c ratio	0.84										

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB		SB		
Lane group				L		R	T	R	L	T	
Adj. flow rate				92		33	1297.	38	54	1343	
Lane group cap.				289		259	1389	1181	314	1474	
v/c ratio				.318		.127	.934	.032	.172	.911	
Green ratio				0.16		0.16	0.73	0.73	0.78	0.78	
Unif. delay d1				34.8		33.7	10.7	3.5	4.4	8.0	
Delay factor k				0.50		0.50	0.50	0.50	0.50	0.50	
Increm. delay d2				2.9		1.0	12.8	0.1	1.2	10.0	
PF factor				1.000		1.000	1.000	1.000	1.000	1.000	
Control delay				37.7		34.8	23.5	3.5	5.6	18.0	
Lane group LOS				D		C	C	A	A	B	
Apprch. delay				36.9			22.9		17.6		
Approach LOS				D			C		B		
Intersec. delay	20.9			Intersection LOS					C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2.1am*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Cumulative*
Analysis Time Period	*AM Peak Hour*		

Project Description	*Waipuilani Estates*
East/West Street: *Kalaniahakoi Road*	North/South Street: *South Kihei Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*790*	*28*	*29*	*956*	*40*
Peak-Hour Factor, PHF	*0.90*	*0.92*	*0.65*	*0.96*	*0.80*	*0.90*
Hourly Flow Rate, HFR	*0*	*861*	*43*	*30*	*1195*	*0*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*80*	*0*	*117*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.82*	*0.90*	*0.61*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*97*	*0*	*191*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (vph)		*30*	*97*		*191*			
C (m) (vph)		*761*	*54*		*358*			
v/c		*0.04*	*1.80*		*0.53*			
95% queue length		*0.12*	*9.29*		*3.00*			
Control Delay		*9.9*	*544.1*		*26.0*			
LOS		*A*	*F*		*D*			
Approach Delay	–	–	*200.5*					
Approach LOS	–	–	*F*					

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case2.1pm
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	Kihei
Date Performed	3/9/2001	Analysis Year	Cumulative
Analysis Time Period	PM Peak Hour		

Project Description	Waipuilani Estates
East/West Street:	Kalaniahakoi Road
North/South Street:	South Kihei Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	1167	66	49	1209	40
Peak-Hour Factor, PHF	0.90	0.92	0.81	0.73	0.92	0.90
Hourly Flow Rate, HFR	0	1262	80	66	1315	0
Percent Heavy Vehicles	0	–	–	0	–	–
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	83	0	62	0	0	0
Peak-Hour Factor, PHF	0.75	0.90	0.87	0.90	0.90	0.90
Hourly Flow Rate, HFR	110	0	71	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (vph)		66	110		71			
C (m) (vph)		520	21		209			
v/c		0.13	5.24		0.34			
95% queue length		0.43	14.06		1.43			
Control Delay		12.9			30.8			
LOS		B	F		D			
Approach Delay	–	–						
Approach LOS	–	–	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2.2am*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Cumulative*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Waipuilani Estates*		
East/West Street:	*Kalaniahakoi Road*	North/South Street:	*Piilani Highway*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*28*	*1279*	*18*	*0*	*1263*	*49*
Peak-Hour Factor, PHF	*0.68*	*0.96*	*0.90*	*0.90*	*0.93*	*0.95*
Hourly Flow Rate, HFR	*41*	*1332*	*0*	*0*	*1362*	*51*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*1*
Lanes	*1*	*2*	*0*	*0*	*2*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*38*	*153*	*125*	*47*	*129*	*88*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.79*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*52*	*0*	*111*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*41*					*52*		*111*
C (m) (vph)	*511*					*141*		*398*
v/c	*0.08*					*0.37*		*0.28*
95% queue length	*0.26*					*1.54*		*1.13*
Control Delay	*12.7*					*44.7*		*17.5*
LOS	*B*					*E*		*C*
Approach Delay	–	–				*26.2*		
Approach LOS	–	–				*D*		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2.2pm*
Agency/Co.	*Phillip Rowell and Associates*	Jurisdiction	*Kihei*
Date Performed	*3/9/2001*	Analysis Year	*Cumulative*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Waipuilani Estates*
East/West Street: *Kalaniahakoi Road*	North/South Street: *Piilani Highway*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*58*	*1564*	*18*	*0*	*1445*	*139*
Peak-Hour Factor, PHF	*0.90*	*0.97*	*0.90*	*0.90*	*0.98*	*1.00*
Hourly Flow Rate, HFR	*64*	*1620*	*0*	*0*	*1473*	*139*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*1*
Lanes	*1*	*2*	*0*	*0*	*2*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*38*	*153*	*125*	*37*	*129*	*58*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.90*	*0.96*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*39*	*0*	*60*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*1*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

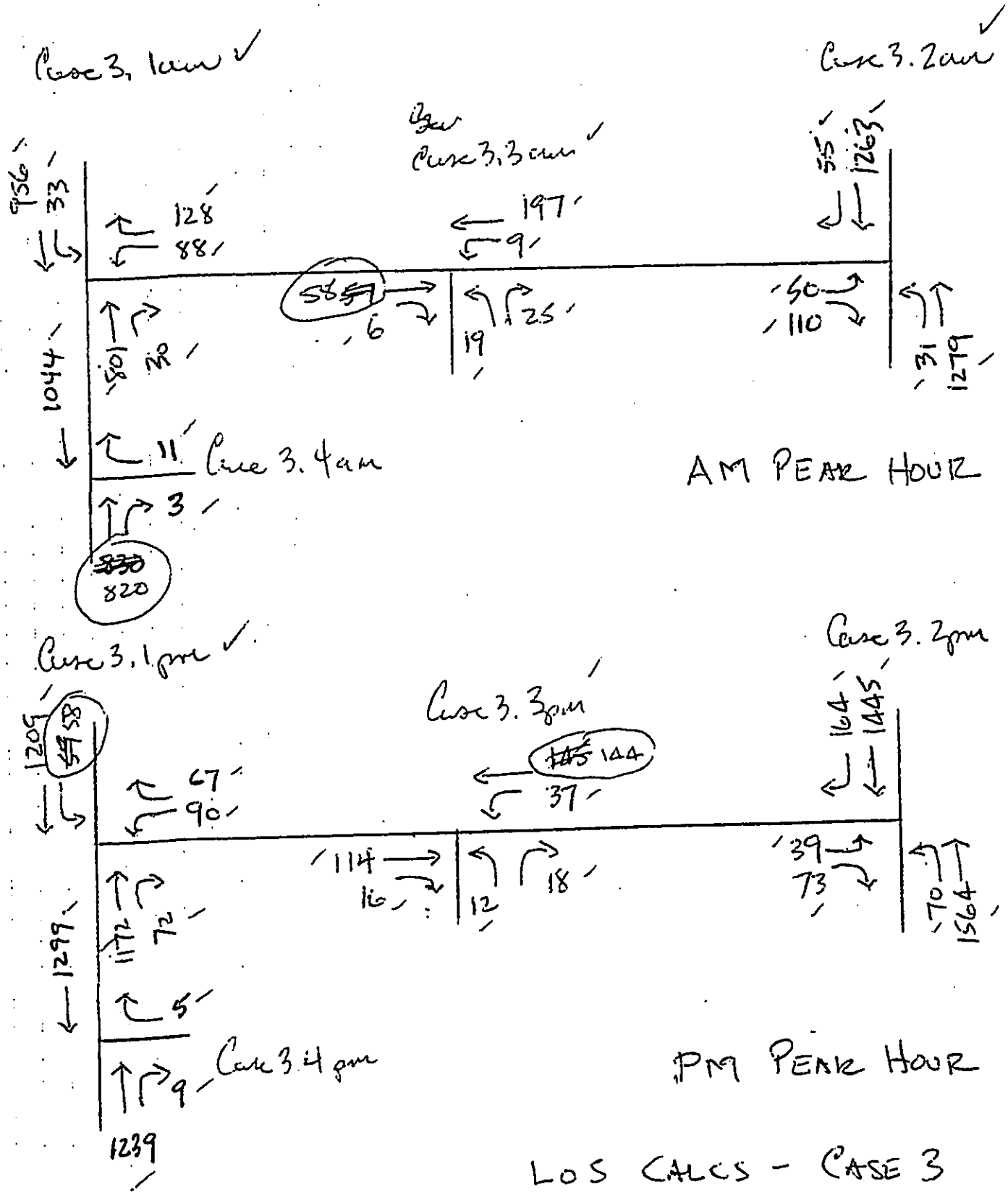
Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*64*					*39*		*60*
C (m) (vph)	*464*					*113*		*366*
v/c	*0.14*					*0.35*		*0.16*
95% queue length	*0.48*					*1.38*		*0.58*
Control Delay	*14.0*					*52.8*		*16.8*
LOS	*B*					*F*		*C*
Approach Delay	–	–				*30.9*		
Approach LOS	–	–				*D*		

>

APPENDIX F

LEVEL-OF-SERVICE CALCULATIONS FOR CUMULATIVE PLUS PROJECT CONDITIONS



LOS CALCS - CASE 3

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Case3.1am*

Capacity Analysis

	EB			WB			NB			SB		
Lane group				L		R		T	R	L	T	
Adj. flow rate				98		103		890	18	37	1062	
Satflow rate				1805		1615		1900	1615	1805	1900	
Lost time				2.0		2.0		2.0	2.0	2.0	2.0	
Green ratio				0.15		0.15		0.69	0.69	0.76	0.76	
Lane group cap.				262		234		1305	1110	457	1450	
v/c ratio				0.37		0.44		0.68	0.02	0.08	0.73	
Flow ratio				0.05		0.06		0.47	0.01		0.56	
Crit. lane group				N		Y		N	N	N	Y	
Sum flow ratios	0.62											
Lost time/cycle	6.00											
Critical v/c ratio	0.69											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group				L		R		T	R	L	T	
Adj. flow rate				98		103		890	18	37	1062	
Lane group cap.				262		234		1305	1110	457	1450	
v/c ratio				.374		.440		.682	.016	.081	0.732	
Green ratio				0.15		0.15		0.69	0.69	0.76	0.76	
Unif. delay d1				25.3		25.6		6.0	3.2	3.0	4.2	
Delay factor k				0.50		0.50		0.50	0.50	0.50	0.50	
Increm. delay d2				4.0		5.9		2.9	0.0	0.3	3.3	
PF factor				1.000		1.000		1.000	1.000	1.000	1.000	
Control delay				29.4		31.5		8.9	3.3	3.4	7.5	
Lane group LOS				C		C		A	A	A	A	
Apprch. delay				30.4			8.8			7.3		
Approach LOS				C			A			A		
Intersec. delay	10.0+			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Case3.1pm*

Capacity Analysis

	EB			WB			NB		SB		
Lane group				L		R	T	R	L	T	
Adj. flow rate				100		39	1302	46	64	1343	
Satflow rate				1805		1615	1900	1615	1805	1900	
Lost time				2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio				0.16		0.16	0.73	0.73	0.78	0.78	
Lane group cap.				289		259	1389	1181	313	1474	
v/c ratio				0.35		0.15	0.94	0.04	0.20	0.91	
Flow ratio				0.06		0.02	0.69	0.03		0.71	
Crit. lane group				Y		N	Y	N	N	N	
Sum flow ratios	0.78										
Lost time/cycle	9.00										
Critical v/c ratio	0.86										

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB		SB		
Lane group				L		R	T	R	L	T	
Adj. flow rate				100		39	1302	46	64	1343	
Lane group cap.				289		259	1389	1181	313	1474	
v/c ratio				.346		.151	.937	.039	.204	.911	
Green ratio				0.16		0.16	0.73	0.73	0.78	0.78	
Unif. delay d1				35.0		33.9	10.8	3.5	4.5	8.0	
Delay factor k				0.50		0.50	0.50	0.50	0.50	0.50	
Increm. delay d2				3.3		1.2	13.2	0.1	1.5	10.0	
PF factor				1.000		1.000	1.000	1.000	1.000	1.000	
Control delay				38.2		35.1	24.0	3.5	5.9	18.0	
Lane group LOS				D		D	C	A	A	B	
Apprch. delay				37.4			23.3		17.5		
Approach LOS				D			C		B		
Intersec. delay	21.1			Intersection LOS					C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case3.2am
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	Kihei
Date Performed	3/9/2001	Analysis Year	Cumulative Plus Project
Analysis Time Period	AM Peak Hour		
Project Description	Waipuilani Estates		
East/West Street:	Kalaniahakoi Road	North/South Street:	Piilani Highway
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	1279	18	0	1263	55
Peak-Hour Factor, PHF	0.68	1.00	0.90	0.90	0.93	0.95
Hourly Flow Rate, HFR	45	1280	0	0	1362	57
Percent Heavy Vehicles	0	–	–	0	–	–
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	0	2	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	38	153	125	50	129	110
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.79
Hourly Flow Rate, HFR	0	0	0	55	0	139
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	45					55		139
C (m) (vph)	511					142		398
v/c	0.09					0.39		0.35
95% queue length	0.29					1.65		1.54
Control Delay	12.7					45.5		18.8
LOS	B					E		C
Approach Delay	–	–				26.4		
Approach LOS	–	–				D		

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case3.2pm
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	Kihei
Date Performed	3/9/2001	Analysis Year	Cumulative Plus Project
Analysis Time Period	PM Peak Hour		
Project Description	Waipuilani Estates		
East/West Street:	Kalaniahakoi Road	North/South Street:	Piilani Highway
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	70	1564	18	0	1445	164
Peak-Hour Factor, PHF	0.90	0.97	0.90	0.90	0.98	1.00
Hourly Flow Rate, HFR	77	1620	0	0	1473	164
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			1
Lanes	1	2	0	0	2	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	38	153	125	39	129	73
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.94	0.90	0.96
Hourly Flow Rate, HFR	0	0	0	41	0	75
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	77					41		75
C (m) (vph)	464					110		366
v/c	0.17					0.37		0.20
95% queue length	0.59					1.52		0.76
Control Delay	14.3					56.0		17.4
LOS	B					F		C
Approach Delay	--	--				31.0		
Approach LOS	--	--				D		

>

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*PJR*
Agency/Co.	*Phillip Rowell and Associates*
Date Performed	*8/7/2002*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Case3.3am*
Jurisdiction	
Analysis Year	*Cumulative Plus Project*

Project Description *Waipuilani Estates*

East/West Street: *Kulanihakoi Road* | North/South Street: *Project Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*58*	*6*	*9*	*197*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*0*	*68*	*7*	*10*	*231*	*0*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*19*	*0*	*25*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*22*	*0*	*29*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*10*		*51*				
C (m) (vph)		*1537*		*824*				
v/c		*0.01*		*0.06*				
95% queue length		*0.02*		*0.20*				
Control Delay		*7.4*		*9.7*				
LOS		*A*		*A*				
Approach Delay	–	–		*9.7*				
Approach LOS	–	–		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*PJR*
Agency/Co.	*Phillip Rowell and Associates*
Date Performed	*8/7/2002*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Case3, 3pm*
Jurisdiction	
Analysis Year	*Cumulative Plus Project*

Project Description *Waipuilani Estates*

East/West Street: *Kulanihakoi Road* | North/South Street: *Project Entrance*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*114*	*16*	*37*	*144*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*0*	*134*	*18*	*43*	*169*	*0*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*12*	*0*	*18*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*14*	*0*	*21*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*43*		*35*				
C (m) (vph)		*1441*		*750*				
v/c		*0.03*		*0.05*				
95% queue length		*0.09*		*0.15*				
Control Delay		*7.6*		*10.0+*				
LOS		*A*		*B*				
Approach Delay	–	–		*10.0+*				
Approach LOS	–	–		*B*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case3.4am
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	
Date Performed	8/7/2002	Analysis Year	Cumulative Plus Project
Analysis Time Period	AM Peak Hour		

Project Description	Waipuilani Estates
East/West Street:	Project Entrance
North/South Street:	South Kihei Road
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	820	3	0	1044	0
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	964	3	0	1228	0
Percent Heavy Vehicles	0	–	–	0	–	–
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR		T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	11	0	0	0
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	0	12	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	1	0	0	0
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			
v (vph)					12			
C (m) (vph)					311			
v/c					0.04			
95% queue length					0.12			
Control Delay					17.0			
LOS					C			
Approach Delay	–	–	17.0					
Approach LOS	–	–	C					

>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	PJR	Intersection	Case3.4pm
Agency/Co.	Phillip Rowell and Associates	Jurisdiction	
Date Performed	8/7/2002	Analysis Year	Cumulative Plus Project
Analysis Time Period	PM Peak Hour		
Project Description	Waipuilani Estates		
East/West Street:	Project Entrance	North/South Street:	South Kihei Road
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	1239	9	0	1299	0
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	1457	10	0	1528	0
Percent Heavy Vehicles	0	–	–	0	–	–
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR		T	
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	5	0	0	0
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	0	5	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	1	0	0	0
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			
v (vph)					5			
C (m) (vph)					160			
v/c					0.03			
95% queue length					0.10			
Control Delay					28.2			
LOS					D			
Approach Delay	–	–	28.2					
Approach LOS	–	–	D					

>

APPENDIX G

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

TRAFFIC SIGNAL WARRANT WORKSHEET

Major Street: S. Kihei Road, — Critical Approach Speed: 30 mph posted

Minor Street: Kolanihakoi Road Critical Approach Speed: 20 mph posted

Critical speed of major street traffic ≥ 40 mph ☐ 70% Factor

OR

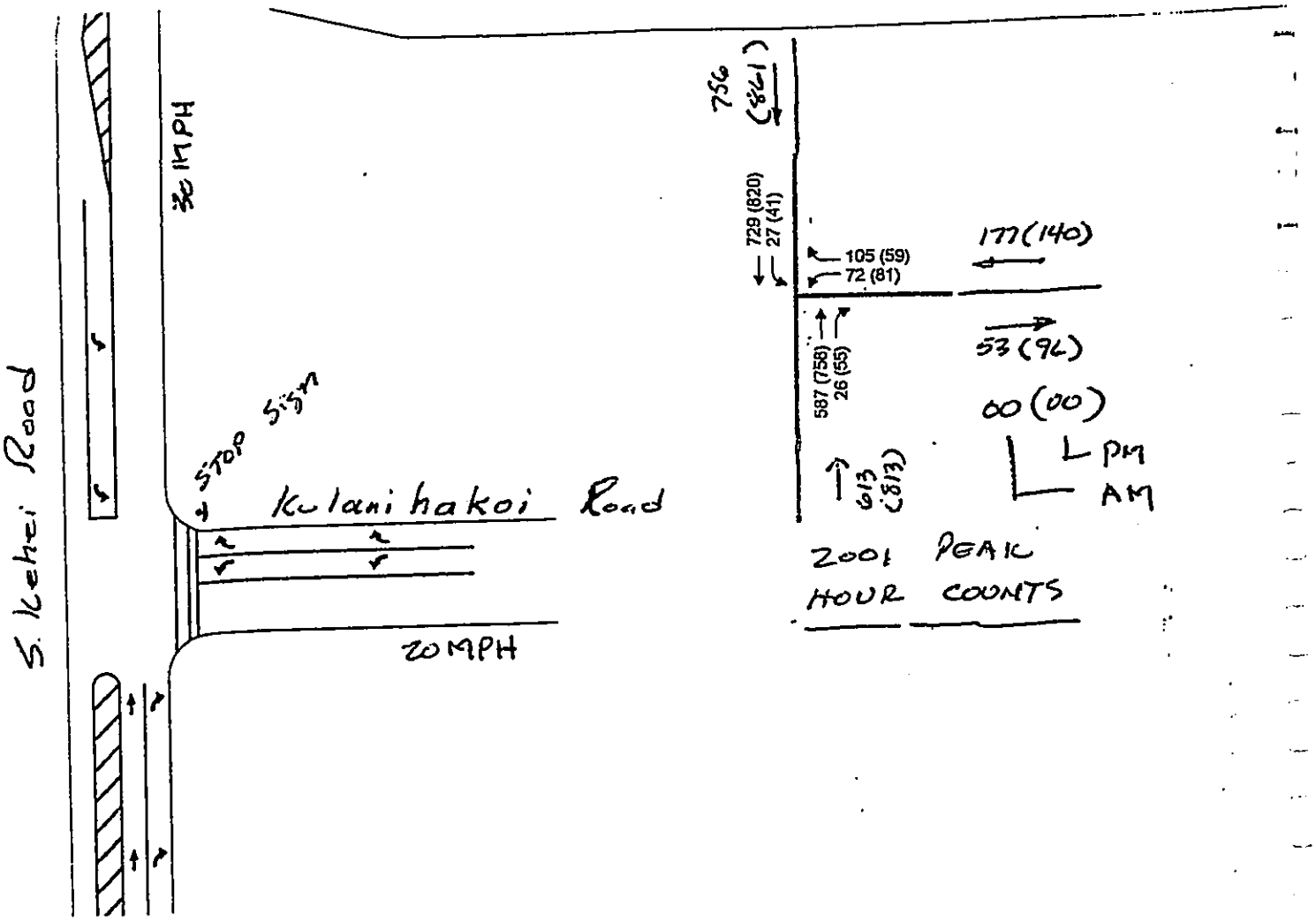
In built up area of isolated community of < 10,000 population ☐

☑ URBAN

Conditions Analyzed: Existing (2001) Conditions

Calculated By: RJR Date: 4

INTERSECTION DIAGRAM



WARRANT 3, PEAK HOUR

Part A

Satisfied YES ☑ NO ☐

REQUIREMENT	FULFILLED
The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds ~~four vehicle-hours (vph) for a one-lane approach and~~ five vehicle-hours for a two-lane approach; **and** 2.5 / 7.6	YES ☑ NO ☐
The volume on the same minor street approach equals or exceeds ~~100 vph for one moving lane of traffic and~~ 150 vph for two moving lanes; **and** 177 / 140	YES ☑ NO ☐
The total entering volumes serviced during the hour equals or exceeds ~~800 vph for intersections with four or more approaches and~~ 650 vph for intersections with three approaches. 1546 1814	YES ☑ NO ☐

CALCULATIONS

AM

↱ 105 × 16.6 = 1743
↳ 72 × 101.9 = 7337
177 — 9080
÷3600
2.5 Hrs

SB = 756
NB = 613
WB = 177
1546

PM

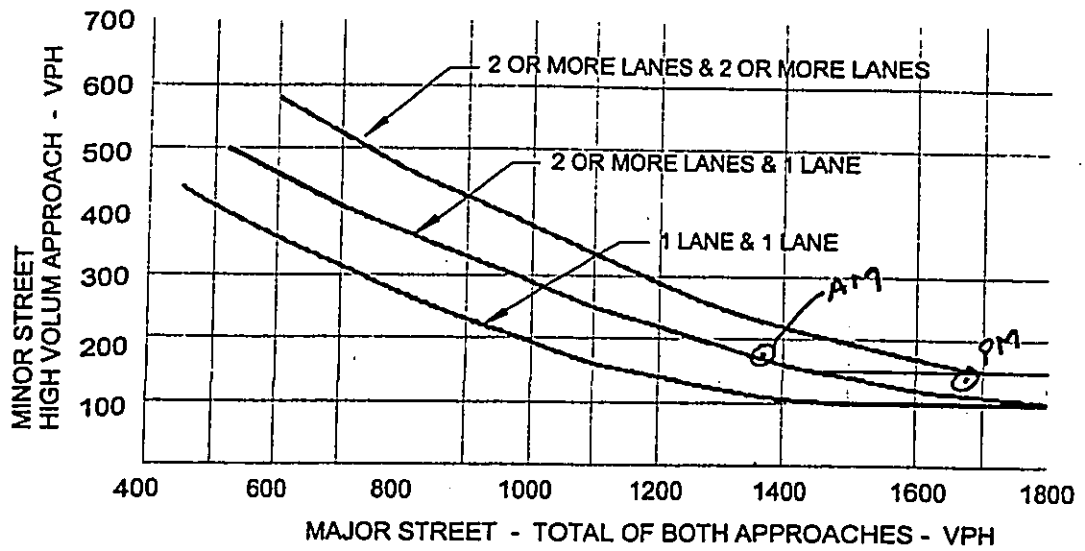
↱ 59 × 16.6 = 979
↳ 81 × 311.9 = 25264
27,222
÷3600
7.6 HRS

SB = 861
NB = 813
WB = 140
1814

Part B

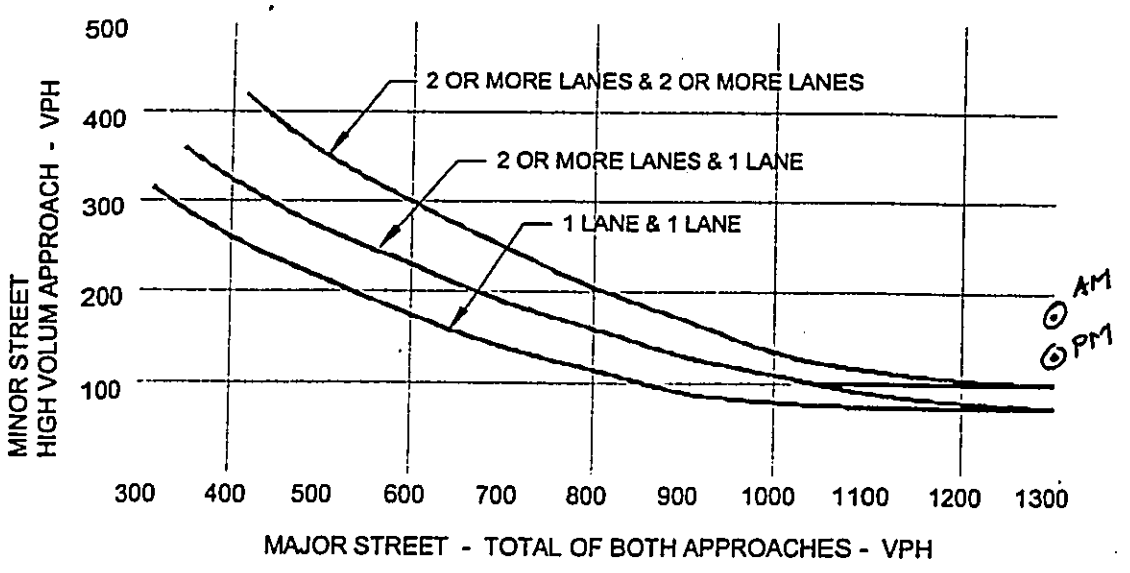
	APPROACH LANES	Satisfied AM Peak Hour Volume	YES ☐ NO ☐ PM Peak Hour Volumes
Both approaches, Major Street	1	1369	1674
Highest approaches, Minor Street	2	177	140

100 % Factor



NOTE: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approaching with one lane.

70% Factor



NOTE: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

Appendix – G
Comment and Response Letters in Response to April 2001 Draft Environmental Assessment

Comment and Response Letters

1. County of Maui, Department of Housing and Human Concerns
2. State of Hawaii, Department of Accounting and General Services
3. Maui Electric Company, LTD.
4. State of Hawaii, Office of Hawaiian Affairs
5. Mr. James Williamson, PE, Maui Meadows Homeowners Association
6. State of Hawaii, Land Use Commission
7. State of Hawaii, Department of Education
8. County of Maui, Department of Water Supply
9. State of Hawaii, Department of Health, Maui District Health Office
10. State of Hawaii, Department of Health
11. County of Maui, Police Department
12. State of Hawaii, Department of Land and Natural Resources
    - Commission on Water Resources Management
    - Division of Forestry & Wildlife
13. County of Maui, Department of Fire Control
14. County of Maui, Department of Public Works and Waste Management
15. County of Maui, Department of Parks and Recreation
16. Ms. Diane E. Shepherd, DVM
17. County of Maui, Department of Public Works and Waste Management
18. State of Hawaii, Department of Land and Natural Resources, Land Division
19. State of Hawaii, Department of Transportation
20. Letter to County of Maui, Department of Planning
21. State of Hawaii, Department of Transportation
22. County of Maui, Department of Public Works and Waste Management
23. Letter to the County of Maui, Department of Planning
24. County of Maui, Department of Parks and Recreation
25. State of Hawaii, Department of Transportation

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

JAMES "KIMO" APAN
Mayor
ALICE L. LEE
Director
PRISCILLA P. MIKEL
Deputy Director

86 KAMEHAMEHA AVENUE • KAHULUI, HAWAII 96732 • PHONE (808) 270-7351 • FAX (808) 270-6284

2001 JUN -7

May 31, 2001

TO: JOHN E. MIN, Director
Department of Planning

FROM: ALICE L. LEE, Director
Department of Housing and Human Concerns

SUBJECT: **I.D. No. SM1 2001/0007, RO 2001/0002, EA 2001/0007**
TMK: 3-9-001:009
Project Name: Waipuilani Estates
Applicant: Christopher L. Hart, President,
Chris Hart & Partners

We have reviewed the SMA Permit application for the subject project and would like to offer the following comments:

1. Section 19.84.010A3 of the Maui County Code states that one of the purposes of the zero lot line overlay concept is to offer incentives to provide affordable housing by increasing density and expediting development processing.

2. Section 19.84.010B of the Maui County Code states in part that the intent of the zero lot line overlay district is to encourage affordable housing as defined in Title 18 of the Maui County Code by allowing the directors or public works and planning to increase densities in the underlying zoning district based on criteria and standards established by the Maui County council as provided therein.

3. Section 18.04.055 of the Maui County Code defines "Affordable Housing" as "long-term residential developments to be marketed for sale or for rental for a ten-year period within the price range established by the housing finance and development corporation of the State of Hawaii for persons or families whose incomes are identified as one hundred forty percent or less of the area median income for the county of Maui for an adjusted family size as determined by the Department of Housing and Urban Development of the United States of America."

4. Based on the Housing and Community Development Corporation of Hawaii's (successor agency to the Housing Finance and Development Corporation) affordable housing guidelines for the year 2001, the affordable selling price for a person or family whose income is one hundred forty percent of the County's median income (as established by HUD) is $273,600 (based on a 30 year fixed rate loan with a 7.50% interest rate). Therefore, those units with a selling price of $273,600 or less, fall within the affordable housing price ceiling established in Section 18.04.055 of the Maui County Code, whereas those units with a selling price exceeding $273,600 do not.

   The application shows that the anticipated price range for the units in the project is $195,000 - $290,000.

Thank you for the opportunity to comment. We are returning the application for your use.

ETO:df

Enclosure

c: Housing Administrator

CHRIS HART
& PARTNERS, INC.

August 17, 2001

Ms. Alice L. Lee, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Lee:

RE: Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated May 31, 2001, regarding the above-referenced Special Management Area Permit Application. We are pleased to address your comments as follows.

The R-O Zero Lot Line Overlay District (Chapter 19.84) provides developers with density bonuses, and other incentives, that make it more feasible to provide affordable housing within the County. As such, we strongly support the purpose and intent of this district. Please note that the majority of the units will be priced at or under the definition of "affordable housing" as established in Section 18.04.055, MCC. More specifically, we anticipate that the base price of ninety percent of our homes will be affordable for persons or families whose incomes are identified as one hundred forty percent or less of the area median income for the county as determined by the Federal Department of Housing and Urban Development.

Thank you for your consideration of our application. Should you have any questions, please call myself, or Mr. Michael Summers, Staff Planner, of this office.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction , Inc.
Project File ✓

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 • WAILUKU, MAUI, HAWAII 96793-1706 • PHONE: 808-242-1955 • FAX: 808-242-1956

BENJAMIN J. CAYETANO
GOVERNOR

WAYNE H. KIMURA
COMPTROLLER

FILE NO:

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES
SURVEY DIVISION
P.O. BOX 119
HONOLULU, HAWAII 96810

June 4, 2001

MEMORANDUM

TO: Mr. John E. Min, Planning Director
Maui County Planning Department

ATTN.: Ms. Julie M. Higa, Staff Planner

FROM: Randall M. Hashimoto, State Land Surveyor

SUBJECT: I.D. No.: SM1 2001/0007, RO 2001/0002, EA 2001/0007
TMK: 3-9-001:009
Project Name: Waipuilani Estates
Applicant: Christopher L. Hart, President,
Chris Hart & Partners

The subject proposal has been reviewed and confirmed that no Government Survey Triangulation Stations and Benchmarks are affected. Survey has no objections to the proposed project.

Randall M. Hashimoto

RANDALL M. HASHIMOTO
State Land Surveyor

CHRIS HART & PARTNERS, INC.

August 7, 2001

Mr. Randall M. Hashimoto
State Land Surveyor
State of Hawaii
Department of Accounting and General Services
Survey Division
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Hashimoto:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 4, 2001, regarding the above-referenced Special Management Area Permit Application. Based upon your letter, we understand that your Division has no objections to the proposed project.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 • WAILUKU, MAUI, HAWAII 96793-1706 • PHONE: 808-242-1955 • FAX: 808-242-1956

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

DEPT. OF ... ING
2001 JUN -7 PM 3:16

June 6, 2001

Mr. John E. Min
Planning Director
Maui Planning Department
250 S. High Street
Wailuku, HI 96793

Dear Mr. Min:

Subject: Waipuilani Estates
TMK: 3-9-001:009
I.D.: SM1 2001/0007, R0 2001/0002, EA 20001/0007

Thank you for allowing us to comment on the subject project.

In reviewing the information transmitted and our records, we have no objection to the subject project. We encourage the developer's electrical consultant to meet with us as soon as practical to verify the project's electrical requirements so that service can be provided on a timely basis

If you have any questions or concerns, please call Dan Takahata at 871-2385.

Sincerely,

Neal Shinyama
Manager, Energy Delivery

NS/dt:lkh

CHRIS HART
& PARTNERS, INC.

August 7, 2001

Mr. Neal Shinyama
Maui Electric Company, Ltd.
210 West Kamehameha Avenue
PO Box 398
Kahului, Maui, Hawaii 96733-6898

Dear Mr. Shinyama:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated June 6, 2001, regarding the above-referenced Special Management Area Permit Application. Based upon your letter, we understand that Maui Electric has no objections to the proposed project. As requested, we will have our electrical consultant contact you in order to verify the project's electrical requirements.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

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PHONE (808) 594-1888

FAX (808) 594-1865

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

June 8, 2001

Mr. John E. Min
Planning Director
Department of Planning
250 South High Street
Wailuku, Maui, HI 96793

SUBJECT: Application of Special Management Area Permit – Waipuilani Estates, Kihei, Maui, Hawaii

Dear Mr. Min:

Thank you for the opportunity to comment on the above referenced project.

The Office of Hawaiian Affairs (OHA) has several concerns in regard to the proposed issuance of a Special Management Area Permit for this project.

OHA is concerned about the project's potential impacts on the Iao aquifer, which has not fully recovered from recent over pumping. While the project's water use is estimated to be relatively small compared with larger developments, the impact that this project will have on the aquifer must be addressed.

The mitigation measure for inadvertent discovery of remains needs to be revised. Section 4.2 and recommendation #2 in Appendix – C (Cultural Impact Assessment) states that if previously unidentified remains are encountered, the State Historic Preservation Division (SHPD) and the Maui Burial Council should be contacted. The sections should be amended to read that work will cease immediately and that SHPD, and the Maui Burial Council will be contacted immediately pursuant to HRS Chapter 6e-43.6. OHA would also like to be contacted. OHA agrees with your recommendation that an archaeological monitoring plan should be prepared for approval by SHPD prior to commencement of any construction activities. OHA would like to be placed on a distribution list for a copy of the plan.

If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at jnorris@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: OHA Board of Trustees
Randall K. Ogata, Administrator
Thelma Shimaoka, Maui CAC

CHRIS HART & PARTNERS, INC.

September 21, 2001

Mr. Colin C. Kippen, Jr.
Deputy Director
State of Hawaii
Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawai'i 96813

Dear Mr. Kippen:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 8, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments.

1. Iao Aquifer

As discussed in the project assessment report, based on the Department of Water Supply's (DWS's) consumption rate standard of 600 gallons per lot, the domestic water demand for the proposed 96-lot subdivision is expected to total around 57,600 gpd.

According to a letter dated June 8, 2001 from the DWS, the Central Maui system, which includes the Iao basal aquifer, the Waihee aquifer, the Iao Tunnel, and the Iao-Waikapu ditch, has approximately 25.537 mgd of available supply. Currently rolling annual withdrawals from the system, including outstanding commitments, is approximately 22.815 mgd. As such, the system currently has approximately 2.722 mdg available for future urban development (See Attachment). Thus, the proposed Waipuilani Estates development will consume approximately 2.1% (57,600gpd/2.722mgd) of the available capacity.

The DWS has also stated that it is implementing a program of source development outside of the Iao aquifer, as well as, distribution of withdrawls

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within the aquifer to better protect the resource. According to the DWS, two wells came on line in 1997, and another two in 2000. More exploratory well drilling is scheduled in the upcoming fiscal year.

The applicant is aware that water availability for the project will be determined at the time of building plan approval. The applicant is comfortable with this condition given the Central Maui System's current available capacity as well as DWS's plans for additional source development outside of the Iao aquifer.

2. Burials

Pursuant to your request, Section III.B.4.2 will include language to read as follows:

> "If any remains are found, work will cease immediately and the State Historic Preservation Division of the Department of Land and Natural Resources and the Maui Burial Council will be contacted immediately pursuant to HRS Chapter 6e-43.6."

3. Archaeological Monitoring Plan

As discussed in the project assessment report, a limited archaeological monitoring plan will be prepared for approval by the State Historic Preservation Division. As requested, your office will be placed on a distribution list for a copy of this plan.

Thank you very much for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Ms. Lisa Rotunno-Hazuka, Archaeological Services Hawaii, LLC
Project File

Maui Meadows Homeowners Association

P.O. Box 1935, Kihei, Maui, HI 96753

2001 JUN 13 PM 3:50

June 12, 2001

John E. Min, Director
County of Maui, Department of Planning
250 S. High Street
Wailuku, HI 96793

Dear Mr. Min:

Subject: SMA Permit Application fo 96 Lot development

I represent Maui Meadows Homeowners Association. I refer to the subject application as noticed in the Maui News, June 6, 2001. This application was submitted by Chris Hart for property with Tax Map Key: (2) 3-9-00:009 in Kihei.

Our Association has gone on record before the County Board of Water Supply as being very concerned with the serious overdrafting of the Iao Aquifer, (and North Waihee, which seems to be significantly connected). These aquifers of course are the source of domestic water supply for Central and South Maui.

USGS has also recently expressed its concern about the situation at the Iao Aquifer, and has issued two reports on the subject. In addition the USGS just completed the latest Iao system data report for the first quarter of 2001. This report is anything but reassuring.

- It shows that despite a reduction in pumping from the Iao Aquifer itself, that the high water levels in the observation wels are either about the same or have fallen by 1.21 ft..
- Of even greater concern is that the altitude of the mid poit of the transition zone has risen by 2 ft. in the last three months. This means that on an annual basis the salt lenel could be rising some eight ft.

The obvious conclusion is that the County must reduce pumping even more and refrain from issuing any water meters until a new water source is developed.

Hence, we ask that in your Department's review of the subject SMA application, and indeed for any permits for new development, that you recognize that future water supply is not presently available. Otherwise we will all in this area have a water defiency, or it will be too salty to drink.

If you have any questions I can be reached at 874-6151 or Fax 874-5305.

Sincerely,

James Williamson, PE, Vice-President

cc: David Craddick via fax

CHRIS HART & PARTNERS, INC.

August 7, 2001

Mr. James Williamson, PE
Vice-President
Maui Meadows Homeowners Association
P.O. Box 1935
Kihei, Maui, Hawaii 96753

Dear Mr. Williamson:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated June 12, 2001, regarding the above-referenced Special Management Area Permit.

Since your comments primarily concern future County policy with respect to groundwater withdrawls from the Iao Acquifer, we have forwarded your letter to the Department of Water Supply.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction Inc.
Mr. David Craddick, Department of Water Supply
Project File ✓

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BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

2001 JUN 14 PM 3:19

June 12, 2001

Mr. John E. Min
Planning Director
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Application for Special Management Area Permit (SM1 2001/ 0007) and Draft Environmental Assessment (DEA), Waipuilani Estates, Kihei, Maui, TMK 3-9-01: 9

We have reviewed the subject application and DEA for the subject project forwarded by your transmittal dated May 29, 2001, and confirm that the project site, as represented in the Regional Location Map, is designated within the State Land Use Urban District.

We suggest that the Final EA include a map showing the project site in relation to the State land use districts.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the subject application and DEA.

Please feel free to contact Bert Saruwatari of my office at (808) 587-3822, should you require clarification or any further assistance.

Sincerely,

Anthony J.H. Ching

ANTHONY J.H. CHING
Executive Officer

CHRIS HART & PARTNERS, INC.

August 7, 2001

Mr. Anthony J.H. Ching
Executive Officer
State of Hawaii
Land Use Commission
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Mr. Ching:

RE: Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you very much for your letter dated June 12, 2001, regarding the above-referenced project. In response to your letter, we offer the following comments:

As requested, we will include a map showing the project site in relationship to the State land use districts within the Final EA.

Thank you for your consideration of our applications. Should you have any questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

Rory Frampton
Principal Planner

Enclosures

Cc. Mr. John Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File √

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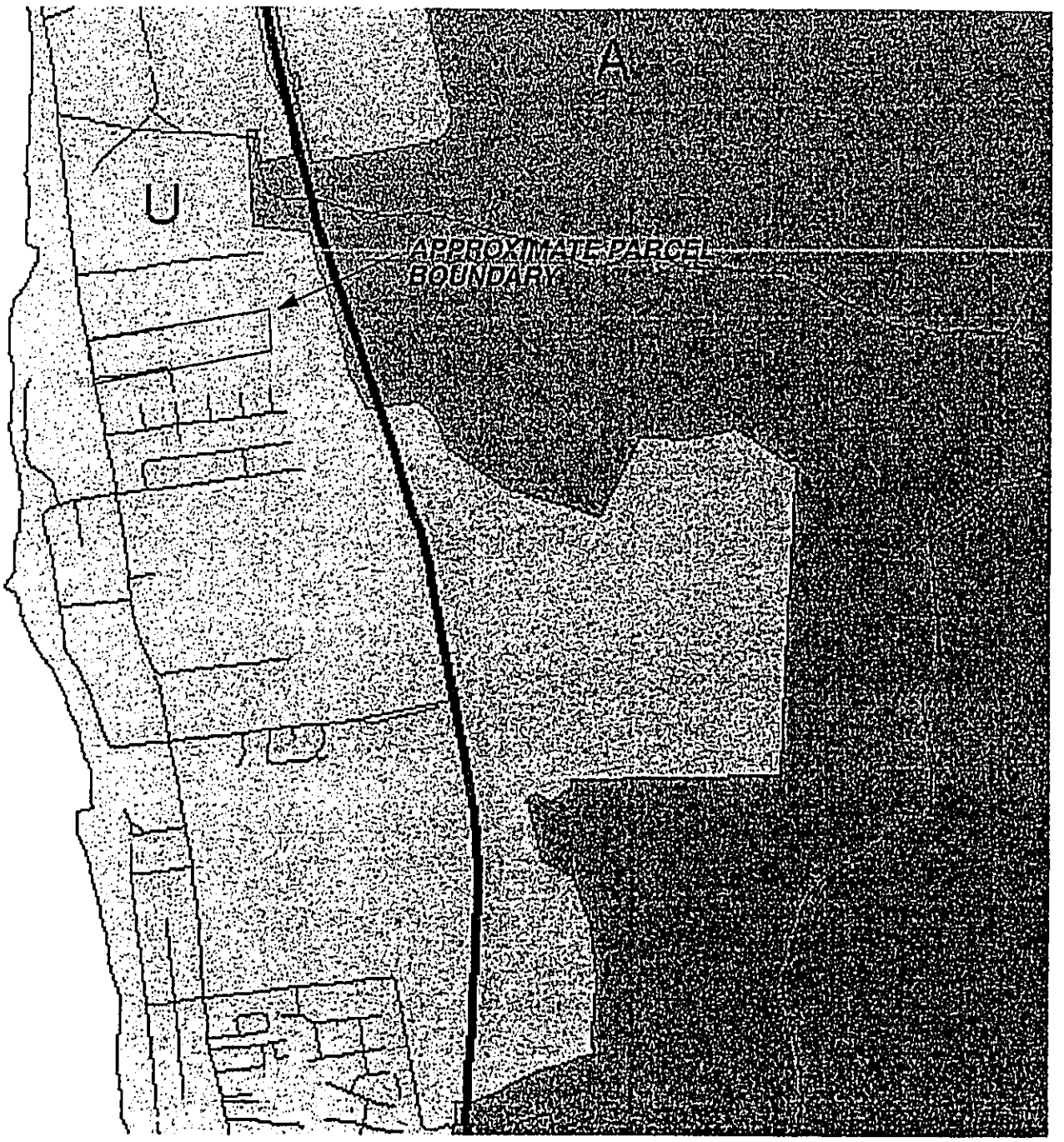

KEY:

U - URBAN LAND USE DISTRICT
A - AGRICULTURAL LAND USE DISTRICT

SOURCE:
State Land Use Commission 1:24,000 mylar maps.
Compiled by the State Land Use Commission using the State of Hawaii's Geographic Information System (GIS).

FIGURE 3
STATE LAND USE DISTRICT BOUNDARIES

N

WAIPUILANI ESTATES

08/2001 NOT TO SCALE

CHRIS HART & PARTNERS

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

June 13, 2001

Mr. John E. Min
Planning Director
County of Maui
250 South High Street
Wailuku, Hawai`i 96793

Dear Mr. Min:

Subject: Waipuilani Estates – SM1 2001/0007

The Department of Education requests that the following condition be included as a condition of approval of the subject application:

> "The applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education (DOE). Terms of the contribution shall be agreed upon in writing by the applicant and DOE prior to applicant being granted building permits."

The above paragraph represents DOE's standard condition for residential developments. Monies collected pursuant to this condition will be used for capital improvement projects within the Maui High School complex.

Thank you for your consideration of this request. If you have any questions, please call Mr. Sanford Beppu at 733-4862.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: A. Suga, DAS
G. Ueoka, MDO

CHRIS HART
& PARTNERS, INC.

November 15, 2001

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

Dear Ms. Hamamoto:

Attention: Mr. Stanford Beppu

RE: Special Management Area (SMA) Permit for the 95-lot Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 13, 2001, regarding the above-referenced Special Management Area (SMA) Permit Application, which states that: "the applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education (DOE)."

The applicant is willing to contribute to the development, funding, and construction of school facilities, on a fair-share basis, commensurate with the impact caused by the proposed development. However, the applicant believes that the "terms of the contribution", as determined by the DOE, unfairly penalizes developers of projects larger than fifty (50) lots. As we currently understand it, the DOE imposes a requirement that the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is no rational basis to distinguish between projects with more than fifty (50) lots and projects containing less than fifty (50) lots since each project will produce the same per unit impact upon school facilities. Therefore, at a minimum, the first fifty (50) lots should be exempt. Regardless, we believe that the DOE's assessment violates the Equal Protection Clause, under the Fourteenth Amendment to the United States Constitution.

Based upon our analysis, we believe that the subject education assessment as a condition of our SMA Permit is unlawful. Enclosed please find a legal brief from the applicant's attorney which challenges the legality of the subject fees. We would respectfully like to request that the brief be referred to the State Attorney General's (AG) Office for review and that the AG issue an opinion as to whether the subject fees, as currently assessed, are legal and can be required as a developer assessment by the State and County.

Thank you for your cooperation. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
President

cc. Mr. John E. Min, *Department of Planning*
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

DAVID M. JORGENSEN
JOSEPH T. TOMA

WAILUKU, MAUI, HI 96793-2222
(808) 242-4555 FAX: (808) 244-6964

LAW OFFICES OF
ING, HORIKAWA, KUWADA, JORGENSEN & TOMA
a Limited Liability Law Partnership, RLLP

October 9, 2001

Doyle Betsill, President
Betsill Brothers Construction, Inc.
635 Kenolio Road
Kihei, Maui, Hawaii 96753

Re: Waipuilani Estates, Education Impact Fees

Dear Mr. Betsill:

This is in response to your inquiry as to whether the Maui County Planning Commission, hereafter "Planning Commission", can require Betsill Brothers Construction, Inc., hereafter "BBCI", to pay an education "impact fee" of approximately $2,000.00 for each located in the Waipuilani Estates, hereafter the "Project".

Under the facts presented, we answer in the negative.

I. Facts.

We understand the following regarding the Project. BBCI owns that certain parcel of land identified as Tax Map Key No. (2) 3-9-01-09, hereafter the "subject property", and is subdividing the subject property to create fifty-five (55) lots that will be known as Waipuilani Estates. BBCI intends to build dwellings on each of the lots and sell the house and lot packages within price guidelines established by the County of Maui for affordable housing projects.

BBCI applied for a special management area permit, hereafter "SMA Permit", for infrastructural requirements for the Project. The Maui County Planning Department, hereafter the "Planning Department", circulated the application and requested comments from several agencies regarding the application for the SMA Permit. The Hawaii Department of Education, hereafter "DOE", recommended approval of the Project, subject to the condition that BBCI pay the sum of $2,000.00 for each lot located in the Project. The DOE stated that the Project will generate an additional need for education facilities within Kihei, Maui, Hawaii.

The DOE does not impose impact fee for any project containing less than fifty (50) lots. We are unaware of any study conducted by the State of Hawaii which justifies the requested impact fee. Further, the impact fee will be paid to the general fund and not earmarked for any special fund for the construction of an educational facility that will be located in Kihei, Hawaii. Moreover, there is no provision for a refund of the impact fee if the funds are not used within a certain period of time.

II. Analysis.

A. **The DOE's Impact Fee Violates The Equal Protection Clause.**

Under the Fourteenth Amendment to the United States Constitution, the states may not "deny to any person within its jurisdiction the equal protection of the laws." Equal protection analysis focuses on whether the use of various categories produces a discriminatory result The traditional judicial standard of review applied in equal protection cases requires that the classification be reasonably related to a legitimate public objective.

In Park v. Watson, 716 F2d. 646 (9th. Cir. 1983), a dedication requirement was ruled unconstitutional on equal protection grounds. The City of Klamath Falls, Oregon, required the developer to dedicate geothermal well on its property in exchange for the city vacating platted streets. The Ninth Circuit Court of Appeals found that the City of Klamath Falls had treated the developer differently from others and that the requirement imposed by the City of Klamath Falls was not rationally related to the government's interest in platted streets. Therefore, the dedication requirements was found to be unconstitutional.

In the present case, the DOE imposes the requirement the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is not rational basis to distinguish between projects within more than fifty (50) lots and projects containing less than fifty (50) lots.

Based upon the analysis set forth in Park v. Watson, supra, we believe that the DOE's education impact fee is unlawful.

B. **The Proposed Impact Fee Is Unlawful Since It Requires The County of Maui To Assess And Collect Fees For A State Function.**

It is well established that the education of people is the responsibility of the State of Hawaii. Hawaii State Constitution, Article X, Section 1. The administration and management of the coastal zone area is the responsibility of the County of Maui. See, Hawaii Revised Statutes, Section 205A-22 and Maui County Charter, Article VIII, Chapter 8, Section 8-8.4.

It is questionable as to whether the Maui Planning Commission can impose a monetary exaction that funds a responsibility of the State of Hawaii. This is especially so since providing education is not an expressly stated objective or policy of the Coastal Zone Management Act. See, Hawaii Revised Statutes, Section 205-2.

Based upon the foregoing, we question whether the Maui Planning Commission can impose the requirement that BBCI pay an education impact fee for each lot located in the Project.

C. **The Proposed Impact Fee Is Unlawful Since It Requires BBCI To Pay For A Disproportionate Cost Of The Education Facility.**

It is well established that an impact fee must be proportionate to the cost of the facility that serves those paying the fee. See, Richards and Merriam, Land Dedications, In Lieu Fees and impact Fees: When Are They Legal?, Impact Fees: A Developer's Manual, Appendix D at 509. Several cases have concluded that a regulation that imposes a flat fee or a percentage dedication is unconstitutional on its faces. Frank Ansuini, Inc. v. City of Cranson, 264 A.2d 910 (R.I. 1970); J.E.D. Associates, Inc. v. Town of Atkinson, 432 A.2d 12 (N.H. 1981). The courts have also held that an exaction is unlawful where the exaction was substantially disproportionate to the need generated by the new development. Cupp v. Board of Supervisors of Fairfax County, 489 A.2d 1091 (Me. 1985). Hawaii law relating to impact fees provides in part as follows:

> A county council considering the enactment of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.
>
> The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.
>
> The pro rata amount of each impact fee shall be based upon the development of actual capital cost of public facility expansion, or a reasonable estimate thereof, to be incurred by the county.
>
> The impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred by the county in accommodating the development. Hawaii Revised Statutes, Section 46-143.

In the present case, the State of Hawaii has not provided an assessment study that justifies the request for a monetary assessment of approximately $2,000.00 for each lot in the project. The DOE's request does not satisfy the constitutional and statutory requirements for impact fees. Therefore, the DOE's request is unlawful and should be rejected.

D. **The Proposed Impact Fee Is Unlawful Since Funds Are Not Segregated To Construct The Education Facility.**

It is well established that an impact fee is unlawful unless the funds collected are segregated from general funds and earmarked for the facility for which they were collected. Contractor and Builders Association of Pinellas County v. City of Dunedin. 358 So.2d 846 (Fla.Dist. Ct. App. 1978), cert denied 370 S0. 2d. 458, cert. Denied 444 U.S. 867 (1979). In City of Dunedin, supra, the Florida Supreme Court struck down a sewer and water impact fee ordinance that failed to sufficiently restrict the funds collected by the City of Dunedin for the sewer and water improvements that were to be constructed from the impact fee. In Home Builders and Contractors Association of Palm Beach County, Inc. v. Board of County Commissioners of Palm Beach County, 446 So.2d 140 (Fla Dist. Ct.App. 1983), an impact fee ordinance was declared to be unlawful since ordinance did not specify the period of time by which the collected fees had to be spent. The Hawaii law relating to impact fees provides in part as follows:

> Within six years of the date of collection, the impact fees shall be expended or encumbered for the construction of public facility capital improvements that are consistent with the needs assessment study and of reasonable benefit to the development. Hawaii Revised Statutes, 46-144.

In the present case, the DOE has not identified the school that will be constructed with funds collected from impact fee assessed for the Project. We assume that a special fund was not created for fee collected by the DOE or that said funds are restricted for the construction of a school facility. We are also unaware of the time frame by which funds collected by the DOE will spent for the construction of an educational facility.

Based upon the foregoing, we believe that the proposed education impact fee is unlawful.

III. Conclusion

Based upon the foregoing, we believe that the impact fee proposed by the DOE is, under the assumed facts, unlawful.

Please contact me if you have any questions concerning the aforementioned.

Very truly yours,

PAUL L. HORIKAWA

H:\Data\Paul\BETSILL BROS\Misc\Letters\Impact Fee.doc

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-6109
Telephone (808) 270-7816 • Fax (808) 270-7199

June 13, 2001

Mr. John Min, Director
County of Maui
Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

I.D.: SM1 2001/0007, RO 2001/0002, EA 2001/0007
TMK: 3-9-01:009
Project Name: Waipuilani Estates

Dear Mr. Min,

Thank you for the opportunity to provide comments to this application.

The applicant estimates water use for this development to approximately 57,600 gallons per day (gpd) based on system per-unit standards. Based on empirical data, water use for single family lots in Kihei area average 841 gpd per service, or around 80,700 gpd for a 96-lot development. This project area is served by the Central Maui System. The major sources of water for this system is the Iao Aquifer. Rolling annual average groundwater withdrawals from the Iao Aquifer as of May 1, 2001 were 17.397 MGD. The regulatory sustainable yield of this aquifer is 20 MGD. If rolling annual average withdrawals exceed 20 MGD, the State Commission on Water Resource Management will designate Iao Aquifer. The Department is implementing a plan to bring new sources on-line and to mitigate withdrawals. Four additional wells withdrawing from the Waihee aquifer are serving this system. The Department is continuing to implement a plan to bring new sources on-line and to mitigate withdrawals from the Iao aquifer. Nevertheless, the applicants should be made aware that no guarantee of water is granted or implied as a result of these comments. Water availability will be reviewed at the time of application for meter or meter reservation.

Water service and fire protection to standards will be required and further determined during the subdivision process.

We are pleased to note that the applicants propose to implement water conserving measures for this project, including low flow fixtures, drought tolerant plants, and efficient irrigation. We recommend that these additional measures be implemented where possible:

Use Non-Potable Sources: Use reclaimed or brackish water for dust control during construction.
Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. The applicant should establish a regular maintenance program.

Prevent Over-Watering By Automated Systems: For all perimeter landscaping, provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering division
applicant

C:\WPdocs\Permcomm\Waipuilani Estates SM RO EA.wpd

CHRIS HART & PARTNERS, INC.

August 15, 2001

Mr. David Craddick
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-6109

Dear Mr. Craddick:

RE: Special Management Area (SMA) Permit Application for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 13, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments:

1. Projected Water Demand. Pursuant to your letter, we understand that empirical data indicates that water use for single-family lots in the Kihei area average 841 gpd per service, which would suggest that the proposed 96-lot development would utilize approximately 80,700 gpd.

2. Water Availability. We note that your Department, at the time of application for water meter or meter reservation, will review water availability for our project. Final domestic, fire, and irrigation calculations will be provided at the time that building permits are submitted.

3. Dust Control. Use of brackish and/or reclaimed water sources will be encouraged for dust control during the construction period.

4. Water and Fire Protection Improvements. The applicant will provide fire and domestic service improvements that comply with County standards.

5. Conservation Measures. In addition to the conservation measures identified in our application, we will incorporate the additional conservation measures you

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have listed with regards to maintenance of leaks and the use of efficient irrigation systems.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File✓

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H
MAUI DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

June 22, 2001

Mr. John Min
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Min:

Subject: **Waipuilani Estates**
TMK: (2) 3-9-001:009
SM1 2001/0007, R0 2001/0002, EA 2001/0007

Thank you for the opportunity to comment on the land use applications. We have the following comments to offer:

1. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46 "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.

2. The property may be harboring rodents that will be dispersed to the surrounding areas when any buildings are demolished or the site is cleared. The applicant is required by Hawaii Administrative Rules, Chapter 11-26, "Vector Control" to eradicate any rodents prior to demolition or site clearing activities and to notify the Department of Health by submitting Form VC-12 to the Maui Vector Control program when such action is taken. Rodent traps and/or rodenticides should be set out on the project site for at least a week or until the rodent activity ceases. The Maui Vector Control program phone number is 873-3560.

Should you have any questions, please call me at 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Phillip Dendle
Ed Miyabara
Donald Taketa

CHRIS HART
& PARTNERS, INC.

August 7, 2001

Mr. Herbert S. Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Maui District Health Office
54 High Street
Waikuku, Hawaii 96793

Dear Mr. Matsubayashi:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated June 22, 2001, regarding the above-referenced Special Management Area Permit Application. In response to your letter, we offer the following comments:

1. Noise. Activities associated with the construction phase of the project, will comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control." We note that a noise permit may be required prior to commencement of work.

2. Vector Control. Pursuant to Hawaii Administrative Rules, Chapter 11-26, "Vector Control", all rodents will be eradicated prior to demolition or site clearing activities.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

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BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

01 JUL -6 P3:21

DEPT OF PLANNING
COUNTY OF MAUI
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In reply, please refer to:
File:

01-064/epo

June 29, 2001

Mr. John E. Min, Planning Director
Maui County Department of Planning
250 South High Street
Wailuku, Hawaii 96793 .

Dear Mr. Min:

Subject: Waipuilani Estates
TMK: 3-9-01:09

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Control of Fugitive Dust:

During the construction phase of the project, due to the characteristics of the soil in the area, there would be a significant potential for fugitive dust to be generated during grading, excavation and construction activities for this project. The climatic conditions and the extremely close proximity of residential subdivisions only add to the potential dust problems. Construction activities would have to comply with provisions of Chapter §11-60.1, Hawaii Administrative Rules, section 11-60.1-33 on "Fugitive Dust." The contractor should provide adequate means to control dust from areas and the various phases of construction activities, including but not limited to:

1. Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact.

2. Providing an adequate water source on site prior to start-up of construction activities.

3. Landscaping and rapid covering of bare areas, including slopes, beginning with the initial grading phase.

4. Controlling of dust from shoulders, project entrances, and access roads.

5. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.

6. Controlling of dust from debris being hauled away from project site.

For questions concerning fugitive dust, please contact Mr. Robert Tam of the Clean Air Branch at 586-4200.

Wastewater Branch

Since public sewers are available through an existing 8-inch diameter municipal sewer line along Kihea Road, we have no objections to the proposed project as long as connection to the line on Kihea Road is completed upon completion of the project.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning/Design Section of the Wastewater Branch at telephone 586-4294.

Noise, Radiation and Indoor Air Quality Branch

1. Activities associated with the construction of the project shall comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

   a. The contractor shall obtain a noise permit if the noise levels from the construction activities are expected to exceed the maximum permissible sound levels of the regulations as stated in Section 11-46-6(a).

   b. Construction equipment and on-site vehicles requiring an exhaust of gas or air shall be equipped with mufflers as stated in Section 11-46-6(b)(1)(A).

   c. The contractor shall comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).

2. Sound levels emanating from stationary equipment, such as the air conditioning systems, shall comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4700.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

CHRIS HART
& PARTNERS, INC.

August 7, 2001

Mr. Gary Gill
Deputy Director, Environmental Health Administration
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated June 29, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments:

1. Control of Fugitive Dust. Adequate dust control measures that comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust, will be implemented during all phases of construction. Some of these measures will include:

   - Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of least impact.
   - Providing adequate water source on site prior to start-up of construction activities.
   - Landscaping and rapid covering of bare areas, including slopes, beginning with the initial grading phase.
   - Controlling of dust from shoulders, project entrances, and access roads.
   - Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
   - Controlling of dust from debris hauled away from project site.

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2. Wastewater. All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

3. Noise Concerns. Activities associated with the construction phase of the project, as well as all stationery equipment installed in the proposed structures, will comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control." We note that the contractor will be required to obtain a noise permit should the noise levels from the construction activities exceed the maximum permissible sound levels as per Section 11-46-6(a).

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File ✓

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE
ty
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

July 2, 2001

MEMORANDUM

TO : JOHN E. MIN, PLANNING DIRECTOR

FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE

SUBJECT :

I.D.	SM1 2001/0007/RO 2001/0002, EA 2001/007
TMK:	3-9-001:009
Project Name:	Waipuilani Estates
Applicant:	Christopher L. Hart, President, Chris Hart & Partners, Wailuku, Maui, HI

____ No further recommendation or comment is necessary or desired.

__X__ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project. We are returning the Application and the Environmental Assessment which was submitted for our review.

Assistant Chief Robert Tam Ho
For: THOMAS M. PHILLIPS
Chief of Police

Enclosure

TO : TOM PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI

VIA : CHANNELS

FROM : BRAD HICKLE, POLICE OFFICER III, DISTRICT VI KIHEI

SUBJECT : WAIPUILANI ESTATES-SPECIAL MANAGEMENT AREA PERMIT

Sirs, on 06/06/01 this Officer received a copy of the Special Management Area Permit Application submitted by Chris HART & Partners, Inc. on behalf of Betsill Brothers Construction, Inc.

The applicant is requesting a Special Management Area Permit to develop a ninety-six (96) lot single family residential housing area in Kihei at TMK: 3-9-001:009.

One of the main concerns and most frequently complained about problems in the Kihei area is speeding motorist. This especially in newer residential areas where young children will live and play.

It is recommended that the developer be responsible for providing speed bumps and raised crosswalks to the roadways within the community. This will help to develop a better and safer residential community for residents, their children and guests in the future.

Respectfully Submitted,

Officer Brad Hickle E-9966
06/26/01 1930 hours

I concur with Officer Hickle's recommendation. Recommend approval.
Sgt. [illegible]
6/28/01 1728

concur
6/29/01

CHRIS HART & PARTNERS, INC.

August 7, 2001

Mr. Thomas M. Phillips
Chief of Police
Police Department
County of Maui
55 Mahalani Street
Wailuku, Hawaii 96793

Dear Mr. Phillips:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated July 2, 2001, regarding the above-referenced Special Management Area Permit Application. We are pleased to address your comments as follows.

Curvilinear streets and roundabouts, planter islands, and street trees have been incorporated into the design of the internal street network in order to reduce traffic speeds. Although we considered speed bumps and raised crosswalks as additional traffic calming measures, it was determined that the proposed roadway design adequately reduced traffic speeds providing for a safe pedestrian and vehicular travel environment.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

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

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COUNTY OF MAUI
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AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

July 5, 2001

LD-NAVLOG743/658

Ref.: SM12001007.RCM

Honorable John E. Min
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

SUBJECT: Special Management Area Permit
Project: Waipuilani Estate
I. D. No.: SM1 2001/1007
Location: Kihei, Island of Maui, Hawaii
TMK: 2nd/ 3-9-001: 009

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

The subject informational material was transmitted to our Division of Aquatic Resources, Division of Forestry and Wildlife, Commission on Water Resource Management, Land Division Planning and Technical Services, Engineering Branch and Maui District Land Office for their review and comment.

Attached herewith is a copy of our Division of Forestry and Wildlife and Commission on Water Resource Management comments.

The Department has no other comment to offer at this time. Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

C: MDLO

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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LAND DIVISION

2001 JUN 20 A 8:56

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809
JUN 19 2001

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

TO: Mr. Harry Yada, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Waipuilani Estates (Kihei) SMA

FILE NO.: SMI20010007.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the *efficient use of our water resources* through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER: The aquifer that serves as the water supply source for this project has been overpumped beyond its sustainable yield in the recent past, and the aquifer continues to show signs it has not fully recovered. If the Commission has to designate the aquifer as a water management area, all ground-water withdrawals to the purveyor would be subject to water use permits. The service area would be subject to a declaration of a water shortage or a water emergency. If withdrawals are constrained, uses may be subject to allocation to users by the purveyor.

If there are any questions, please contact the Commission staff at 587-0225.

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

RECEIVED
2001 JUN 13 P 4:03

March 21, 2001

MEMORANDUM

TO: Nick Vaccaro, Land Agent
Land Division

THRU: Harry Yada, Acting Administrator
Land Division

FROM: Michael G. Buck, Administrator
Division of Forestry and Wildlife

SUBJECT: **Application for Special Management Area Permit, (SMI2000100007.com) Waipuilani Estate, Kihei, Maui, Hawaii - TMK: 3-9-01:09 by Mr. Larry Soriano, c/o Western Pioneer, Inc. Seattle, WA.**

We have reviewed the subject document with respect to the impacts the project may have on DOFAW's management programs and endangered species in particular. The "Terrestrial Biota for flora and fauna" reconnaissance survey information on page 14 indicates that no known rare, endangered, or threatened species were found on the subject property. Therefore, we do not have any objections to the proposed project. Thank you for the opportunity to comment.

C: Maui DOFAW Branch

CHRIS HART
& PARTNERS, INC.

August 15, 2001

Mr. Harry M. Yada
Acting Administrator
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Yada:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated July 5, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments.

1. Water Resources. The applicant is aware that if the Commission has to designate the Iao aquifer as a water management area, all ground-water withdrawals to the purveyor would be subject to water use permits and that if withdrawals are constrained, uses may be subject to allocation to users by the purveyor.

Thank you for your consideration of our application. Should you have further questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

Rory Frampton
Principal Planner

Cc. Mr. John Min, Director of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File✓

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13019

JAMES "KIMO" APANA
MAYOR

CLAYTON T. ISHIKAWA
CHIEF

FRANK E. FERNANDEZ, JR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 270-7561
FAX (808) 270-7919

'01 JUL 23 P1:48

DEPT OF PLANNING
COUNTY OF MAUI
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July 6, 2000

Mrs. Julie Higa
Staff Planner
Department of Planning
County of Maui
250 S. High Street
Wailuku, Hi. 96793

Subject: I.D. SM1 2001/0007,RO 2001/0002,EA 2001/0007
TMK: 3-9-001:009
Project Name: Waipuilani Estates

Dear Mrs. Higa

Thank you for the opportunity to review and comment of the subject application. At this time the Fire Prevention Bureau would request that for every building hereafter constructed, a Fire Apparatus access road and water supply capable of supplying the required fire flow for fire protection shall be provided.

If you have any questions, please call me at 270-7122.

Sincerely,

Scott English
Fire Plans Examiner

CHRIS HART
& PARTNERS, INC.

August 7, 2001

Mr. Scott English
County of Maui
Department of Fire Control
200 Dairy Road
Kahului, Maui, Hawaii 96732

Dear Mr. English:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated July 6, 2001, regarding the above-referenced Special Management Area Permit Application. Please note that the project will provide an internal roadway that will offer adequate access for fire apparatus and that the required fire flow for fire protection will be provided.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 • WAILUKU, MAUI, HAWAII 96793-1706 • PHONE: 808-242-1955 • FAX: 808-242-1956

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

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

'01 JUL 11 P3:44
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

July 9, 2001

MEMO TO: JOHN E. MIN, DIRECTOR OF PLANNING

F R O M: DAVID GOODE, DIRECTOR OF PUBLIC WORKS
AND WASTE MANAGEMENT

SUBJECT: SPECIAL MANAGEMENT AREA PERMIT
WAIPUILANI ESTATES
TMK: (2) 3-9-001:009
SM1 2001/007, RO 2001/0002, EA 2001/0007

We have reviewed the subject application and have the following comments:

1. Although wastewater system capacity is currently available as of May 17, 2001, the developer should be informed that wastewater system capacity cannot be ensured at the time of building permit final approval or if the project completion is delayed.

2. Roundabouts and planter islands require significant maintenance and as such, these types of improvements should be kept under private ownership and maintenance.

3. A road widening lot shall be provided for the adjoining half of South Kihei Road to provide for future 60 foot wide right-of-way. Improvements on South Kihei Road are already included as part of our South Kihei Road Phase IV project.

4. All structures, such as walls, trees, etc., shall be removed or relocated from the road widening strip. The rear boundaries of the road widening strip shall be clearly marked to determine if said structures have been properly removed and relocated.

5. A 30' radius shall be provided at the intersection of proposed Subdivision road/driveway and the adjoining County roads.

6. As represented on page 28 of the SMA application, the proposed access subdivision road onto South Kihei Road shall be restricted to right turns in and out to minimize the project's impact on traffic flows onto South Kihei Road.

7. Provide a minimum of two (2) off-street parking spaces for each dwelling.

8. The proposed subdivision shall comply with the provisions of the subdivision ordinance and that construction of the subdivision improvements comply with the provisions of the grading ordinance and the drainage rules.

9. The Department supports the innovative right-of-way cross section and its emphasis on traffic calming and pedestrian use. Currently, our Subdivision Code allows such right-of-way designs only when the roads remain private. As the County is developing legislation that may, in the future, allow such designs to become part of the public domain, the roads may be dedicatable to the County at a later date.

10. Final design of the roads will need to also ensure safe passage for refuse vehicles, fire-fighting equipment, and other emergency vehicle use.

Should you have any questions regarding this memorandum, please call Milton Arakawa ext. 7845.

DG:jso
S:\LUCA\CZM\WaipuilaniEstates.wpd

CHRIS HART
& PARTNERS, INC.

August 16, 2001

Mr. David Goode
Director
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Goode:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated July 9, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments.

1. We understand that wastewater system capacity cannot be ensured until the time of building permit final approval or if the project completion is delayed.

2. The proposed roundabouts and planter islands are an integral part of our traffic-calming plan. Pursuant to your letter, we understand that these facilities must currently be kept under private ownership. However, it is our understanding that the County is developing legislation that may, in the future, allow such designs to become part of the public domain, and as such, that the roads, including roundabouts and planer islands, may be dedicatable to the County at a later date.

3. A 5-foot road-widening lot will be provided for the adjoining half of South Kihei Road to provide for a future 60-foot wide right-of-way. Per your letter, we understand that County improvements on South Kihei Road are already included as part of the South Kihei Road Phase IV project.

4. All structures, such as walls, trees, etc., will be removed or relocated from the road-widening strip fronting South Kihei Road. As requested, the rear boundaries of the road widening strip will be clearly marked.

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5. A 30' radius will be provided at the intersection of the proposed subdivision road/driveway and the adjoining County roads.

6. As discussed in our application, the proposed access subdivision road onto South Kihei Road will be restricted to right turns in and out in order to minimize the project's impact on traffic flows onto South Kihei Road.

7. As the current site plan indicates, two off-street parking spaces per dwelling will be provided on each lot, as required by Maui County Code, Chapter 19.36. Additionally, approximately 20 on-street parking spaces will be provided throughout the project for the use of the subdivision guests.

8. We intend to develop the proposed project subdivision in accordance with all applicable governmental regulations and policies, including provisions relating to subdivisions, grading, and drainage.

9. We appreciate your Department's support of our proposed roadways, which we hope will serve as a model for future developments in the County where pedestrian and vehicular safety, aesthetics, and efficient land use are important objectives.

   We understand that the proposed roadways must currently remain private. However, pursuant to your letter, we understand that the County is developing legislation that may, in the future, allow such roadway designs to be dedicatable to the County at a later date.

10. The final design of the roadways will ensure safe passage for refuse vehicles, fire-fighting equipment, and other emergency vehicle use.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren Unemori Engineering, Inc.
Project File

13130

DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE WAILUKU, HAWAII 96793

JAMES "KIMO" APANA
Mayor

FLOYD S. MIYAZONO
Director

ELIZABETH D. MENOR
Deputy Director

(808) 270-7230
FAX (808) 270-7934

'01 JUL 26 P3:03

DEPT OF PLANNING
COUNTY OF MAUI
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MEMORANDUM

July 25, 2001

TO: John Min, Planning Director

FROM: Floyd S. Miyazono, Director

SUBJECT: **Waipuilani Estates**
TMK: (2) 3-9-007:009
Special Management Area Permit Application

Thank you for the opportunity to review and comment on the Special Management Area Permit application for the Waipuilani Estates.

Upon review of the submitted documents, it is our determination that the proposed "Detention Basin / Open Space Park Site" is not suitable for park and playground purposes. Therefore, we would request that the developer fulfill the Parks and Playgrounds assessment requirements through the payment of cash as set forth in Section 18.16.320 of the Maui County Code.

Should you have any questions or need of further comment or information, please call me or Patrick Matsui, Chief of Parks Planning & Development, at 808-270-7931.

FSM:PTM:rh

c: Patrick Matsui, Chief of Parks Planning & Development

CHRIS HART & PARTNERS, INC.

October 3, 2001

Mr. Floyd S. Miyazono, Director
County of Maui
Department of Parks and Recreation
1580-C Kaahumanu Avenue
Waikuku, Hawaii 96793

Dear Mr. Miyazono:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Pursuant to our meeting on Thursday, September 6, 2001, we have enclosed a site plan that shows the proposed Waipuilani Estates Neighborhood Park. As discussed, the park site will feature an asphalt all-weather play court with basketball hoop, children's playground, bicycle/pedestrian path linking the North-South Collector and South Kihei Road, as well as, community gardens on approximately 2.874-acres. The majority of the park will be grassed and planted with pacific islands and exotic species; shade trees, shrubs, and groundcover in order to beautify the area. As shown on the plan, approximately 1.094-acres (47,636 SF) of the proposed site is of relatively flat topography and is configured to support active recreational uses including a basketball court and children's playground. The remainder of the site, approximately 1.733 acres (75,495 SF), will be grassed and support the proposed bicycle/pedestrian path, community gardens, and other passive recreational uses as per the enclosed Waipuilani Estates Concept Landscape Master Plan.

The subject park site will also be utilized intermittently as a detention basin to serve the proposed residential lots, and as per the enclosed conceptual subdivision plan, the topography across the site is relatively flat and suitable for both passive and active recreational uses. We hope you concur that the proposed park offers adequate size, shape, and topography, as well as, the necessary physical improvements to offer the neighborhood a quality recreational resource that meets the purpose and intent of the County's park ordinance. Therefore, pursuant to MCC, 18.16.320.E, we respectfully request that you amend your July 25, 2001, letter to state that you will grant a credit for

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the above referenced 1.094 acres (47,636 SF) as the minimum portion of the site "suitable for park and playground purposes."

We appreciate your re-consideration of our application and look forward to your favorable determination. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect and Planner

Enclosures

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Warren S. Unemori. Warren S. *Unemori Engineering Inc.*
Project File✓

1866

'01 JUL 31 P2:25

DEPT OF PLANNING
COUNTY OF MAUI
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July 30, 2001

Department of Planning
County of Maui
200 S. High St.
Wailuku, HI 96793

Re: Waipuilani Estates Draft Environmental Assessment

Dear Sirs:

There are several areas of concern that should be considered regarding the impact of the proposed Waipuilani Estates.

1. Flood Hazard

The area under consideration is adjacent to one of the four major drainage gulches for South Maui, as well as being within the tsunami inundation zone. According to the preliminary engineering report by Warren S. Unemori Engineering, Inc., 78% of the project site is within a flood hazard area zone. Allowing structures to be built at the edge of the gulch further upstream at Piilani Highway has already put those residents in harm's way. The homes in Waipuilani Estates would be at even greater risk. The landowner is a Seattle, Washington concern and would be unaware of the flooding in 1971 and 1980 that closed off South Kihei Road in this area. Prospective homeowners would probably also be unaware of the danger.

What are the liability consequences for the County in approving construction within a flood hazard zone with potential adverse effects on downstream properties?

2. Water

The proposed subdivision would draw water from the already stressed Iao Aquifer. According to a communication from Linnel T. Nishioka of the State Commission of Water Resource Management dated July 10, 2001 to the Maui Parks Department, "the (Iao) aquifer has been overpumped until just a few years ago, and has not yet fully recovered...We continue to receive reports of poor water quality from the Department of Health, and aquifer advisories from the U.S. Geological Survey. We believe it is essential that the public be protected from degradation of their water supply, and this situation becomes increasingly difficult as we endure prolonged drought." No further development should be permitted at this time that will depend on the Iao Aquifer.

3. Traffic

Within the project itself there is poor traffic circulation on very narrow roads. At a minimum there should be a direct connection with the North-South Collector Road.

As was amply demonstrated by the record turnout of the public at the traffic hearing some months ago, the citizens of South Maui are irate about the continued congestion on our roads. A recent survey of Maui residents by the Maui News also demonstrated that traffic is the number one complaint by the public. This subdivision would add at least another 200 vehicles to South

Maui traffic at its most congested area. The suggested plans by the State Department of Transportation are interim solutions offering neither prompt nor permanent relief.

There should be no further development in South Maui until permanent measures have been completed to relieve traffic congestion.

Sincerely,

Diane E. Shepherd, DVM
300 Ohukai Rd. C108
Kihei, HI 96753

CHRIS HART & PARTNERS, INC.

August 17, 2001

Ms. Diane E. Shepherd, DVM
300 Ohukai Rd. C108
Kihei, HI 96753

Dear Ms. Shepherd:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated July 30, 2001, regarding the above-referenced Special Management Area Permit.

In response to your concerns, we offer the following comments:

1. Flood Hazard. Please note that flood zone designations have been a primary consideration during the site planning of the subject property. To minimize any potential risk to health, safety, and welfare due to the subject development being located within a flood zone, all habitable structures will be constructed above the base flood elevations utilizing post and pier construction methods that will comply with the requirements established in Maui County Code Chapter 19.62 "Flood Hazard Areas". In addition, all prospective homebuyers within the flood zone will receive notice that their homes are located within a floodplain.

   Please note that County laws allow for development within flood hazard areas provided that construction within these areas complies with the restrictions codified in Chapter 19.62 "Flood Hazard Areas".

2. Water. Since your comments primarily concern future County policy with respect to groundwater withdrawls from the Iao Acquifer, we have forwarded your letter to the Department of Water Supply.

3. Traffic. The internal street network proposed for Waipuilani Estates is both safe and efficient. The proposed roadway geometrics were modeled

on standards developed by nationally recognized experts on designing pedestrian-oriented roadways for residential neighborhoods. Similar roadway standards are currently in use in several other progressive municipalities. Vehicular Access to the future North-South Collector Road is provided via Kulanihakoi Road and pedestrian and bicycle access is provided from the project site. No vehicular connection from the project to the future North-South Collector Road is proposed because this connection would encourage non-residential traffic intrusion into the project.

We concur that traffic congestion is a significant problem in Kihei and that solutions are needed to relieve congestion. It is our understanding that there are interim and longer-term solutions currently being implemented that will immediately reduce traffic congestion within the region. Some of these solutions include:

- Completion of Phases I and II of the North South Collector Road between the Piilani Villages Shopping Center and Kulanihakoi Road. Once completed, it is anticipated that the North South Collector Road will link residential communities in North Kihei with regional shopping and employment centers; thereby, reducing the amount of vehicular traffic along Piilani Highway and South Kihei Road.
- Restriping of Piilani Highway to allow four (4) lanes of travel.
- Implementation of signal management to allow more volume on the higher demand legs.

In response to your suggestion to stop further development in South Maui, please note that the Maui County Council, as well as the Mayor's Transportation Action Committee (TAC), has addressed this issue. Responding to recommendations made for a moratorium on development, the TAC stated the following in its Report and Recommendations to the Mayor:

> "The conclusion reached by the TAC is that the moratorium cannot be considered a solution to the present infrastructure shortfall because it does not provide any direction as to how one would address the congestion or address the traffic situation that exists today. The consensus was that the idea of a moratorium does not provide direction nor relief for the community and that proactive solutions must be followed such as signal modification to island-wide transportation planning and finally, planning, design and construction of new roadways."

In addition, we would like to emphasize that the dearth of affordably priced housing is also a considerable problem within our community. Your suggestion to prohibit all future development in South Maui, until permanent measures have been completed to relieve traffic congestion, would exacerbate our affordable housing problem and create further hardship for young working families in Maui.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely,

Rory Frampton
Principal Planner

Enclosure

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction Inc.
Mr. David Craddick, Department of Water Supply
Project File

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

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

Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

2001 AUG 30 P 3:50
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August 29, 2001

MEMO TO: JOHN E. MIN, DIRECTOR OF PLANNING

FROM: for DAVID GOODE, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: SPECIAL MANAGEMENT AREA USE PERMIT
WAIPUILANI ESTATES
TMK: (2) 3-9-001:009
SM1 2001/007, RO 2001/0002, EA 2001/0007

An issue has arisen regarding a proposed roadway shown on the Kihei-Makena Community Plan land use map which extends through the subject property. This was not discussed in our July 9, 2001 memo to you. The land use map shows a proposed roadway extending from Kulanihakoi Street in a north south orientation linking Hoonani Street and Kapuhau Place.

We note that such a roadway is not discussed in the State's Kihei Traffic Master Plan done by Kaku Associates, nor is it part of any roadway improvements planned or contemplated by our department.

If you have any questions, please feel free to call me.

MA:jso
s:\milton\waipuilani estates

CHRIS HART & PARTNERS, INC.

September 21, 2001

Mr. David Goode
Director
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Goode:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated August 29, 2001, regarding the above-referenced Special Management Area Permit Application.

Pursuant to your letter, we understand that the roadway shown on the Kihei-Makena Community Plan, which extends from Kulanihakoi Street in a north south orientation through our project to Hoonani Street, is neither identified as a planned roadway improvement in the State's Kihei Traffic Master Plan or part of any roadway improvements planned by your department.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren Unemori Engineering, Inc.
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1234

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

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

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COUNTY OF MAUI
RECEIVED

September 5, 2001

LD-NAV

Ref.: SM12001007.RCM2

Honorable John E. Min
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

SUBJECT: Special Management Area Permit
Project: Waipuilani Estate
I. D. No.: SM1 2001/1007
Location: Kihei, Island of Maui, Hawaii
TMK: 2nd/ 3-9-001: 009

This is a follow-up to our letter to you dated July 5, 2001 (Ref.: SM12001007.RCM) regarding the subject matter.

Attached herewith is a copy of our Land Division Engineering Branch comment.

The Department has no other comment to offer at this time. Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

C: MDLO

DLNR-LAND DIVISON
ENGINEERING BRANCH

COMMENTS

Our current projects are not affected by the subject project.

We confirm that the project site according to FEMA Community Panel Number 150003 0265 C, is located in Zones A3, AO and C. Zone A3 is an area of 100-year flooding, where base flood elevations and flood hazard factors have been determined. Zone AO is an area of 100-year shallow flooding where depths are between one (1) and three (3) feet, and average depths of inundation are shown, but no flood hazard factors determined. Zone C is an area of minimal flooding (No Shading).

Also, according to the Flood Boundary and Floodway Map, panel 0265, dated September 6, 1969, there is no designated "Floodway" within the project site.

Please note that the proposed project must comply with rules and regulations of the National flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Sterling Yong, of the Department of Land and Natural Resources at 587-0248. If there are questions regarding flood ordinances, please contact the applicable County representative.

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

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

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DEPT OF PLANNING
COUNTY OF MAUI
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September 5, 2001

LD-NAV

Ref.: SM12001007.RCM2

Honorable John E. Min
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

mike Summers

Dear Mr. Min:

SUBJECT: Special Management Area Permit
Project: Waipuilani Estate
I. D. No.: SM1 2001/1007
Location: Kihei, Island of Maui, Hawaii
TMK: 2nd/ 3-9-001: 009

This is a follow-up to our letter to you dated July 5, 2001 (Ref.: SM12001007.RCM) regarding the subject matter.

Attached herewith is a copy of our Land Division Engineering Branch comment.

The Department has no other comment to offer at this time. Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

C: MDLO

EXHIBIT

CHRIS HART & PARTNERS, INC.

September 21, 2001

Mr. Harry M. Yada
Acting Administrator
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Yada:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated September 5, 2001, regarding the above-referenced Special Management Area Permit Application, which confirmed that the subject property is located within Zones A3, AO, and C. We also note that according to the Flood Boundary and Floodway Map, panel 0265, dated September 6, 1969, there is no designated "Floodway" within the project site.

In addition, please note that the project will be constructed in accordance with the rules and regulations of the National Flood Insurance Program (NFIP) and applicable County Flood Ordinances.

Thank you for your consideration of our application. Should you have further questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

Rory Frampton
Principal Planner

Cc. Mr. John Min, Director of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
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BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

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

'01 SEP 14 P3:21

IN REPLY REFER TO:
STP 8.0019

DEPT OF PLANNING
COUNTY OF MAUI
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September 11, 2001

Mr. John E. Min
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Waipuilani Estates
Special Management Area Permit (SMA)
TMK: 3-9-001: 009

Thank you for your transmittal requesting our review of the subject project.

The cumulative impact of the subject development and other major projects in the area will impact our State transportation facilities. The applicant should contact our Highways Division to coordinate the specific required roadway improvements.

There are items in the Draft Traffic Impact Analysis Report (TIAR) that require correction and reanalysis. The applicant should make the necessary revisions and resubmit the report for our review. Our specific concerns are as follows:

1. Page 12 – ANALYSIS OF EXISTING CONDITIONS, Level-of-Service Analysis of Existing Conditions. Item 1 states that Piilani Highway/Kulanihakoi Road Intersection operates at a LOS A. However, during both the AM and PM peak hours, the eastbound left-turn movement operates at LOS F and the eastbound right-turn movement operates at LOS D. The Draft TIAR should be revised accordingly.

2. Page 15-16 – PROJECTED CUMULATIVE TRAFFIC CONDITIONS, Background Traffic Growth. The Kihei Traffic Master Plan was referenced in determining the background growth rate along Piilani Highway; however, Table 5 references the Maui Long Range Land Transportation Plan. If the Kihei Traffic Master Plan is the correct reference, please correct the reference in Table 5. If the Maui Long Range Land Transportation Plan was used as the reference, please include an explanation as to how the information was used to derive 2005 traffic conditions and explain why the 2005 Traffic Conditions in the Kihei Traffic Master Plan was not used.

3. Page 20-21 – PROJECT RELATED TRAFFIC CONDITIONS, Trip Distribution and Assignment. The report states that the Kihei Traffic Master Plan was used as a reference. However, the Kihei Traffic Master Plan recommends restricting turning movements at the Piilani Highway/Kulanihakoi Road intersection to right-turn movements but the Draft TIAR does not reflect this restriction and the associated redistribution in traffic. Since the Kihei Traffic Master Plan recommends the restriction, the Draft TIAR should, reflect the right-turn restrictions at this intersection by redistributing background traffic and distributing project-generated trips accordingly.

4. Page 20-21 – PROJECT RELATED TRAFFIC CONDITIONS, Trip Distribution and Assignment. The Draft TIAR states that the directional distribution of project-generated traffic is based on existing peak hour traffic patterns. However, the trip distribution shown in Figure 7 does not correspond to existing traffic distribution patterns. The trip distribution and trip assignment must, therefore, be corrected and intersection capacities reanalyzed.

We appreciate the opportunity to provide comments.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

CHRIS HART & PARTNERS, INC.

October 16, 2001

Mr. Brian K. Minaai
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Attn: Ms. Julia Tsumoto

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential (TMK: (2) 3-9-001:009)

Thank you for your letter dated September 11, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, please find a revised copy of our Traffic Impact Assessment Report (TIAR) prepared by Mr. Philip Rowell, Philip Rowell & Associates. In addition, please find a letter dated October 15, 2001, from Mr. Rowell, which explains the various revisions made to the report.

We look forward to your earliest review of the revised TIAR. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Rory Frampton
Land Use Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Philip Rowell, Philip Rowell & Associates, Inc.
Project File

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@gte.net

October 15, 2001

Mr. Michael Summers
Chris Hart & Partners
1955 Main Street, Suite 200
Wailuku, HI, 96793-1706

Re: TIAR for Waipuilani Estates

Dear Michael:

The TIAR has been revised in response to comments received from Hawaii Department of Transportation. A copy of the revised report is attached. The following comments explain the revisions.

1. The overall intersection delay and level-of-service has been added to Table 3. Conclusion #1, also on page 12, now corresponds to the table. In the previous draft of the report, the overall intersection delay and level-of-service was not shown in the table. Therefore, the comment in the report that the overall intersections operate well (Level-of-Service A or B) was not indicated backed up by the data shown in the table.

2. Table 5, page 16, has been corrected to indicate that the Kihei Master Traffic Plan was used. This now corresponds with the report.

3. Project generated traffic was distributed based on the traffic patterns indicated in the 2005 traffic projections shown in the report. The Kihei Master Traffic Plan provided 2005 traffic projections only for the existing roadway network. The Kihei Master Traffic Plan recommended that left turns from Kulanihakoi Road to northbound Piilani Highway be prohibited, but did not provide 2005 traffic projections for the recommended roadway network.

   The TIAR has been revised to reflect traffic projections for two scenarios. The first is the existing roadway network. The second scenario reflects the left turn restriction shown in the Kihei Master Traffic Plan as well as the proposed use of the shoulders along Piilani Highway during peak periods. The revised report also reflects the actual number of units proposed for Alii Village in the background traffic projections. The first draft used an estimate of 40 units based on the existing zoning of the parcel. Since the first draft was submitted, a proposed plan to develop only 30 units has been submitted.

4. The trip distribution pattern used for the report was based on traffic patterns calculated from traffic counts performed for this study and rounded to the nearest 5%.

Very truly yours,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

Response2.wpd

CHRIS HART
& PARTNERS, INC.

September 28, 2001

Ms. Julie Higa
Senior Planner
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Higa:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

This is in response to concerns you expressed at our Friday, August 3, and Thursday, August 16, 2001, meetings regarding on and off-site traffic circulation for the above-referenced project. Per our meetings, we understand that you have two primary concerns regarding traffic circulation. These include:

1. Identification of Access Road into the Project Site as a Through Street. The Kihei-Makena Community Plan identifies the proposed access road from Kulanihakoi Street into the project site as a through street to Hoonani Street. We are proposing that this road provide access only to the project site. Your concern is that our proposal is not consistent with the Kihei-Makena Community Plan's identification of the road as a through street.

2. The Department of Transportation's (DOT's) Comments Regarding Signalization at Kulanihakoi and Piilani Highway. The DOT in a letter dated July 30, 2001, to Mr. Rodney Funakoshi, Wilson Okamoto & Associates, Inc., regarding the proposed Alii Village Subdivision recommended that the developer work with other developers in the area to fund a traffic light at the above-referenced intersection. In the same letter, the State stated that it would restrict turning movements from Kulaniahoi Street onto Piilani Highway to right turns in and out only should the developers decide not to fund the subject signal (See Attachment "1"). As we understand it, your concern is that we coordinate with the Alii Village developers in addressing DOT's comments.

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Regarding the issue of the access road, our civil engineer, Warren S. Unemori Engineering, Inc., has informed us that the extension of the proposed access road from the project site to Hoonani Street would require that a bridge be constructed over Waipuilani Gulch. This bridge would likely be prohibitively expensive to construct and, in our opinion, difficult to justify given the amount of traffic that might utilize such a roadway. From a traffic calming perspective, the alignment that we are proposing is consistent with our goal of minimizing the intrusion of non-residential traffic into the development; thereby, minimizing the potential for vehicular and pedestrian conflicts.

Also, based on discussions with the Department of Public Works and Waste Management (DLNR) at the August 16, 2001, meeting that you attended, extension of this road is not part of the Kihei Traffic Master Plan. This was confirmed in a letter dated August 29, 2001, by the DLNR which states that the subject roadway is neither discussed in the State's Kihei Traffic Master Plan or part of any planned roadway improvements by the department (See Attachment 2).

Regarding the issue of the traffic light, it is our understanding that modification of the intersection to allow right turn only movements would be consistent with the Kihei Master Traffic Plan prepared for the State by Kaku and Associates in 1996. It is also our understanding that the Alii Village developers are not in favor of signalizing the intersection. Our applicant concurs with the developers of Alii Village and is not in favor of signalizing the Kulanihakoi/Piilani Highway intersection. This position is consistent with the State's plan for this intersection.

We hope that this letter addresses your concerns. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

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

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:

HWY-PS
2.3624

JUL 30 2001

Mr. Rodney Funakoshi
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96813-5097

RECEIVED
AUG 02 2001
WILSON OKAMOTO & ASSOC., INC.

Dear Mr. Rodney Funakoshi:

Subject: Alii Village Subdivision
Special Management Area (SMA) use Permit Application
Kihei, Maui, TMK: 3-9-01: 155

We have reviewed the traffic assessment report and our comment is as follows:

We agree with your statement that Kulanihakoi Street/Piilani Highway intersection will operate with a traffic level of service "B" with the installation of traffic signal at that intersection and widening of Piilani Highway from 2 to 4 lanes. However, while we are proceeding with a joint State/County/Developer-funded project to widen Piilani Highway to 4 lanes by using the existing paved shoulders as travel lanes, we are not including the installation of a traffic signal system at the intersection of Piilani Highway and Kulanihakoi Street. We strongly recommend that the Alii Village developer, work with other developers in the area to fund the cost of this traffic signal system. This work should be coordinated with our Highways Division, Maui District Office. If developers are not willing to fund the cost of this new traffic signal system, we will convert the intersection of Piilani Highway and Kulanihakoi Street so that only right turns in and right turns out of Kulanihakoi Street will be allowed.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

ATTACHMENT "1"

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

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

01 AUG 30 P3:50
DEPT. OF PLANNING
COUNTY OF MAUI
RECEIVED

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

August 29, 2001

MEMO TO: JOHN E. MIN, DIRECTOR OF PLANNING

FROM: for DAVID GOODE, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: SPECIAL MANAGEMENT AREA USE PERMIT
WAIPUILANI ESTATES
TMK: (2) 3-9-001:009
SM1 2001/007, RO 2001/0002, EA 2001/0007

An issue has arisen regarding a proposed roadway shown on the Kihei-Makena Community Plan land use map which extends through the subject property. This was not discussed in our July 9, 2001 memo to you. The land use map shows a proposed roadway extending from Kulanihakoi Street in a north south orientation linking Hoonani Street and Kapuhau Place.

We note that such a roadway is not discussed in the State's Kihei Traffic Master Plan done by Kaku Associates, nor is it part of any roadway improvements planned or contemplated by our department.

If you have any questions, please feel free to call me.

MA:jso
s:\milton\waipuilani estates

ATTACHMENT "2"

CHRIS HART
& PARTNERS, INC.

November 19, 2001

Mr. John Min
Director
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Min:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Enclosed please find our response to the State Department of Education's (DOE) letter dated June 13, 2001. As discussed in the attached letter, we believe that the DOE's assessment violates the Equal Protection Clause, under the Fourteenth Amendment to the United States Constitution, and is therefore unlawful. As such, we are requesting that the State Attorney General's (AG) Office issue an opinion as to whether the subject fees are legal and can be required as a developer assessment by the State and County.

Please note that **we are prepared to pay the subject education assessment,** as determined by the DOE, and paid during the purchase of each house and lot at the time of escrow, should it be determined by the AG's office that the fees are being legally applied.

Thank you for your cooperation. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
President

Enclosure
cc. Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

LANDSCAPE ARCHITECTURE AND PLANNING
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CHRIS HART & PARTNERS, INC.

November 15, 2001

Ms. Patricia Hamamoto
Interim Superintendent of Education
State of Hawaii
Department of Education
P.O. Box 2369
Honolulu, Hawaii 96804

Dear Ms. Hamamoto:

Attention: Mr. Stanford Beppu

RE: Special Management Area (SMA) Permit for the 95-lot Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 13, 2001, regarding the above-referenced Special Management Area (SMA) Permit Application, which states that: "the applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education (DOE)."

The applicant is willing to contribute to the development, funding, and construction of school facilities, on a fair-share basis, commensurate with the impact caused by the proposed development. However, the applicant believes that the "terms of the contribution", as determined by the DOE, unfairly penalizes developers of projects larger than fifty (50) lots. As we currently understand it, the DOE imposes a requirement that the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is no rational basis to distinguish between projects with more than fifty (50) lots and projects containing less than fifty (50) lots since each project will produce the same per unit impact upon school facilities. Therefore, at a minimum, the first fifty (50) lots should be exempt. Regardless, we believe that the DOE's assessment violates the Equal Protection Clause, under the Fourteenth Amendment to the United States Constitution.

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Based upon our analysis, we believe that the subject education assessment as a condition of our SMA Permit is unlawful. Enclosed please find a legal brief from the applicant's attorney which challenges the legality of the subject fees. We would respectfully like to request that the brief be referred to the State Attorney General's (AG) Office for review and that the AG issue an opinion as to whether the subject fees, as currently assessed, are legal and can be required as a developer assessment by the State and County.

Thank you for your cooperation. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
President

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

DAVID M. JORGENSEN
JOSEPH T. TOMA

WAILUKU, MAUI, HI 96793-2222
(808) 242-4555 FAX: (808) 244-6964

LAW OFFICES OF
ING, HORIKAWA, KUWADA, JORGENSEN & TOMA
a Limited Liability Law Partnership, RLLP

October 9, 2001

Doyle Betsill, President
Betsill Brothers Construction, Inc.
635 Kenolio Road
Kihei, Maui, Hawaii 96753

Re: Waipuilani Estates, Education Impact Fees

Dear Mr. Betsill:

This is in response to your inquiry as to whether the Maui County Planning Commission, hereafter "Planning Commission", can require Betsill Brothers Construction, Inc., hereafter "BBCI", to pay an education "impact fee" of approximately $2,000.00 for each located in the Waipuilani Estates, hereafter the "Project".

Under the facts presented, we answer in the negative.

I. Facts.

We understand the following regarding the Project. BBCI owns that certain parcel of land identified as Tax Map Key No. (2) 3-9-01-09, hereafter the "subject property", and is subdividing the subject property to create fifty-five (55) lots that will be known as Waipuilani Estates. BBCI intends to build dwellings on each of the lots and sell the house and lot packages within price guidelines established by the County of Maui for affordable housing projects.

BBCI applied for a special management area permit, hereafter "SMA Permit", for infrastructural requirements for the Project. The Maui County Planning Department, hereafter the "Planning Department", circulated the application and requested comments from several agencies regarding the application for the SMA Permit. The Hawaii Department of Education, hereafter "DOE", recommended approval of the Project, subject to the condition that BBCI pay the sum of $2,000.00 for each lot located in the Project. The DOE stated that the Project will generate an additional need for education facilities within Kihei, Maui, Hawaii.

The DOE does not impose impact fee for any project containing less than fifty (50) lots. We are unaware of any study conducted by the State of Hawaii which justifies the requested impact fee. Further, the impact fee will be paid to the general fund and not earmarked for any special fund for the construction of an educational facility that will be located in Kihei, Hawaii. Moreover, there is no provision for a refund of the impact fee if the funds are not used within a certain period of time.

II. Analysis.

A. **The DOE's Impact Fee Violates The Equal Protection Clause.**

Under the Fourteenth Amendment to the United States Constitution, the states may not "deny to any person within its jurisdiction the equal protection of the laws." Equal protection analysis focuses on whether the use of various categories produces a discriminatory result The traditional judicial standard of review applied in equal protection cases requires that the classification be reasonably related to a legitimate public objective.

In Park v. Watson, 716 F2d. 646 (9th. Cir. 1983), a dedication requirement was ruled unconstitutional on equal protection grounds. The City of Klamath Falls, Oregon, required the developer to dedicate geothermal well on its property in exchange for the city vacating platted streets. The Ninth Circuit Court of Appeals found that the City of Klamath Falls had treated the developer differently from others and that the requirement imposed by the City of Klamath Falls was not rationally related to the government's interest in platted streets. Therefore, the dedication requirements was found to be unconstitutional.

In the present case, the DOE imposes the requirement the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is not rational basis to distinguish between projects within more than fifty (50) lots and projects containing less than fifty (50) lots.

Based upon the analysis set forth in Park v. Watson, supra, we believe that the DOE's education impact fee is unlawful.

B. **The Proposed Impact Fee Is Unlawful Since It Requires The County of Maui To Assess And Collect Fees For A State Function.**

It is well established that the education of people is the responsibility of the State of Hawaii. Hawaii State Constitution, Article X, Section 1. The administration and management of the coastal zone area is the responsibility of the County of Maui. See, Hawaii Revised Statutes, Section 205A-22 and Maui County Charter, Article VIII, Chapter 8, Section 8-8.4.

It is questionable as to whether the Maui Planning Commission can impose a monetary exaction that funds a responsibility of the State of Hawaii. This is especially so since providing education is not an expressly stated objective or policy of the Coastal Zone Management Act. See, Hawaii Revised Statutes, Section 205-2.

Based upon the foregoing, we question whether the Maui Planning Commission can impose the requirement that BBCI pay an education impact fee for each lot located in the Project.

C. The Proposed Impact Fee Is Unlawful Since It Requires BBCI To Pay For A Disproportionate Cost Of The Education Facility.

It is well established that an impact fee must be proportionate to the cost of the facility that serves those paying the fee. See, Richards and Merriam, Land Dedications, In Lieu Fees and impact Fees: When Are They Legal?, Impact Fees: A Developer's Manual, Appendix D at 509. Several cases have concluded that a regulation that imposes a flat fee or a percentage dedication is unconstitutional on its faces. Frank Ansuini, Inc. v. City of Cranson, 264 A.2d 910 (R.I. 1970); J.E.D. Associates, Inc. v. Town of Atkinson, 432 A.2d 12 (N.H. 1981). The courts have also held that an exaction is unlawful where the exaction was substantially disproportionate to the need generated by the new development. Cupp v. Board of Supervisors of Fairfax County, 489 A.2d 1091 (Me. 1985). Hawaii law relating to impact fees provides in part as follows:

> A county council considering the enactment of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.
>
> The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.
>
> The pro rata amount of each impact fee shall be based upon the development of actual capital cost of public facility expansion, or a reasonable estimate thereof, to be incurred by the county.
>
> The impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred by the county in accommodating the development. Hawaii Revised Statutes, Section 46-143.

In the present case, the State of Hawaii has not provided an assessment study that justifies the request for a monetary assessment of approximately $2,000.00 for each lot in the project. The DOE's request does not satisfy the constitutional and statutory requirements for impact fees. Therefore, the DOE's request is unlawful and should be rejected.

D. **The Proposed Impact Fee Is Unlawful Since Funds Are Not Segregated To Construct The Education Facility.**

It is well established that an impact fee is unlawful unless the funds collected are segregated from general funds and earmarked for the facility for which they were collected. Contractor and Builders Association of Pinellas County v. City of Dunedin. 358 So.2d 846 (Fla.Dist. Ct. App. 1978), cert denied 370 S0. 2d. 458, cert. Denied 444 U.S. 867 (1979). In City of Dunedin, supra, the Florida Supreme Court struck down a sewer and water impact fee ordinance that failed to sufficiently restrict the funds collected by the City of Dunedin for the sewer and water improvements that were to be constructed from the impact fee. In Home Builders and Contractors Association of Palm Beach County, Inc. v. Board of County Commissioners of Palm Beach County, 446 So.2d 140 (Fla Dist. Ct.App. 1983), an impact fee ordinance was declared to be unlawful since ordinance did not specify the period of time by which the collected fees had to be spent. The Hawaii law relating to impact fees provides in part as follows:

> Within six years of the date of *collection*, the impact fees shall be expended or encumbered for the construction of public facility capital improvements that are consistent with the needs assessment study and of reasonable benefit to the development. Hawaii Revised Statutes, 46-144.

In the present case, the DOE has not identified the school that will be constructed with funds collected from impact fee assessed for the Project. We assume that a special fund was not created for fee collected by the DOE or that said funds are restricted for the construction of a school facility. We are also unaware of the time frame by which funds collected by the DOE will spent for the construction of an educational facility.

Based upon the foregoing, we believe that the proposed education impact fee is unlawful.

III. Conclusion

Based upon the foregoing, we believe that the impact fee proposed by the DOE is, under the assumed facts, unlawful.

Please contact me if you have any questions concerning the aforementioned.

Very truly yours,

PAUL L. HORIKAWA

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DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE WAILUKU, HAWAII 96793

JAMES "KIMO" APANA
Mayor

FLOYD S. MIYAZONO
Director

ELIZABETH D. MENOR
Deputy Director

(808) 270-7230
FAX (808) 270-7934

November 5, 2001

RECEIVED
NOV 15 2001
CHRIS HART & PARTNERS
Landscape Architecture & Planning

Mr. Christopher L. Hart, ASLA
Chris Hart and Partners
1955 Main Street, Suite 200
Wailuku, Hawaii 96793

Dear Mr. Hart:

SUBJECT: SPECIAL MANAGEMENT AREA PERMIT FOR THE WAIPUILANI ESTATES SINGLE FAMILY RESIDENTIAL PROJECT
TMK: (2) 3-9-001:009

This is in response to your letter dated October 3, 2001 requesting reconsideration of the park dedication requirements for the above referenced project. Please be advised that we will accept the1.094 acre parcel for park dedication purposes contingent on the following conditions:

1. The parcel be developed with an automated irrigation system, grassing, landscaping, an approximately 2500 square foot tot lot with impact absorbing rubberized surface, a paved half-court basketball court with backboard, and picnic facilities. The aforementioned improvements shall be constructed in accordance with plans submitted to and approved by the Director of Parks and Recreation.

2. An 8 foot wide asphalt concrete paved bicycle path be constructed within the park and the adjacent detention basin.

3. On street parking for five (5) full-size cars be provided along the roadway abutting the park parcel.

4. The park parcel be privately owned, privately maintained, and open for use by the general public.

5. The Department of Parks and Recreation will support a resolution for approval by the Maui County Council for waiver for construction of a restroom and off-street parking on the site.

Thank you for your interest on this matter. Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development, at 270-7387 should you have any other questions.

Sincerely,

FLOYD S. MIYAZONO
Director

c: Patrick Matsui, Chief of Planning and Development
John Min, Director of Planning
Doyle Betsill, Betsill Brothers Construction, Inc.
Warren Unemori, Unemori Engineering, Inc.

CHRIS HART
& PARTNERS, INC.

December 7, 2001

Mr. Floyd S. Miyazono, Director
County of Maui
Department of Parks and Recreation
1580-C Kaahumanu Avenue
Waikuku, Hawaii 96793

Attention: Mr. Patrick Matsui, Parks Planner

Dear Mr. Miyazono:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated November 5, 2001, which states that you will accept the proposed 1.103-acre Waipuilani Estates neighborhood park for park dedication purposes, subject to conditions. The applicant is agreeable to all of the conditions stated in your letter and has incorporated them into the attached Waipuilani Estates Neighborhood Park Master Plan (Revised: 12/07/01).

We appreciate your favorable review of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect and Planner

Enclosures

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Warren S. Unemori. Warren S. Unemori Engineering Inc.
Project File

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

BENJAMIN J. CAYETANO
GOVERNOR

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

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:

STP 8.0108

November 29, 2001

RECEIVED
DEC - 5 2001
CHRIS HART & PARTNERS
Landscape Architecture & Planning

Mr. John E. Min
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Waipuilani Estates
Special Management Area Permit (SMA)
TMK: 3-9-001: 009

Comments to the April 2001 SMA Permit application for the subject project were previously provided by our letter of September 11, 2001, STP 8.0019. The applicant's traffic consultant has since revised the Traffic Impact Analysis Report and resubmitted it for our review. We have also met with the consultant to discuss his revisions.

We have the following comments:

1. The developer should be responsible for providing their pro rata share of required regional transportation improvements.

2. The State Department of Transportation intends to restrict turning movements at the Piilani Highway/Kulanihakoi Road intersection to right-turns in and right-turns-out with the widening of Piilani Highway to four lanes.

3. We do not necessarily agree with the traffic consultant's interpretation that the unsignalized intersection of Piilani Highway/Kulanihakoi Road is operating at an "overall" Level-of-Service (LOS) of A. The accepted technical methodology for evaluating unsignalized intersections, as documented in the Highway Capacity Manual, identifies the LOS of individual turning movements and does not provide for an "overall" unsignalized intersection of LOS.

We appreciate the opportunity to provide comments.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: Chris Hart & Partners, Inc.

CHRIS HART & PARTNERS, INC.

December 7, 2001

Mr. Brian K. Minaai
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

RE: Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential (TMK: (2) 3-9-001:009)

Thank you for your letter dated November 29, 2001, regarding the above-referenced Special Management Area (SMA) Permit Application. In response to your letter, we offer the following comments.

1. The applicant is agreeable to paying a pro rata share of regional transportation improvements as determined by the County through a traffic impact fee ordinance.

2. We understand that turning movements at the Piilani Highway/Kulanihakoi Road intersection will be restricted to right-turns in and right-turns out with the widening of Piilani Highway to four lanes.

3. Pursuant to your letter, we understand that the most recent edition of the Highway Capacity Manual does not provide for an "overall" unsignalized intersection LOS. However, previous editions of the Highway Capacity Manual did provide for such an analysis, using a weighted average vehicle delay for all traffic movements. The Traffic Impact Analysis Report, Table 3 (page 12), includes an analysis of the levels-of-service of the overall intersection, as well as, controlled movements. As such, inclusion of the overall intersection delay and level-of-service did not affect the report's findings, conclusions, or recommendations.

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect and Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Philip Rowell, Philip Rowell & Associates, Inc.
Project File

Appendix – H
Comment and Response Letters in Response to Draft Supplemental Environmental Assessment

Comment and Response Letters

1. Ms. Rosemarie E. Labanowski
2. Department of the Army, U.S. Army Engineer District
3. State of Hawaii, Department of Health, Maui District Health Office
4. United States Department of Agriculture, Natural Resources Conservation Service
5. County of Maui, Department of Housing and Human Concerns
6. State of Hawaii, Office of Environmental Quality Control
7. State of Hawaii, Department of Land and Natural Resources, Engineering Division
8. County of Maui, Department of Water Supply
9. State of Hawaii, Department of Education
10. County of Maui, Police Department
11. County of Maui, Department of Public Works and Waste Management
12. State of Hawaii, Department of Transportation
13. State of Hawaii, Department of Health
14. Maui Bicycle Club/Maui Bike Alliance
15. County of Maui, Department of Fire Control

CHRIS HART
& PARTNERS, INC.

January 16, 2003

Ms. Rosemarie E. Labanowski
P.O. Box 1214
Kihei, HI 96753

Dear Ms. Labanowski:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated August 27, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment.

In response to your letter, please find the attached letter dated December 17, 2002, from Mr. Phillip Rowell, Phillip Rowell & Associates, which addresses many of the traffic related concerns you expressed about the proposed project.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

Enclosure

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

John Min
Attention: Julie Higa
Department of Planning
250 S. High Street
Wailuku, HI 96793

August 27, 2002

'02 SEP -6 P2:39

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Aloha John Min,
This is in regards to the Waipulani Estates development. I am an owner of a unit at Haleakala Gardens. I am writing this because I am unable to attend the meeting on Tuesday, August 27, 2002. I do have some access/ roadway concerns:

1. Kulanihakoi Street should have a few speed bumps to slow motorist down. Quite of few times I have pulled out of my apartment complex after looking properly only to have been met with a speeding vehicle only inches from mine. We need speed bumps. The Waipulani development will bring more traffic, more speeders and accidents. Speed bumps will curtail these traumatic events.
2. There is no mention in the paper work that was sent to me of a left hand turn lane into the development on Kulanihakoi Street. A turn lane would alleviate any traffic congestion.
3. The planners should be made to have a third access to the development. The right turn in only and right out only is a great idea. But a third entrance on the east side of the property accessing the "future roadway reserve" must be mandatory. A pedestrian access is insufficient. They should redistribute the land on the east side of the project before the land is sold to make room for the third entrance. The future residents and the residents situated along Kulanihakoi will find the distribution of vehicular traffic a relief. The residents in the development will most likely use the exit often to go down to the shopping centers.

The developers should be contributing funds for the speed bumps, turn lanes and to the future roadway so that taxpayers shouldn't have to take on this entire burden.

Mahalo,
Rosemarie E. Labanowski
Rosemarie E Labanowski

P.O. Box 1214
Kihei, HI 96753
808-875-8654

Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@gte.net

December 17, 2002

Chris Hart & Partners
1955 Main Street, Suite 200
Wailuku, Maui, HI 96793-1706

Attn: Mike Summers

Re: Waipuilani Estates
Response to Comment Letter
Rosemarie E. Labanowski
Dated August 27, 2002

Dear Mike:

Per your request, the following is my response to the comment letter referenced above. The responses are numbered to correspond with the comments in the letter.

1. The traffic report addressed the issue of traffic calming on page 29. The traffic report did not recommend traffic calming measures for Kulanihakoi Road "because these traffic control measures should be installed only after the County's petition requirements have been satisfied." This procedure should be followed so that any traffic calming devices installed have been requested by and are acceptable to a majority of the affected residents.

2. A separate left turn storage lane along Kulanihakoi Road was not recommended because of the following:

   a. The level-of-service without a separate left turn storage lane is Level-of-Service (LOS) A, which is the highest level-of-service on the scale of A through F.

   b. The number of left turning vehicles is 9 during the morning peak hour and 37 during the afternoon peak hour. The level-of-service analysis determined that the 95th percentile queue length is less than one vehicle.

   c. The width of Kaulanihakoi Road at the intersection with the project's driveway is wide enough to allow traffic to pass a left turning vehicle as parking is prohibited within the intersection area.

3. A third driveway for the project along the future North-South Collector was considered and then removed from the plan for the following reasons:

   a. If this additional driveway was provided, traffic would be able to use the project's roadway as a bypass for Kulanihakoi Road. This would increase the amount of traffic along the internal streets of the project which were no being designed to accommodate this type or amount of traffic.

   b. We wanted to keep the number of driveways along the North-South Collector to a minium in order to facilitate traffic flow along the collector.

   c. We wanted to minimize the number of driveways into and out of the project for security reasons but also have sufficient capacity to not adversely impact traffic operations at the remaining intersections.

If you have additional comments, do not hesitate to contact me.

Very truly yours,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

BETSILL_RESPONSE1.WPD

CHRIS HART
& PARTNERS, INC.

January 16, 2003

Mr. James Pennaz, P.E.
Chief, Civil Works
Department of the Army
U.S. Army Engineer District
Honolulu, Fort Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 12, 2002, regarding the above-referenced Special Management Area Permit, which confirmed that a DA permit is not required for the project and that the flood hazard information provided in the Environmental Assessment is correct.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

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

REPLY TO
ATTENTION OF: CEPOH-EC-T

November 12, 2002

'02 NOV 13 PM 2:29

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Civil Works Technical Branch

Ms. Julie M. Higa, Staff Planner
Department of Planning
County of Maui
250 South High Street
Wailuku, Maui 96793

Dear Ms. Higa:

Thank you for the opportunity to review and comment on the Special Management Area Application and Environmental Assessment (EA) for the Waipuilani Estates Project, Kihei, Maui (TMK 3-9-1: 9). Thefollowing comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit will not be required for the project.

b. The flood hazard information provided on page 13 of the EA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

CHRIS HART
& PARTNERS, INC.

January 16, 2003

Mr. Herbert S. Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Maui District Health Office
54 High Street
Waikuku, Hawaii 96793

Dear Mr. Matsubayashi:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 12, 2002, regarding the above-referenced Special Management Area Permit Application, which stated that you do not have additional comments regarding the above-referenced application.

Thank you for your consideration of the application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Planner - Architect

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H
MAUI DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

'02 NOV 13 A10 :34

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

November 12, 2002

Mr. John Min
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Min:

Subject: **Waipuilani Estates**
TMK: (2) 3-9-1:009
EA 2002/0009, CPA 2002/0010, SM1 2002/0018

Thank you for the opportunity to comment on the resubmitted application for the Waipuilani Estates project. We do not have comments to add; our comments remain the same as documented in the letter to the Department of Planning dated June 22, 2001.

Should you have any questions, please call me at 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

CHRIS HART
& PARTNERS, INC.

March 24, 2003

Mr. Neal S. Fujiwara
District Conservationist
United States Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793

Dear Mr. Fujiwara:

RE: Follow-up Letter to January 16, 2003, Letter Regarding Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

This is provided to clarify our letter of January 16, 2003, regarding the above-referenced application.

In your letter dated November 12, 2002, you stated that the proposed landscaped open space park/detention basin should be prioritized as a detention basin first and landscaped open space park second. As noted in our earlier letter, the proposed open space park/detention basin has been incorporated into the project in order to accommodate runoff from the site. More specifically, the proposed park/retention basin within the proposed subdivision will be designed to accommodate the increase in surface runoff from the entire Waipuilani Gulch drainage basin, including the project site, during a 100 year-24 hr. storm. Using the U.S. Department of Agriculture, Soil Conservation Service (SCS) TR-20 Hydrograph Method for computing the 100-year recurrence interval, 24 hour duration storm, our calculations indicate that the total post development surface runoff rate for Waipuilani Gulch will be approximately 9,393 cfs. The park/retention basin will be designed to accommodate the increase in surface runoff rate from 9,388 to 9393 cfs, due to the development.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

CHRIS HART
& PARTNERS, INC.

January 16, 2003

Mr. Neal S. Fujiwara
District Conservationist
United States Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793

Dear Mr. Fujiwara:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 12, 2002, regarding the above-referenced Special Management Area Permit Application.

Please note that the proposed open space park/detention basin has been incorporated into the project in order to accommodate runoff from the site. The subject area will also be utilized for the recreational benefit of the project's residents and surrounding community. The proposed recreational improvements will not interfere with the use of the site as a detention basin. The proposed open space park/detention basin will be designed to hold and retain small amounts of runoff as well as large amount in order to mitigate any potential significant impact to water quality along the Kihei coastline.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

021 607

United States Department of Agriculture

USDA

NRCS Natural Resources Conservation Service

Our People...Our Islands...In Harmony

210 Imi Kala Street, Suite #209, Wailuku, HI 96793-2100

Date: November 12, 2002

Mr. John E. Min, Director
County of Maui
Department of Planning
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min,

SUBJECT: Waipulani Estates; TMK: 3-9-001: 009
I.D. No.: EA 2002/0009, CPA 2002/0010, SM1 2002/0018

The landscaped open space park/detention basin is fine, however, the area should be prioritized as a detention basin first and landscaped open space park second. The open space park should be designed to hold and retain small amounts of runoff as well as large amounts to benefit water quality along the Kihei coastline.

Thank you for the opportunity to comment.

Sincerely,

Neal S. Fujiwara
District Conservationist

CHRIS HART
& PARTNERS, INC.

February 24, 2003

Ms. Alice L. Lee, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Lee:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 13, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area Permit Application. We are pleased to address your comments as follows.

The R-O Zero Lot Line Overlay District (Chapter 19.84) provides developers with density bonuses, and other incentives, that make it more feasible to provide affordable housing within the County. As such, we strongly support the purpose and intent of this district. Please note that fifty percent of the proposed units will be priced at or under the definition of "affordable housing" as established in Section 18.04.055, MCC

Thank you for your consideration of our application. Should you have any questions, please call myself, or Mr. Michael Summers, Staff Planner, of this office.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction , Inc.
Project File ✓

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

Mayo
ALICE L. LEI
Directo
PRISCILLA P. MIKELI
Deputy Directo

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165

12/6/17

November 13, 2002

'02 NOV 15 A9:43

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

TO: JULIE M. HIGA, Staff Planner
Department of Planning

FROM: ALICE L. LEE, Director
Department of Housing and Human Concerns

SUBJECT: I.D. NO. EA 2002/0009, CPA 2002/0010 & SM1 2002/0018
TMK: 3-9-001:009
PROJECT NAME: WAIPUILANI ESTATES
OWNER: MR. LARRY SORIANO C/O WESTERN PIONEER, INC.,
SEATTLE, WA.
APPLICANT: MR. DOYLE BETSILL, PRESIDENT
BETSILL BROTHERS CONSTRUCTION

We have reviewed the Supplemental Draft Environmental Assessment, Special Management Area Permit application and Community Plan Amendment application for the subject project and would like to offer the following comments:

1. Section 19.84.010A3 of the Maui County Code states that one of the purposes of the zero lot line overlay concept is to offer incentives to provide affordable housing by increasing density and expediting development processing.

2. Section 19.84.010B of the Maui County Code states in part that the intent of the zero lot line overlay district is to encourage affordable housing as defined in Title 18 of the Maui County Code by allowing the directors or public works and planning to increase densities in the underlying zoning district based on criteria and standards established by the Maui County council as provided therein.

3. Section 18.04.055 of the Maui County Code defines "Affordable Housing" as "long-term residential developments to be marketed for sale or for rental for a ten-year period within the price range established by the housing finance and development corporation of the State of Hawaii for persons or families whose incomes are identified as one hundred forty percent or less of the area median income for the County of Maui for an adjusted family size as determined by the Department of Housing and Urban Development of the United States of America."

4. Based on the Housing and Community Development Corporation of Hawaii's (successor agency to the Housing Finance and Development Corporation) affordable housing guidelines for the year 2002, the affordable selling price for a family whose income is one hundred forty percent of the County's median income (as established by HUD) is $293,000 (for a three person family) and $325,600 for a four person family). These selling prices are based on a 30 year fixed-rate loan with a 6.25% interest rate and assuming a 5% downpayment.

   The application shows that the anticipated price range for the units in the project is $195,000 - $290,000.

Thank you for the opportunity to comment. We are returning the application for your use.

ETO:df

Enclosure

c: Housing Administrator

CHRIS HART
& PARTNERS, INC.

January 17, 2003

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

Dear Ms. Salmonson:

RE: Supplemental Draft Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 18, 2002, regarding the above-referenced Supplemental Draft Environmental Assessment.

Pursuant to your request, the Supplemental Final Environmental Assessment will list all required permits and approvals for the project and will provide the status of each. In addition, page 5 of the cultural impact assessment report has been inserted into Appendix C.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

Enclosure

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

'02 NOV 19 A8:16

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

November 18, 2002

John Min
Maui Planning Department
250 South High Street
Wailuku, HI 96793

Attn: Julie Higa

Dear Mr. Min:

Subject: Supplemental draft environmental assessment (EA) for **Waipuilani Estates**

In the final EA list all required permits and approvals for this project and give the status of each.

Page 5 of the cultural impacts assessment report (Appendix C) is missing. Please include it in the final EA.

If you have any questions, please call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Chris Hart

Nov 19 02 07:13a Dept. of Health (OEQC) (808) 586-4186 p.1

CHRIS HART
& PARTNERS, INC.

January 30, 2003

Mr. Sterling Yong
State NFIP Coordinator
Department of Land and Natural Resources
Engineering Division
P.O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Yong:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 20, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit Application.

In response to your letter, please find the attached letter dated January 17, 2003, from Mr. Warren Unemori, Warren S. Unemori, Engineering, Inc., which addresses the National Flood Insurance Program (NFIP) requirements you noted. Furthermore, the following sentence on page 13 of the application has been corrected to read as follows:

"In addition, prospective buyers within the flood plain will receive notice that their homes are located within a flood zone."

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect - Planner

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren S. Unemori, Warren S. Unemori Engineering, Inc.
Project File

WARREN S. UNEMORI ENGINEERING, INC. Civil & Structural Engineers • Land Surveyors
Wells Street Professional Center • 2145 Wells Street, Suite 403 • Wailuku, Maui, HI 96793 TEL: (808) 242-4403 FAX: (808) 244-4856

January 17, 2003

Mr. Sterling Young
State NFIP Coordinator
Department of Land and Natural Resources
Engineering Division
P.O. Box 373
Honolulu, HI 96809

RECEIVED
JAN 28 2003
CHRISTART & PARTNERS

Re: Waipuilani Estates
Kihei, Maui TMK 3-9-001:009

This is in reference to your letter of November 20, 2002 to Ms. Julie M. Higa, staff planner at the Maui County Planning Department.

This letter is to acknowledge that the developer is aware that the project will be subject to NFIP regulations as set forth in Title 44, Chapter 1, Article 60.3 Code of Federal Regulations (44 CFR 60.3).

With respect to the specific applicable regulations you have cited, the developer has or will be taking the following actions:

@ 60.3 (C) (2) - We have been informed by the County Codes Administration's office that the beams and or floor joists, supporting the floor system have to be at least 12 inches above the Flood Plain Elevation (FPE). The developer has agreed to comply.

@ 60.3 (C) (5) - The developer has agreed to comply fully with this requirement.

@ 60.3 (C) (10) - Developer retained the services of Engineering Methods and Application (EMA) of Jacksonville, Florida to verify the existing FPE and also to determine what impact constructing the homes on poles or poured in place columns to raise them above the FPE would be. Their study indicated that there will be no change in the FPE. Consequently, they have issued a No-Rise Certification with supporting calculations for the proposed project. Three (3) copies of the No-Rise Certification Report were submitted to the Planning Director on December 16, 2002.

Notification of all prospective buyers. Corrected sentence.

"In addition, prospective buyers within the flood plain will receive notice that their homes are located within a flood zone."

As you can see, the developer is conscientiously trying to comply with all County, State and Federal Regulations on this project. If you are aware of any other CFR we may have overlooked, please let us know. I'm confident the Developer will make every effort to comply provided he can move along with this much-delayed project. Your cooperation will be appreciated.

Sincerely,

Warren S. Unemori

cc: Mike Summers
Julie Higa
Doyle Betsill

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BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

02/6224

GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
ENGINEERING DIVISION
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
P.O. BOX 373
HONOLULU, HAWAII 96809

'02 NOV 21 P12:56

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

NOV 20 2002

Ms. Julie M. Higa, Staff Planner
Maui County Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Higa:

Waipuilani Estates, Kihei, Maui (TMK 3-9-001:009)

Thank you for the opportunity to review the *Application for Special Management Area Permit and Community Plan Amendment (August 2002)* for the subject project.

We concur that the project site is located with Special Flood Hazard Areas (SFHAs) A3, AO, and C according to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) panel 265C (effective September 6, 1989). The National Flood Insurance Program (NFIP) does not have specific development regulations within Zone C, however they do regulate development with Zones A3 and AO.

Based on the proposed action, as described in the SMA application, the proposed development will be subject to NFIP regulations as set forth in Title 44, Chapter 1, § 60.3 of the Code of Federal Regulations (44CFR60.3). Specific regulations applicable, but not limited, to Waipuilani Estates Subdivision are as follows:

§60.3(c)(2) *"Require that all new construction and substantial improvements of residential structures within Zones A1-30, AE and AH zones on the community's FIRM have the lowest floor (including basement) elevated to or above the base flood level ..."*

§60.3(c)(5) *"Require for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designated to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.*

Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum

criteria: A minimum of two openings having a total net are of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. ..."

Based on the five (5) proposed floor plans illustrated in the application, it appears that they all have attached garages. Please refer to FEMA's Technical Bulletins 1-93 and 7-93 for the applicability of §60.3(c)(5) requirement to attached garages.

§60.3(c)(10) *"Require until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community"*

Upon determination of a regulatory floodway, all prospective buyers shall be also notified of this possible development constraint.

In addition, please make the necessary correction(s) to the following sentence: *"In addition, prospective buyers will receive notice if the be provided if the property is located within a flood zone will receive notice that their homes are located with a."* as referenced from page 13 of the application [*§III(A)(4)*].

Please be aware that Title 44 of the Code of Federal Regulations indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. Should you have any questions, please contact me in Honolulu at (808) 587-0248.

Sincerely,

Sterling Yong

STERLING YONG
State NFIP Coordinator

CT:ek

c: Francis Cerizo, County of Maui, Department of Planning
Cynthia McKenzie, FEMA Region IX

CHRIS HART
& PARTNERS, INC.

March 25, 2003

Mr. George Tengan
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-6109

Dear Mr. Tengan:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated March 13, 2003, which provides additional information regarding the status of the Iao and Waihee Aquifer systems.

Based upon your letter, the applicant understands that there is no guarantee that water will be available for the proposed project and that discretionary approvals do not represent a commitment to provide water.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

March 13, 2003

RECEIVED
MAR 21 2003
CHRIS HART & PARTNERS
Landscape Architecture & Planning

Mr. Chris Hart
Chris Hart & Partners, Inc.
1955 Main Street, Suite 200
Wailuku HI 96793

Dear Mr. Hart:

SUBJECT: Draft Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Proposed Waipuilani Estates Single Family Residential - 96 lot development
TMK: (2) 3-9-001:009

This is in response to your letter of January 20, 2003. We would like to clarify the issue you raised regarding groundwater withdrawals from the Iao and Waihee Aquifers.

As stated in our previous letters, these aquifers, with sustainable yields of 20 and 8 MGD, respectively, are the major sources of water in the Central Maui System. As of February, 2003, rolling annual average groundwater withdrawals from the Iao aquifer were **17.249 MGD**. Rolling annual average groundwater withdrawals from the Waihee aquifer for the same period were 5.011MGD. One of the criteria for the automatic designation of the Iao aquifer by the State Commission on Water Resource Management is **if pumpage exceeds 18 MGD**. Please note that pumpage fluctuates according to demand. Iao aquifer is only 751,000 gpd short to designation. Waihee aquifer will be automatically designated if water level elevation drops below 6 feet at the Kanoa test hole.

The applicant claims that 6.488 MGD is currently available from these aquifers for future use. The November, 2002 pumpages mentioned in our letter were data for that period alone and not carried over to succeeding months. As of September, 2002 update, anticipated demand for open projects with discretionary approvals on this system was over 8 MGD. Of these, 3.7 MGD worth were informed that they may have to develop source. Outstanding water meter reservations on the Central Maui system as of October, 2002 total about 415,000 GPD The department is taking steps to protect the long term viability and sustainability of these aquifers by developing new sources, groundwater protection, watershed protection as well as water conservation awareness through the distribution of low flow fixtures and requiring low flow fixtures for new developments, to name a few.

Our letter of June 13, 2001 states that "the applicant should be made aware that no guarantee of water is granted or implied as a result of these comments". As such discretionary approvals do not represent a commitment to provide water other than a water meter or meter reservation.

Should you have any questions, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,

George Y. Tengan
Director

eam
c: Engineering Division
Applicant,
Planning Department

CHRIS HART
& PARTNERS, INC.

January 20, 2003

Mr. George Tengan
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-6109

Dear Mr. Tengan:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter from prior director, Mr. David Craddick, dated November 22, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area Permit Application.

Based upon your letter we understand that the rolling annual average groundwater withdrawls from the Iao and Waihee aquifers as of November 1, 2002, were 21.512 MGD. Your letter also states that the regulatory sustainable yield of these aquifers combined is 28 MGD. As such, approximately 6.488 MGD is currently available from the Iao and Waihee aquifers for future uses. According to your June 13, 2001, letter, the proposed 96-lot Waipuilani Estates subdivision is anticipated to utilize approximately 80,700 gpd, which is approximately 1.24% of the currently available resource. The applicant understands that the current waster system and development fees are $6,030 per lot for 5/8 inch meter.

Attached please find our letter of August 15, 2001, which addresses your Departmental comments dated June 13, 2001.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File ✓

CHRIS HART & PARTNERS, INC.

August 15, 2001

Mr. David Craddick
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-6109

Dear Mr. Craddick:

RE: Special Management Area (SMA) Permit Application for the Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 13, 2001, regarding the above-referenced Special Management Area Permit Application.

In response to your letter, we offer the following comments:

1. Projected Water Demand. Pursuant to your letter, we understand that empirical data indicates that water use for single-family lots in the Kihei area average 841 gpd per service, which would suggest that the proposed 96-lot development would utilize approximately 80,700 gpd.

2. Water Availability. We note that your Department, at the time of application for water meter or meter reservation, will review water availability for our project. Final domestic, fire, and irrigation calculations will be provided at the time that building permits are submitted.

3. Dust Control. Use of brackish and/or reclaimed water sources will be encouraged for dust control during the construction period.

4. Water and Fire Protection Improvements. The applicant will provide fire and domestic service improvements that comply with County standards.

5. Conservation Measures. In addition to the conservation measures identified in our application, we will incorporate the additional conservation measures you

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1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

have listed with regards to maintenance of leaks and the use of efficient irrigation systems.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Rory Frampton
Principal Planner

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File✓

'02 NOV -4 A10:24

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

October 29, 2002

Ms. Kivette Caigoy, Staff Planner
County of Maui
Planning Department
250 South High Street
Wailuku HI 96793

Project Name: Maui Costco Wholesale
TMK: 3-8-79:022
ID: SM1 2002/0019

Dear Ms. Caigoy:

Thank you for the opportunity to review this application.

The Costco property is currently served by two 2-inch meters. The increase in consumption for the proposed 12,320 square feet expansion would be about 1,700 gallons per day (gpd) based on system standards, excluding any irrigated landscaping. Domestic and irrigation calculations must be submitted during the building permit process to determine meter adequacy.

The property has a on-site fire protection system. Fire flow calculations will be required in the building permit process.

In order to conserve water, we recommend that the applicant implement the following water conservation measures where appropriate:
Eliminate Single-Pass Cooling: Single-pass, water-cooled system should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air-conditioners, freezers, and commercial refrigerators.
Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also available.
Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.
Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan" - Plant Zone 3. We encourage the applicant to increase the use of native, climate-adapted plants in any landscape expansions. Native plants conserve water and protect the watershed from degradation due to invasive alien species.

NOV-18-02 02:58pm From-DEPT OF PLANNING COUNTY OF MAUI 808-242818 T-648 P.04/13 F-285

Please refer to the attached brochure: "Saving Water In The Yard - What and How to Plant In Your Area". Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Should you have any questions, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
cmb

c: engineering division
applicant w/attachments:

"The Costly Drip"
"Saving Water in the Yard-What and How to Plant in your Area"
A Checklist of Water Conservation Ideas For Commercial Buildings
Ordinance 2108 - An Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code

Nov-18-02 02:58pm From-DEPT OF PLANNING COUNTY OF MAUI 808-242818 T-648 P.05/13 F-285

CHRIS HART & PARTNERS, INC.

February 24, 2003

Mr. Raynor M. Minami, Director
Facilities and Support Services Branch
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Minami:

Attention: Ms. Heidi Meeker

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated November 26, 2002, regarding the above-referenced Special Management Area (SMA) Permit.

We have still not received a response to our letter of November 15, 2001, from the Department of Education regarding the legality of the educational assessment you are requiring (See Attachment). In our November 15, 2001, letter, we contend that the subject fees, as currently assessed, are illegal and cannot be required as a developer assessment by the State and County. In light of the fact that we have not received a response to our letter in over fifteen months, we respectfully request that a response be provided by March 15, 2003.

Thank you for your cooperation. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Russell Suzuki, Deputy Corporation Council, State Attorney General's Office
Project File ✓

CHRIS HART & PARTNERS, INC.

November 15, 2001

Ms. Patricia Hamamoto
Interim Superintendent of Education
State of Hawaii
Department of Education
P.O. Box 2369
Honolulu, Hawaii 96804

Dear Ms. Hamamoto:

Attention: Mr. Stanford Beppu

RE: Special Management Area (SMA) Permit for the 95-lot Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009)

Thank you for your letter dated June 13, 2001, regarding the above-referenced Special Management Area (SMA) Permit Application, which states that: "the applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education (DOE)."

The applicant is willing to contribute to the development, funding, and construction of school facilities, on a fair-share basis, commensurate with the impact caused by the proposed development. However, the applicant believes that the "terms of the contribution", as determined by the DOE, unfairly penalizes developers of projects larger than fifty (50) lots. As we currently understand it, the DOE imposes a requirement that the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is no rational basis to distinguish between projects with more than fifty (50) lots and projects containing less than fifty (50) lots since each project will produce the same per unit impact upon school facilities. Therefore, at a minimum, the first fifty (50) lots should be exempt. Regardless, we believe that the DOE's assessment violates the Equal Protection Clause, under the Fourteenth Amendment to the United States Constitution.

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Based upon our analysis, we believe that the subject education assessment as a condition of our SMA Permit is unlawful. Enclosed please find a legal brief from the applicant's attorney which challenges the legality of the subject fees. We would respectfully like to request that the brief be referred to the State Attorney General's (AG) Office for review and that the AG issue an opinion as to whether the subject fees, as currently assessed, are legal and can be required as a developer assessment by the State and County.

Thank you for your cooperation. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
President

cc. Mr. John E. Min, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

JOSEPH T. TOMA

WAILUKU, MAUI, HI 96793-2222
(808) 242-4555 FAX: (808) 244-6964

LAW OFFICES OF
ING, HORIKAWA, KUWADA, JORGENSEN & TOMA
a Limited Liability Law Partnership, RLLP

October 9, 2001

Doyle Betsill, President
Betsill Brothers Construction, Inc.
635 Kenolio Road
Kihei, Maui, Hawaii 96753

Re: Waipuilani Estates, Education Impact Fees

Dear Mr. Betsill:

This is in response to your inquiry as to whether the Maui County Planning Commission, hereafter "Planning Commission", can require Betsill Brothers Construction, Inc., hereafter "BBCI", to pay an education "impact fee" of approximately $2,000.00 for each located in the Waipuilani Estates, hereafter the "Project".

Under the facts presented, we answer in the negative.

I. Facts.

We understand the following regarding the Project. BBCI owns that certain parcel of land identified as Tax Map Key No. (2) 3-9-01-09, hereafter the "subject property", and is subdividing the subject property to create fifty-five (55) lots that will be known as Waipuilani Estates. BBCI intends to build dwellings on each of the lots and sell the house and lot packages within price guidelines established by the County of Maui for affordable housing projects.

BBCI applied for a special management area permit, hereafter "SMA Permit", for infrastructural requirements for the Project. The Maui County Planning Department, hereafter the "Planning Department", circulated the application and requested comments from several agencies regarding the application for the SMA Permit. The Hawaii Department of Education, hereafter "DOE", recommended approval of the Project, subject to the condition that BBCI pay the sum of $2,000.00 for each lot located in the Project. The DOE stated that the Project will generate an additional need for education facilities within Kihei, Maui, Hawaii.

The DOE does not impose impact fee for any project containing less than fifty (50) lots. We are unaware of any study conducted by the State of Hawaii which justifies the requested impact fee. Further, the impact fee will be paid to the general fund and not earmarked for any special fund for the construction of an educational facility that will be located in Kihei, Hawaii. Moreover, there is no provision for a refund of the impact fee if the funds are not used within a certain period of time.

II. Analysis.

A. **The DOE's Impact Fee Violates The Equal Protection Clause.**

Under the Fourteenth Amendment to the United States Constitution, the states may not "deny to any person within its jurisdiction the equal protection of the laws." Equal protection analysis focuses on whether the use of various categories produces a discriminatory result The traditional judicial standard of review applied in equal protection cases requires that the classification be reasonably related to a legitimate public objective.

In Park v. Watson, 716 F2d. 646 (9th. Cir. 1983), a dedication requirement was ruled unconstitutional on equal protection grounds. The City of Klamath Falls, Oregon, required the developer to dedicate geothermal well on its property in exchange for the city vacating platted streets. The Ninth Circuit Court of Appeals found that the City of Klamath Falls had treated the developer differently from others and that the requirement imposed by the City of Klamath Falls was not rationally related to the government's interest in platted streets. Therefore, the dedication requirements was found to be unconstitutional.

In the present case, the DOE imposes the requirement the developer pay an "impact fee" for subdivision projects containing more than fifty (50) lots; however, a similar requirement is not imposed upon projects containing less than fifty (50) lots. There is not rational basis to distinguish between projects within more than fifty (50) lots and projects containing less than fifty (50) lots.

Based upon the analysis set forth in Park v. Watson, supra, we believe that the DOE's education impact fee is unlawful.

B. **The Proposed Impact Fee Is Unlawful Since It Requires The County of Maui To Assess And Collect Fees For A State Function.**

It is well established that the education of people is the responsibility of the State of Hawaii. Hawaii State Constitution, Article X, Section 1. The administration and management of the coastal zone area is the responsibility of the County of Maui. See, Hawaii Revised Statutes, Section 205A-22 and Maui County Charter, Article VIII, Chapter 8, Section 8-8.4.

It is questionable as to whether the Maui Planning Commission can impose a monetary exaction that funds a responsibility of the State of Hawaii. This is especially so since providing education is not an expressly stated objective or policy of the Coastal Zone Management Act. See, Hawaii Revised Statutes, Section 205-2.

Based upon the foregoing, we question whether the Maui Planning Commission can impose the requirement that BBCI pay an education impact fee for each lot located in the Project.

C. **The Proposed Impact Fee Is Unlawful Since It Requires BBCI To Pay For A Disproportionate Cost Of The Education Facility.**

It is well established that an impact fee must be proportionate to the cost of the facility that serves those paying the fee. See, Richards and Merriam, Land Dedications, In Lieu Fees and impact Fees: When Are They Legal?, Impact Fees: A Developer's Manual, Appendix D at 509. Several cases have concluded that a regulation that imposes a flat fee or a percentage dedication is unconstitutional on its faces. Frank Ansuini, Inc. v. City of Cranson, 264 A.2d 910 (R.I. 1970); J.E.D. Associates, Inc. v. Town of Atkinson, 432 A.2d 12 (N.H. 1981). The courts have also held that an exaction is unlawful where the exaction was substantially disproportionate to the need generated by the new development. Cupp v. Board of Supervisors of Fairfax County, 489 A.2d 1091 (Me. 1985). Hawaii law relating to impact fees provides in part as follows:

> A county council considering the enactment of impact fees shall first approve a needs assessment study that shall identify the kinds of public facilities for which the fees shall be imposed. The study shall be prepared by an engineer, architect, or other qualified professional and shall identify service standard levels, project public facility capital improvement needs, and differentiate between existing and future needs.
>
> The data sources and methodology upon which needs assessments and impact fees are based shall be set forth in the needs assessment study.
>
> The pro rata amount of each impact fee shall be based upon the development of actual capital cost of public facility expansion, or a reasonable estimate thereof, to be incurred by the county.
>
> The impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred by the county in accommodating the development. Hawaii Revised Statutes, Section 46-143.

In the present case, the State of Hawaii has not provided an assessment study that justifies the request for a monetary assessment of approximately $2,000.00 for each lot in the project. The DOE's request does not satisfy the constitutional and statutory requirements for impact fees. Therefore, the DOE's request is unlawful and should be rejected.

D. **The Proposed Impact Fee Is Unlawful Since Funds Are Not Segregated To Construct The Education Facility.**

It is well established that an impact fee is unlawful unless the funds collected are segregated from general funds and earmarked for the facility for which they were collected. Contractor and Builders Association of Pinellas County v. City of Dunedin. 358 So.2d 846 (Fla.Dist. Ct. App. 1978), cert denied 370 S0. 2d. 458, cert. Denied 444 U.S. 867 (1979). In City of Dunedin, supra, the Florida Supreme Court struck down a sewer and water impact fee ordinance that failed to sufficiently restrict the funds collected by the City of Dunedin for the sewer and water improvements that were to be constructed from the impact fee. In Home Builders and Contractors Association of Palm Beach County, Inc. v. Board of County Commissioners of Palm Beach County, 446 So.2d 140 (Fla Dist. Ct.App. 1983), an impact fee ordinance was declared to be unlawful since ordinance did not specify the period of time by which the collected fees had to be spent. The Hawaii law relating to impact fees provides in part as follows:

> Within six years of the date of collection, the impact fees shall be expended or encumbered for the construction of public facility capital improvements that are consistent with the needs assessment study and of reasonable benefit to the development. Hawaii Revised Statutes, 46-144.

In the present case, the DOE has not identified the school that will be constructed with funds collected from impact fee assessed for the Project. We assume that a special fund was not created for fee collected by the DOE or that said funds are restricted for the construction of a school facility. We are also unaware of the time frame by which funds collected by the DOE will spent for the construction of an educational facility.

Based upon the foregoing, we believe that the proposed education impact fee is unlawful.

III. Conclusion

Based upon the foregoing, we believe that the impact fee proposed by the DOE is, under the assumed facts, unlawful.

Please contact me if you have any questions concerning the aforementioned.

Very truly yours,

PAUL L. HORIKAWA

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SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

'02 NOV 29 P1:03

DEPT OF PLANNING
COUNTY OF MAUI

OFFICE OF BUSINESS SERVICES

November 26, 2002

Mr. John E. Min
Planning Director
County of Maui
250 South High Street
Wailuku, Hawai`i 96793

ATTN: Ms. Julie M. Higa, Planner

Dear Mr. Min:

Subject: Waipuilani Estates - Draft Supplemental Environmental Assessment
Kihei, Hawai`i, TMK: 3-9-001:009

The Department of Education (DOE) has reviewed the Draft Supplemental Environmental Assessment and applications for Special Management Area (SMA) permit and Community Plan Amendment (CPA) for the 95 single-family residences on approximately 20 acres of land in Kihei, Maui.

The DOE is assured that Betsill Brothers Construction (Applicant) is willing to contribute to the development, funding, and construction of school facilities commensurate with the impact caused by Waipuilani Estates.

The DOE requests that the county include DOE's standard condition for residential developments. The proposed wording of the condition is:

> The Applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education. Terms of the contribution shall be agreed upon in writing by the Applicant and the Department of Education prior to the issuance of building permits for any area of development.

The DOE has no other comment on the applications and appreciates the opportunity to review the plans. Should you have any questions, please call Ms. Heidi Meeker of our branch at 733-4862.

Sincerely yours,

Raynor M. Minami, Director
Facilities and Support Services Branch

RMM:hy

cc: A. Suga, OBS

LINDA LINGLE
GOVERNOR

MARK J. BENNETT
ATTORNEY GENERAL

RICHARD T. BISSEN, JR.
FIRST DEPUTY ATTORNEY GENERAL

STATE OF HAWAII
DEPARTMENT OF THE ATTORNEY GENERAL
235 S. BERETANIA STREET, ROOM 304
HONOLULU, HAWAII 96813
(808) 586-1255

March 3, 2003

Mr. Christopher L. Hart, ASLA
Landscape Architect-Planner
1955 Main Street, Suite 200
Wailuku, Maui, Hawaii 96793-1706

Dear Mr. Hart:

I understand that you are awaiting a letter from our office regarding the Department of Education's determination of impacts caused by your proposed project on lands located in a Special Management Area (SMA)(Waipuilani Estates).

Please be advised that this office cannot provide you with legal advice. Hawaii Revised Statutes §28-4 provides that the attorney general advises "heads of departments, district judges, and other public officers, in all matters connected with their public duties . . ." We do not provide legal advice to private citizens. The Department of Education has developed and implements an impact criteria which is designed to rationally determine direct impacts caused by projects such as yours. We cannot agree with your conclusion that such a determination is unconstitutional. Indeed, without addressing the impacts that projects such as yours have to the community and the State, it would be irresponsible land use planning to allow such projects and pass the impacts on to the public. In that senario the developer would obtain a windfall by being able to develop lands which were not designated for such developments and thereby maximize the value of their property at the expense of the public.

Very truly yours,

Holly T. Shikada
Deputy Attorney General

c: Mr. Raynor Minami

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RECEIVED
MAR 4 2003

[redacted]
LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

RECEIVED
MAR 12 2003
CHRIS HART & PARTNERS
Landscape Architecture & Planning

Office of Administrative Services
[redacted]

March 10, 2003

Mr. Christopher L. Hart
Chris Hart & Partners, Inc.
1955 Main Street, Suite 200
Wailuku, Hawai'i 96793-1706

Dear Mr. Hart:

Subject: Waipuilani Estates
Draft Supplemental Environmental Assessment
Kihei, Maui, Hawai'i, TMK: 3-9-1:9

The Department of Education (DOE) assumes by now that you have received a letter dated March 3, 2003 from Ms. Holly T. Shikada of the Department of Attorney General (AG). Ms. Shikada's letter stated that she finds our Fair-Share Contribution program to be constitutional and legal.

The DOE is pleased that we received a response from the AG. I hope that we can now proceed with Maui County's evaluation of your Draft Supplemental Environmental Assessment and applications. The DOE continues to be assured that Betsill Brothers Construction is willing to contribute towards school facilities that would serve children living at Waipuilani Estates. We continue to request that Maui County include DOE's standard condition for residential developments in its determination of your applications.

Should you have any questions, please call Ms. Heidi Meeker of our branch at 733-4862.

Thank you.

Sincerely yours,

Raynor M. Minami, Director
Facilities and Support Services Branch

RMM:hy

cc: Rae M. Loui, OAS
Holly Shikada, AG
Mike Foley, Maui County Department of Planning
Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

January 16, 2003

Mr. Thomas M. Phillips
Chief of Police
Police Department
County of Maui
55 Mahalani Street
Wailuku, Hawaii 96793

Dear Mr. Phillips:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated December 3, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit. We are pleased to address your comments as follows.

1. Impact on Police. We concur that the proposed project will increase the population of the immediate area and will therefore increase the need for and demand on police services. However, in the context of the overall projected population growth for the Kihei-Makena region, the proposed project will not result in an overall significant increase in population and will therefore not significantly impact existing police and fire protection services.

2. Crime Prevention Through Environmental Design (CPTED). We acknowledge that lighting, access control, and building and landscape design play an important role in the potential for crime. The applicant is willing to work with the Police Department to incorporate CPTED principles into the project.

3. Homeowner Association. Please note that prior to sale of units within the project, a homeowners association will be formed and all owners within the project will be required to be members of the association.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File ✓

POLICE DEPARTMENT
COUNTY OF MAUI

JAMES "KIMO" APANA
MAYOR

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

OUR REFERENCE
YOUR REFERENCE ti

December 3, 2002

DEC -6 P12:30

MEMORANDUM

TO : JOHN E. MIN, PLANNING DIRECTOR

FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE

SUBJECT : I.D.: EA 2002/0009 CPA 2002/0010, SM1 2002/0018
TMK: 3-9-001:009
Project Name: Waipuilani Estates
Applicant: Mr. Doyle Betsill, President, Betsill Brothers Construction

____ No further recommendation or comment is necessary or desired.

__X__ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project.

Assistant Chief Robert Tam Ho
For: THOMAS M. PHILLIPS
Chief of Police

Enclosure

COPY

TO : THOMAS M. PHILLIPS, CHIEF OF POLICE

VIA : CHANNELS

A-4 12/4/02

FROM : O. NONEZA, JR., COMMUNITY POLICE OFFICER

SUBJECT : WAIPUILANI ESTATES

This officer has reviewed the Application for Special Management Area Use Permit and Community Plan Amendment submitted by BETSILL BROTHERS CONSTRUCTION for WESTERN PIONEER INCORPORATED. Based on this review, this officer makes the following comments and recommendations.

IMPACT ON POLICE

The applicant states there will be no adverse impact on current infrastructure by this development while stating that the property is now vacant.

With this development, there will be increased opportunity for criminal conduct against people and valuable personal property which will increase the need for and demand on police services.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

Wherever people live and possess personal property, the opportunity for crime exists. Studies have shown that the eventuality of crime is directly impacted by the criminal's perception of the location they desire to "work."

CPTED is a framework whereby the design and building of structures, landscaping, and lighting are interwoven to increase surveillance, limit accessibility, and increase opportunities for apprehension resulting in a decrease in the likelihood of crime.

This officer recommends that the applicant use "best practices" in CPTED when developing this project. This officer is available to assist the applicant in matters of this nature.

HOMEOWNER ASSOCIATION

Many police calls for service to single-family home neighborhoods are about matters that should not involve the police. They are civil in nature and best dealt with through mediation-type settings.

This officer has worked with such neighborhoods, some which have or some which have no viable homeowners association finding that those with operating associations improve neighbor-to-neighbor relations and deal with such non-criminal matters more effectively. This officer further finds that homeowner associations improve police to public communications.

Therefore, this officer recommends that the applicant's project include the formation of a homeowner association which all owners are required to participate in.

If there are any comments about the contents contained herein, please contact this officer at 264-5598.

Respectfully submitted,

Orlino NONEZA, Jr. E-0865
November 29, 2002 0125-Hours

CONCUR WITH OFF. NONEZA'S COMMENTS.

SGT. NICOLAS JR
12/2/02 0750

Noted
LT. D. Matsuura
12/2/02

CHRIS HART
& PARTNERS, INC.

February 24, 2003

Mr. Gilbert Colama-Agaran
Director
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Agaran:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter from prior director, Mr. David Goode, dated December 4, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit Application.

In response to your Departmental letter, we offer the following comments.

1. As requested, a Solid Waste Management Plan will be prepared and submitted to your office prior to the initiation of ground altering activities.

2. We understand that although wastewater system capacity is currently available the developer cannot be ensured that capacity will be available until the issuance of the building permit.

3. We understand that wastewater contribution calculations are required before a building permit is issued.

4. We understand that the developer is required to pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees.

5. We understand that the developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.

6. We understand that the installation of a single service lateral and advanced riser for each lot is required.

7. As requested, final plans will indicate the ownership of each easement. Moreover, we understand that the County will not accept sewer easements that traverse private property.

8. We understand that a Hold-Harmless Agreement is required before the Wastewater Reclamation Division will give recommendations for final subdivision approval.

9. A 5-foot road-widening lot will be provided for the adjoining half of South Kihei Road to provide for a future 60-foot wide right-of-way. Per your letter dated July 9, 2001, we understand that County improvements on South Kihei Road are already included as part of the South Kihei Road Phase IV project. As for the North-South Collector Road, it is our understanding that a 60-foot wide right-of-way currently exists and that further right-of-way is not required.

10. All structures, such as walls, trees, etc., will be removed or relocated from the road-widening strip fronting South Kihei Road. As requested, the rear boundaries of the road-widening strip will be clearly marked.

11. A final detailed drainage master plan and erosion-control plan including, but not limited to hydrologic and hydraulic calculation and scheme for controlling erosion and disposal of runoff water shall be submitted to the Department of Public Works and Environmental Management, Engineering Division, for its review and approval. The drainage master plan will provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties. In addition, the applicant is willing to make a pro-rata share contribution to drainage improvements in accordance with the applicable County ordinance and Master Plan requiring such a contribution and provided further that the contribution is collected within a reasonable period of time. Furthermore, the applicant understands that an agreement to the above shall be filed with the State's Bureau of Conveyances.

12. The applicant understands that traffic-calming devices shall be designed and constructed on all internal subdivision roads as approved by the Engineering Division.

13. The applicant understands that construction of the proposed project shall comply with Chapter 20.08, Maui County Code (MCC), the grading ordinance and the Maui County drainage rules. Best Management Practices such as

measures to control erosion, sediment, and dust will be provided and maintained during construction.

14. The applicant understands that the drainage plan must address the transmission of the offsite flows and the capture and storage of the additional flows generated by on-site improvements. The plan will comply with the provisions of the drainage rules whereby there shall be no additional adverse effects to adjacent and downstream properties by the development.

15. The applicant understands that roadway improvements shall be required per the provisions of MCC, Section 16.26.3304, "Improvements to Public Streets".

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren Unemori Engineering, Inc.
Project File ✓

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

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

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

JOHN D. HARDER
Solid Waste Division

December 4, 2002

02 DEC -5 P2:19

MEMO TO: JOHN E. MIN, PLANNING DIRECTOR

FROM: for DAVID GOODE, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: **COMMUNITY PLAN AMENDMENT, ENVIRONMENTAL ASSESSMENT SPECIAL MANAGEMENT AREA PERMIT APPLICATION WAIPUILANI ESTATES TMK: (2) 3-9-001:009 EA 2002/0009, CPA 2002/0010, SM1 2002/0018**

We reviewed the subject application and have the following comments:

1. Submit Solid Waste Management Plan of Actions described in Section C.5, Page 25.

2. Although wastewater system capacity is currently available as of November 18, 2002, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.

3. Wastewater contribution calculations are required before a building permit is issued.

4. Developer shall pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees.

5. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.

6. Plans should show the installation of a single service lateral and advanced riser for each lot.

7. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.

8. A Hold-Harmless Agreement should be executed. Signed agreement is required before the Wastewater Reclamation Division will give recommendations for final subdivision approval.

9. Any applicable road-widening lot shall be provided for the adjoining half of South Kihei Road and the North-South Collector Road. Required improvements shall be coordinated with the Department's proposed projects on both roadways. Applicable road widening and improvements shall be determined by the Department and provided by the applicant at no cost to the County.

10. All structures, such as walls, trees, etc., shall be removed or relocated from the road-widening strip. The rear boundaries of the road-widening strip shall be clearly marked to determine if said structures have been properly removed and relocated.

11. A final detailed drainage master plan and erosion-control plan including, but not limited to hydrologic and hydraulic calculation and scheme for controlling erosion and disposal of runoff water shall be submitted to the Department of Public Works and Environmental Management, Engineering Division, for its review and approval. The drainage master plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties. In addition, the developer shall contribute his pro-rata share to drainage improvements to be determined by the County and the drainage master plan. An agreement to the above prepared for filing with the State's Bureau of Conveyances shall be submitted by the applicant.

12. Traffic-calming devices shall be designed and constructed on all internal subdivision roads as approved by the Engineering Division.

13. Construction of this project shall comply with Chapter 20.08, Maui County Code (MCC), the grading ordinance and the Maui County drainage rules. Best Management Practices such as measures to control erosion, sediment, and dust shall be provided and be maintained during construction.

14. It is noted that there are no adequate outlets in the area. Also, much of the offsite flows through Waipuilani Gulch are not contained within the drainageway that runs through the parcel, but instead, the runoff sheet flows across the parcel towards South Kihei Road. The drainage plan shall address the transmission of the offsite flows and the capture and storage of the additional flows generated by onsite improvements. The plan shall comply with the provisions of the drainage rules whereby there shall be no additional adverse effects to adjacent and downstream properties by the development.

15. Roadway improvements shall be required dependent upon the adjacent roadway width and frontage improvements per the provisions of MCC, Section 16.26.3304, "Improvements to Public Streets".

If you have any questions regarding this memo, please call Milton Arakawa at Ext. 7845.

DG:RMN:sw
S:\LUCA\CZM\WaipuilaniEstates-sm1.wpd

CHRIS HART & PARTNERS, INC.

February 20, 2003

Mr. Rodney Haraga
Director of Transportation
State of Hawaii, Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Haraga:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit in Support of Waipuilani Estates (TMK: (2) 3-9-001:009)

Thank you for your letter dated December 16, 2002, regarding the above-referenced applications. In response to your letter, we offer the following comments.

1. As per our December 7, 2001, letter the applicant is agreeable to paying a pro rata share of regional transportation improvements as determined by the County through a traffic impact fee ordinance.

2. The TIAR has been revised and is attached. Our traffic consultant, Mr. Phillip Rowell, Phillip Rowell & Associates, contacted the Maui District Office to determine the lane configuration for the intersection of Piilani Highway at Kulanihakoi Road and was advised that all movements would be allowed and that a refuge lane would be provided for eastbound to northbound left turns. The revised TIAR calculations are based on this lane configuration rather than that referenced in your letter dated December 16, 2002.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Christopher L. Hart, ASLA
Landscape Architect and Planner

LANDSCAPE ARCHITECTURE AND PLANNING
[illegible] STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

cc. Mr. Michael W. Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Phillip Rowell, Phillip Rowell & Associates, Inc.
Project File

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Acting Deputy Director
GLENN M. OKIMOTO

03/9/03

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

IN REPLY REFER TO:

STP 8.0636

'03 FEB 18 P1:49

DEPT OF PLANNING
COUNTY OF MAUI

February 7, 2003

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: Waipuilani Estates
Environmental Assessment (EA 2002/0009),
Community Plan Amendment (CPA 2002/0010), and
Special Management Area Use Permit (SM1 2002/0018)
TMK: 3-9-001: 009

This is to advise you that comment #2 in our December 16, 2002 letter (STP 8.0580) regarding the subject development is no longer valid.

As a result of community concerns, our Highways Division has modified planned operations along Piilani Highway to allow left-turn movements at additional locations, including at the Piilani Highway and Kulanihakoi Road intersection. A copy of our Highways Division, Maui District's January 21, 2003 letter is attached for your information.

The Traffic Impact Analysis Report (TIAR) should be revised to reflect these operational changes, and to identify and address any resultant project generated impacts and required mitigation measures. The updated TIAR should serve as the baseline for determining future traffic changes and impacts as the project and surrounding area develop.

Comment #1 in our December 16, 2002 letter remains applicable.

We appreciate the opportunity to provide comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

Attach.

MAR 2003

LINDA LINGLE
GOVERNOR

COPY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MAUI DISTRICT
650 PALAPALA DRIVE
KAHULUI, HAWAII 96732

RODNEY K. HARAGA
DIRECTOR

Acting Deputy Director
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-M 2.021-03

January 21, 2003

Ms. Sheila Batson
3549A Malina Place
Kihei, Hawaii 96753

Dear Ms. Batson:

Thank you for sharing your concerns over the current roadway situation in Kihei. We would like to offer a brief explanation of recent changes implemented under the construction of the Piilani Highway Interim Widening project.

Prior to publishing the Draft Environmental Assessment for the project, we solicited input from all applicable government agencies, utility companies, and community associations. During the review period, concerns were expressed on the proposed left turn restrictions at selected intersections. Also, at the March 2002 public informational meeting, the issue of allowing left turns onto and off Piilani Highway at Kenani Road and Keonekai Road intersections was raised.

Subsequently, we further evaluated the impact of the left turn restrictions. The analysis estimated the net effect of the restrictions would not create over capacity conditions on the side streets or signalized intersections. In the overall context of the interim highway widening project, which is to move existing traffic volumes along Piilani Highway, rerouting the estimated small volume of left turns was acknowledged as not creating a significant adverse impact. In addition, the County had begun the planning and design stages of three more segments of the North-South Collector Road (parallel roadway between South Kihei Road and Piilani Highway) that would provide alternate routes to further distribute traffic. However, due to unforeseen delays, only one segment will be available when the interim highway widening is complete.

As the highway construction project progressed, an increasing number of calls and written communications were received in opposition of the left turn restrictions. We re-evaluated how adverse an impact Piilani Highway would have with left turns allowed at non-signalized intersections. Since the results revealed tolerable conditions, we have allowed left turns at the Piilani/Keonekai intersection with the creation of a "refuge" lane for left turns onto the highway. The Piilani/Kulanikahoi intersection will be modified also to permit left turn movements. The intersection configuration at Piilani/Kenani does not

allow the creation of a "refuge" lane. Therefore, left turns out of Kenani Road will remain restricted while left turns off Piilani Highway onto Kenani Road will still be permitted.

As for the intersection of KeAli Alanui and Kenakanui Road, the left turn restriction was imposed to prevent traffic from quickly backing up to Piilani Highway due to the very short distance. After observing off-peak traffic with surrounding development in place, left turn restrictions will be relaxed outside of the school drop-off and pick-up times. This modification will be implemented by the end of the month.

Finally, we are constructing the interim widening project as expeditiously as possible. The signalized intersection of Piilani Highway and Lipoa Street will soon be modified to have two southbound and two northbound lanes which will allow the "green" phase for Piilani Highway to be shortened so more time can be allotted for Lipoa.

The planning and coordination effort among State, County, consultants, contractor, various agencies, community groups and the general public has been an on-going task. Furthermore, the South Maui region has multiple public and private projects in the planning, design, and construction phases that all affect the roadway network. Despite the complexities involved, we are committed to being attentive to all problems. Thank you for taking the time to dialog with us, and we hope your concerns have been reasonably addressed.

Very truly yours,

Ferdinand Cajigal

FERDINAND CAJIGAL
District Engineer, Maui

CSS:dmf

Feb-28-03 05:06pm From-DEPT OF PLANNING COUNTY OF MAUI
808-242819
T-358 P.02/02 F-843

CHRIS HART
& PARTNERS, INC.

January 30, 2003

Ms. Chiyome L. Fukino, MD.
Director, Department of Health
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Ms. Fukino:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the Waipuilani Estates

Thank you for your letter from prior deputy director, Mr. Gary Gill, dated July 5, 2002, regarding the above-referenced Special Management Area (SMA) Permit Application.

In response to your letter, we offer the following comments:

1. Department of Army Permit. According to the Department of the Army, a Department of Army Permit is not required for this project.

2. Section 401 Water Quality Certification. The applicant will comply with all State and Federal clean water quality requirements applicable to the project.

3. National Pollutant Discharge Elimination System (NPDES). The applicant is aware that an NPDES permit is required for the project.

4. Wastewater. The applicant understands that the project must be connected to the County wastewater sewer system. The applicant will consider utilizing recycled water, where feasible, for the project.

   All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems".

5. Control of Fugitive Dust. Adequate dust control measures that comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust, will be implemented during all phases of construction. Some of these measures will include:

   - Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of least impact.
   - Providing adequate water source on site prior to start-up of construction activities.
   - Landscaping and rapid covering of bare areas, including slopes, beginning with the initial grading phase.
   - Controlling of dust from shoulders, project entrances, and access roads.
   - Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
   - Controlling of dust from debris hauled away from project site.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Project File ✓

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

'02 JUL 10 P12:51

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

In reply, please refer to:
File: 02-145/epo

July 5, 2002

Ms. June Higa, Planner
Department of Planning
County of Maui
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Higa:

Subject: Special Management Area (SMA) Use Permit Application
Waipuilani Subdivision, 62-Lot RO Lot Line Residential
Development on South Kihei Road, Maui Hawaii
Tax Map Keys: 3-9-001: 09 (SM1 2001/007)

Thank you for the opportunity to review and comment on the subject proposal. The SMA application was routed to the various branches of the Environmental Health Administration. We have the following comments.

Clean Water Branch (CWB)

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...", pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act");

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following discharges to waters of the State:

    a. Discharge of storm water runoff associated with industrial activities, as define in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi);

b. Discharge of storm water runoff associated with construction activities that involve the disturbance of five (5) acres or greater, including clearing, grading, and excavation;

c. Discharge of treated effluent from leaking underground storage tank remedial activities;

d. Discharge of once through cooling water less than one million gallons per day;

e. Discharge of hydro-testing water;

f. Discharge of construction dewatering effluent;

g. Discharge of treated effluent from petroleum bulk stations and terminals; and

h. Discharge of treated effluent from well drilling activities.

Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department of Health, Clean Water Branch (CWB) at least thirty (30) days prior to commencement of any discharges to State waters;

3. If construction activities involve the disturbance of one acre or greater, including clearing, grading, and excavation, and will take place or extend after March 10, 2003, an NPDES general permit coverage is required for discharges of storm water runoff into State waters; and

4. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters.

If you have any questions, please contact the Clean Water Branch at (808) 586-4309.

Wastewater Branch (WWB)

The proposed project must be connected to the County wastewater sewer system. It is recommended that recycled water be used for this project wherever possible.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

If you have any questions, please contact the Wastewater Branch at (808) 586-4294.

Clean Air Branch (CAB)

Control of Fugitive Dust

Due to the nature and location of the project there is a significant potential for fugitive dust emissions during the removal, transport, installation and construction activities. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at the site prior to start up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f. Controlling of dust from debris being hauled away from project site.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at (808) 586-4200.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
WWB
CAB
Maui District Health Office

CHRIS HART
& PARTNERS, INC.

January 20, 2003

Mr. Walter S. Enomoto
Acting President
Maui Bicycle Club/Maui Bike Alliance
293 So. Mokapu Street
Kahului, HI 96732

Dear Mr. Enomoto:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated December 9, 2002, regarding the above-referenced Draft Supplemental Environmental Assessment.

Based upon your letter, we understand that you are requesting a 10-feet wide easement along the mauka edge of the subdivision boundary in order to ensure the continuation of the Kihei Greenway in the event that the North-South Collector is constructed as a major four-lane collector roadway.

While we strongly support the provision of an adjacent but separate Kihei Greenway, we strongly object to the North-South Collector being built as a four-lane major collector roadway. The North-South Collector should be built in character with the adjacent residential neighborhoods and should serve as a reliever road to both Piilani Highway and South Kihei Road. It should be acknowledged in the design of the roadway that the North-South Collector will bisect several existing and planned residential communities and that these communities will support numerous families with children. As such, the North-South Collector should be built at a pedestrian scale, (i.e. 2 to 3 lanes) with the incorporation of bike paths, street trees, and sidewalks to both beautify the roadway and make it a viable bicycle/pedestrian connection between Kihei's residential neighborhoods and places of employment, recreation, and shopping.

It is a fact that a four-lane major collector roadway built through the core of Kihei's existing and planned residential neighborhoods would be a gross violation of

nationally recognized smart growth principles, one of which is to create walkable neighborhoods, and will only serve to hinder pedestrian friendly linkages between mauka and makai neighborhoods and the shoreline. A four-lane roadway may also serve to increase vehicular speeding as studies have shown that the most significant relationships to injury accidents are found to be street width and street curvature. As street width widens, accidents per mile per year increase exponentially, and the safest residential street width is the narrowest (i.e. 24 feet)[1]. Moreover, a four-lane roadway may likely increase noise levels by attracting more vehicles into residential areas and will be a visual blight to neighboring properties.

As such, we are not willing to support the construction of a four-lane North-South Collector and we are not willing to provide for the dedication of a 10-feet wide easement that such a roadway would require. In summary, the North-South Collector should be built as a reliever road, incorporating two- or three lanes of traffic, traffic calming devices such as raised crosswalks and roundabouts, and visually appealing features such as street trees and an adjacent but separate Kihei Greenway. Attached for your review are four (4) proposed roadway geometrics that would accomplish these objectives.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

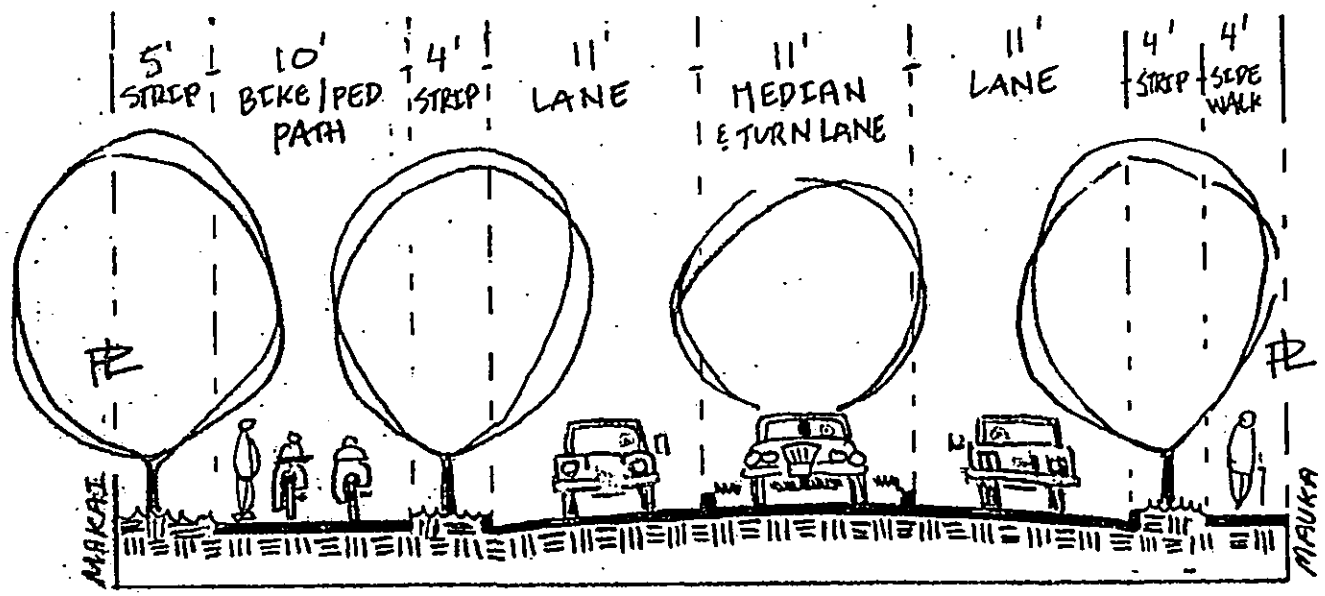
Christopher L. Hart, ASLA
Landscape Architect - Planner

Enclosure

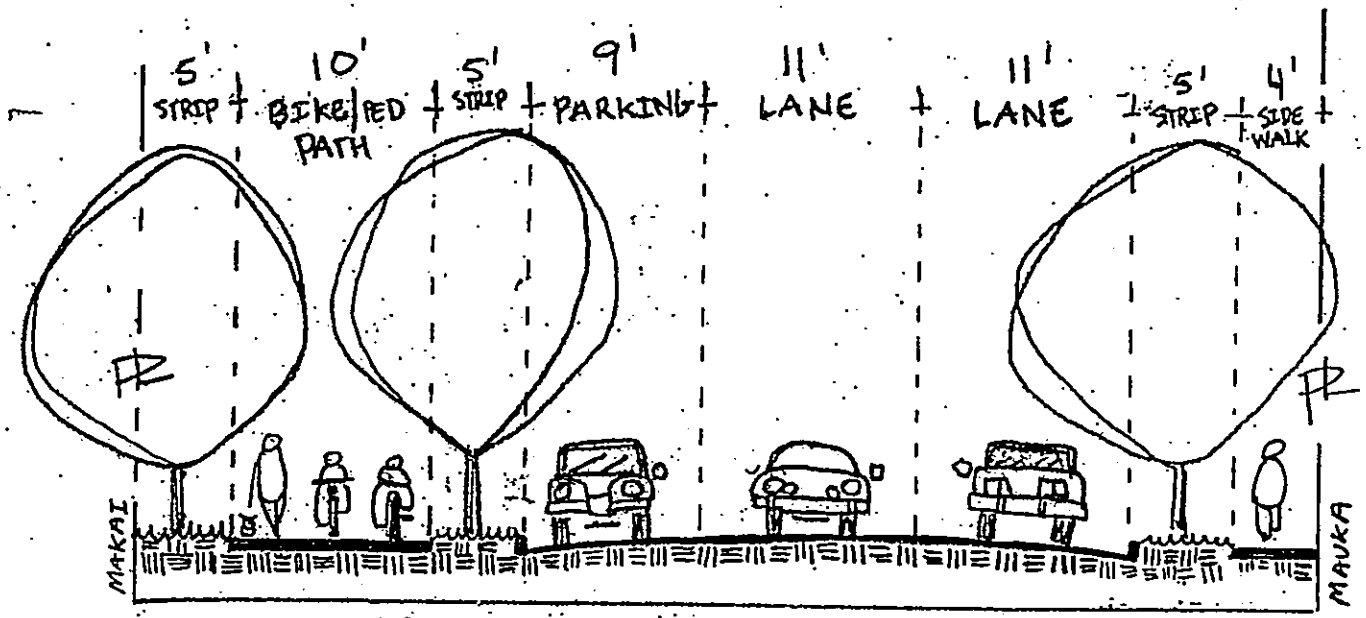
cc. Mr. Mike Foley, Department of Planning
Mr. Alan Arakawa, Mayor
Mr. Wayne Nishiki, Maui County Council
Mr. Mike Molina, Maui County Council
Mr. Gilbert Colama Agaran, Department of Public Works and Waste Management
Mr. Loyd Lee, Department of Public Works and Waste Management, Engineering Division
Ms. Cheryl Zarro, Kihei Community Association
Mr. Warren Unemori, Warren S. Unemori Engineering, Inc.
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.

---

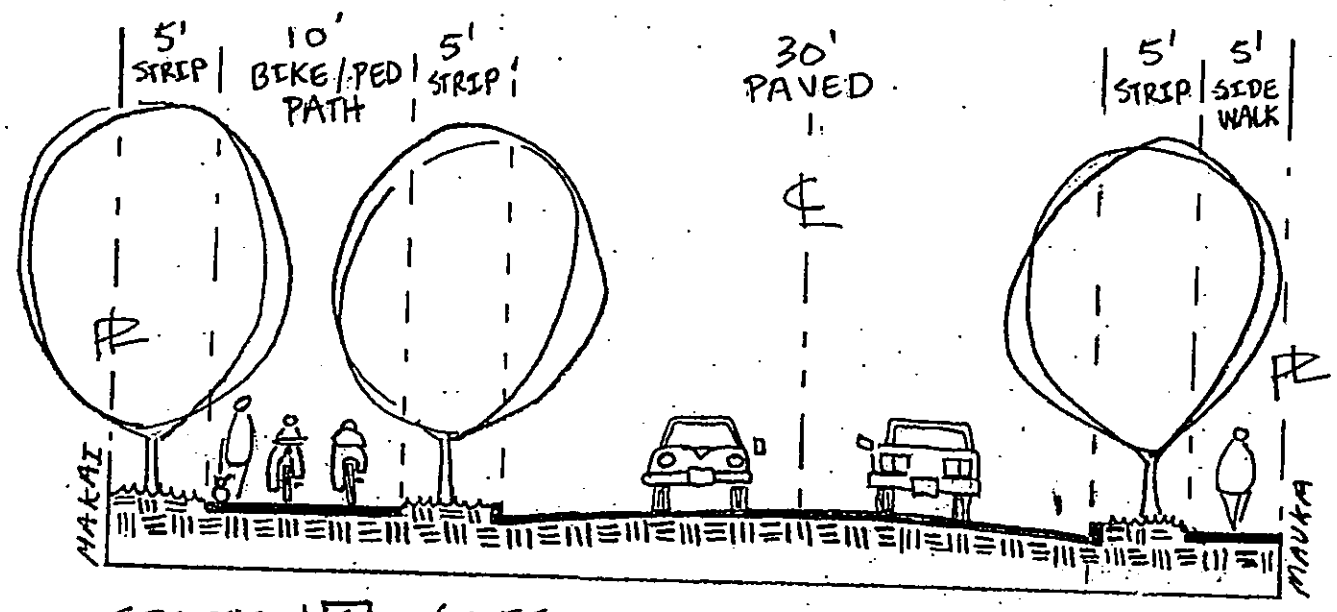
[1] Residential Street Typology and Injury Accident Frequency, by Peter Swift, Swift & Assoc. & Dan Painter, Senior Transportation Planner, City of Longmont CO, 2001.



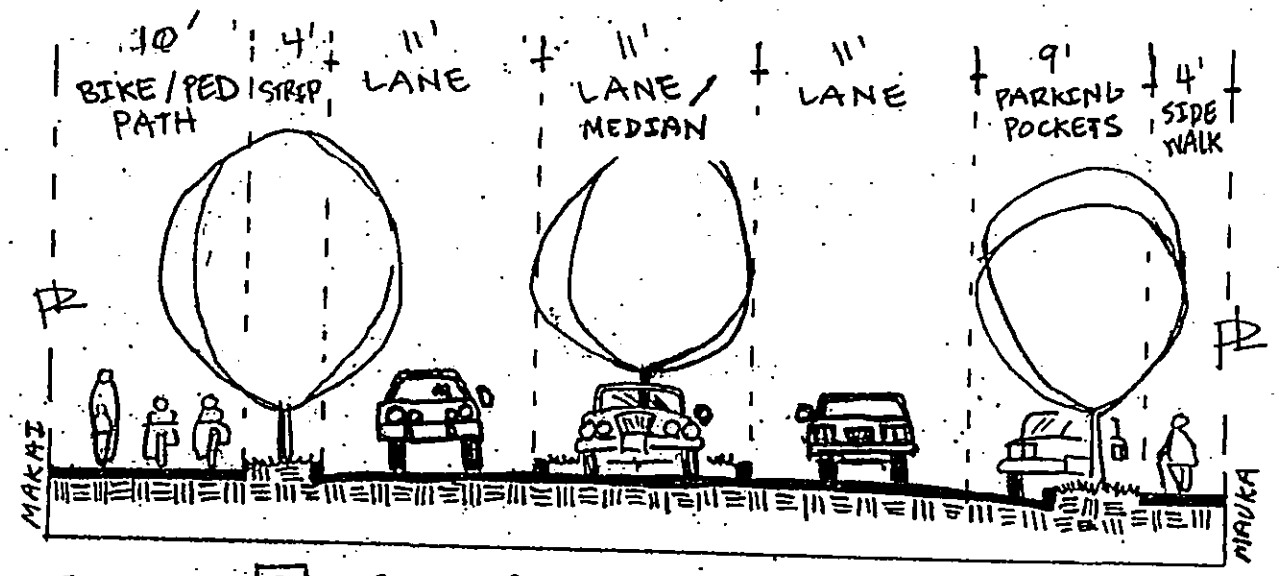
SECTION A - 60 FT. R.O.W.
3 LANES - 2 TRAVEL & 1 MEDIAN / TURN LANE
SEPARATED BIKE / PED PATH



SECTION B - 60 FT. R.O.W.
2 LANES - PLUS 1 PARKING LANE
SEPARATED BIKE / PED PATH.



SECTION C - 60FT R.O.W.
2 LANES
SEPARATED BIKE/PED PATH



SECTION D - 60FT R.O.W.

3 LANES - 2 TRAVEL & 1 MEDIAN/TURNING

SEPARATED BIKE/PED PATH

PARKING LANE ON MAUKA-SIDE

December 9, 2002.

Maui Bicycle Club/Maui Bike Alliance
Walter S. Enomoto
Acting President
293 So. Mokapu St.
Kahului, HI 96732

RECEIVED
DEC 09 2002
CHRIS HART & PARTNERS
Landscape Architecture & Planning

County of Maui
Department of Planning
250 South High St.
Wailuku, HI 96793
Attn: Julie Higa

RE: Waipuilani Estates Supplemental Draft Environmental Assessment Comments.

Dear Mrs. Higa,

On behalf of the 450 members of the Maui Bicycle Club/Maui Bike Alliance , we would like to submit comments on Betsill Brothers Construction Inc. Waipuilani Estate Project.

We request that the County of Maui require the applicant to provide a 10ft right of way easement along the mauka edge of the subdivision boundary. This area would be adjacent to the North-South Collector Road(a.k.a. Liloa Drive) and be dedicated for the continuation the Kihei Greenway north towards Kulanihakoi Road.

We feel that this action is warranted and is part of the Kihei-Makena Community Plan. Page 32, Part III , Section B, "Goals, Objectives and Policies", "Physical and Social Infrastructure", "Transportation", "Implementing Action".states:

> "Preserve and enhance the identity of Kihei's Neighborhoods by designing the north-south collector road in discontinuous segments. Work with landowners, neighborhoods, and community groups to plan and implement an **adjacent but separate** (emphasis added) trail/greenway/bikepath to provide non-motorized public access along the full length of the road reserve."

The problem we foresee is that the North-South Collector /Liloa Drive will be made into a four lane road sometime into the future. When this happens, no right of way will exist for the Kihei Greenway to expand northward because of the lack of space in the County right of way.

While the project's addition of a trail/bikepath connecting Liloa Drive to South Kihei Road is helpful, it still does not address the issue of providing access along the full length of the road reserve, Liloa Drive. The Kihei Greenway will be the **main** corridor for non-motorized transportation in the Kihei area. Continuity is critical for this to occur !! If a choice must be made between providing access between Liloa Drive and South Kihei Road or providing continuity of the Kihei Greenway, we strongly feel that the greenway must take priority.

We mentioned our concerns to both Chris Hart and Doyle Betsill regarding this issue at the public informational meeting on held on August 27th, 2002 at the Trinity By The Sea Chapel.

Neither individual seemed willing to commit to this action when approached by us nor have we had any response or communications with them since then. Our comments and request for this easement is to ensure that this matter is resolved to our satisfaction.

We strongly feel that requiring the applicant to provide the easement **now** will allow for this continuation regardless of any future roadway development along Liloa Drive. This action is needed to ensure the continuation of the Kihei Greenway as linear corridor for bicycle and pedestrian transportation as well as comply with the requirement of a adjacent but separate trail/greenway/bikepath.

On a similar matter, the adjacent project next to this project, Alii Villages Subdivision, has provided this easement along their property to allow for the future expansion of the Kihei Greenway. Not requiring this applicant to do the same would be irresponsible and go directly against what is stated in the community plan.

The first phase of construction of the Kihei Greenway is scheduled to begin in the first or second quarter of 2003. We will be actively working on the continuation of the greenway north of East Waipuilani St. and south of Lipoa St. and will continue to submit our comments and requests regarding this corridor until it is completed.

We would like to thank you for this opportunity to comment on this project and hope to hear from your department and/or the applicant regarding our concerns. I can be reached in the following manners listed below.

Sincerely,

Walter S. Enomoto
Acting President
Maui Bicycle Club/Maui Bike Alliance
293 So. Mokapu St.
Kahului, HI 96732-2633

Phone 877-5947 home
870-0130 cell

wenomoto@juno.com

cc. D.Deleon
R.Spork
D.McGean
J.Bertram

CHRIS HART
& PARTNERS, INC.

March 26, 2003

Mr. Scott English
County of Maui
Department of Fire Control
200 Dairy Road
Kahului, Maui, Hawaii 96732

Dear Mr. English:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

We received a copy of your March 13, 2003, letter to Mr. Howard Hanazawa regarding the preliminary construction plans in support of the Waipuilani Estates Single-Family Residential Project.

Pursuant your letter, we understand that proposed internal roadways, with the incorporation of a cul-de-sac and dead end access road with a 32 feet curb to curb width, will be approved by your office.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

ALAN M. ARAKAWA
MAYOR

RICHARD A. FERNANDEZ
CHIEF

ALAN D. CORDEIRO
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 270-7561
FAX (808) 270-7919

March 13, 2003

Howard Hanzawa
Land Use & Codes Engineering
250 S. High Street
Wailuku, HI 96793

Subject: **Preliminary Construction Plans Review File No. 3.2031**
Waipuilani Subdivision
Kihei
TMK: (2)3-9-001:009

Dear Mr. Hanzawa:

A Preliminary Construction plan (revised) was submitted to this office on March 11, 2003, this construction plan showed the cul-de-sac and dead end access road with a 32 feet curb to curb width. This Construction Plan will be approved by this office with the revision that were submitted.

If you have any questions, you may call me at 270-7122.

Sincerely,

Scott English
Fire Plans Examiner

CHRIS HART
& PARTNERS, INC.

September 4, 2003

Ms. Ruth K. Dodson
Koa Resort, Apt. 4-A
811 South Kihei Road
Kihei, HI 96754

Dear Ms. Dodson:

RE: Draft Supplemental Environmental Assessment, Community Plan Amendment, and Special Management Area (SMA) Permit for the proposed Waipuilani Estates Single-Family Residential Project (TMK: (2) 3-9-001:009).

Thank you for your letter dated June 24, 2003, regarding the above-referenced Draft Supplemental Environmental Assessment.

In response to your letter, please find the attached letter dated September 4, 2003, from Mr. Phillip Rowell, Phillip Rowell & Associates, which addresses many of the traffic related concerns you expressed about the proposed project.

In regards to your concern regarding the impact of closures to Piilani Highway or South Kihei Road on residences that are dependent upon Kulanihakoi Road, please note that modification of Piilani Highway from two to four lanes has had a positive impact on regional traffic conditions since it provides additional northbound and southbound capacity. Similarly, this improvement should also improve operating conditions at the intersection of Piilani Highway at Kulanihakoi Road.

Moreover, there are several roadway improvement projects planned for the study area that should improve traffic conditions along Kulanihakoi Road. A brief discussion of these projects follows:

- It was recently reported that the County will begin construction of the North-South Collector, which is along the eastern boundary of the project. Based on the conclusions and recommendations presented in the *Kihei Master Traffic Plan* and the *Maui Long Range Transportation Plan*, completion of the North-South Collector will have a positive impact on the study intersections since it will attract traffic from Piilani Highway and South Kihei Road.

- A traffic signal is warranted at the intersection of South Kihei Road at Kulanihakoi Road as a result of current conditions. This issue was discussed with the Department of Public Works during a pre-consultation meeting at the beginning of the traffic study. We were advised that since this traffic signal is warranted for existing conditions, it should be assumed that the intersection will be signalized for purposes of the level-of-service analysis for future conditions.

Thank you for your consideration of our application. Should you have any questions, please contact myself, or Mr. Michael Summers, Chris Hart & Partners, at 242-1955.

Sincerely yours,

for Christopher L. Hart, ASLA
Landscape Architect - Planner

Enclosure

cc. Mr. Mike Foley, Department of Planning
Mr. Doyle Betsill, Betsill Brothers Construction, Inc.
Project File

Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@gte.net

September 4, 2003

Chris Hart & Partners
1955 Main Street, Suite 200
Wailuku, Maui, HI 96793-1706

Attn: Mike Summers

Re: Waipuilani Estates TIAR
Response to Comment Letter
Ruth K. Dodson
Dated June 19, 2003

Dear Mike:

Per your request, the following is my response to the comment letter referenced above:

1. Traffic movements at this driveway were restricted to right in and right out to minimize the impacts to north-south vehicular and pedestrian traffic along South Kihei Road. During pre-consultation meetings with the County, it was determined that right in and right out would have the least impact.

2. A connection to Hoonani Street or the North-South Collector was not provided because we wanted to limit the amount of non-residential traffic through the project.

3. Lastly, a connection to the North-South Collector was not provided as the County indicated that they wanted to limit the number of driveways along the Collector to minimize congestion along this new roadway. Therefore, the access to the North-South Collector was limited to pedestrians and bicyclists.

Very truly yours,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

Response4.wpd

DATE: JUNE 19, 2003

TO: PLANNING COMMISSION & PLANNING DIRECTOR

'03 JUN 19 A11 :59

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

FOR: MEETING OF JUNE 24, 2003

FROM: RUTH K. DODSON

RE: WAIPUILANI ESTATES - TMK 3-9-001: 009

The request for both a Community Plan Amendment (for a portion of the above property) and a Special Management Area use (SMA) permit for the entire parcel to develop a 96-Lot, R-0 Lot line overlay concerns me.

The environmental impact statement (EIS), by definition, needs to address the impact to the surrounding properties. One of my many concerns about this project is the increased traffic of 96 more residences using Kulanihakoi as their main access. The attached fact sheet shows that 593 residences are totally dependent on Kulanihakoi. When there is a road closure on either Piilani or South Kihei Road, this road is used as an alternate route for traffic movement and when so used, it totally strands 593 households - sometimes for hours. The developer of Waipuilani Estates also developed a project just north of this road, on a gulch. A rainstorm inundated the gulch, crossed over South Kihei Road and deposited silt in the ocean.

It is my understanding that Kulanihakoi is to be the main access for this project, with only right turns in or out on South Kihei Road. The developer could be required to provide a south-bound holding lane for left turns on South Kihei Road & construct an access road to connect with the proposed North/South connecter road. The Road C parcel should be in its entirety, from Kulanihakoi to Hoonani ~~County~~ with no parking and adequate sidewalks for pedestrians. This would not only give the future residents of the Waipuilani alternative roads but it would also minimize traffic flow on Kulanihakoi that must serve 593 households who have only that one access.

Mahalo for your consideration,

Ruth K. Dodson

Ruth K. Dodson
Koa Resort, 811 South Kihei Road, Apt. 4-A, Kihei, Hawaii 96754

Enc: Fact Sheet

CURRENT USE OF KULANIHAKOI - JUNE 18, 2003

NORTH SIDE OF KULANI AKOI STREET

(9 DRIVEWAYS INCLUDING *PIILANI VILLAGES NORTH SIDE)

1 PIILANI VILLAGES
(1 DRIVEWAY)

12 RESIDENCES ON HAKOI PLACE
(1 DRIVEWAY)

11 RESIDENCES ON WAILALANI
(1 DRIVEWAY)

14 RESIDENCES ON ALANIA
(1 DRIVEWAY)

164 RESIDENCES /HALEAKALA GARDENS
(3 DRIVEWAYS)

55 RESIDENCES @ KOA RESORT
(2 DRIVEWAYS)

SUB-TOTAL = RESIDENCES ONLY ACCESS TO KULANIHAKOI = 256

SOUTH SIDE OF KULANIHAKOI STREET

(6 DRIVEWAYS ON SOUTH SIDE OF KULANIHAKOI)

100 RESIDENCES/PIILANI VILLAGES (TOTAL)
(2 DRIVEWAYS)

36 RESIDENCES/NEW PROJECT-EAST OF CHURCH
(1 OR POSSIBLY 2 DRIVEWAYS)

1 TRINITY -BY-THE SEA CHURCH
(2 DRIVEWAYS)

200 RESIDENCES @ PARADISE GARDENS
(1 DRIVEWAY #ACCESS ALSO FROM SKR)

SUB-TOTAL = RESIDENCES ONLY* ACCESS TO KULANIHAKOI = 337
(*200 RESIDENTS @ PARADISE GARDENS CAN USE SKR)

TOTAL RESIDENCES DEPENDENT ON KULANIHAKOI = 593
TOTAL RESIDENCES WITH ACCESS TO KULANIHAKOI =793
TOTAL DRIVEWAYS =15

Appendix – I
Maui News Articles

The Maui News
Friday, December 7, 2001

Board takes stand against state takeover of Iao aquifer

By HARRY EAGAR
Staff Writer

WAILUKU – The Board of Water Supply took a "strong stand" against state designation of the Iao aquifer at a special meeting Thursday.

Chairman Peter Rice said, "There's no denying there are issues for the board to deal with." But he said he thought the county could deal with them. And he said he thought the State Commission on Water Resource Management would "be happy to hear that Maui has allocated funds to get better information about how to protect the water resource."

Board member Howard Nakamura said, "I think the core issue is what agency is best to manage the aquifer that provides about 80 percent to 85 percent of the water for Central and South Maui. The North Waihee aquifer supplies the rest, though critics such as Jim Williamson, who initiated the petition to designate Iao, say that the two are really one "totally interconnected" water resource.

The critical questions are: Just how much water is available, who is using it and how much capacity, if any, is left?

Well pumping data is supposed to be supplied to the state commission (which issues drilling permits), but the commission has never been able to collect all the reports. "That doesn't give you a whole lot of confidence" that the state could do a better job than the county, Nakamura said.

Board member Orlando Tagorda said, "The best protector of this aquifer is the people of Maui."

Board member Mike Nobriga pointed out that the state designated Molokai for management years ago, and no improvements in supply resulted.

The one dissenter was board member Jonathan Starr, who called it a very tricky issue.

Starr contends that the Department of Water Supply is merely a utility without legal mandate or tools to manage water resources. He supports designation not just of Iao aquifer but of all the county's underground water, so the state can oversee it.

He contends designation of Oahu hasn't prevented the Honolulu Water department from doing what it needs to do.

And he says the county water board has no authority over private wells and no legal mandate to manage water resources.

He reads the State Water Code to mean that the code goes into effect only after an area is "designated for management."

Rice said he doesn't think there is "no law" governing water use. Both the state constitution and the County Charter are adequate for the board's purposes, he said.

There is also a dispute over the facts.

Critics such as Williamson, Starr and Lucienne de Naie allege that water may be coming out of Iao aquifer by private wells, without any record. Craddick says he doesn't know of anyone pumping in Iao aquifer except the county.

However, all agree there are withdrawals occurring near the border of the aquifer. A big pumper is the Depart-

See AQUIFER
on the last page of this section

ALSO SEE . . .
• Hawaiian homesteaders at Waiohuli will be able to begin appying for county building permits within days.
ON PAGE A3

INSIDE

The Maui News can be found online at
http://www.mauinews.com

6 41689 00001 3

Aquifer

Continued from Page A1

ment of Parks & Recreation, to keep Keopuolani Park green. There is disagreement about how much, if at all, that affects water levels in Iao aquifer.

Starr said nearby pumping could be as much as 1.5 million to 2 million gallons a day — a serious amount given that the legal sustainable yield of Iao is 20 mgd and the department is withdrawing about 1.715 mgd. (On a rolling 12-month average, the draw is more in summer, less in winter.)

Last month, the commission had a chance to stop the Maui Meadows Homeowners Association petition to designate Iao, but it chose to continue the process, which could lead to public hearings over the next six months.

Although the county board has traditionally been against designation, it had not taken a formal position on the new petition until Thursday.

Rice said that along with a letter to the commission expressing opposition to designation, he wanted the board to offer its full cooperation in getting more and better data so that the right method of managing the resource could be worked out.

He thanked de Naie for her volunteer effort to present commission water withdrawal data in graphic form for easier understanding, and he suggested the board could find money to continue working along that line.

Tagorda said the board should emphasize conservation and leak detection.

Craddick noted that in the past five years, the "unaccounted" water lost to leaks has declined from a high of 15 percent. The department's full-time leak suppressors have got the loss down to 5 percent, half the average national rate for water transmission systems.

Warren Watanabe, speaking for the Maui County Farm Bureau, which has always opposed designation, said farmers could help with their knowledge of conservation and by reusing water. However, he said the rules governing use of reclaimed water put "all the risk" on agriculture and need to be changed.

Rice said the issue for the board at the special meeting was solely who would be the best manager and whether to support designation. He said questions about how much water is available for what projects in the future were not on the table.

But they were in the back of people's minds and in the front of Dick Mayer's. He pointed out that the County Council will again be looking at the Makena Resort expansion today, a project that would eventually require more than 2 mgd.

Maui has plenty of water, just not in convenient places.

According to Craddick, the capacity of the underground supply is estimated at 476 million gallons per day. Most is in East Maui and more than a quarter of that is in the Hana aquifer.

It would cost big money to bring that to where people live.

The surface water supply is "two or three times" the underground supply, but most is lost. (Not everyone would agree that "lost" is the correct word. Among the many factions competing for Maui's fresh water, there is an environmental group that believes fresh runoff is necessary for the biological health of the at-shore ocean waters.)

East Maui Irrigation captures up to 200 million gallons a day of surface runoff, which is used for irrigating cane and for upcountry farms and homes.

But that, said Craddick, is just 1.5 percent of the water that falls in EMI's catchment area. The rest rushes to the sea, more than 90 percent of it on just six stormy days in the average year. Nahiku Stream has been measured, for a short period, to flow at a rate of 9 billion gallons per day.

But given Maui's topography, capturing and storing such huge spates presents just as big a problem as bringing Hana underground water to the thirsty south side.

Although the department is working to ease the difficulties in Iao by spreading out pumping and by turning more

GOOD MORNING!

The Mau

Maui's Newspaper Since

Traffic plan drafted; moratorium isn't in it

Mayoral panel does list a variety of 'proactive' ideas

By BRIAN PERRY
Staff Writer

WAILUKU — A draft of recommendations by the mayor's Transportation Action Committee calls for synchronizing traffic lights, restriping highway lanes to allow more traffic flow and, in the long term, building new bypass roads.

But the recommendations do not call for a building moratorium in South and West Maui — the most popular traffic-mitigation solution proposed by residents of those resort communities.

Maui County Council Member Mike Molina, a member of the committee and chairman of the council's Public Works and Transportation Committee, said the idea of a building moratorium was discussed among panel members. But they decided it was a complex issue that should be approached cautiously.

A building moratorium was "not considered a serious solution," said Molina, who nevertheless indicated a willingness to discuss the idea being proposed in bills by Council Member Jo Anne Johnson.

There is the legal matter, he said, of a moratorium imposed by the county taking away a property owner's ability to develop and the county becoming liable to compensate the owner for lost property value.

Brian Miskae, an executive assistant to Mayor James "Kimo" Apana, said a building moratorium was given "a lot of consideration."

But, he said, a moratorium is not a solution to the existing traffic problem.

Instead, the mayor's panel focused on "proactive things that could be done."

Those include ideas that have already been implemented, such as coning right-turn afternoon traffic at the inter-

See TRAFFIC
on the next page

Traffic

Continued from Page A1

section of Haleakala and Hana highways and adjusting the timing of traffic lights on Piilani Highway, he said.

Both already have made significant improvements in traffic flow, he said.

In Kihei, for instance, lengthening the green light on Piilani Highway at intersections with Piikea Avenue and Lipoa Street has had "excellent" results, said Miskae, a Kihei resident.

For those driving on Piilani Highway, "you breeze right through there," he said.

Miskae emphasized that the committee's draft recommendations are "a work in progress."

The panel won't deliver its report officially to the mayor until 5 p.m. Monday, he said.

Miskae said the draft recommendations were circulated to committee members for comments, and "there could very well be some changes in it."

The recommendations divide Maui's traffic problems and solutions into regions, dealing with each separately.

In the regions, the committee cites problems with roadway capacity, with long-range planning and a failure to have the island's roadway infrastructure keep pace with development. For all the regions, except East Maui/Upcountry, the panel suggests synchronizing traffic lights.

Here are some highlights:

South Maui

Traffic issues include insufficient funding for infrastructure development and an "inadequate traffic signal management."

Near-term solutions for South Maui congestion include improving traffic signal timing to allow more movement on highly traveled roads, restriping Piilani Highway's existing pavement width to allow four lanes of travel, and implementing plans to have infrastructure in place when new development comes on line.

Mid-term solutions call for transportation alternatives, including vanpooling, and long-term solutions include developing alternative routes, such as the Kihei-Upcountry road, and looking at a new bypass mauka of Piilani Highway.

West Maui

Among the region's "traffic issues" are: road closures, a lack of alternative routes, delays caused by accidents and fires, a lack of public information about road closures and a lack of an emergency road management plan.

Suggestions for near-term improvements include working with police and fire department officials to make drivers aware of road closures or slowdowns. Other ideas are introducing more alternative traffic routes, implementing other transportation alternatives such as air, sea or carpooling, using portable signs to alert drivers of traffic problems, imposing an aggressive accident prevention program that could include a no-passing measure between Maalaea and Puamana and installing a concrete divider that would not allow passing.

Long-term solutions call for building the long-planned Lahaina bypass road to allow Kaanapali, Napili and Kapalua traffic to bypass Lahaina town, and installing a divided highway to Central Maui to reduce accidents and road closures.

Central Maui

Problems with Central Maui traffic include inadequate traffic signal management and having roadways running at or near capacity.

Suggestions for improvements include staggering work and school hours, opening the extension of Mahalani Street to Waiale Drive, and synchronizing traffic lights.

Mid- and long-range solutions call for completing the Maui Lani Parkway and Lono Avenue extensions, and proceeding with the proposed airport access road.

East Maui/Upcountry

The region's problems include inadequate traffic control management and having roadways run at or near capacity.

Short-term solutions include rerouting traffic exiting from the Puunene quarry onto Haleakala Highway, staggering school hours, regulating bicycle tours, launching aggressive public education on traffic, restricting left-turns during peak hours in Paia, building a mini-bypass in Paia fro ing lot off of Hana Hig the new post office off enue, improved enforce laws, and a better handli cident sites to allow in flow.

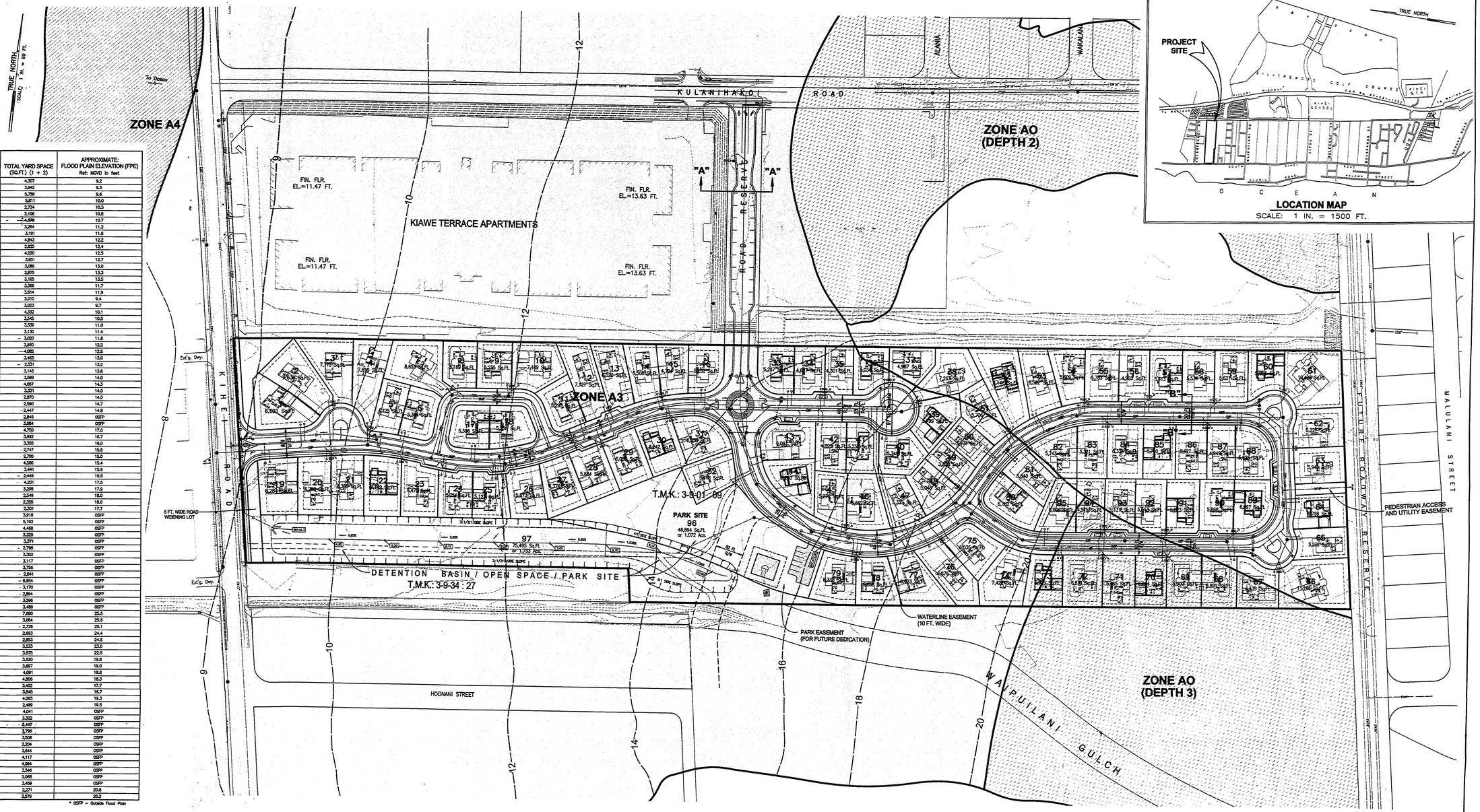
Mid- and long-range clude widening Haleaka four lanes to Kulamanu, ia bypass and developi Upcountry road.

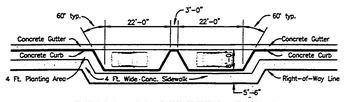
The committee's rec come after 12 meetings, public meetings in Kil Wailuku and Lahaina.

Miskae said the panel its meetings in the Mayo the ninth floor of the K building. He said the com post or need to post age meetings open to the pu was not a "duly constitu commission that falls u Sunshine law requiring n to the public.

LOTS NO.	1 ADDL. YARD SPACE MIN. REQ'D. (225 SQ.FT.) (SQ.FT.)	2 YARD SPACE INSIDE SETBACK (SQ.FT.)	TOTAL YARD SPACE (SQ.FT.) (1 + 2)	APPROXIMATE: FLOOD PLAIN ELEVATION (FPE) Ref: NGVD in feet
1	2,483	1,824	4,307	9.2
2	1,851	2,001	3,942	9.3
3	4,120	1,639	5,759	9.6
4	3,273	2,538	5,811	10.0
5	1,181	1,553	2,734	10.5
6	1,453	1,656	3,106	10.8
7	2,567	2,113	- 4,679	10.7
8	1,619	1,645	3,264	11.2
9	1,483	1,698	3,181	11.6
10	2,816	2,027	4,843	12.2
11	1,248	1,677	2,925	12.4
12	1,859	2,162	4,020	12.5
13	1,934	2,017	3,951	12.7
14	1,818	1,271	3,089	13.0
15	1,267	1,608	2,875	13.3
16	1,537	1,819	3,185	13.5
17	1,683	1,683	3,366	11.7
18	1,854	1,760	3,614	11.9
19	1,190	1,819	3,010	9.4
20	1,152	1,851	3,003	9.7
21	1,576	2,756	4,332	10.1
22	1,506	2,039	3,545	10.5
23	1,720	1,819	3,539	11.0
24	1,395	1,735	3,130	11.4
25	1,314	1,706	- 3,020	11.8
26	950	1,710	2,660	12.2
27	2,650	1,432	- 4,082	12.6
28	1,602	1,861	3,463	13.0
29	745	1,786	- 2,531	13.2
30	1,291	1,852	3,143	13.6
31	1,966	1,633	3,599	14.0
32	2,224	1,833	4,057	14.3
33	1,326	2,005	3,331	14.0
34	1,460	1,410	2,870	14.0
35	1,066	1,524	2,590	14.7
36	962	1,485	2,447	14.8
37	1,266	1,580	2,846	OSFP
38	1,774	1,310	3,084	OSFP
39	2,649	2,101	4,750	17.0
40	2,435	1,557	3,992	16.7
41	1,911	1,444	3,355	16.0
42	1,731	1,016	2,747	15.5
43	1,179	1,521	2,700	15.0
44	1,943	2,643	4,586	15.4
45	1,447	1,994	3,441	15.9
46	694	1,765	- 2,449	16.5
47	2,792	1,409	- 4,201	17.5
48	1,460	1,748	3,208	17.9
49	978	1,571	2,549	18.0
50	815	1,540	2,355	18.0
51	788	1,5413	2,301	17.7
52	1,280	2,638	3,918	OSFP
53	2,872	2,320	- 5,192	OSFP
54	2,465	2,003	4,468	OSFP
55	1,622	1,698	3,320	OSFP
56	2,187	1,184	3,371	OSFP
57	1,092	1,706	- 2,798	OSFP
58	1,597	1,705	3,302	OSFP
59	1,378	1,739	3,117	OSFP
60	1,916	1,840	3,756	OSFP
61	1,498	1,343	- 2,841	OSFP
62	4,641	2,313	- 6,954	OSFP
63	1,340	1,830	- 3,170	OSFP
64	1,100	1,794	- 2,894	OSFP
65	2,256	1,340	- 3,596	OSFP
66	1,680	1,809	3,489	OSFP
67	5,301	2,389	7,690	25.5
68	2,295	1,389	3,684	25.6
69	942	1,784	- 2,726	25.1
70	935	1,758	2,693	24.4
71	1,567	1,286	2,853	24.6
72	1,766	1,767	3,533	23.0
73	931	2,744	3,675	22.6
74	2,250	1,370	3,620	19.8
75	1,870	1,827	3,697	19.0
76	2,236	1,855	4,091	18.8
77	2,505	2,301	4,806	18.3
78	2,136	1,316	3,452	17.7
79	1,721	2,124	3,845	16.7
80	2,386	1,879	4,265	19.3
81	1,068	1,421	2,489	19.5
82	2,487	1,554	4,041	OSFP
83	1,592	1,730	3,322	OSFP
84	722	2,725	- 3,447	OSFP
85	2,480	1,338	3,798	OSFP
86	2,184	1,324	3,508	OSFP
87	898	1,306	2,204	OSFP
88	1,884	1,760	3,644	OSFP
89	2,471	1,646	4,117	OSFP
90	2,196	1,898	4,094	OSFP
91	1,037	2,306	3,346	OSFP
92	2,147	1,854	2,068	OSFP
93	2,130	1,329	3,459	OSFP
94	758	1,513	2,271	20.8
95	1,793	1,786	3,579	20.2

* OSFP – Outside Flood Plain



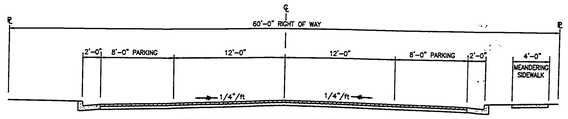


TYPICAL ON-STREET PARKING

SCALE: 1 IN. = 20 FT.

PARKING REQUIREMENT:

OFF STREET:	ON STREET:
2 PER LOT = 2 x 95 = 190	23



TYPICAL ROADWAY SECTION "A"-"A"
ACCESS ROAD

SCALE: 3/16"=1'-0"

NOTE:

FLOOD PLAIN INFORMATION OBTAINED FROM FLOOD INSRUANCE RATE MAP FOR MAUI COUNTY, HAWAII, PANEL 265 OF 400, DATED SEPTEMBER 6, 1989.

CONCEPTUAL SUBDIVISION PLAN

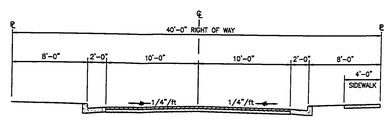
FOR SUBDIVISION OF LOT 3, OF WAIOHULI–KEOKEA BEACH HOMESTEADS PORTION OF GRANT 9681, INTO 95 LOTS, PER CHAPTER 19.84 R–0 ZERO LOT LINE OVERLAY DISTRICT AT WAIOHULI–KEOKEA, KIHEI, MAUI, HAWAII

0 60 120 180 240

SCALE: 1 IN. = 60 FT.

OWNERS: SOUTH KIHEI, INC.
ADDRESS: P.O. BOX 70438 SEATTLE, WASHINGTION

DEVELOPER: BETSILL BROTHERS CONSTRUCTION, INC.
ADDRESS: 635 KENOLIO ROAD KIHEI, MAUI, HAWAII



TYPICAL ROADWAY SECTION "B"-"B"
SUBDIVISION STREET

SCALE: 3/16"=1'-0"

ADVANCED COPY SUBJECT TO CHANGE

CIVIL ENGINEERS:
WARREN S. UNEMORI ENGINEERING INC.

PLANNERS:
CHRIS HART & PARTNERS
LANDSCAPE ARCHITECTURE AND PLANNING

April 23, 2001
Revised: August 8, 2001
Revised: September 18, 2001
Revised: November 21, 2001
Revised: November 30, 2001
Revised: March 1, 2002
Revised: March 31, 2003

ISSUE 06/100

30"x42"

T.M.K.: 3-9-01 : 09

105

SEP 23 2003
FILE COPY

Q003-09-23-MA-FEA-

Supplemental

Final Environmental Assessment For

Waipuilani Estates

TMK Nos: 3-9-001:009 and Government Roadway Lot 2C (Originally from TMK: 3-9-001:011)

Kihei • Maui • Hawaii

CHRIS HART & PARTNERS

September 2003

Submitted for 5-23-03
Env. Notice; FONSI
withdrawn 6-4-03
Resubmitted for 9-23-03
Env. Notice with
new approving agency

SUPPLEMENTAL
FINAL ENVIRONMENTAL ASSESSMENT
FOR
Waipuilani Estates

Prepared for

Department of Planning

County of Maui

250 South High Street

Wailuku, HI 96793

Prepared by

Chris Hart & Partners

1955 Main Street

Wailuku, Maui, Hawaii 96793

Kihei • Maui •Hawaii

TMK Nos.: 3-9-001:009, and

Government Roadway Lot 2C (Originally from TMK: No. 3-9-001:001)

Kihei • Maui • Hawai`i

CHRIS HART & PARTNERS

September 2003

Supplemental Final Environmental Assessment

PREFACE

This Supplemental Final Environmental Assessment is being filed in response to a determination by the Department of Planning that a Community Plan Amendment (CPA) from Multi-Family (MF) to Single-Family (SF) is required for the subdivision of approximately eight (8) acres of the proposed 20-acre Waipuilani Estates single-family residential development. A Finding of No Significant Impact (FONSI) determination was made by the Department of Planning in December 2001 for the proposed development. However, the original Environmental Assessment did not address the requirement for a Community Plan Amendment from MF to SF. Aside from the Community Plan Amendment, some minor residential architectural changes, and an updated traffic assessment report, the proposed project is unchanged.

The *trigger* for the environmental assessment is the proposed roadway improvements from Kulanihakoi Road into the subject project on County owned property. An additional *trigger* is the requirement for a Community Plan Amendment (CPA) from MF to SF. As such, this assessment has been prepared in accordance with Chapter 343, Hawaii Revised Statutes. The assessment was prepared in accordance with the following rules and regulations:

1) Chapter 343, Hawaii Revised Statutes, and the Environmental Impact Statement Rules, Chapter 200, Department of Health, Hawaii Administrative Rules; and
2) Chapter 205A, Hawaii Revised Statutes, and the Special Management Area Rules for the Maui Planning Commission, Chapter 202, Subtitle 02, Title MC-12.

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I. PROJECT INFORMATION

A. PURPOSE OF THE REQUEST

This Final Supplemental Environmental Assessment is being filed in response to a determination by the Department of Planning that a Community Plan Amendment (CPA) from Multi-Family (MF) to Single-Family (SF) is required for the subdivision of approximately eight (8) acres of the proposed 20-acre Waipuilani Estates single-family residential development on land situated within Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009 and Government Roadway Lot 2C (Originally from TMK: 3-9-001:011). A *Finding of No Significant Impact* (FONSI) determination was made by the Department of Planning in December 2001 for the proposed development. However, the original Environmental Assessment did not address the requirement for a Community Plan Amendment, from MF to SF. Aside from the Community Plan Amendment, some minor residential architectural changes, and an updated traffic assessment report, the proposed project is unchanged.

B. PROJECT PROFILE

Proposed Project:	96 Lots; 95 Single-Family Residences Internal Neighborhood Park
Development Concept:	R-O Lot Line Overlay
Lot Sizes:	4,000 SF – 11,146 SF
Existing Land Use:	Undeveloped
Project Area:	20.002 acres
Access:	South Kihei Road; Kulanihakoi Rd.

C. REQUIRED LAND USE PERMITS

The following land use, development permits and approvals are required for the project, and all, except building permits, are in the process of being obtained.

- Special Management Area (SMA) Permit

- Community Plan Amendment
- Grading Permit
- Flood Hazard Development Permit
- Final Subdivision Approval
- Building Permits

D. IDENTIFICATION OF THE APPLICANT

Land Owner:	South Kihei, Inc.
Contact:	Mr. Larry Soriano
Address:	P.O. Box 70438 Seattle, Washington 98107
Phone/Fax:	Phone: (206) 781-4777; Fax: (206) 781-2486

E. DEVELOPER

Developer:	Betsill Brothers Construction, Inc.
Address:	635 Kenolio Road Kihei, Maui, Hawaii 96753
Phone/Fax:	Phone: 808-879-5375 Fax: 808-879-5159
Contact:	Mr. Doyle Betsill

F. CONSULTANT

Land Use Planners:	Chris Hart & Partners, Inc. 1955 Main Street, Suite 200 Wailuku, Maui, Hawaii 96793-1706
Phone/Fax	Phone: 808-242-1955, Fax: 808-242-1956
Contact:	Mr. Christopher L. Hart

G. ACCEPTING AGENCY

Agency:	Department of Planning, County of Maui 250 South High Street Wailuku, Maui, Hawaii 96793

Phone/Fax: Phone: 808-270-7735, Fax: 808-270-7634

H. PRE-CONSULTED AGENCIES& PRIVATE INTERESTS

A. COUNTY OF MAUI (See Appendix A, Pre-consultation)
1. Department of Planning
2. Department of Public Works and Waste Management
3. Department of Parks and Recreation

B. STATE OF HAWAII
1. Department of Transportation

C. PRIVATE INTERESTS (See Appendix A, Pre-consultation)
1. Kihei Community Association
2. Neighboring property owners

II. DESCRIPTION OF THE PROPERTY AND PROPOSED ACTION

A. PROPERTY LOCATION

The subject property is located in North Kihei along South Kihei Road approximately 400 feet south of the intersection of South Kihei Road and Kulanihakoi Roads, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009 and Government Roadway Lot 2C, originally from TMK: 3-9-001:011 (See: Figure Nos. 1 and 2, "Regional Location" and "Tax Map Key").

B. EXISTING LAND USE

The majority of the subject property is currently undeveloped and overgrown with Kiawe trees, shrubs, weeds, bushes, and grasses. However, approximately two-acres situated in the vicinity of the proposed detention basin/park is currently being leased on a month-to-month basis to a truck farmer and is in active agricultural use.

D. LAND USE DESIGNATIONS

State Land Use Classification:	Urban (See: Figure No. 5, "State Land Use District Boundaries")
Kihei-Makena Community Plan:	Single-Family (mauka) / Multi-Family (makai) (See: Figure No. 3, "Community Plan Map")
County Zoning:	R-3, Residential (See: Figure No. 4, "Zoning Map")
Flood Zone Designation:	A3, AO, and C

(See: Figure 6, "Flood Insurance Rate Map")

Special Designations	Special Management Area (SMA)

E. DESCRIPTION OF PROPOSED ACTION

Betsill Brothers Construction, Inc., is proposing to develop 95 single-family residences on approximately 20.002 acres of land community planned and zoned for single-family residential use. The subject property will be developed in accordance with Maui County Code, Chapter 19.84, "R-0 Zero Lot Line Overlay District" which allows for a maximum of five units per acre and a minimum lot size of 4,000 square feet for each R-0 Lot Line lot within the R-3, Residential District. Approval of the "R-0 Zero Lot Line Overlay District" is required by both the Director of the Department of Planning, as well as, the Director of Public Works and Waste Management. A principal purpose of the R-O Lot Line Overlay District is to provide incentives in order to encourage the provision of affordable housing within Maui County.

The proposed project will require the provision of both on and off-site infrastructure to support the development. On-site infrastructure will include an internal street network, as well as, the provision of water, sewer, drainage, electrical, and telephone system improvements. The project will feature a tree-lined streetscape with sidewalks and a pedestrian pathway that provides access to an interior neighborhood park. The proposed house and lot packages will feature three and four-bedroom units that are anticipated to be largely affordable to Maui's median income households. Architecturally, the project will be developed using a distinctive and consistent plantation era architectural design vocabulary. Architectural elements distinctive to the project include front porches, pitched roofs, landscaped setbacks, and adjoining garages at the lot line. The internal neighborhood park, as well as, a landscape planted detention basin will be located parallel to Waipuilani Gulch and will serve as a detention basin during periods of periodic flooding, as well as, a recreational resource for the project's residents. Post and Pier construction is proposed in order to elevate the housing above the required base flood elevation. Table 1 shows the project's design specifications.

Project Design Specifications		
Lot Area		20.002 acres
No. of Residential Units		95
Density	95/20.002	4.74 units/acre
Permitted Density		5.00 units/acre
Lot Sizes		4,000 SF – 11,146 SF
Unit Type (Estimate)	3- bedroom, 2 - 2.5 bath, at approximately 1,200 SF to 2,020 SF 4-bedroom, 2 - 3.5 bath, at approximately 1,686 SF to 2,020 SF	66 29
Public Park Space		1.072-Acres
Anticipated Price Range:		$215,000 - $395,000

Figure No. 9a shows the proposed conceptual site and landscape-planting plan for the subject development. The following is a description of the project's major components.

Single-Family Residences. Waipuilani Estates will feature nine distinct three and four-bedroom models that will be offered as a one or two-story residences and will range from 1,200 SF to 2,020 SF. Each custom designed model will feature post and pier construction with pitched roofs, front porches, traditional detailing, and decorative rafters that are characteristic of Maui's plantation era homes, with today's modern amenities.

Neighborhood Park. Pursuant to § 18.16.320.E, MCC, the applicant proposes to provide an approximate 1.072-acre internal neighborhood park in order to satisfy the County's park dedication requirement. The proposed park will feature an asphalt all-weather play court with basketball hoop, children's playground, picnic area, passive recreational area, and on-site parking (See: Figure 9b, Park Master Plan). In addition, an approximate 1.733-acre open space detention area abutting the park site will feature a bicycle/pedestrian path linking the North-South Collector and South Kihei Road, as well as, an area for community gardens. The subject park will be accessible to the general public. The majority of the park will be grassed with pacific islands and exotic species shade trees, bushes, and shrubs that will beautify the area.

Roadway Design. Roadway design is an important consideration in the design of livable, aesthetically pleasing, and safe neighborhood environments. Roadways that are

too wide, and without traffic calming devices, encourage speeding and degrade the visual quality of the built environment. Unfortunately, Maui County's current roadway standards foster these types of roadways. In order to identify alternative standards that are more appropriate for small, pedestrian-oriented communities, such as Waipuilani Estates, a review was conducted of several mainland communities' roadway design standards, as well as, the most current literature on roadway geometrics for livable communities. As a result of the research, it was determined that roadways providing 18 to 24 feet of pavement width and 38 to 50 feet of right-of-way, depending upon the mix and intensity of land uses, length of roadways, and number of units served are most desirable for residential communities (See: "Street Design Guidelines for Healthy Neighborhoods" by Dan Durden, 1999, "Visions For a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities, by Anton Clarence Nelessen, 1994, and "Crossroads, Hamlet, Village Town: Design Characteristics of Traditional Neighborhoods, Old and New, by Randall Arendt, 1999).

In accordance with the research on alternative standards, as well as, the project's objective to create safe, aesthetically pleasing, and pedestrian-oriented streets for residents of the project, Waipuilani Estates will feature an internal street network consisting of 20-feet wide curvelinear streets with 2-feet wide gutters and 40-feet of right-of-way. Right-of-way improvements will feature landscape-planting strips with shade trees planted at regular intervals, concrete curb and gutters, and a 4-feet wide sidewalk along one side of the street. In response to concerns expressed by the Department of Fire Control, a portion of the proposed roadway has been widened to 32-feet of pavement width and 54-feet of right-of-way in order to allow for the unobstructed flow of fire apparatus (See: Figure 9C, "Conceptual Subdivision Plan").

The subject roadways will also incorporate 13 on-street parking pockets and six (6) parking spaces within the park site for guests of the project. Traffic calming measures featured in the roadway design include providing a narrower pavement width, redirecting the vehicle path by utilizing curvilinear streets, installing roundabouts and planter islands, and planting street trees at regular intervals. In addition, pursuant to the Kihei Community Plan Land Use Map, a 50—feet internal road right-of-way has been provided to allow for the potential future construction of a roadway linking Kulanihakoi Street in a north south orientation to Hoonani Street (See Appendix F).

Sustainable Building Design Techniques. A number of sustainable building design techniques have or will be implemented, including but not limited to the following:

- Assessment of site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and

existing utility and transportation infrastructure to determine the appropriate use of the site.

- Selection of a site with short connections to existing municipal infrastructure systems.
- Placement of buildings to take advantage of natural features and to maximize their beneficial effects. Building placement maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.
- Minimizing disruption of drainage channels.
- Provision of erosion and dust control measures.
- Tree planting to shade buildings and paved areas.
- Maximizing efficiencies for lighting, heating, ventilation, air conditioning systems and other equipment.
- Installing water conserving, low flow fixtures.
- Incorporating water efficient landscaping (xeriscaping) into the landscape design.
- Utilizing properly planned and efficient irrigation systems within the right-of-way.
- Selecting appropriate plants for the Kihei area, thereby minimizing need for irrigation.

Access. Access to the project will be via a roadway along the south side of Kulanihakoi Road approximately 800 feet east of South Kihei Road. A second roadway access is proposed along South Kihei Road and will be restricted to right turns in and out only.

Site Improvements. On-site improvements will consist of, but are not limited to, an internal street network with 40-feet of right-of-way, 24-feet wide paved streets, concrete sidewalk, curb and gutters, and landscape planting. Utility improvements will consist of underground drainage, sewer, water distribution, fire protection systems, as well as, underground electrical, telephone, and cable distribution systems. The applicant will dedicate a 5-feet wide road-widening strip along the mauka side of South Kihei Road. According to the Department of Public Works and Waste Management, improvements on South Kihei Road are already included as part of the South Kihei Road Phase IV project. The Kulanihakoi Street access will be improved in accordance with County standards, with minor modification, subject to County approval. The total length of the proposed access road from Kulanihakoi Street is 420 feet.

Construction. Construction is anticipated to begin once all of the required State and County Permits have been issued. It is anticipated that full build-out of the site will

require approximately 18 months to complete. There will be short-term construction related impacts to the surrounding environment. Standard mitigation measures to control these impacts are described in Section III of this report.

F. ALTERNATIVES

1. No action

Analysis. The subject property has been community planned and zoned for single-family residential use since the late 1960's, and is within an urbanized area of North Kihei. Surrounding properties are either developed, being developed, or are zoned and community planned for residential use. Pursuant to the Kihei-Makena Community Plan Land Use Map, which identifies the site for Single- and Multi-Family residential uses, the proposed project is consistent with the planned future growth of Kihei.

Because the subject property is located within an existing residential area, single-use commercial, industrial, hotel, and agricultural uses are inappropriate for the site. Maintaining the property in its undeveloped state would deprive the community of much needed affordably priced housing, property tax revenues, as well as, short-term employment during the construction phase of the project.

In addition, the No Action alternative would leave the landowner with little reasonable use of the property, since economically feasible non-residential uses are inappropriate due to the physical and locational characteristics discussed above.

2. Alternative styles, size, and configuration

Analysis. Various alternative configurations were considered during the design phase of the project. A summary of these alternatives is presented below:

Fewer Units. Increasing the lot sizes or maintaining more land area in open space would produce fewer units; thereby, reducing the project's impact on infrastructure and services. However, decreasing the number of units would require that certain fixed development costs, i.e. land acquisition, planning and design studies, and on-site infrastructure improvements, be amortized over fewer units thus increasing the cost per unit and resulting in a project made less affordable to Maui's median income households and/or resulting in a less profitable or an economically unviable project.

Alternative Styles.

Site Design. The nature and layout of urban streets, lot sizes, setbacks, housing types, landscape planting, and communal open spaces largely defines the quality of a built urban environment. The design of urban streets, for example, produces a significant affect on the livability of a community. Streets that are too wide, lack sidewalks, are barren of shade trees, and without traffic calming devices foster an aesthetically unpleasing and unsafe environment for pedestrians and are a detriment to community interaction.

The purpose of the proposed site plan is to create a human scaled neighborhood that fosters a community-oriented sense of place. As such, the following unique site features are proposed within the context of the overall landscape concept plan:

- Narrow, curvilinear street widths with roundabouts, planter islands, on-street parking pockets, and other traffic calming features;
- Sidewalk and landscape planting strips featuring street trees at regular intervals;
- Mixture of lot sizes;
- Use of R-O Lot Line Overlay Zoning in order facilitate creative site planning in response to the unique drainage challenges on the property and to facilitate the provision of affordably priced housing; and
- Internal neighborhood park with landscaping, and passive and active recreational amenities that may include a children's playground, an asphalt all-weather play court with basketball hoop, community gardens, and bicycle/pedestrian path linking the North-South Collector and South Kihei Road.

In contrast, the project could be designed as a conventional automobile-oriented suburban style subdivision, but would then deviate significantly from the project's design objective, which is to create a human scaled neighborhood that fosters a community-oriented sense of place.

Alternative Architectural Design. The project has been designed to reflect the plantation era architectural design heritage that is unique to Maui, but inclusive of today's modern amenities. As discussed, each custom designed model will feature post and pier construction if it is within the flood zone and will incorporate pitched roofs, front porches, traditional detailing, and decorative rafters that are characteristic of plantation era homes.

Alternative architectural designs were assessed, but did not meet our architectural design objectives. In contrast to what is being proposed, the project could be designed without reference to Maui's unique architectural heritage but would then be out of character with the unique culture and sense of place that Maui offers.

III. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Land Use

Existing Conditions. The subject property is located within North Kihei, on the leeward shore of Maui. A patchwork of existing multi- and single-family residences, commercial, and resort developments characterize North Kihei. Development in the region generally occurs in a linear pattern between the shoreline and Piilani Highway, a two-lane principal arterial from Mokulele Highway to Wailea Iki. South Kihei Road is a two-lane major urban collector road that provides service along the shoreline to residential, commercial, and condominium resort areas. Zoning and Community Plan Designations throughout North Kihei consists mainly of multi- and single-family residential uses. Commercial uses are concentrated within four commercial nodes in the area of North Kihei at Suda's Store, Lipoa and Piikea Street, Kalama Park, and Kamaole. The Pi`ilani Village Shopping center is situated approximately one mile southeast of the subject site and is accessible from both Pi`ilani Highway and Lipoa Street.

The parcel maintains approximately 492 feet of frontage along South Kihei Road and is approximately 1,998 feet deep, which mandates that it will be developed in a mauka/makai orientation. Properties abutting the northern boundary of the subject property support a multi-family apartment complex (Paradise Gardens Apartments), church (Trinity Church By the Sea), and undeveloped land zoned and community planned for single-family residential uses. Further north across Kulanihakoi Road are properties supporting existing multi- and single family residential uses. To the south are single-family residences and undeveloped land zoned for single-family residential use. To the west, across South Kihei Road, are several ocean-oriented condominium

developments. To the east is the Pi`ilani Village (Project District 5), which is intended to provide a mix of single-family and multi-family housing types that may incorporate commercial services. The recently completed Pi`ilani Village Shopping Center serves a regional market and includes such tenants as Safeway, Starbucks, Shell, Hilo Hattie, and Super Cuts, as well as various restaurants and other services. Access to the shopping center will be conveniently provided via the North South Collector Road, which is programmed for construction, and bounds the eastern boundary of the subject property.

The Community Plan map presents an illustration of the range of potential future land uses planned within the immediate area (See Figure Nos. 3 and 8). The following is a description of zoning, community plan designations, and existing land uses adjacent to the subject property:

North:

Zoning: A-1, Apartment, Public Use, R-2 Residential
Community Plan: Multi-Family, Public/Quasi-Public, and Single-Family
State Land Use: Urban

Existing uses. Paradise Gardens Apartments, Trinity Church By the Sea, undeveloped land zoned R-2, Residential

South:

Zoning: R-2 Residential, R-3, Residential
Community Plan: Multi-Family, Single-Family
State Land Use: Urban

Existing uses. Single-Family Residences, undeveloped land zoned for R-2 and R-3, Residential Development

East:

Zoning: PD5
Community Plan: Project District 5
State Land Use: Urban

Existing uses. Pi`ilani Village, Pi`ilani Village Shopping Center (single-family residences, shopping center)

West:

Zoning: A-2, Apartment, Park
Community Plan: Multi-Family, Park
State Land Use: Urban

Existing uses. Multi-Family Condominiums

Potential Impacts and Mitigation Measures. From a regional planning perspective, urban land uses should occur within areas that offer compatible land uses, as well as, proximate infrastructure and services capable of serving the development. In addition, transportation linkages between residences, commercial goods and services, and regional employment should be proximate, diverse, and operate efficiently.

The proposed 95-unit single-family project is located within an area that is zoned and community planned for single and multi-family residential development. The proposed development, along with existing development in the area, largely reflects this settlement pattern. Supporting urban infrastructure and services are proximate to the subject property. In addition, the North South Collector Road will offer residents of the project convenient vehicular, bicycle, and pedestrian access to the Pi`ilani Village Shopping Center, which should reduce the project's impact on Pi`ilani Highway and South Kihei Road. In the context of the Kihei-Makena Community Plan, which was adopted in order to guide future development in the area, the proposed project is consistent with the future planned growth of the region.

2. Existing Land Use

Existing Conditions. The majority of the subject property is currently undeveloped and overgrown with Kiawe trees, shrubs, weeds, bushes, and grasses. However, approximately two-acres situated in the vicinity of the proposed detention basin/park, is currently being leased on a month-to-month basis to a truck farmer and is in active agricultural use.

Potential Impacts and Mitigation Measures. The portion of the subject property currently in agricultural use will be returned to its previous condition at the termination of the lease.

3. Topography and Soils

Existing Conditions. The project site is presently undeveloped and not being used for any particular purpose. The project site generally slopes from an elevation of

approximately 26 feet M.S.L. to approximately 6 feet M.S.L. in an easterly to westerly direction. The subject property is separated from Waipuilani Gulch, along the southwesterly corner of the project, site by TMK: 3-9-034: 027. The project site is heavily overgrown with large Kiawe trees. Grade across the site is fairly flat, dropping from an elevation of 24 feet at the southeast corner to around six (6) feet adjacent to South Kihei Road, for an average cross slope of 0.90%.

According to the Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, prepared by the United States Department of Agriculture, Soil Conservation Service, the soil classification found on the project site is the Alae sandy loam, 3 to 7 percent slopes (AaB). The Alae sandy loam is characterized as having slow runoff with a slight erosion hazard.

Potential Impacts and Mitigation Measures. The topographic and soil analysis suggests that the proposed land uses are suitable for the site, including roadways and housing.

4. Flood and Tsunami Zone

The Kihei District of Maui is a long and narrow coastal lowland located at the western base of Mount Haleakala. The Waipuilani project site is located within the coastal lowland area of Kihei. Runoff from the northwestern slopes of Haleakala generally end up in this coastal lowland area. Consequently, the entire coastal area bordering Kihei Road between Kealia Pond to the north and Kalama Park at the south end, is in the flood plain as established by the Federal Emergency Management Agency (FEMA). Within this area, four major drainage ways serve as the conduit to convey runoff from the slopes of Haleakala to the ocean. They are Waiakoa Gulch, Kulanihakoi Gulch, Waipuilani Gulch and Keokea Gulch. Ponding in the coastal lowlands is exacerbated by inadequate drainageways, by sand berms that have formed along the seashore and development that took place before the enactment of the U.S. National Flood Insurance Act of 1968 and the U.S. Flood Disaster Protection Act of 1973 (See: Appendix E, "Exhibit A of the Addendum to the Preliminary Drainage Report".

According to Panel Number 150003 0265C dated September 6, 1989, of the Flood Insurance Rate Map, prepared by the United States Federal Emergency Management Agency, approximately 78% of the project site is situated within Zones A3, AO and the remainder of the site is within zone C. Zone A3 is an area of 100-year flooding where base flood elevations and flood hazard factors have been determined. Zone AO is an area of 100-year shallow flooding where depths are between one (1) and three (3) feet,

where average depths of inundation are shown, but no flood hazard factors are determined. Zone C is designated as an area which is subject to minimal flooding (See: Figure No. 6, "Flood Insurance Rate Map").

Potential Impacts and Mitigation Measures. Flood zone designations have been a primary consideration during the site planning of the property. To minimize any potential risk to health, safety, and welfare due to the subject development being located within a flood zone, structures within the designated flood plain will be constructed in accordance with the following Standards of Development prescribed in Chapter 19.62.060 of the Maui County Code (See: Appendix E, "Preliminary Drainage Report" and "Addendum to the Preliminary Drainage Report"):

1) All structures will be built on poured-in-place reinforced concrete columns;
2) Floor joists and support beams will be bolted to cast-in-place steel brackets embedded on top of each column;
3) The bottom of the floor joists or structural member will be elevated a minimum of 12 inches above the base flood elevation. This means that the finish floor will be approximately 24 inches above the base flood elevation;
4) Each column will be structurally designed to withstand the bending and shear forces exerted by the moving water;
5) Conduits for utility lines will either be embedded in the concrete comumns or strapped to each column;
6) To the extent practical, sewer lines will be designed to minimize infiltration of flood waters into the wastewater systems;
7) Backflow preventers will be installed after each water meter to prevent contaminants from entering the potable water systems; and
8) Regarding vehicles parked outside of garages, anchor rings embedded within the concrete driveways and garages will be provided to anchor each vehicle if the owner elects not to move out of the flood plain area during heavy storms.

As a result of meeting FEMA standards, affordable flood insurance will be available to all Waipuilani Estates homebuyers. In addition, all prospective buyers of property within the flood zone will receive notice that their homes are located within a floodplain. See Section III.D.3 and Appendix E for a discussion of stormwater runoff.

The Addendum to the Preliminary Drainage Report contained in Appendix E provides an analysis of the design parameters and estimated construction cost to channelize the Waipuilani Gulch. The analysis demonstrates that approval of the proposed project would not preclude the County from channelizing Waipuilani Gulch in the future and

that if such an improvement was undertaken, the subject channel would not affect the siting of the proposed homes or neighborhood park.

Based upon the "No Rise Analysis" conducted by Engineering Methods and Appliations (EMA) of Jacksonville, Florida; there should be no additional adverse affect on the downstream properties due to the project (See: Appendix E, "Addendum to Preliminary Drainage Report".

Thus, the proposed project should not be significantly affected by or have adverse impacts upon its neighbors or downstream properties with regards to flood hazard potential.

5. Terrestrial Biota (Flora and Fauna)

Existing Conditions. Based upon a site reconnaissance survey of the subject property, it appears that much of the subject property has previously been used for animal grazing and vegetation has therefore been altered from its natural state. The U.S. Army Corps of Engineers Wetland Maps do not indicate the presence of wetlands in or around the subject property. Existing vegetation on the property primarily consists of Kiawe, Koa, Castor Bean, Nehe along with various grasses and weeds, such as honohono, nut grass, and buffalo grass. No wetland indicator plants were found on the property. Avifauna typically found in the area includes the common myna, several species of dove, cardinal, house finch, and house sparrow. Mammals common to this area include cats, dogs, rats, mice, and mongoose. No known rare, endangered, or threatened species of flora or fauna were discovered on the subject property.

Potential Impacts and Mitigation Measures. There are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the subject property. Thus, rare, endangered, or threatened species of flora and fauna will not be impacted by the proposed project.

6. Air Quality

Existing Conditions. Air quality refers to the presence or absence of pollutants in the atmosphere. It is the combined result of the natural background and emissions from many pollution sources. The impact of land development activities on air quality in a proposed development's locale differs by project phase (site preparation, construction, occupancy) and project type. In general, air quality in North Kihei is considered relatively good. Non-point source emissions (automobile) are not significant to generate

a high concentration of pollutants. The relatively high quality of air can also be attributed to the region's exposure to wind, which quickly disperses concentrations of emissions. The North Kihei area is currently in attainment of all criteria pollutants established by the Clean Air Act, as well as, the State of Hawaii Air Quality Standards.

potential Impacts and Mitigation Measures. Air quality impacts attributed to the proposed project could include dust generated by the short-term construction related activities. Site work such as grading and building construction, for example, could generate airborne particulate. Adequate dust control measures that comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust, will be implemented during all phases of construction. Some of these measures will include:

- Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of least impact.
- Providing adequate water source on site prior to start-up of construction activities.
- Landscaping and rapid covering of bare areas, including slopes, beginning with the initial grading phase.
- Controlling of dust from shoulders, project entrances, and access roads.
- Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
- Controlling of dust from debris hauled away from project site.

The increase in the number of residents may result in a slight increase in the volume of traffic in the region, which would increase vehicular emissions such as carbon monoxide. However, this increase is not considered significant when compared to the overall number of vehicles in Kihei and in consideration of existing ambient conditions. Thus, the proposed project is not anticipated to be detrimental to local air quality.

7. Noise Characteristics

Existing Conditions. The noise level is an important indicator of environmental quality. In an urban environment, noise is due primarily to vehicular traffic, air traffic, heavy machinery, and heating, ventilation, and air-conditioning equipment. Ramifications of various sound levels and types may impact health conditions and an area's aesthetic appeal. Noise levels in the vicinity of the project area are generally low. Traffic noise

from South Kihei Road is the predominant source of background noise in the vicinity of the subject property.

Potential Impacts and Mitigation Measures. In the short-term, the proposed project could generate some adverse impacts during construction. Noise from heavy construction equipment, such as bulldozers, front-end loaders, and material-carrying trucks and trailers, would be the dominant source of noise during the construction period. To minimize construction related impacts to the surrounding neighbors, the developer will limit construction activities to normal daylight hours, and adhere to the Department of Health's Administrative Rules, Chapter 11-46, Community Noise Control." In the longer-term, the proposed project should not significantly impact existing noise conditions in the area due to the relatively small increase in traffic generated by the project.

8. Archaeological/Historical Resources

Existing Conditions. Archaeological Services Hawaii, of Wailuku in association with Aki Sinoto Consulting of Honolulu conducted an archaeological inventory survey and subsequent additional subsurface testing, of the subject property in March and October 2001. The project area is Lot 3 of the Waiohului Keokea Beach Homesteads located in Kihei, Waiohului *ahupua`a*, Wailuku District, Maui Island. The project area is being proposed for the development of a 96 lot residential subdivision. The objective of the current archaeological undertaking was to determine the presence/absence, extent, and significance of potential cultural resources located within the project area. The objective of the supplemental testing was to determine the presence/absence of Site 50-50-09-4981, the buried remains of a pond/wetland, that was identified in the adjoining area to the north during previous investigations.

The area was found to have previously undergone extensive compounded disturbances and as a result, no significant archaeological features were present on the surface of the property. Due to the complete absence of surface features and other indications, eight backhoe trenches were initially excavated in selected locations within the project parcel. This was followed by the excavation of three additional trenches during the subsequent phase of fieldwork.

No cultural remains were encountered during the initial subsurface testing. No evidence of any culturally significant activities resulted from the initial investigation, although past environmental changes in the area were indicated in the stratigraphic record. However, the subsequent testing encountered evidence paralleling buried

sediments of a former pond/wetland that was originally identified in the adjoining parcel to the north and designated Site 50-50-09-4981. Whether these buried sediments are directly associated with Site 4981 or represent a similar pond/wetland feature was not conclusively established. The stratigraphic record gleaned from all 11 trenches generally indicated an area of prograding shoreline with ponded or wetland areas that formed and subsequently underwent in-filling through the interaction of a variety of dynamic events including stream flooding, marine inter-tidal action, Aeolian forces, and human activities.

Potential Impacts and Mitigation Measures. Development of the property will alter the natural terrain and existing geographic features on the property. However, based on the negative results of the current inventory survey, the current project area does not appear to hold much archeological significance. Therefore, no further archaeological work prior to construction appears warranted. However, due to the presence of subsurface sand deposits and a neighboring historic cemetery, archaeological monitoring of ground-disturbing construction activities in designated areas is recommended. The preparation of an archaeological monitoring plan and its approval by the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources are required prior to commencement of any development-related construction (See: Appendix B, "Archeological Inventory Survey").

9. Visual Resources

Existing Conditions. The subject property is situated along the mauka side of South Kihei Road within the urbanized area of North Kihei. The parcel maintains approximately 492 feet of frontage along South Kihei Road and is approximately 1,998 feet deep, which mandates that it will be developed in a mauka/makai orientation.

North Kihei offers sweeping views of the Pacific Ocean and Haleakala. Public views of these resources exist in various locations from Pi`ilani Highway and South Kihei Road. The proposed development will not affect views along Pi`ilani Highway since the subject property is located at a lower elevation and the proposed dwellings will be limited to no more than 30-feet in height. Makai views along South Kihei Road do not exist in the vicinity of the property due to existing condominium development along the shoreline.

Numerous scenic resources have been identified in North Kihei, which are identified and discussed in the Maui Scenic Coastal Resources Study, August 1990 (See: Appendix D, "Maui Scenic Coastal Resources Study, Kihei Map"). The resource/inventory map,

which is located in Appendix D in this report, does not identify any significant view occurring across the subject property that will be affected by the development.

As discussed, the site is currently undeveloped, thickly vegetated with kiawe trees, bushes, and shrubs and contains no unique scenic resources. Makai views from the subject property are currently obstructed due to condominium development along the shoreline. The project site is visible from South Kihei Road.

Potential Impacts and Mitigation Measures. As discussed, no unique scenic resources will be impacted by the development. However, from an urban design perspective, the proposed development will serve to create a more unified and cohesive residential development pattern in the area.

To enhance the visual qualities into the project area, the landscape concept plan proposes xeriscaping and planting of primarily Polynesian species shade trees within the project site to enhance the project's aesthetics. Prominent trees identified in the conceptual landscape plan will include Monkey Pod, Norfolk Island Pine, Milo, and Kukui among others (See: Figure No. 9a, "Concept Landscape Master Plan"). An approximate 30-feet landscape buffer will front the project along South Kihei Road and the open space internal neighborhood park will be visible from the roadway.

As such, the proposed project is not anticipated to significantly impact public view corridors, or the visual character of the site and its immediate environs.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

Existing Conditions. Maui County experienced relatively strong population growth during the past decade with the 2000 resident population expanding to 128,241, an 80.6% increase over the 1980 population of 70,991 (United States Department of the Census, 2000). Population growth is projected to continue with the year 2010's resident population projected to reach 140,060 (County of Maui, Office of Economic Development, June 2000). Similarly, visitor growth has increased significantly in the County over the last decade with the average daily visitor count increasing from 15,363 in 1980 to 43,270 in 1997, a 280% increase in visitors per day. Thus, the County's defacto population, defined as all persons physically present in an area, grew to 162, 300 in 1997,

an 88% increase over 1980 levels (County of Maui, Office of Economic Development, June 2000).

Likewise, Kihei-Makena experienced high growth rates as the population grew to 22,913 in 2000, up from 15,374 in 1990, and 7,263 in 1980 (United States Department of the Census, 2000). The anticipated 2010 population of the Kihei-Makena region was projected to range from 22,830 to 24,514. The average daily visitor population of the region in 1990 was 16,079 (Kihei-Makena Community Plan, March 1998).

Potential Impacts and Mitigation Measures. Using national demographic multipliers for standard housing types (American Housing Survey, 1987), the proposed project may increase the population of the immediate North Kihei area by approximately 292 persons. This represents approximately 3.2 to 3.9% of the projected growth in resident population for the Kihei-Makena region between 1990 and 2010.

2. Housing

According to the Hawaii Housing Policy Survey (October 1997), the total number of housing units in Maui County for 1997 was 39,252, up from 34,266 in 1992. The housing stock increased during this period by approximately 4,986 units (14.6% growth) relative to slower growth in population (10.9%). Thus, housing conditions in the County have improved since the early 1990's. However, the study suggests that in order to eliminate residual pent-up demand to 2006, approximately 800 new units will be required per year. According to the Department of Housing and Human Concerns, Consolidated Plan For the Period July 1, 2000 Through June 30, 2005, homeownership and rental housing need by income group for Maui County for 2000-2004 is estimated as follows:

Table I. Home Ownership

Year	<30%	30.01 % -50%	50.01 % -80%	80.0% -100%	100.% 120%	120.01% -140%	140.0 % -180%	>180%	Total
2000	13	20	58	64	46	52	70	70	393
2001	14	20	54	63	45	53	70	71	390
2002	13	20	54	63	43	53	70	71	389
2003	13	20	59	62	46	52	70	71	392
2004	16	20	59	62	46	52	70	70	395
Total	69	100	284	314	227	257	347	353	1959

Table II. Rental

Year	<30%	30.01 % -50%	50.01 % -80%	80.0% -100%	100.% 120%	120.01% -140%	140.0 % -180%	>180%	Total
2000	67	70	92	26	54	18	40	30	397
2001	66	70	86	27	55	17	40	29	390
2002	67	70	86	27	55	17	40	29	391
2003	67	70	91	28	55	18	40	29	398
2004	73	70	91	28	54	18	40	30	404
Total	340	350	446	136	273	88	200	147	1980

Within Kihei-Makena, the study identified approximately 5,134 housing units in 1997. A Survey of Kihei-Makena residents, whom indicated a desire to change residences, provides the following insights (Hawaii Housing Policy Survey, October 1997):

- 83% of respondents prefer single-family housing;
- 68% prefer 3 or more bedrooms; and
- 55% prefer home ownership.

In 1999, the median sales price for a single-family residential dwelling in Maui County was $250,000 and $248,000 in Kihei (County of Maui, Office of Economic Development, June 2000).

Potential Impacts and Mitigation Measures. At least fifty percent of the units will be priced at or under the definition of "affordable housing" as established in Section 18.04.055, MCC. The base price of the homes is anticipated to be affordable for persons or families whose incomes are identified as one hundred forty percent or less of the area median income for the County as determined by the Federal Department of Housing and Urban Development. As such, the proposed project will serve to reduce the existing pent-up demand for affordably priced single-family residences within the County.

3. Economy

Existing Conditions. The Kihei-Makena economy is based primarily upon the visitor industry. Visitor accommodations are located along the shoreline along with various support facilities, multi-family, and single-family residential developments. Kihei and Wailea have developed into important visitor destination anchors. Makena is significantly less developed. Much of the regions economic activity is derived directly or indirectly from tourism. In addition to tourism, high technology promises to be an

increasingly important component of the Kihei-Makena economy. Most existing and projected employment in high technology will occur at the Maui Research and Technology (R&T) Park located in North Kihei, which is likely to become a major employment center.

Countywide, unemployment has decreased from a recent high of 7.5% in 1997 to a rate of 5.7% in 1999 (County of Maui, Office of Economic Development, April 1999). Full employment in an economy generally occurs at a rate of approximately 4.5% - 5% (Dornbusch and Fisher, 1990).

Potential Impacts and Mitigation Measures. The project will generate construction-phase economic impacts that are generally short-term effects. They include employment, income, and expenditure impacts that are created by on-site and off-site construction employment, on-site and off-site trade/transportation/service employment, and manufacturing employment in support of construction.

Short-term construction related impacts. Using the State of Hawaii, Department of Business Economic Development and Tourism's Input-Output Model (1998), the direct employment impact is estimated to be approximately 121 jobs during the construction phase of the development. The direct, indirect, and induced employment impact during this period is approximately 344 jobs.

4. Cultural Resources

Existing Conditions. A Cultural Impact Assessment Report was prepared by Kapiioho Lyons Naone Cultural Consulting, Inc., which describes the potential impact on cultural practices and beliefs resulting from the proposed action (See: Appendix C, "Cultural Impact Assessment"). The assessment covered the entire project site. The methods used to conduct the assessment included:

- Walking and feeling the property; and
- Interviewing members of three Ohana who are long-time residents of the greater Waipuilani area;

From a cultural practices and beliefs perspective, the proposed Waipuilani Estates project bears no apparent signs of cultural practices or gatherings taking place on the proposed project property either currently or for more than 30 previous years. There were no medicinal plants growing anywhere on the property. The area hosts mainly Kiawe trees and grass. Further, no architectural features were identified and none were

recollected by the members of the Kanana Ohana, Okina Ohana, or Akaka Ohana. The property has been used for cattle grazing and bears no signs of cultural sites or practices at this time.

In summary, Mr. Naone believes there have been no significant cultural practices or beliefs associated with the subject property, and there are no cultural resources that will be affected by the proposed project.

Potential Impacts and Mitigation Measures. The analyst recommends the following measures which will be implemented during the construction phase of the project:

1. A cultural specialist should be called to assist the developer should any skeletal remains or any artifacts be found.
2. If any remains are found, work will cease immediately and the State Historic Preservation Division of the Department of Land and Natural Resources and the Maui Burial Council will be contacted immediately pursuant to HRS Chapter 6e-43.6.
3. If remains or artifacts are found, such skeletal remains and/or any artifacts should be temporarily stored and then reinterred at one ceremony near the time of project completion.
4. A place for reinternment should be designated although it appears that such a need is highly unlikely.
5. A cultural specialist should perform a significant Hawaiian cultural blessing ceremony of the area once the building is done.

C. PUBLIC SERVICES

1. Recreational Facilities

Existing Conditions. Kihei-Makena has a wide reputation as a recreational destination, particularly for ocean related activities. Ocean sports and recreation available in the region include golfing, swimming, fishing, surfing, scuba diving, snorkeling, sailing, and kayaking. As of June 23, 1999, there were 18 State and County parks in South Maui providing approximately 108 developed acres of parkland, of which there are nine beach parks, three neighborhood parks, one community park, one district complex, one community complex, and one shoreline area reserve. State and County beach parks within close proximity to the project area include Maipoina Oe Lau Beach Park, Kalama Park, Kamaole Beach Park, the Kihei Aquatic Center, and numerous other beach parks along the Kihei coastline.

Potential Impacts and Mitigation Measures. The proposed project is subject to the provisions of MCC, § 18.16.320 "Parks and playgrounds". Pursuant to § 18.16.320.E, MCC, the applicant proposes to provide an approximate 1.072-acre internal neighborhood park in order to satisfy the County's park dedication requirement. The proposed park will feature an asphalt all-weather play court with basketball hoop, children's playground, picnic area, passive recreational area, and on-site parking (See: Figure 9c, "Park Master Plan"). The subject park will be accessible to the general public. In addition, an approximate 1.733-acre open space detention basin abutting the park site will feature a bicycle/pedestrian path linking the North-South Collector and South Kihei Road, as well as, an area for community gardens. The primary purpose of the drainage basin is to accommodate runoff from the project site and is therefore designed primarily for this purpose while a secondary purpose is to provide additional landscaped open space. The majority of the park and drainage basin will be grassed with pacific islands and exotic species shade trees, bushes, and shrubs that will beautify the area. As such, the proposed project is not anticipated to impact public recreational facilities in the region.

2. Police and Fire Protection

Existing Conditions. There is one fire station serving this community. The fire station is located at 11 Wamahaihai Street at Kalama Park, which is about two miles south of the subject site. The Kihei Fire Station is equipped with a 1,500-gallon pumper, and is staffed by one captain and five firefighters per twenty-four hour shift. Fire flow requirements are addressed in Section III.D.1.

Patrol officers on assignment provide police services for the Kihei-Makena sub district from a new police sub-station at the Kihei Town Center.

Potential Impacts and Mitigation Measures. In the context of the overall projected population growth for the Kihei-Makena region, the proposed project will not result in an overall significant increase in population; thus, the proposed project is not anticipated to have a significant adverse impact upon existing police and fire protection services.

3. Schools

Existing Conditions. There are two public elementary schools and one public intermediate school in the area. Kihei and Kamalii Elementary and Lokelani

Intermediate Schools serve North Kihei. In addition, Montessori Hale O'Keiki provides private education for grades PreK-4. Until recently, Kihei students attended H.P. Baldwin High School in Wailuku but are now required to attend Maui High School in Kahului. The newly constructed Kamalii Elementary School is the closest elementary school to the project site, and is located about 1 mile from the project. The Department of Education provided enrollment figures but did not provide capacity information.

The enrollment figures are:

	2000
Kihei Elementary School	779
Kamalii Elementary School	848
Lokelani Intermediate	673
Maui High	1,734

Potential Impacts and Mitigation Measures. Using State of Hawaii, Department of Education, multipliers for standard housing types of school-aged children, the proposed project could increase the student population of the affected schools by approximately:

Grade	Students
K-6	24
JHS	10
HS	10

Pursuant to the State's multipliers, the proposed project will generate an increase of approximately one percent in the number of school-aged children attending the area's public schools. In response to the State Department of Education's (DOE) letter dated June 13, 2001, (See Appendix G), the applicant requested an opinion from the State Attorney General's (AG) Office as to whether the subject fees are legal and can be applied as a developer assessment by the State and County. The AG's Office stated in a March 3, 2003, letter that the subject fees are legal (See: Appendix H, "Comment and Response Letters in Response to Draft Supplemental Environmental Assessment". As such, the applicant is willing to pay the subject education assessment, as determined by the DOE, to be paid during the purchase of each house and lot at the time of escrow.

4. Medical Facilities

Existing Conditions. The Wailuku based Maui Memorial Medical Center provides centralized medical services for the Island. Medical and dental offices are located in Kihei and Wailea to serve the Makena region's residents.

Potential Impacts and Mitigation Measures. In the context of the overall projected population growth for the Kihei-Makena region, the proposed project will not result in an overall significant increase in population; thus, the proposed project is not anticipated to have an adverse impact upon existing medical facilities.

5. Solid Waste

Existing Conditions. Only two landfills are currently operating on Maui, the Central Maui Landfill in Puunene, and the Hana landfill. Residential solid waste collection is provided by the County and taken to the Central Maui Landfill, which also accepts waste from private refuse collection companies.

Potential Impacts and Mitigation Measures. Based upon figures provided by the County of Maui, Curbside Refuse Collection System Plan, September 2000, the subject project will generate approximately 1.72 tons per household per year, which is equivalent to 3,440 pounds/year of solid waste. Thus, the project is anticipated to generate approximately 326,800 pounds/year or 920 pounds per day of solid waste. Solid waste collection for the proposed project will be contracted to a private collection company. Green waste from the site will be either mulched on site or deposited at the Central Maui landfill's green waste recycling facility. It is envisioned that some of the green waste may also be used as mulch for other projects in South Maui. During construction the applicant will incorporate a job site recycling plan in order to reduce the amount of construction related waste generated by the project.

D. INFRASTRUCTURE

A Preliminary Engineering and Drainage Report was prepared by Warren S. Unemori Engineering, Inc., which analyzes existing infrastructure systems accessible to the subject property and proposed improvements to accommodate the proposed development. The report addresses water, sewer, drainage, flooding, roadway, and electrical and telephone systems (See: Appendix E, "Preliminary Engineering and Drainage Report").

1. Water

Existing Conditions. The project site is located within the Kihei low-level service area. The 18-inch low-level transmission line fed by wells at Mokuhau in Iao Valley runs along the easterly boundary of the project site within the designated future North/South road corridor. The 12-inch line on South Kihei Road is interconnected to this 18-inch low-level transmission line by 12-inch lines on Kulanihakoi Street to the north and Waipuilani Road to the south of the project site. Storage for the low-level service area is provided by the 1.5 MG storage tank located at the easterly end of Ohukai Street, about a mile northeast of the project site at elevation 220 feet. The recently completed 2.0 MG tank located at elevation 228 feet above the Maui R&T Park supplements this storage tank. The primary source for the Central Maui Water System is the Iao aquifer, other sources for the system include the Waihee Aquifer and the Iao Tunnel and the Iao-Waikapu Ditch. Rolling annual average groundwater withdrawls from the Iao Aquifer *as of May 1, 2001 were 17.397* MGD. The regulatory sustainable yield of this aquifer is 20 MGD.

Potential Impacts and Mitigation Measures. Based on the DWS's consumption rate standard of 600 gallons per lot, the domestic water demand for the proposed 96-lot subdivision is expected to total around 57,600 gpd. At a fire flow rate of 1000 gpm for two hour duration, the total storage required for fire protection amounts to 120,000 gallons.

A new 8-inch distribution system will be extended through the project from the 18-inch low-level transmission line at the easterly boundary to the existing 12-inch distribution line on South Kihei Road. The onsite system will be looped, with fire hydrants installed at intervals of 300 to 350 feet. Each lot will be metered separately. Regarding potential impacts to water source, there have been concerns expressed about the sustainable yield from the Iao Aquifer (See Appendix G, letter dated July 30, 2001, from Ms. Diane Sheppard, DVM, letter dated June 12, 2001, from Mr. James Williamson, PE, letter dated June 8, 2001, from the Office of Hawaiian Affairs, and letter dated July 5, 2001, from the Department of Land and Natural Resources, Commission on Water Resource Management). Concerns center around the potential effects from overpumping, especially given the configuration of existing wells (See Appendix H, Maui News Article dated December 7, 2001). The Department of Water Supply is implementing a program of source development outside of the Iao Aquifer, as well as, distribution of withdrawals within the aquifer to better protect the resource. Successful implementation of this program will reduce the stresses on the Iao Aquifer and provide for additional water availability. Water availability for the project will be reviewed at the time of application

for meter or meter reservation (See Appendix G, letter dated June 13, 2001, from the Department of Water Supply).

Since the existing source, storage and transmission systems to serve the project are adequate, the developer will pay his prorata share of improvement costs for these facilities in the form of the comprehensive water meter fee of $6,030 per lot per 5/8" meter.

In addition, low flow fixtures, draught tolerant plants, maintenance of fixtures to prevent leaks, and efficient irrigation such as drip will be implemented in order to conserve water. Use of reclaimed water will be encouraged for dust control during the construction phase of the project.

2. Sewer

Existing Conditions. There is an 8-inch gravity sewer line on South Kihei Road. This line feeds into SPS No. 3 located north of Menehune Shores. From this pump station, a series of force mains, gravity collector and other pump stations enroute convey wastewater collected from abutting properties along South Kihei Road to the Kihei Wastewater Reclamation Facility located above Piilani Highway south of the Elleair Golf Course.

Potential Impacts and Mitigation Measures. The 95-lot subdivision is expected to generate approximately 33,600 gpd of wastewater when fully built out. The existing collection, transmission and treatment facilities have ample capacity to handle this flow. Since these facilities were recently upgraded, the developer will be fulfilling his obligation for this upgrade by paying a one-time assessment of approximately $11.29 ($4.65 +$6.64) per gallon of additional wastewater generated by the project. According to the Division of Wastewater Management, the Kihei Wastewater Reclamation Facility has approximately 2.0 MGD of capacity left. Thus, the proposed project will not significantly impact regional wastewater system capacity.

3. Drainage

Existing Conditions. The project site generates approximately 14.1cfs of onsite surface runoff during a 50-year recurrence interval 1-hr. duration storm. Existing onsite surface runoff sheet flows across the project site in an easterly to westerly direction and onto South Kihei Road and into the adjacent downstream properties.

Offsite surface runoff generated by Waipuilani Gulch sheet flows in an existing natural drainageway along the southwesterly portion of the property and crosses South Kihei Road via an existing 3' x 7' box culvert. From there, an existing open grass drainage ditch conveys the surface runoff to the ocean. According to the drainage calculations, Waipuilani Gulch has an existing 100 yr. 24 hr. flow of approximately 9,388 cfs. Due to the small capacity of the drainage facilities, flooding around the adjoining properties occurs as shown on the FIRM maps (See: Appendix E, "Preliminary Engineering and Drainage Report".

Potential Impacts and Mitigation Measures. According to Warren S. Unemori Engineering, Inc., the post development peak runoff from the project site is expected to be approximately 34.1 cfs for a 50-year recurrence interval 1-hour duration storm. This translates to a net increase of approximately 20 cfs due to the project. A table of pre-development and post-development onsite peak discharge is shown:

Drainage Area	Pre.-Dev. Q (cfs)	Post-Dev. Q (cfs)	Increase (cfs)
Project Site	14.1	34.1	+20.0

This increase in onsite surface runoff will be intercepted by new curb inlet type catch basins and conveyed by means of a new underground drainage system located within the subdivision roadways. This surface runoff will be directed into an approximate 2.90-acre landscaped open space park/detention basin that will be constructed within the southwesterly portion of the project site. A small diameter release pipe from the park/detention basin will be installed to control the rate of release such that the post-development discharge will not exceed the pre-development peak flow. The release pipe will discharge the impounded runoff to a new storm drainage system on South Kihei Road or to the existing Waipuilani Gulch drainage channel makai of South Kihei Road. Therefore, there will be no increase of surface peak discharge to South Kihei Road and the adjoining downstream properties (See Appendix E, Preliminary Engineering and Drainage Report".

As requested by the County of Maui Planning Department, the park/retention basin within the proposed subdivision will be designed to accommodate the increase in surface runoff volume, generated by the project, from the entire Waipuilani Gulch drainage basin, including the project site, during a 100 year-24 hr. storm.

As requested by the Maui Planning Commission, the Addendum to the Preliminary Drainage Report (See: Appendix E) provides an analysis of the design parameters and

estimated construction cost to channelize the Waipuilani Gulch. The analysis demonstrates that approval of the proposed project would not preclude the County from channelizing Waipuilani Gulch in the future and that if such an improvement was undertaken, the subject channel would not affect the siting of the proposed homes or neighborhood park.

A National Pollution Discharge Elimination System (NPDES) permit will be required for the project since the site is greater than 5 acres. The NPDES permit, which is essentially an erosion control plan for construction activities, will incorporate Best Management Practices (BMP's) designed specifically to reduce the potential for non-point sources of pollution from impacting nearshore water quality. Project plans call for long-term, as well as short-term measures, which will minimize the potential impacts from runoff from the property. These measures include the following:

Long-term

As discussed, additional onsite runoff generated by the project will be directed into sub-surface detention facilities. These facilities will not only keep the post development peak flow volumes at predevelopment rates, but will also serve as sedimentation traps and filters to prevent sediments or pollutants from migrating into coastal waters.

The 2.90-acre landscaped open space park/detection basin will be maintained in a vegetative state in order to act as a filter to trap sediments in runoff.

Short-term

Stormwater control structures will be constructed prior to initiation of major site improvements. This will include installation of the permanent stormwater retention/siltation facilities as well as temporary retention/siltation basins throughout the site.

Temporary berms to divert storm runoff to the retention basins will be constructed. Temporary silt screens will be installed along South Kihei Road and within drainage swales along the project limits. Temporary silt screens will also be installed around or within new catch basins and drain inlets. Topsoil stockpiles will be covered or stabilized.

The amount of construction time spent in streambeds will be minimized. Sediment and debris from construction activities will be properly disposed of. Bare areas will be replanted or covered as soon as grading or construction is completed.

4. Roadways and Traffic

Existing Conditions. A Traffic Impact Analysis Report was prepared by Phillip Rowell and Associates which describes the traffic characteristics of the proposed project and likely impacts to the adjacent roadway network. The report analyzes existing conditions in the area, cumulative and project-related traffic conditions, and discusses traffic impacts and mitigation measures (See: Appendix F, "Traffic Impact Analysis Report").

As discussed, the proposed project consists of 95 single-family dwelling units. Access will be provided via a roadway along the south side of Kulanihakoi Road, approximately 800 feet east of South Kihei Road. A second roadway entrance and exit is proposed along South Kihei Road. This roadway will be restricted to right turns in and out in order to minimize the project's impact on traffic flow along South Kihei Road.

The following is a summary of the major roadways in the study area:

Piilani Highway

Piilani Highway is a major State highway connecting Kihei and Wailea. In the vicinity of the proposed project, the highway is a two-lane, two-way facility with separate left turn lanes. The posted speed limit is 45 miles per hour (mph).

South Kihei Road

South Kihei Road is a two-lane, two-way north-south County road along the westerly boundary of the project connecting Kihei with Wailea and Makena. The posted speed limit is 30 mph. There is a separate southbound left turn lane at the intersection with Kulanihakoi Road. This intersection is unsignalized.

Kulanihakaoi Road

Kulanihakoi Road is a two-way street connecting South Kihei Road and Piilani Highway. The abutting land use is residential except for a short section abutting a park and church parking lot. The posted speed limit is 20 mph.

Existing Roadway Conditions

A Level-of-Service Analysis was conducted for intersections that will be impacted by the development. The existing Levels-of-Service are shown in the following table:

Existing Levels-of-Service

	AM Peak Hour		PM Peak Hour	
Intersection and Movement	Average Vehicle Delay	LOS	Average Vehicle Delay	LOS
Kulanihakoi Road at South Kihei Road				
Westbound Left	101.9	F	311.9	F
Westbound Right	16.6	C	16.6	C
Southbound Left	9.0	A	10.0	B
Kulanihakoi Road at Piilani Highway				
Eastbound Left	140.7	F	305.0	F
Eastbound Right	30.8	D	24.8	C
Northbound left	11.3	B	11.6	B

The conclusion of the Level-of-Service analysis for existing conditions is as follows:

1. There are significant delays to left turns from Kulanihakoi Road to northbound Piilani Highway and southbound South Kihei Road. These left turn movements operate at Level of Service F during both the morning and afternoon peak periods.

2. Left turning vehicles from Kulanihakoi Road to northbound Piilani Highway use the median of Piilani Highway as a refuge area.

3. The delay to left turning vehicles observed in the field during the traffic counts were significantly shorter than those calculated. This indicates that left turning vehicles are able to merge into shorter gaps in the opposing traffic streams than those used in the calculations.

County Roadway Improvement Projects

There are several roadway improvement projects planned for the study area. A brief discussion of these projects follows:

1. It was recently reported that the County will begin construction of the North-South Collector, which is along the eastern boundary of the project. As of this date, no timetable for construction has been established. Based on the

conclusions and recommendations presented in the *Kihei Master Traffic Plan* and the *Maui Long Range Transportation Plan*, completion of the North-South Collector will have a positive impact on the study intersections since it will attract traffic from Piilani Highway and South Kihei Road. A traffic study for the County to determine traffic volumes along the North-South Collector and to determine a typical cross-section is underway by another consultant. Preliminary results of this study could not be obtained to incorporate into our traffic analysis.

Since there is no firm date for completion of this project, it was assumed that the North-South Collector will not be completed before the design year for Waipuilani Estates, which is 2005. Therefore, the conditions analyzed in this traffic impact study represent worst-case conditions since traffic volumes along Piilani Highway and South Kihei Road should be reduced upon completion of the North-South Collector. The level-of-service of the intersection of Kulanihakoi Road at the North-South Collector should be addressed in the Environmental Assessment for the North-South Collector and the appropriate right-of-way control determined at that time.

2. Modification of Piilani Highway so that the shoulders may be used during the morning and afternoon peak hours is under construction. This project will also have a positive impact on the intersection of Piilani Highway at Kulanihakoi Drive since it provides additional northbound and southbound capacity. Since this project will most likely be completed within the year, the level-of-service calculations included this improvement.

A traffic signal warrant analysis was performed for existing conditions. This analysis determined that a traffic signal is warranted at the intersection of South Kihei Road at Kulanihakoi Road as a result of current conditions. This issue was discussed with the Department of Public Works during a preconsultation meeting at the beginning of the traffic study. We were advised that since this traffic signal is warranted for existing conditions, it should be assumed that the intersection will be signalized for purposes of the level-of-service analysis for future conditions.

Project Related Impacts

Potential Impacts and Mitigation Measures. The proposed project will increase the number of vehicles traveling along the approach and departure routes to the proposed project. The following table provides an estimate of the number of trips that the subject project will generate during the morning and afternoon peak hours:

Trip Generation Summary of the Proposed Project

Time Period	Direction	Rate or Factor	Units	New Peak Hour Trips
	Total Trips Per Unit	0.77	95	73
AM Peak Hour	% Inbound	25%		18
	% Outbound	75%		55
	Total trips Per Unit	1.02%	95	97
PM Peak Hour	% Inbound	64%		62
	% Outbound	36%		35

The project-related trips were distributed along the anticipated approach routes to the project site based on the directional distribution of existing peak hour traffic along Piilani Highway and South Kihei Road.

Conclusions of Level-of-Service Analysis for 2005 Peak Hour Conditions:

Cumulative plus project traffic conditions are defined as 2005 background conditions plus project related traffic. The incremental difference between cumulative and cumulative plus project is the traffic impact of the project under study. The assumptions used for the level-of-service analysis are:

1. The intersection of Kulanihakoi Road at South Kihei Road is signalized based on the results of the traffic signal warrant analysis discussed previously.
2. Piilani Highway is two lanes northbound and two lanes southbound.
3. The project entrance driveway at Kulanihakoi Road is a two-lane, two-way roadway. There is no separate left turn lane from Kulanihakoi Road to the project's entrance.
4. The project driveway along South Kihei Road allows right turns in and right turns out only.

Conclusions from the Traffic Impact Analysis:

The conclusions of the traffic impact analysis for 2005 cumulative plus project conditions are as follows:

1. There is no change in the overall levels-of-service at the study intersections as a result of the proposed project. The deficiency is left turns from Kulanihakoi Road onto Piilani Highway at South Kihei Road. Left turns from Kulanihakoi

Road to South Kihei Road will operate at Level-of-Service F until the intersection is signalized. It is understood that left turns from Kulanihakoi Road to Northbound Piilani Highway may be prohibited by HDOT when the North-South Collector is constructed. The impacts of this prohibition would be analyzed in the Environmental Assessment for the North-South Collector if this were part of the proposed plans.

2. Background traffic growth was estimated using traffic projections from the Kihei Master Traffic Plan, which considered residential development within the study area, and then superimposed on traffic projections estimated from current traffic surveys plus potential development projects in the vicinity of the proposed project. However, this background traffic growth was not associated with a specific development within the traffic analysis zone for this area. Therefore, traffic from the proposed project has probably been double counted along Piilani Highway and South Kihei Road corridors, resulting in conservative estimates of future traffic conditions in the study area.

3. An analysis of the peak hour related traffic signal warrants for the intersections of Kulanihakoi Road at South Kihei Road indicate that traffic signals are warranted at the intersection of Kulanihakoi Road at South Kihei Road under existing conditions. It is important to note that these warrants are not met by future development, but as the result of existing traffic conditions. Of the future morning and afternoon peak hour, only 1.8% and 1.2%, respectively, of the total traffic is project generated.

4. No traffic calming measures have been recommended for Kulanihakoi Road as a result of anticipated traffic growth. Traffic calming measures should be initiated only after the petition requirements of Maui County have been satisfied. Traffic calming within the project is provided by the curvilinear design of the street alignment and the restricted access to and egress from the project along South Kihei Road.

Although the proposed project will not significantly impact traffic conditions, members of the Kihei community have expressed concerns regarding existing traffic conditions within the region (See Appendix G, letter dated July 30, 2001, from Ms. Dianne Sheppard, DVM, and Appendix H, Maui News Article titled "Traffic plan drafted; moratorium isn't in it").

Other Considerations:

Planned Roadway Improvements. On-site roadway improvements will consist of, but are not limited to, a 24-feet wide internal street network with 40-foot right-of-way, concrete sidewalk, concrete curb and gutters, and landscape planting.

South Kihei Road fronting the project has a right-of-way of 50 feet. The County's master plan calls for an ultimate right-of-way of 60 feet. In accordance with County plans, off-site improvements will include the dedication of a 5-foot road-widening strip along the mauka side of South Kihei Road that will be improved by the County as part of the South Kihei Road Phase IV project with concrete curb, gutter and sidewalk, as well as a storm drain system. The Kulanihakoi Street access will be improved in accordance with County standards with minor modification, subject to County approval. The total length of this access road from Kulanihakoi Street is 420 feet.

As discussed, planned State and County regional roadway improvements include interim and longer-term solutions to reduce traffic congestion in the region. Some of these regional roadway improvements include:

- Construction of the North-South Collector, which is along the eastern boundary of the project. As of this date, no schedule has been established. Completion of this section of the North-South Collector will have a positive impact on the study intersections since it will divert traffic from Piilani Highway and South Kihei Road.

- The modification of Piilani Highway so that the shoulders may be used during the morning and afternoon peak hours are under design and an environmental assessment is being prepared. This project will also have a positive impact on the intersection of Piilani Highway at Kulanihakoi Road.

- Installation of a traffic signal at the intersection of Kulanihakoi Road and South Kihei Road.

- Implementation of signal management to allow more volume on the higher demand legs.

5. Electrical and Telephone

Existing Conditions. There are overhead electrical and telephone distribution systems on Kihei Road fronting the project site. An underground distribution system is also available on Kulanihakoi Street.

Potential Impacts and Mitigation Measures. Electrical, telephone, and CATV facilities will be installed underground and extended into the subdivision along the shoulders of the subdivision streets. Street lights will also be installed along the subdivision streets at intervals deemed appropriate by the electrical engineer and in accordance with the County's recently revised streetlight standards.

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE LAW

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes four major land use districts into which all lands in the State are placed. These districts are designated Urban, Rural, Agricultural, and Conservation. The subject property is within the Urban District. The proposed improvements are permitted within the Urban District.

B. MAUI COUNTY ZONING

The subject property is situated within the County of Maui's R-3, Residential District. The R-3 district allows for single-family residential dwelling units, which may be built on lots with a minimum lot size of 10,000 square feet.

The applicant is requesting that the property be allowed to be developed in accordance with Maui County Code, Chapter 19.84, "R-0 Zero Lot Line Overlay District" which allows for a maximum of five units per acre and a minimum lot size of 4,000 square feet for each R-0 Lot Line lot within the R-3, Residential District. Approval of the "R-0 Zero Lot Line Overlay District" is required by both the Director of the Department of Planning, as well as, the Director of Public Works and Waste Management. A principal purpose of the R-O Lot Line Overlay District is to provide incentives in order to encourage the provision of affordable housing within Maui County.

C. GENERAL PLAN OF THE COUNTY

The General Plan of the County of Maui (1990 update) provides long-term goals, objectives, and policies directed toward improving living conditions in the County. The

following General Plan Themes, Objectives and Policies are applicable to the proposed project:

Theme No. 5: Provide for Needed Resident Housing

Amendments to the General Plan address the development of resident housing as a major social need in our community.

I.A. **Population**

Objective No. 2.: **To use the land within the County for the social and economic benefit of all the County's residents.**

Policies:

(b). Encourage land use methods that foster a pedestrian oriented environment to include such amenities as bike paths, linear parks, landscaped buffer areas, and mini-parks.

(c). Encourage land use methods that will provide a continuous balanced inventory of housing types in all price ranges.

II.A. **Economic Activity**

Objective No. 3: **Utilize an equitable growth management program which will guide the economic well-being of the community.**

Policies: *Encourage the adoption of a resource allocation program which gives a high priority to affordable residential projects.*

III. **Housing and Urban Design**

A. **HOUSING**

Objective No. 1: **To provide a choice of attractive, sanitary and affordable homes for all our residents.**

Policies:

(b). Encourage the construction of housing in a variety of price ranges and geographic locations.

B. URBAN DESIGN

Objective No. 1: **To see that all developments are well designed and are in harmony with their surroundings.**

Policies:

(a) Require that all appropriate principles of urban design be observed in the planning of all new developments.

Objective No. 2: **To encourage developments which reflect the character and the culture of Maui County's people.**

Policies:

(b) Encourage community design which establishes a cohesive identify.

(c) Encourage the establishment of continuous green areas, bike-paths, active and passive recreation areas and mini-parks in new subdivision development.

D. KIHEI-MAKENA COMMUNITY PLAN

Nine community plan regions have been established in Maui County. Each region's growth and development is guided by a community plan, which contains objectives and policies in accordance with the Maui County General Plan. The purpose of the community plan is to outline a relatively detailed agenda for carrying out these objectives.

The subject property is located within the Kihei-Makena Community Plan region. The Community Plan was recently adopted by ordinance No. 2641 on March 6, 1998.

The Kihei-Makena Community Plan designation for the subject property is Multi-Family (MF) on the makai portion of the lot (approximately 8-acres) and Single-Family (SF) on the mauka portion of the lot (approximately 12-acres). The applicant is requesting a Community Plan Amendment from MF to SF on the makai 8-acres in order to bring conformity between the Community Plan Designation and the proposed use of the property.

The following Kihei-Makena Community Plan goals, objectives, and policies are applicable to the proposed action:

Goal: **Land Use. A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructure and community needs while preserving and enhancing the unique character of Ma`alaea, Kihei, Wailea and Makena as well as the region's natural environment, marine resources and traditional shoreline uses.**

Objectives and Policies:

c. *Upon adoption of this plan, allow no further development unless infrastructure, public facilities, and services needed to service new development are available prior to or concurrent with the impacts of new development.*

g. *Encourage the establishment of single-family and multi-family land use designations which provide affordable housing opportunities for areas which are in close proximity to infrastructure systems and other urban services.*

Analysis. Section III of this report addresses the impact that the proposed project will have upon existing public infrastructure, facilities, and service systems. Based upon the analysis, public infrastructure and services currently have, or will have in the foreseeable future, adequate capacity to serve the development and will therefore not be significantly impacted by the project. As discussed, the developer will contribute the pro rata share required by the State and County for sewer, water, and park facilities and services in order to minimize the incremental impact of the subject development upon public finances. Thus, the necessary infrastructure, public facilities, and services will be available prior to and/or concurrent with development of the site.

In addition, pursuant to the Kihei Community Plan Land Use Map, a 50–feet internal road right-of-way has been provided to allow for the construction of a roadway lingking Kulanihakoi Street in a north south orientation to Hoonani Street should the County determine that such a roadway is desirable in the future (See Appendix G).

In accordance with policy No. 8, the proposed project will provide housing that is affordable to Maui's median income households. In addition, the proposed project

represents an infill project where vacant urban-zoned land is being proposed for development within close proximity to infrastructure systems and services capable of servicing the development.

Goal: Environment. **Preservation, protection, and enhancement of Kihei-Makena's unique and fragile environmental resources.**

Analysis: As described in Section III of this report, Kihei-Makena's unique and fragile environmental resources, including its shoreline, near and off-shore water quality, drinking water, visual resources, archeological resources, and endangered species of flora and fauna, will not be significantly impacted by this project.

Goal: Housing and Urban Design. **A variety of attractive, sanitary, safe and affordable homes for Kihei's residents, especially for families earning less than the median income for families within the County. Also, a built environment which provides complementary and aesthetically pleasing physical and visual linkages with the natural environment.**

Objectives and Policies

(a) Provide an adequate variety of housing choices and range of prices for the needs of Kihei's residents, especially for families earning less than the median income for families within the County, through the project district approach and other related programs. Choices can be increased through public/private sector cooperation and coordinated development of necessary support facilities and services.

(b) Require a mix of affordable and market-priced housing in all major residential projects, unless the project is to be developed exclusively as an affordable housing project.

(d) Provide for integration of natural physical features with future development of the region. New development shall incorporate features such as gulches and wetlands into open space and pedestrian pathway and bikeway systems.

(e) Implement the principles of xeriscaping in all future landscaping.

Analysis: Approximately 50% of the proposed units will be priced at or under the definition of "affordable housing" as established in Section 18.04.055, MCC. The base price of the homes is anticipated to be affordable for persons or families whose incomes are identified as one hundred forty percent or less of the area median income for the County as determined by the Federal Department of Housing and Urban Development. As such, the proposed project will serve to reduce the existing pent-up demand for affordably priced single-family residences within the County.

In regards to policy (d), the proposed project will utilize an area of approximately 1.733-acres that is subject to periodic flooding for open space recreational purposes including an area for a bicycle/pedestrian path linking the North-South Collector and South Kihei Road, as well as, space for community gardens. The subject area will also serve as a detention basin to retain and desilt runoff from the site during occasional periods of heavy flooding. The proposed 1.072-acre park will include the following amenities: an asphalt all-weather play court with basketball hoop, children's playground, picnic area, and on-site parking. As such, the proposed development serves the community's objective of incorporating features, such as gulches and wetlands, into open space and pedestrian pathway and bikeway systems.

In addition, the proposed landscaping plans incorporate the principles of xeriscaping into the design.

Goal: <u>Physical and Social Infrastructure.</u> **Provision of facility systems, public services and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kihei-Makena community, and fully support present and planned land uses, especially in the case of project district implementation.**

Allow no development for which infrastructure may not be available concurrent with the development's impacts.

<u>Transportation</u>

Objectives and Policies:

(b) Undertake transportation system improvements concurrently with the planned growth of the Kihei-Makena region. Require adequate interregional highway capacity, including the widening

of Pi`ilani and Mokulele Highways to four lanes, prior to the construction of major projects south of Kilohana Road or mauka of Pi`ilani Highway.

(c) Strengthen the coordination of land use planning and transportation planning to promote sustainable development and to reduce dependence on automobiles. New residential communities should provide convenient pedestrian and bicycle access between residences and neighborhood commercial areas, parks and public facilities.

Analysis: As discussed in the Traffic Impact Analysis Report prepared by Philip Rowell & Associates, the proposed project will increase traffic along South Kihei Road, Kulanihakoi Road, and Piilani Highway. However, this increase in traffic represents a very small percentage of the overall current level of traffic serviced by these roadways. As such, the proposed project will not change the current level of service along these roadways. As discussed in the traffic report, a traffic signal is currently warranted at the intersection of Kulanihakoi Road and South Kihei Road due to the existing traffic volume at this intersection. In response, the Department of Public Works and Waste Management has stated that due to the presence of an existing warrant at the intersection, a traffic signal will be budgeted as a future roadway improvement.

It should be noted, that the proposed project is situated within the already urbanized area of North Kihei. As such, the project represents an infill development on land that is proximate to supporting urban infrastructure and facilities. As discussed, in the context of the Kihei-Makena Community Plan, which was adopted in order to guide future development in the area, the proposed project is consistent with the future planned growth of the region.

Goal: **Drainage**

Objectives and Policies

(a) Design drainage systems that protect coastal water quality by incorporating best management practices to remove pollutants from runoff. Construct and maintain, as needed, sediment retention basins and other best management practices to remove sediments and other pollutants from runoff.

(b) Construct necessary drainage improvements in flood prone areas. Where replacement drainage are required for flood protection, these systems shall be designed, constructed, and maintained using structural controls and best management practices to preserve the functions of the natural system that are beneficial to water quality. These functions include infiltration, moderation of flow velocity, reduced erosion, uptake of nutrients and pollutants by plants, filtering, and settlement of sediment particles. The use of landscaped swales and unlined channels shall be urged.

(d) Minimize the increase in discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.

Analysis. As discussed in the Preliminary Engineering and Drainage Report (See Appendix E), the increase in impervious surfaces created by the project will result in increased runoff estimated at 20.0 cfs. If not contained and filtered this increase in runoff could impact nearshore water quality. Thus, the increased runoff will be directed into onsite subsurface detention facilities. These facilities will not only keep the post development peak flow volumes at predevelopment levels, but will also serve as sedimentation traps and filters to prevent sediments or pollutants from migrating into the coastal waters. In addition, the open landscaped park/detention basin will serve to retain and desilt runoff from the site during occasional periods of heavy flooding.

As requested by the County of Maui Planning Department, the park/retention basin within the proposed subdivision will be designed to accommodate the increase in surface runoff volume from the entire Waipuilani Gulch drainage basin, including the project site, during a 100 year-24 hr. storm.

Thus, the proposed project is consistent with the community's goal to insure that new development will not adversely affect the marine environment and/or nearshore and offshore water quality.

Goal: **Energy and Public Utilities**

Objectives and Policies

(a) Promote energy efficiency as the energy resource of first choice, and increase energy efficiency in all sectors of the community.

(e) *Promote environmentally and culturally sensitive use of renewable energy resources like biomass, solar, wind, and hydroelectric energy in all sectors of the economy.*

Analysis. The proposed project will incorporate solar heating into all single-family detached dwellings in order to conserve energy and reduce the project's reliance upon fossil fuels.

Goal: **Recreation**

Objectives and Policies

b. *Provide for a range of park sizes and types at neighborhood, community and regional scales. New residential developments shall provide recreational facilities on-site to meet the immediate needs of project residents.*

Analysis: The applicant proposes to provide an approximate 1.103-acre internal park to Waipuilani Estate residents and the neighboring community. As discussed, the park will feature a children's playground, an asphalt all-weather play court with basketball hoop, and a bicycle/pedestrian path linking the North-South Collector and South Kihei Roads. The majority of the park will be grassed with Polynesian and exotic species of shade trees, bushes, and shrubs that will beautify the area. The proposed park will comply with the requirements set forth in Maui County Code Section 18.16.320, "Parks and Playgrounds". As such, the proposed project is not anticipated to impact public recreational facilities in the region and conforms with the community's objective of encouraging new development to provide recreational facilities on-site.

E. SPECIAL MANAGEMENT AREA OBJECTIVES AND POLICIES

The subject project is located within the Special Management Area (SMA). As such, the proposed improvements will require an SMA Use Permit. Pursuant to Chapter 205A, Hawaii Revised Statutes, and the Rules and Regulations of the Planning Commission of the County of Maui, projects located within the SMA are evaluated with respect to SMA objectives, policies, and guidelines. This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A and the Rules and Regulations of the Planning Commission.

1. Recreational Resources

Objective: Provide coastal recreational resources accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreation planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring placement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or require reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing;

(viii) Encourage reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.

Analysis. South Kihei Road, as well as, condominium buildings fronting the coastline, separates the subject property from the ocean. Therefore, the proposed project will have no direct impact on the public's use or access to the shoreline area. In order to protect

the recreational value of nearshore resources, Best Management Practices, will be employed during construction activities to minimize the potential of erosion and silt movement. Moreover, due to the presence of the proposed on-site drainage and detention basin, which will keep the post development peak flow volumes at predevelopment levels and will prevent sediments or pollutants from migrating into the coastal waters, there will be minimal impact to nearshore water quality due to runoff or other potential sources of non-point sources of pollution.

2. Historical/Cultural Resources

Objective: Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

(a) Identify and analyze significant archeological resources;

(b) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(c) Support state goals for protection, restoration, interpretation, and display of historic structures.

Analysis. As discussed in Section III of this report, Aki Sinoto Consulting in association with Archaeological Services Hawaii, LLC, completed an archaeological inventory survey for the project.

The objective of the archaeological undertaking was to determine the presence/absence, extent, and significance of potential cultural resources located within the project area. The objective of the supplemental testing was to determine the presence/absence of Site 50-50-09-4981, the buried remains of a pond/wetland, that was identified in the adjoining area to the north during previous investigations.

As a result of the investigation is was determined that no significant surface features or areas of exposed cultural deposition were encountered during the surface survey. The negative results of the inventory survey indicated that the subject area was most likely not intensively utilized for habitation or agricultural activities during the prehistoric and early periods. The information obtained through the backhoe testing shows that subsurface cultural remains are also absent in the areas tested.

Based on the negative results of the current inventory survey, the current project area does not appear to hold much archeological significance. As such, the proposed development supports the community's objective of insuring that new development

does not disturb historic and prehistoric resources in the coastal zone management area that are deemed to be significant in Hawaiian and American history and culture.

3. Scenic and Open Space Resources

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(a) Identify valued scenic resources in the coastal zone management area;

(b) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(c) Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources; and

(c) Encourage those developments that are not coastal dependent to locate in inland areas.

Analysis. As discussed in Section III of this report, numerous scenic resources have been identified in North Kihei, which are identified and discussed in the Maui Coastal Scenic Resources Study, August 1990 (See: Appendix D, "Maui Scenic Coastal Resources Study, Kihei Map"). The resource/inventory map, which is located in Appendix D in this report, does not identify any significant view occurring across the subject property that will be affected by the development.

From an urban design perspective, the proposed development will serve to create a more unified and cohesive residential development pattern in the area. To enhance the visual qualities into the project area, the landscape concept plan proposes xeriscaping and planting of primarily Polynesian and exotic species shade trees to enhance the project's aesthetics.

4. Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(a) Improve the technical basis for natural resource management;

(b) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(c) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
(d) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

Analysis. As described in Section III of this report, the project will not have a significant direct impact on the region's coastal ecosystem, and with the incorporation of appropriate measures during construction, there should be no significant adverse impacts to nearshore waters from point and non-point sources of pollution.

5. Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(a) Concentrate coastal dependent development in appropriate areas;
(b) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area;
(c) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
    (i) Use of presently designated locations is not feasible;
    (ii) Adverse environmental impacts are minimized; and
    (iii) The development is important to the State's economy.

Analysis. The proposed residential use of the property is consistent with the State's urban land use designation, as well as, the County's zoning and community plan designations. Moreover, the subject property is within an area that supports other similar types uses, including detached single and multi- family residences, and supporting public infrastructure and services. As such, the proposed project is within an area that has been planned for growth and development and provides the supporting infrastructure and services required to service this growth.

6. Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(a) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;

(b) Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and non-point pollution hazards;

(c) Ensure that developments comply with requirements of the Federal Flood Insurance Program;

(d) Prevent coastal flooding from inland projects; and

(e) Develop a coastal point and nonpoint source pollution control program.

Analysis. As discussed in Section III of this report, the project site is situated within Zones A3, AO and C. Zone A3 is an area of 100-year flood where base flood elevations and flood hazard factors have been determined. Zone AO is an area of 100-year shallow flooding where depths are between one (1) and three (3) feet, where average depths of inundation are shown, but no flood hazard factors are determined. Zone C is designated as an area that is subject to minimal flooding.

Flood zone designations have been a primary consideration during the site planning of the property. To minimize any potential risk to health, safety, and welfare due to the subject development being located within a flood zone, all habitable structures will be constructed above the base flood elevations utilizing post and pier construction methods that will comply with the requirements established in Maui County Code Chapter 19.62 "Flood Hazard Areas" (See: Figure No. 6, "Flood Insurance Rate Map"). In addition, all prospective buyers of property within the flood zone will receive notice that their homes are located within a floodplain.

7. Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources hazards.

Policies:

(a) Use, implement, and enforce existing laws effectively to the maximum extent possible in managing present and future coastal zone development;

(b) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
(c) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning process and review process.

Analysis. The development of the subject property is being conducted in accordance with applicable State and County requirements. Opportunity for review of the proposed action is provided through the County's Special Management Area (SMA) permitting process, as well as, through the environmental review process established by Chapter 343, HRS.

8. Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:
(a) Maintain a public advisory body to identify coastal management problems and to provide policy advise and assistance to the coastal zone management program.
(b) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and
(c) Organize workshops, policy dialogues, and site-specific medications to respond to coastal issues and conflicts.

Analysis. Prior to submittal of the application, pre-consultation was conducted with adjacent property owners, the Kihei Community Association, and governmental agencies (See: Appendix A, "Pre-consultation"). These activities included mail-outs and informational meetings in order to describe the proposed project and solicit issues that need to be addressed through the environmental assessment process. During the scheduled public hearings, the public will have an opportunity to review and comment on the proposed project. Landowners located within 500 feet of the project will be notified of the scheduled public hearing dates. Public hearing dates and location maps will also be published in the Maui News on two separate occasions. The public will be allowed to participate in the public hearing portion of the Maui Planning Commission's review process and during the 30-day public comment period for the Draft Environmental Assessment.

9. Beach Protection

Objective: Protect beaches for public use and recreation.

Policies:

(a) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

(b) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(c) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Analysis. South-Kihei Road, along with condominium buildings located along the shoreline, separates the subject property from the beach. Accordingly, the project will not involve construction of any structures within the shoreline area and the subject property will not have a direct physical impact upon any public beaches, due to its separation from the coastline.

10. Marine Resources

Objective: Implement the State's ocean resources management plan.

Policies:

(a) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(b) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(c) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;

(d) Assert and articulate the interest of the state as a partner with federal agencies in the sound management of the ocean resources within the United States exclusive economic zone;

(e) Promote research, study, and understanding of ocean processes, marine life, and other ocean development activities relate to and impact upon the ocean and coastal resources; and

(f) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Analysis. The proposed project does not involve the direct use or development of marine resources. In addition, with the incorporation of erosion and drainage control measures during construction and after construction as identified in this report, there should not be significant adverse impacts to nearshore waters from point and non-point sources of pollution. Therefore, the subject project will not produce any significant impacts on any coastal or marine resources.

F. ENVIRONMENTAL ASSESSMENT SIGNIFICANCE CRITERIA

In accordance with Title 11, Department of Health, Chapter 200 and Subchapter 6, Section 11-200-12, Environmental Impact Statement Rules, and based on the detailed analysis contained within this document, the following conclusions are supported:

1. **The proposed action will *not* result in an irrevocable commitment to loss or destruction of natural or cultural resources.**

   Analysis. As documented in this report, the proposed project will not involve the loss or destruction of any natural or cultural resource (See Section III.A.B.C.D).

2. **The proposed action will *not* curtail the range of beneficial uses of the environment.**

   Analysis. The subject property is within the State's Urban District and is zoned and community planned for residential development. The subject property was once used for animal grazing but is no longer being used for that purpose. The State's and County's land use policies support urbanization of the parcel. Thus, the proposed action will not curtail the range of beneficial uses of the environment.

3. **The proposed action will *not* conflict with State or County long-term environmental policies and goals as expressed in Chapter 344, HRS, and those which are more specifically outlined in the Conservation District Rules.**

   Analysis. The project is being developed in compliance with the State's long-term environmental goals. As documented in this report, the proposed project will not cause negative impact to the environment, including near and off-shore coastal waters, potable water resources, flora and fauna, archeological and cultural resources, and scenic resources.

4. **The proposed action will *not* substantially affect the economic or social welfare and activities of the community, county or state.**

   Analysis. Short-term economic impacts will result from the increase in activity associated with the construction of the project. A small number of jobs will be created during the construction phase of the development.

5. **The proposed action will *not* substantially affect public health.**

   Analysis. There are no special or unique aspects of the project that will have a direct impact on public health. It is anticipated that occupants of the project will utilize existing medical facilities located in Kihei, Kahului, and Wailuku and that these facilities will not be significantly impacted by the project.

6. **The proposed action will *not* result in substantial secondary impacts.**

   Analysis. There will be a slight affect on local population levels upon buildout of the project with the addition of 95 single-family residences. Using national demographic multipliers for standard housing types (American Housing Survey, 1987), the proposed project may increase the population of the immediate North Kihei area by approximately 292 persons. This represents approximately 3.2 to 3.9% of the projected growth in resident population for the Kihei-Makena region between 1990 and 2010. Secondary impacts characteristic of population growth include an increase in demand for commercial land uses, recreational resources, public infrastructure and services, as well as, impacts to air and water quality. However, the projected increase in population is not significant in relation to existing population levels and projected population growth for Kihei-Makena and will therefore not result in substantial secondary impacts that are not already anticipated in relationship to the planned growth of the region.

7. **The proposed action will *not* involve substantial degradation of environmental quality.**

   Analysis. Mitigation measures will be implemented during the construction phase in order to minimize negative impacts on the environment, especially with regards to construction runoff. Also, the design of the project has incorporated mitigation measures to minimize impacts to nearshore waters that could arise form an increase in runoff generated on the site as a result of the project (See Section III.D.3 for a discussion of drainage). Other environmental resources such as endangered species of flora and

fauna, air and water quality, and archeological resources will not be significantly impacted by the subject project.

8. **The proposed project will not produce cumulative impacts and does *not* have considerable effect upon the environment or involve a commitment for larger actions.**

   Analysis. The proposed project does not involve a commitment for larger action on behalf of the applicant or any public agency. The subject property is State and County zoned and community planned for urban development, and as such, the proposed development is consistent with the planned future growth of the region. As described in this report, the project will not significantly impact public infrastructure and services including roadways, drainage facilities, water systems, sewers, educational facilities, and parks. In addition, the project is not anticipated to significantly induce population growth beyond what is generated by the project and will therefore not produce considerable effect on the environment nor require a commitment for larger actions by governmental agencies.

9. **The proposed project will *not* affect a rare, threatened, or endangered species, or its habitat.**

   Analysis. As described in Section III of this report, there are no rare, threatened, or endangered species of flora and fauna at the project site.

10. **The proposed action will *not* substantially or adversely affect air and water quality or ambient noise levels.**

    Analysis. As described in Section III of this report, there is a potential for negative impacts to air or water quality and ambient noise levels related to short-term construction activities. Air, noise and dust impacts will be mitigated through implementation of standard mitigation measures as identified previously in this report. It is not anticipated that there will be significant long-term impacts to air or water quality and ambient noise levels due to the operation phase of the development.

11. **The proposed action will *not* substantially affect or be subject to damage by being located in an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone areas, estuary, fresh waters, geologically hazardous land or coastal waters.**

Analysis. As discussed in Section III of this report, the project site is situated within Zones A3, AO and C. Zone A3 is an area of 100-year flood where base flood elevations and flood hazard factors have been determined. Zone AO is an area of 100-year shallow flooding where depths are between one (1) and three (3) feet, where average depths of inundation are shown, but no flood hazard factors are determined. Zone C is designated as an area that is subject to minimal flooding.

To minimize any potential risk to health, safety, and welfare due to the subject development being located within a flood zone, all habitable structures will be constructed above the base flood elevations utilizing post and pier construction methods that will comply with the requirements established in Maui County Code Chapter 19.62 "Flood Hazard Areas" (See: Figure No. 6, "Flood Insurance Rate Map").

12. **The proposed action will *not* substantially affect scenic vistas or view planes identified in county or state plans or studies.**

Analysis. As discussed in Section III.A.9 of this report, the proposed project is not anticipated to significantly impact public view corridors and will not produce significant adverse impact upon the visual character of the site and its immediate environs (See Section III.A.9).

13. **The proposed action will not require substantial energy consumption**

Analysis. Upon build-out of the project, energy consumption will be increased, however, given existing levels of usage in the area the increase is considered insignificant. The project will incorporate use of solar energy, efficient fixtures and lighting as appropriate for each single-family dwellings. The majority of automobile usage is envisioned to occur between the project and employment, recreational facilities, shopping and entertainment areas within Kihei. Thus, it is not anticipated that the resultant increase in energy consumption will be significant in the context of existing levels of vehicular energy usage in Kihei, and on Maui.

V. FINDINGS AND CONCLUSIONS

This Final Supplemental Environmental Assessment is being filed in response to a determination by the Department of Planning that a Community Plan Amendment (CPA) from Multi-Family (MF) to Single-Family (SF) is required for the subdivision of approximately eight (8) acres of the proposed 20-acre Waipuilani Estates single-family residential development on land situated within Kihei, Maui, Hawaii. A Finding of No Significant Impact (FONSI) determination was made by the Department of Planning in December 2001 for the proposed development. However, the original Environmental Assessment did not address the requirement for a Community Plan Amendment from MF to SF. Aside from the Community Plan Amendment, some minor residential architectural changes, and an updated traffic assessment report the proposed project is unchanged.

The Final Supplemental Environmental Assessment concludes that the project will not result in significant environmental impacts to surrounding properties, nearshore waters, natural resources, or archaeological and historic resources on the site or in the immediate area. Public infrastructure and services including roadways, sewer and water systems, medical facilities, police and fire protection, parks, and schools, are, or will be adequate to serve the project and will therefore not be significantly impacted by the project. The proposed project will not impact public view corridors and will not produce significant adverse impact upon the visual character of the site and its immediate environs.

In light of the foregoing, it is hereby concluded that the proposed project will not result in significant impacts to the environment and a Finding of No Significant Impact (FONSI) is warranted.

VI. REFERENCES

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FIGURES

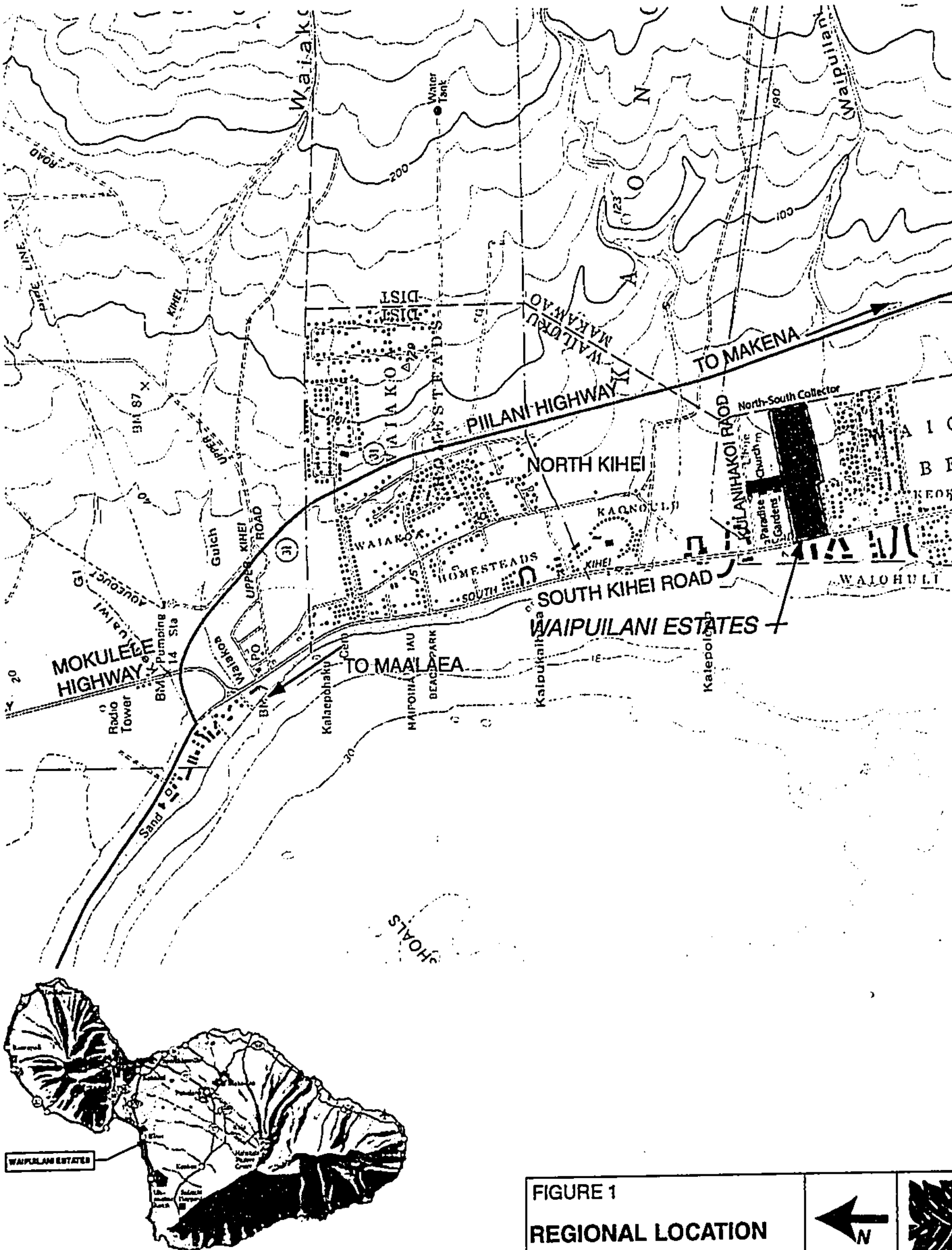


FIGURE 1

REGIONAL LOCATION

WAIPUILANI ESTATES

0' 2000'

FEET

08/2002

N

CHRIS HART & PARTNERS

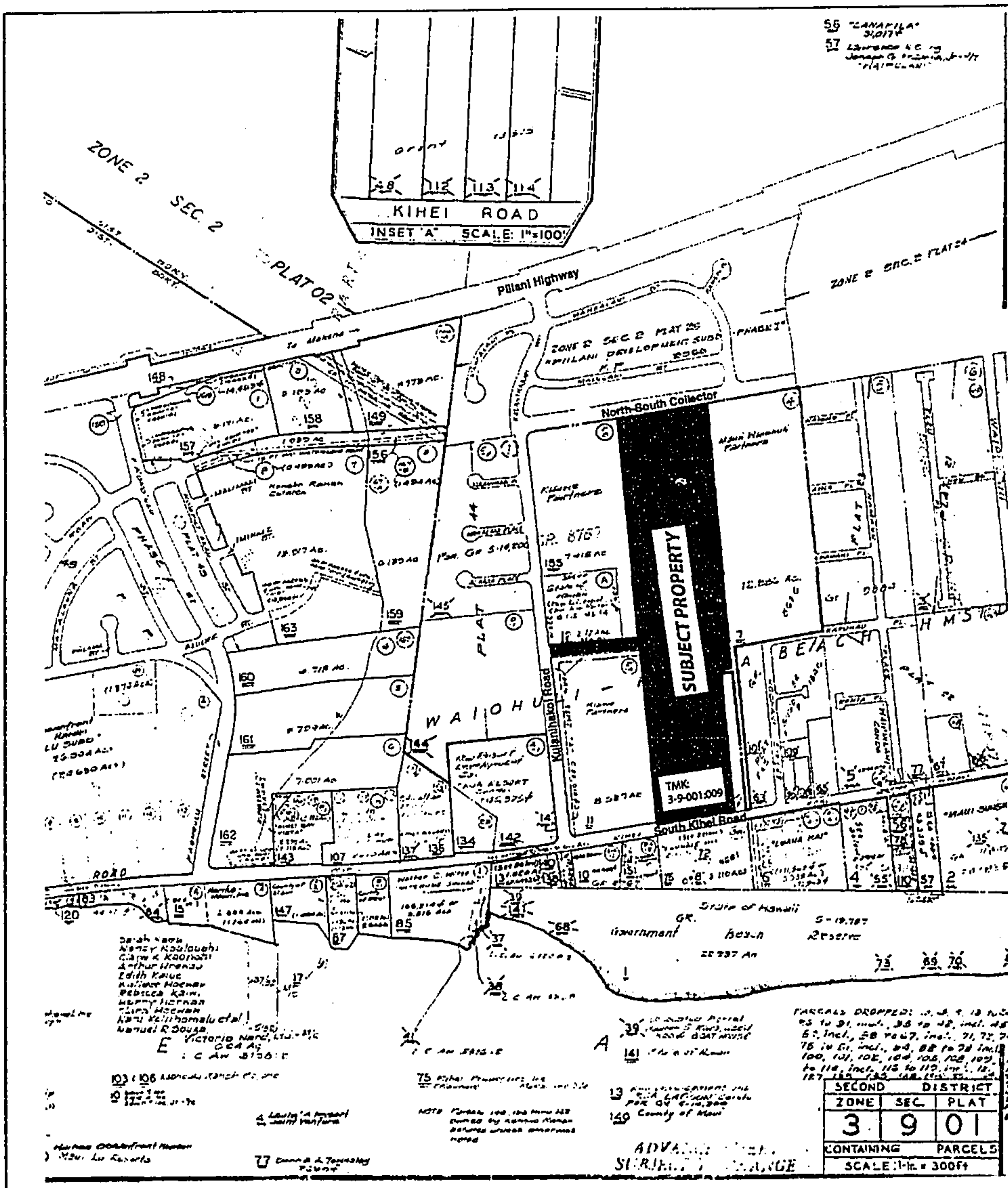


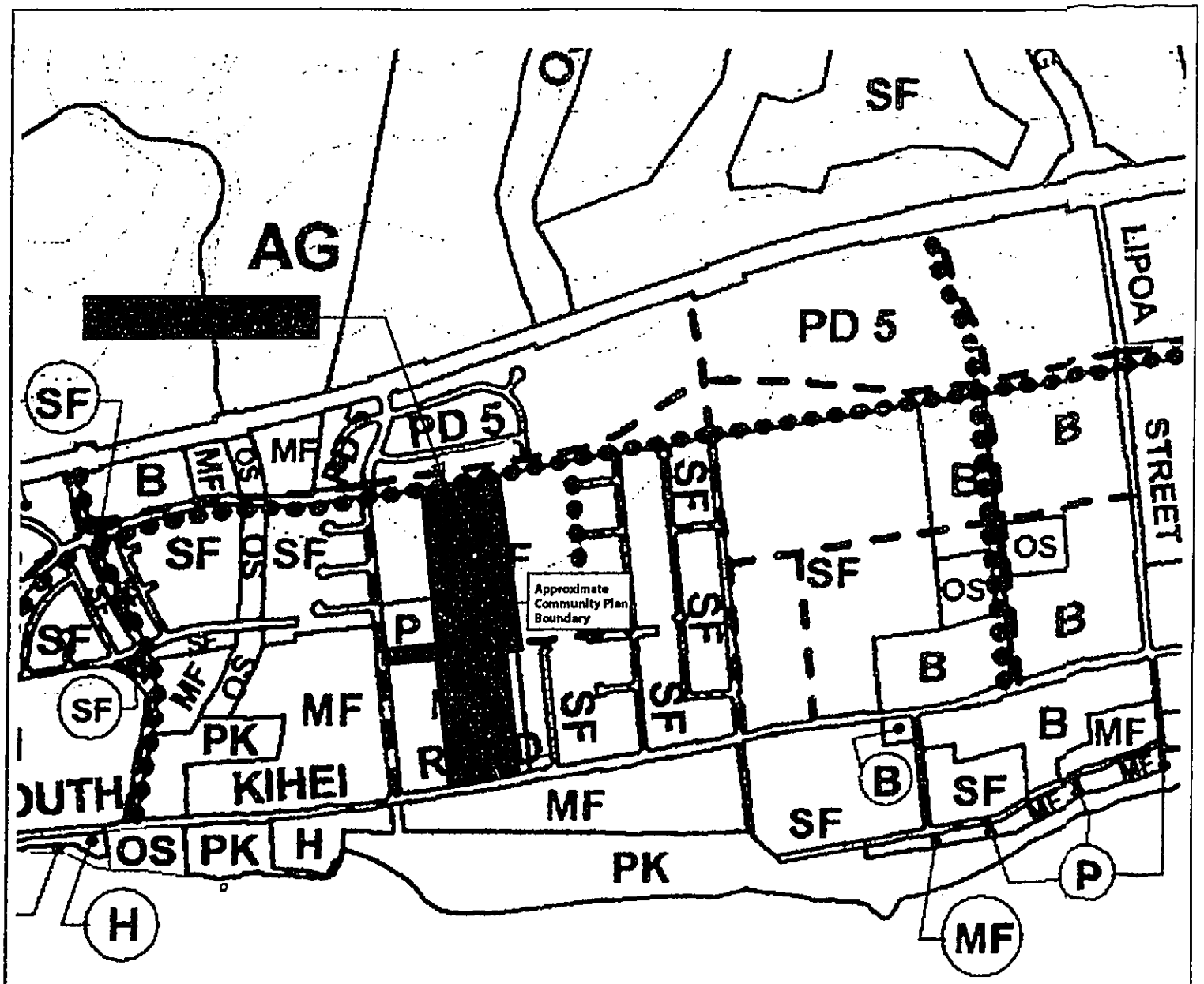
FIGURE 2
TAX MAP KEY
PARCEL NO. 3-9-001: 009

N

WAIPUILANI ESTATES

08/2002 NOT TO SCALE

CHRIS HART & PARTNERS



LEGEND

SF	Single Family
MF	Multi-family
H	Hotel
B	Commercial
BMF	Business Multi-family
BI	Business/Industrial
SBR	Service Business/Residential
LI	Light Industrial
HI	Heavy Industrial
A	Airport
AG	Agriculture
AGVAct15	AGVAct15
R	Rural
PD	Project District
OS	Open Space
C	Conservation
P	Public/Quasi-public
PK	Park
PK/GC	Park/Golf Course
	Keallia Pond NWR
	Roadway Plan
	Bikeway Plan

FIGURE 3

COMMUNITY PLAN

N

WAIPUILANI ESTATES

08/2002 NOT TO SCALE

CHRIS HART & PARTNERS

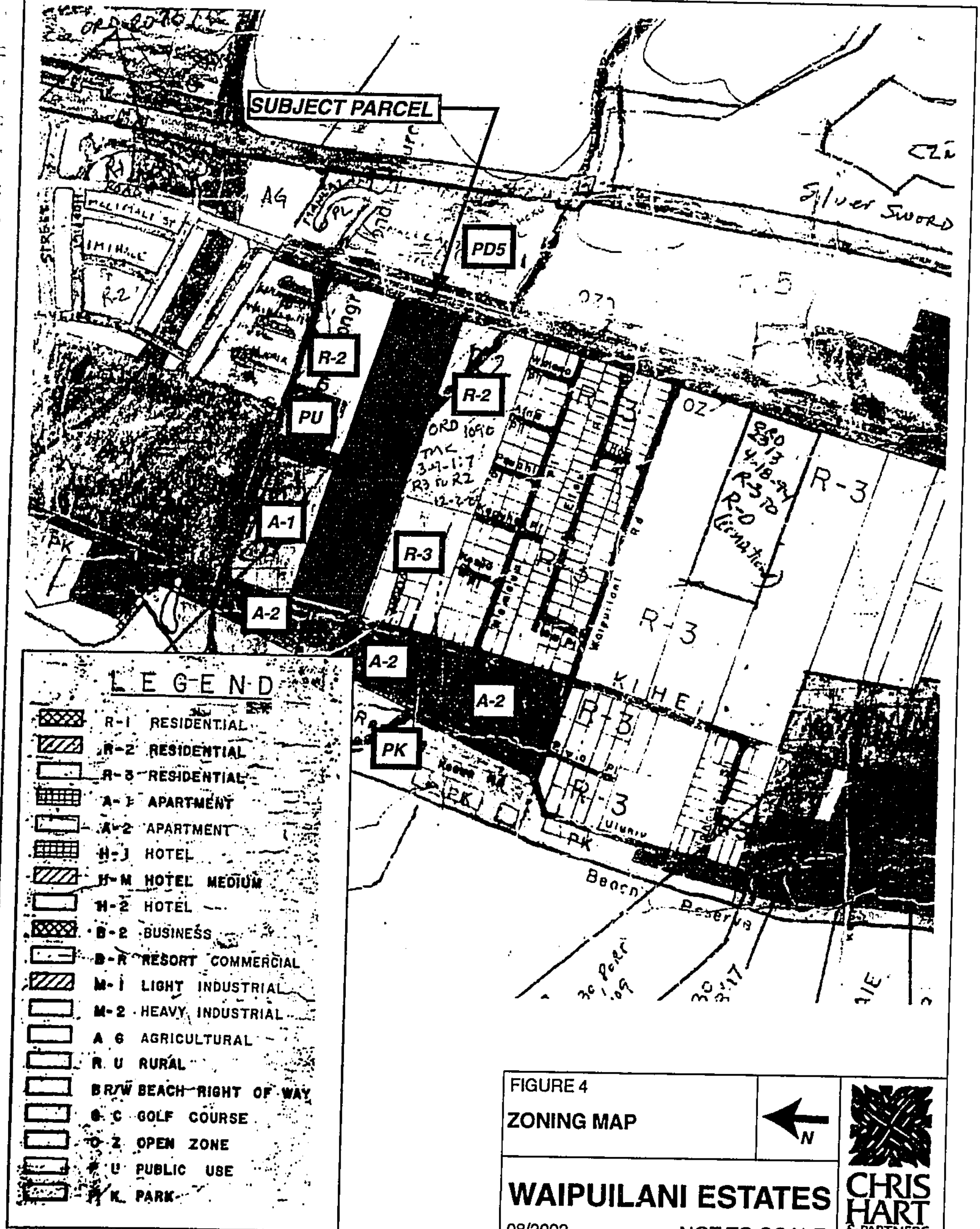


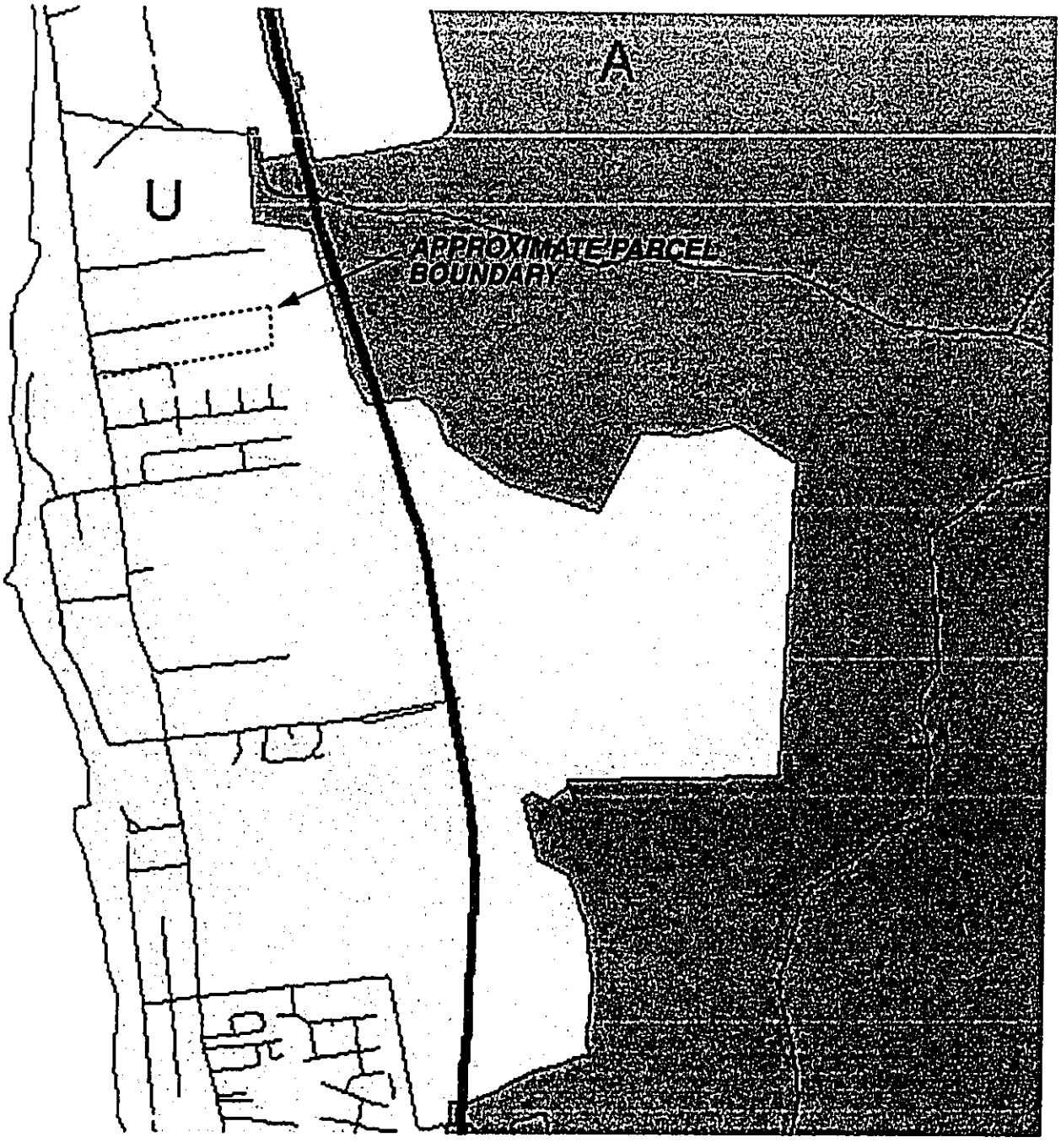
FIGURE 4

ZONING MAP

WAIPUILANI ESTATES

08/2002 NOT TO SCALE

CHRIS HART & PARTNERS



KEY:

U - URBAN LAND USE DISTRICT
A - AGRICULTURAL LAND USE DISTRICT

SOURCE:
Hawaii State Planning Office Internet Map Server.

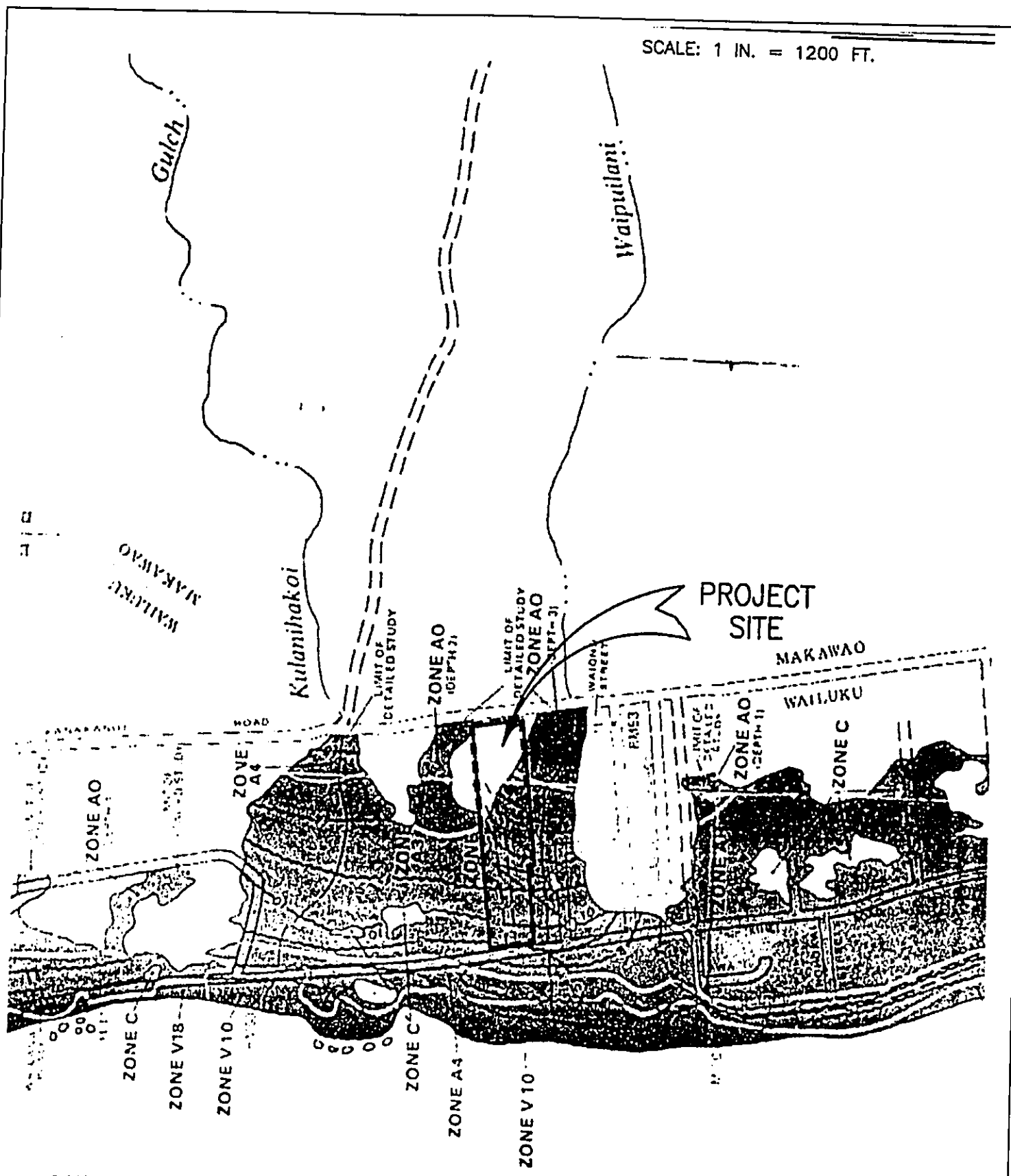
FIGURE 5
STATE LAND USE DISTRICT BOUNDARIES

N

WAIPUILANI ESTATES

08/2002 NOT TO SCALE

CHRIS HART & PARTNERS



SOURCE:
WARREN S. UNIMORI ENGINEERING, INC.

PREPARED FROM:
FLOOD INSURANCE RATE MAP
COMMUNITY PANEL NUMBER
15000 0265C
MAP REVISED: SEPTEMBER 6, 1989

FIGURE 6
FLOOD INSURANCE RATE MAP

N

WAIPUILANI ESTATES

08/2002

0' 1200'
FEET

CHRIS HART & PARTNERS

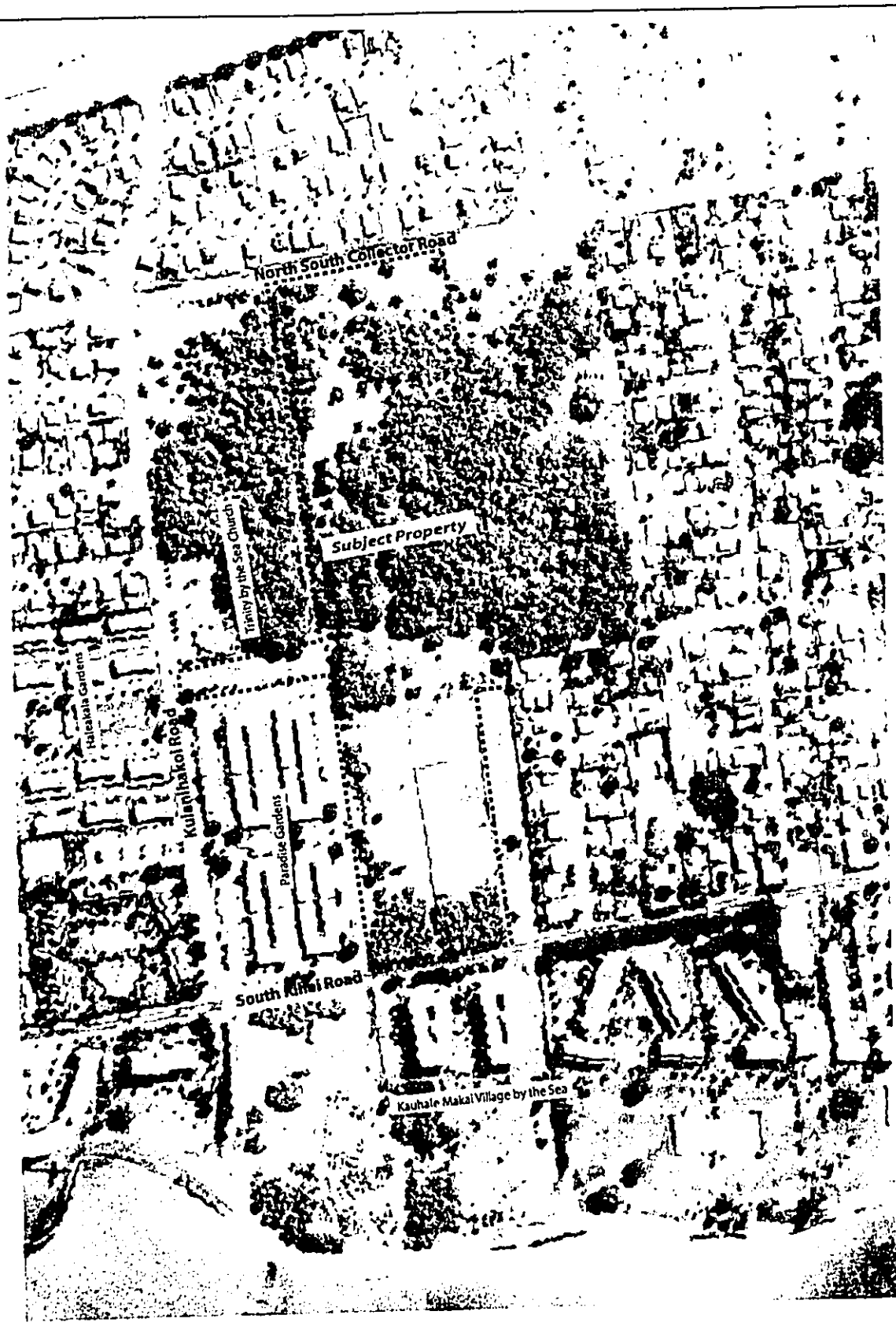


FIGURE 7

AERIAL PHOTOGRAPH

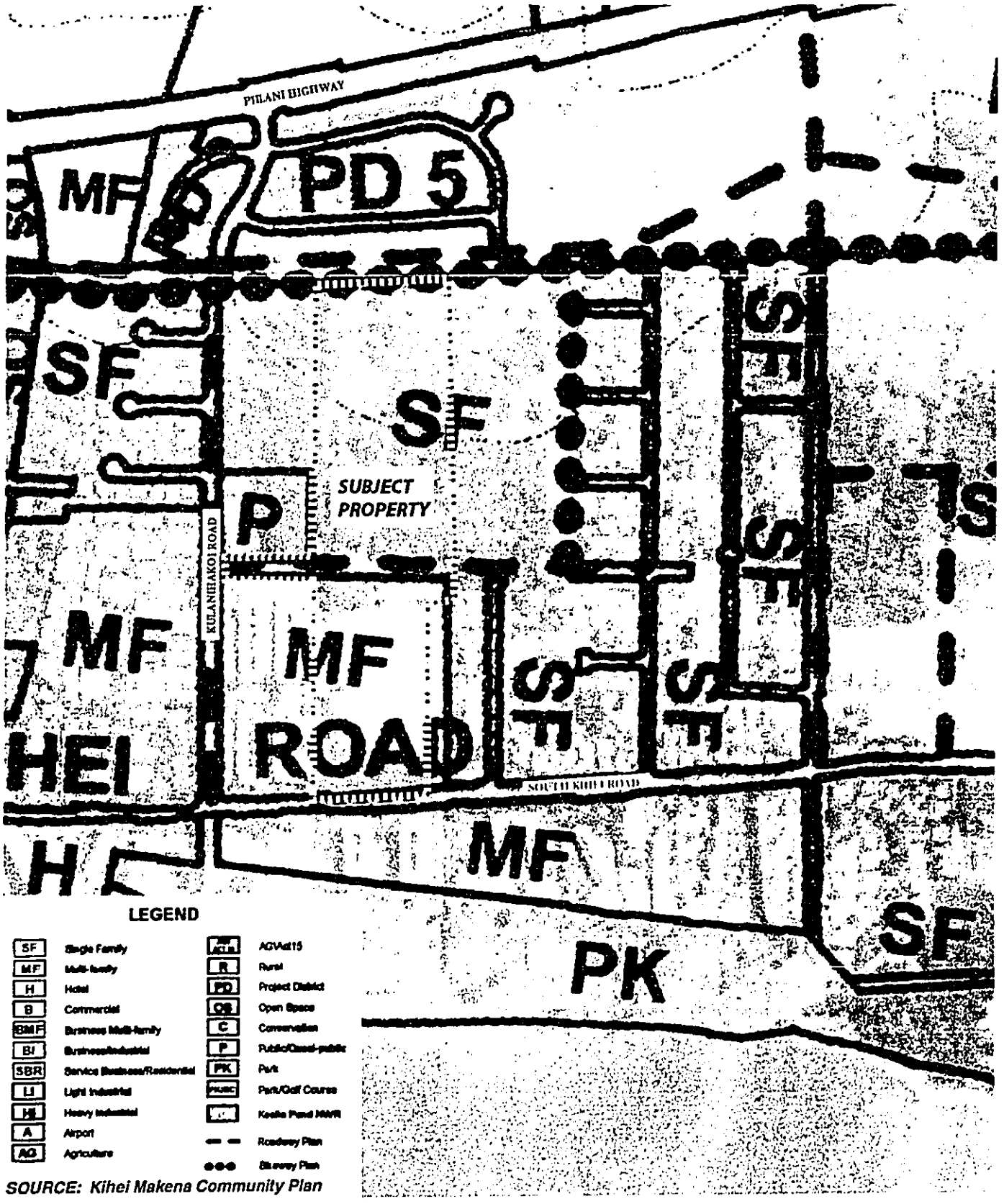
N

WAIPUILANI ESTATES

08/2002

NOT TO SCALE

CHRIS HART & PARTNERS



SOURCE: Kihei Makena Community Plan

FIGURE 8

COMMUNITY PLAN OVERLAY MAP

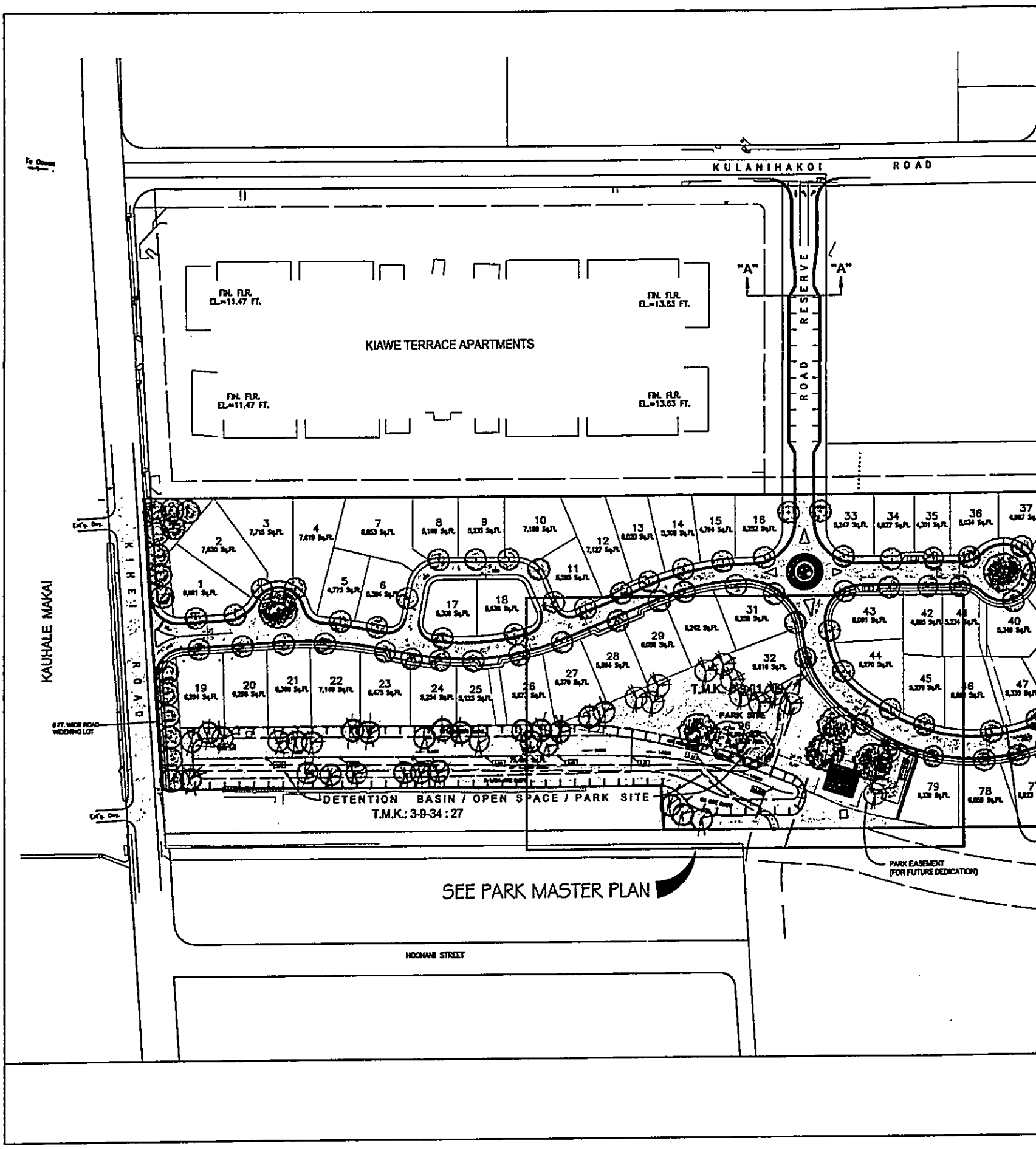
N

WAIPUILANI ESTATES

08/2002

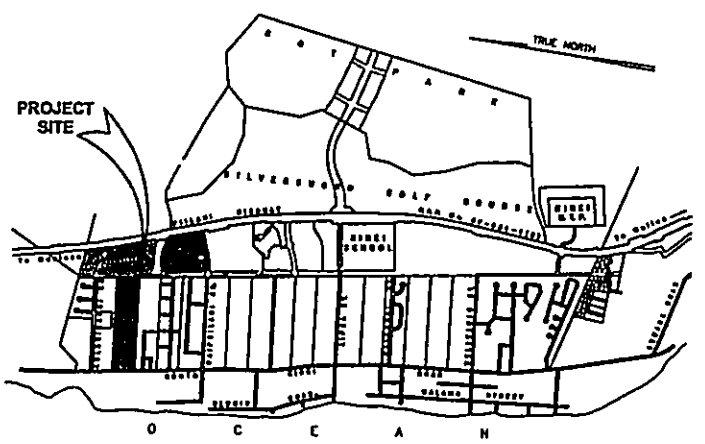
NOT TO SCALE

CHRIS HART & PARTNERS


KULANIHAKOI ROAD
"A"
"A"
ROAD RESERVE
FIN. FLR. EL.=11.47 FT.
FIN. FLR. EL.=13.63 FT.
KIAWE TERRACE APARTMENTS
FIN. FLR. EL.=11.47 FT.
FIN. FLR. EL.=13.63 FT.
KAUHALE MAKAI
KIHEI ROAD
8 FT. WIDE ROAD WIDENING LOT
T.M.K.
PARK SITE
DETENTION BASIN / OPEN SPACE / PARK SITE
T.M.K.: 3-9-34 : 27
SEE PARK MASTER PLAN
PARK EASEMENT (FOR FUTURE DEDICATION)
HOONANI STREET

ALANIA PLACE

WAKALANI PLACE



LOCATION MAP

6' PRIVACY FENCE

PEDESTRIAN ACCESS AND UTILITY EASEMENT

6' PRIVACY FENCE

WATERLINE EASEMENT (10 FT. WIDE)

6' PRIVACY FENCE

WAIPUILANI GULCH

LANDSCAPE LEGEND

MONKEY POD

NORFOLK PINE

HAWAIIAN KOU

KUKUI, MILO & TECOMA

PATHWAY LIGHT

HIBISCUS HEDGE

NOTE: AUTOMATIC IRRIGATION TO BE PROVIDED FOR ALL LANDSCAPED AREAS

SITE MASTER PLAN

CHRIS HART & PARTNERS

LANDSCAPE ARCHITECTURE AND PLANNING

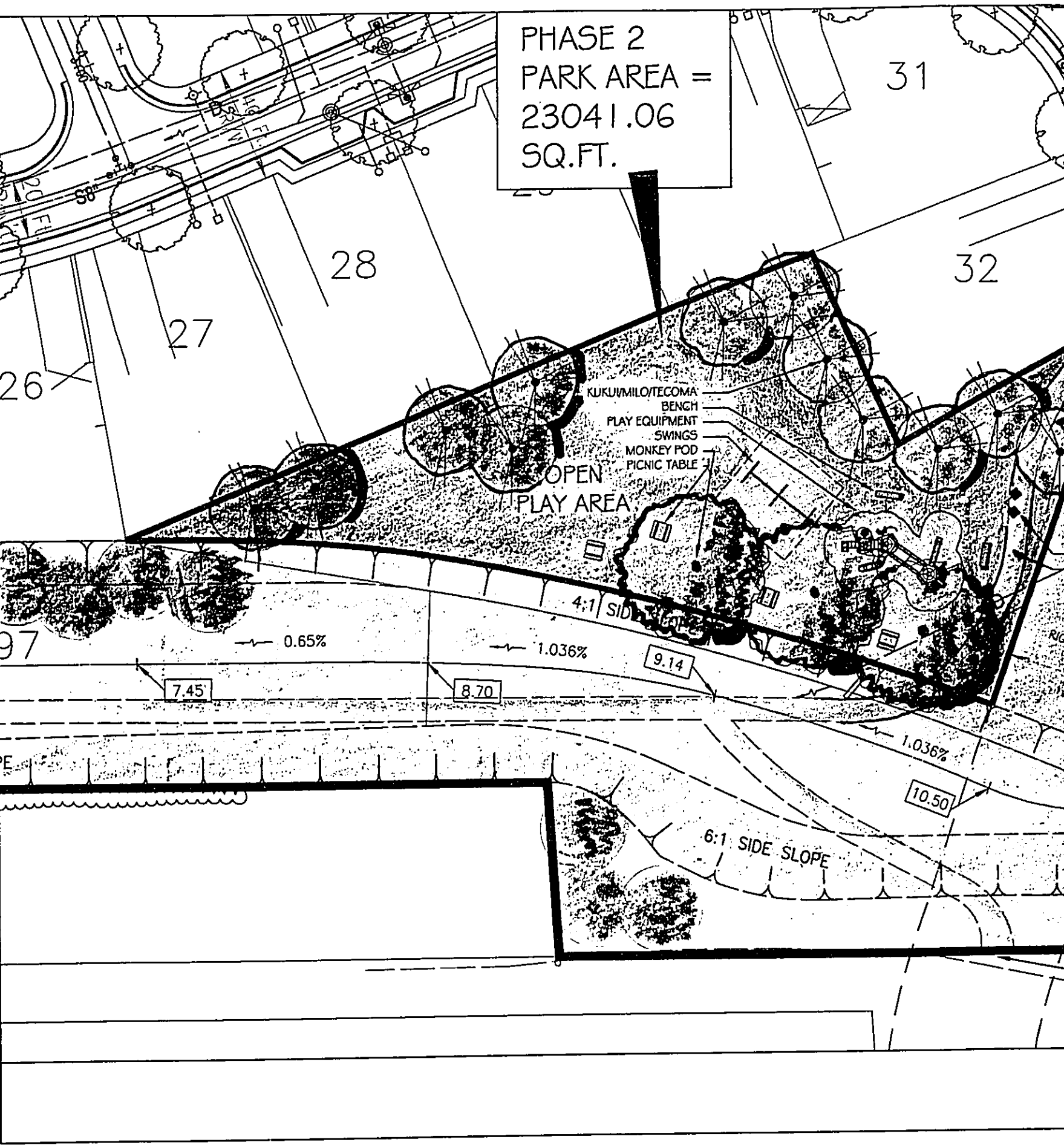
1955 Main Street
Wailuku, HI 96793
808-242-1955
Fax: 808-242-1956

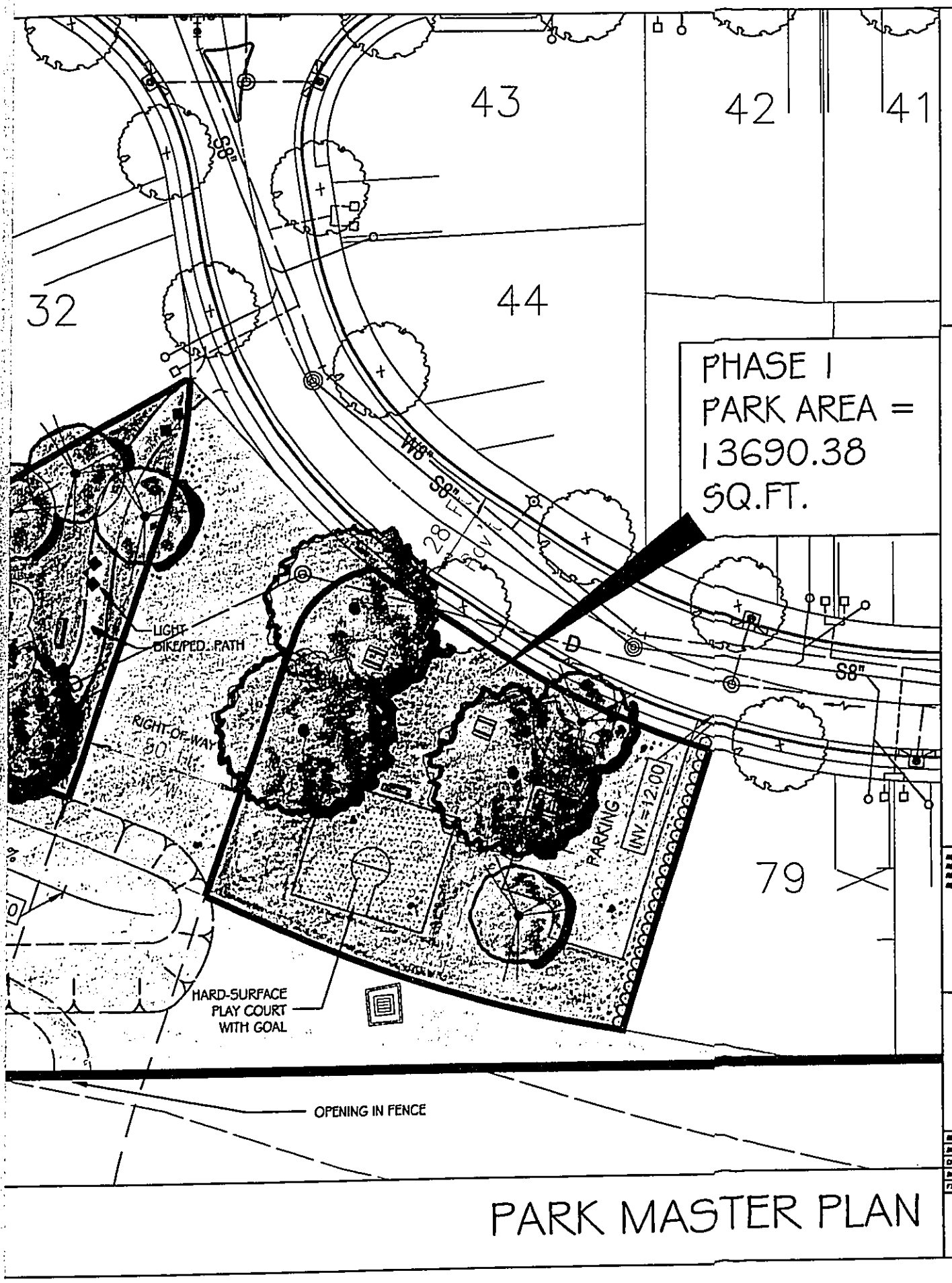
WAIPUILANI ESTATES

KIHEI, MAUI, HAWAII

SCALE: 1" = 160'

FIG. 9-A

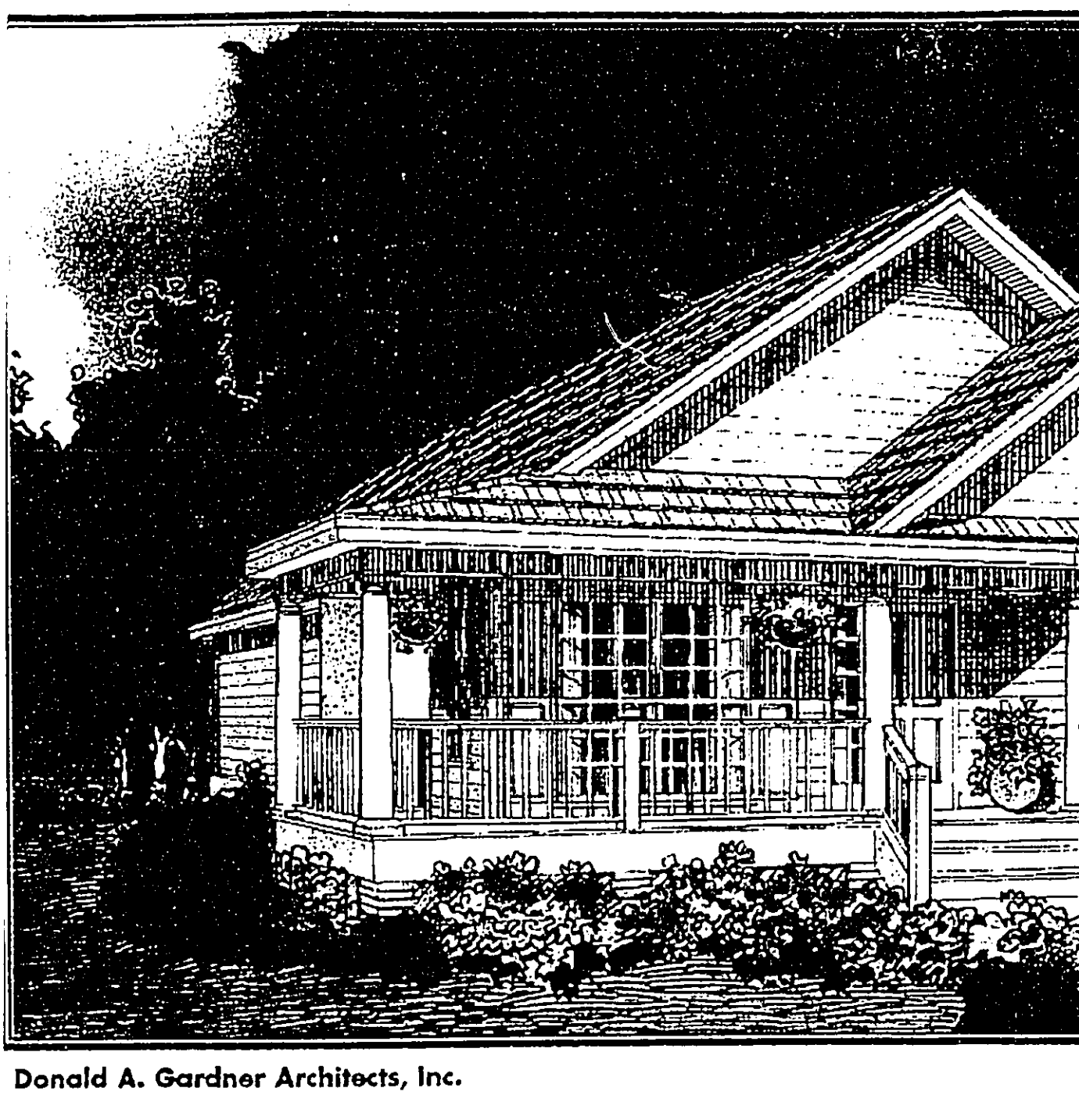

PHASE 2
PARK AREA =
23041.06
SQ.FT.
31
28
27
26
32
KUKUI/MILO/TECOMA
BENCH
PLAY EQUIPMENT
SWINGS
MONKEY POD
PICNIC TABLE
OPEN
PLAY AREA
4:1 SID
0.65%
1.036%
9.14
7.45
8.70
1.036%
10.50
6:1 SIDE SLOPE



PARK MASTER PLAN

MAP/DRAWING#
105

DOCUMENT CAPTURED AS RECEIVED



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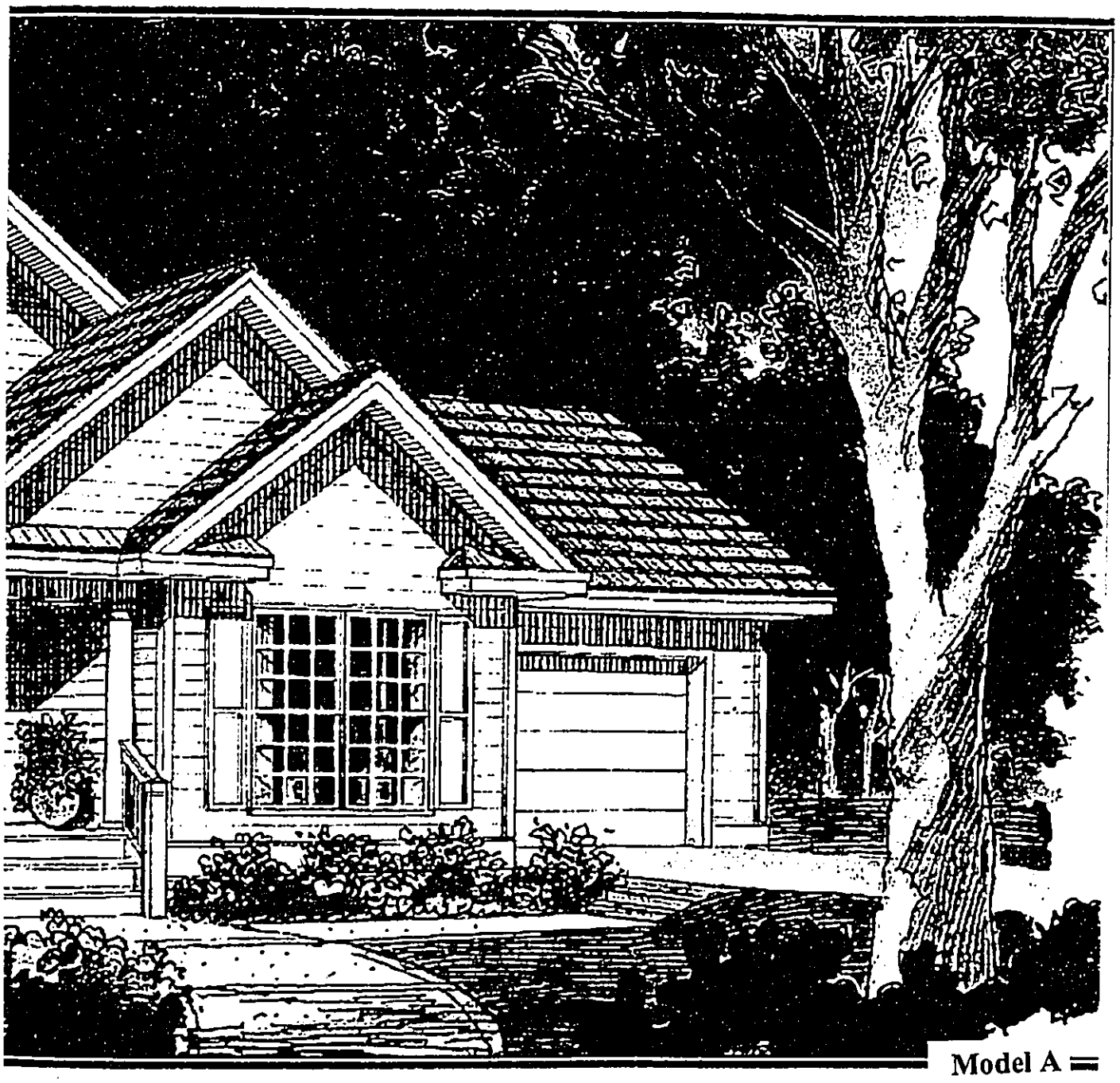
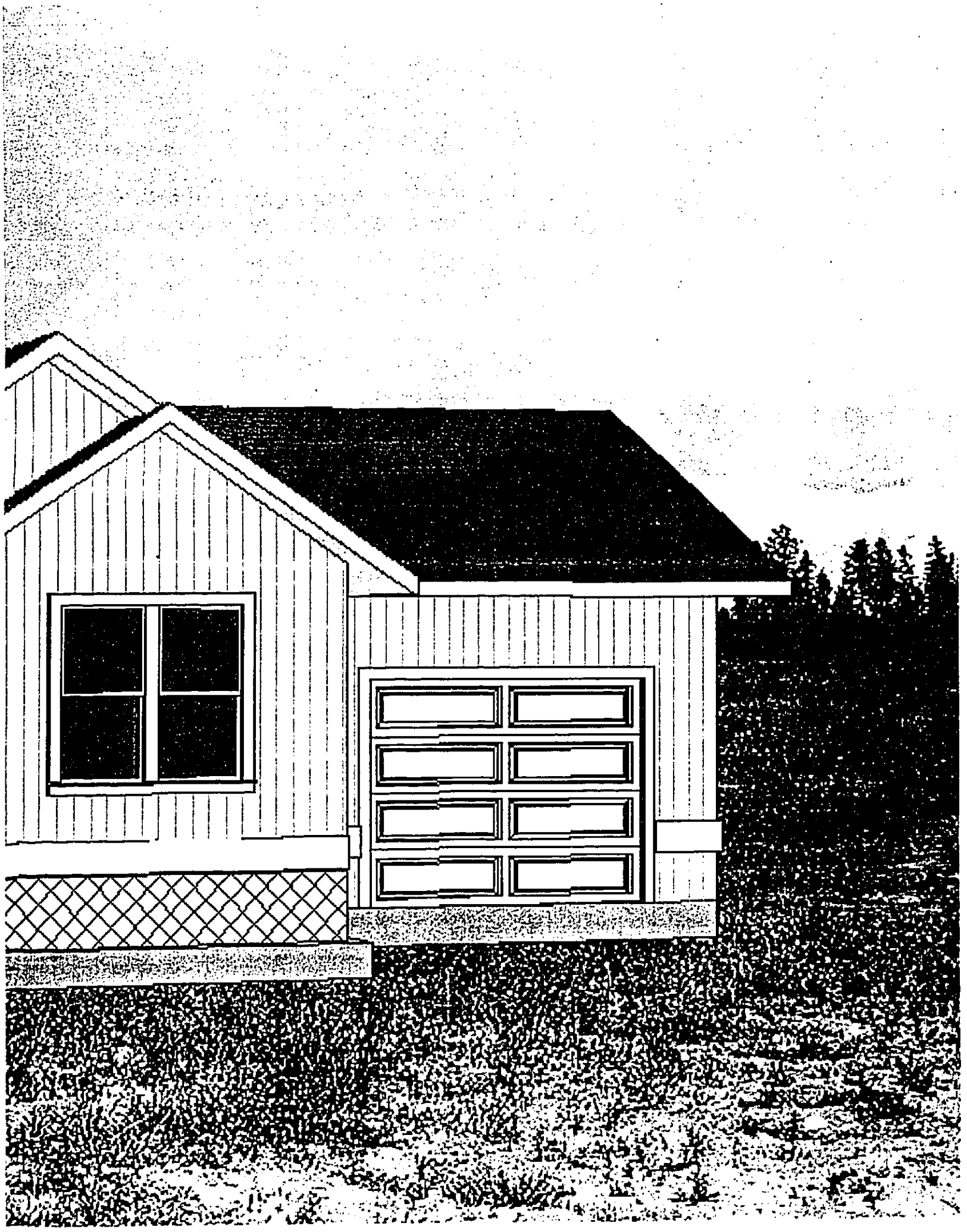
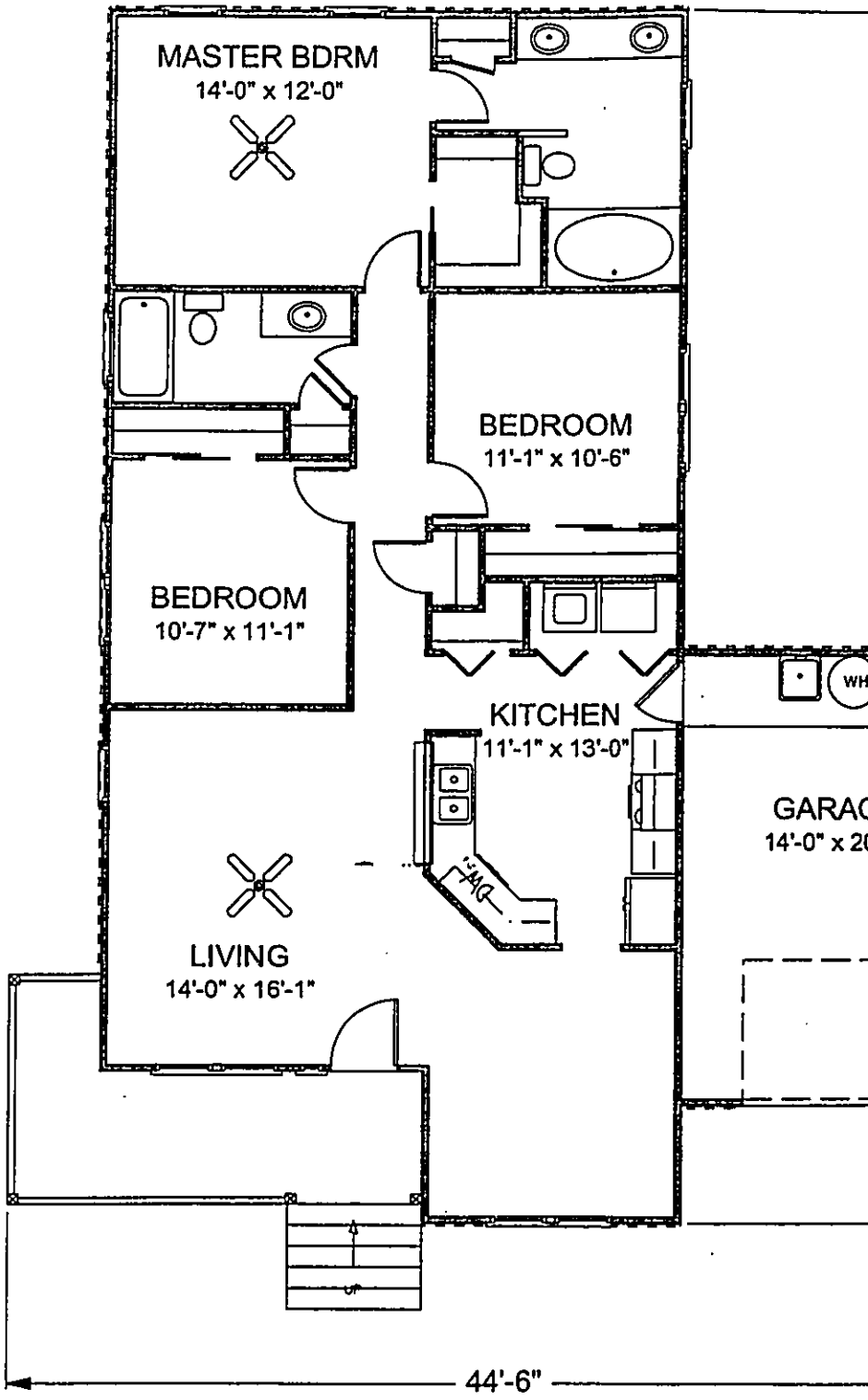
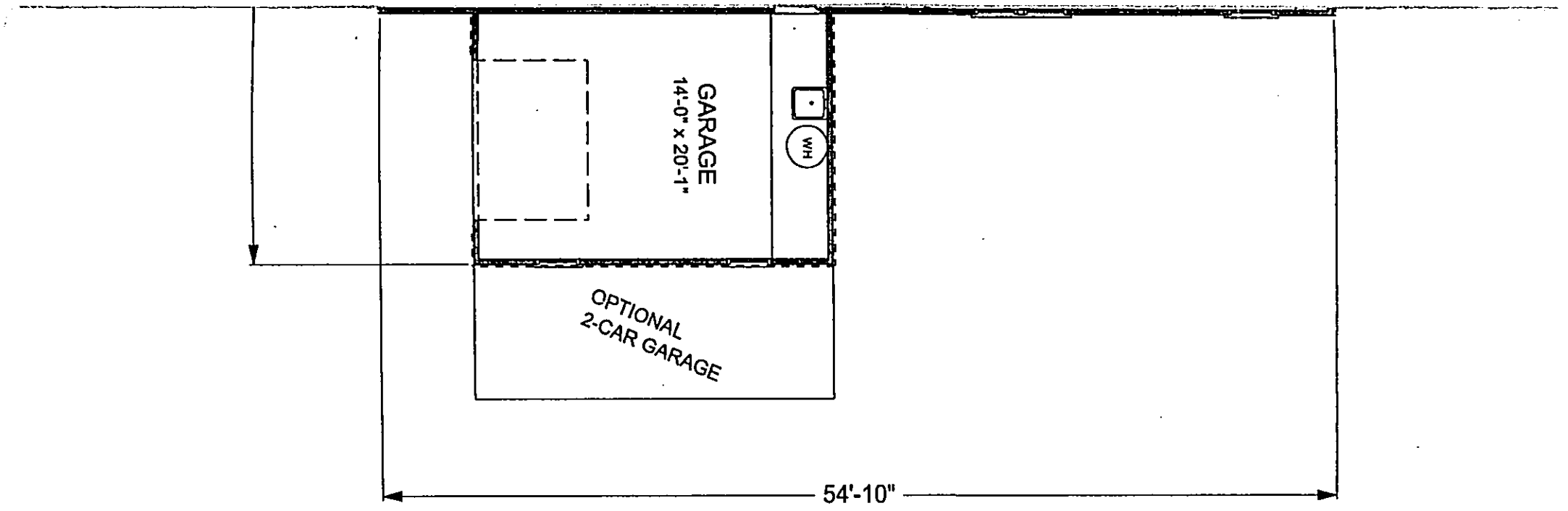


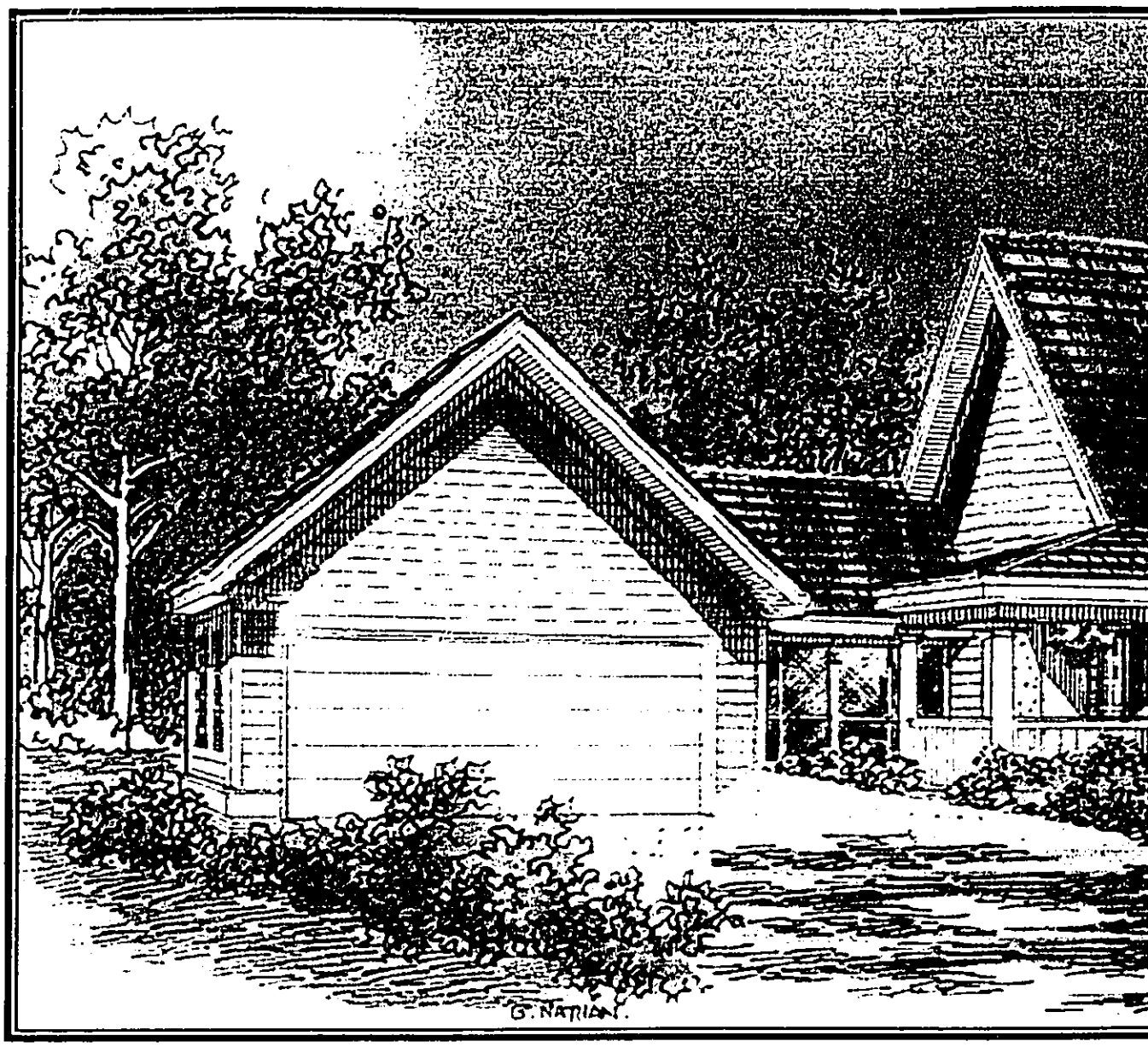
Figure 10, A-E Architecture



Model A


MASTER BDRM
14'-0" x 12'-0"
BEDROOM
11'-1" x 10'-6"
BEDROOM
10'-7" x 11'-1"
KITCHEN
11'-1" x 13'-0"
LIVING
14'-0" x 16'-1"
44'-6"


GARAGE
14'-0" x 20'-1"
WH
OPTIONAL
2-CAR GARAGE
54'-10"



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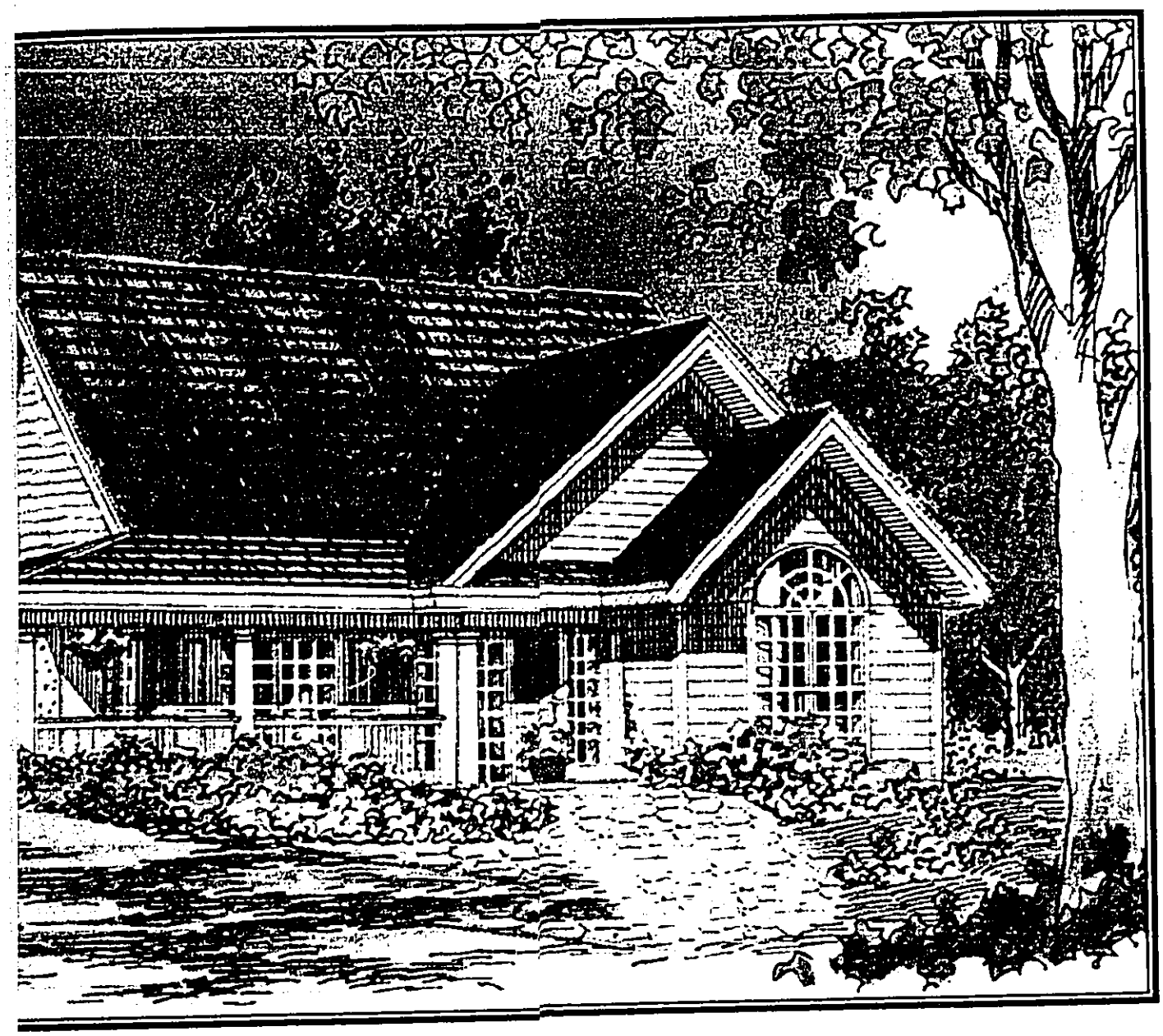

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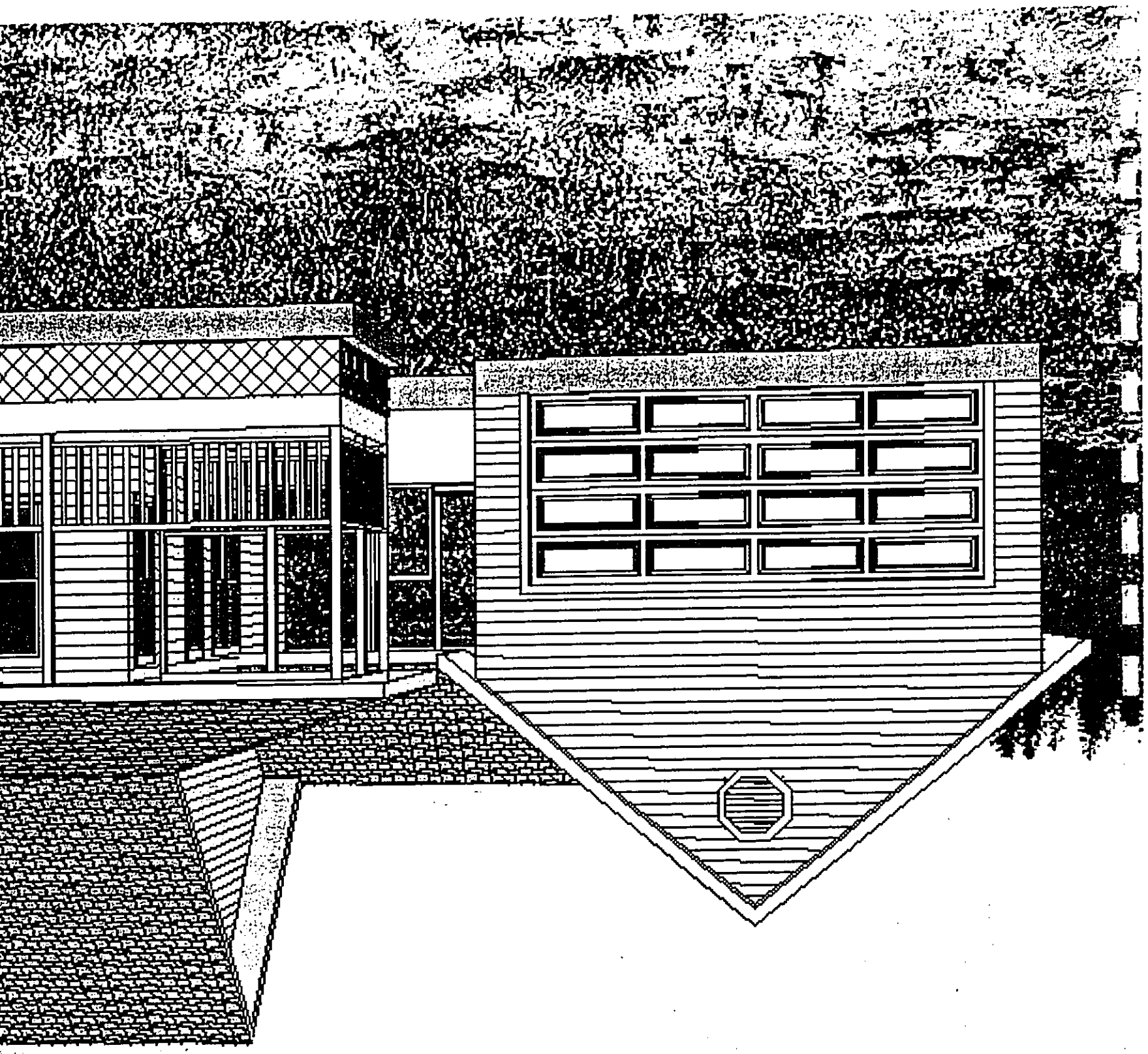

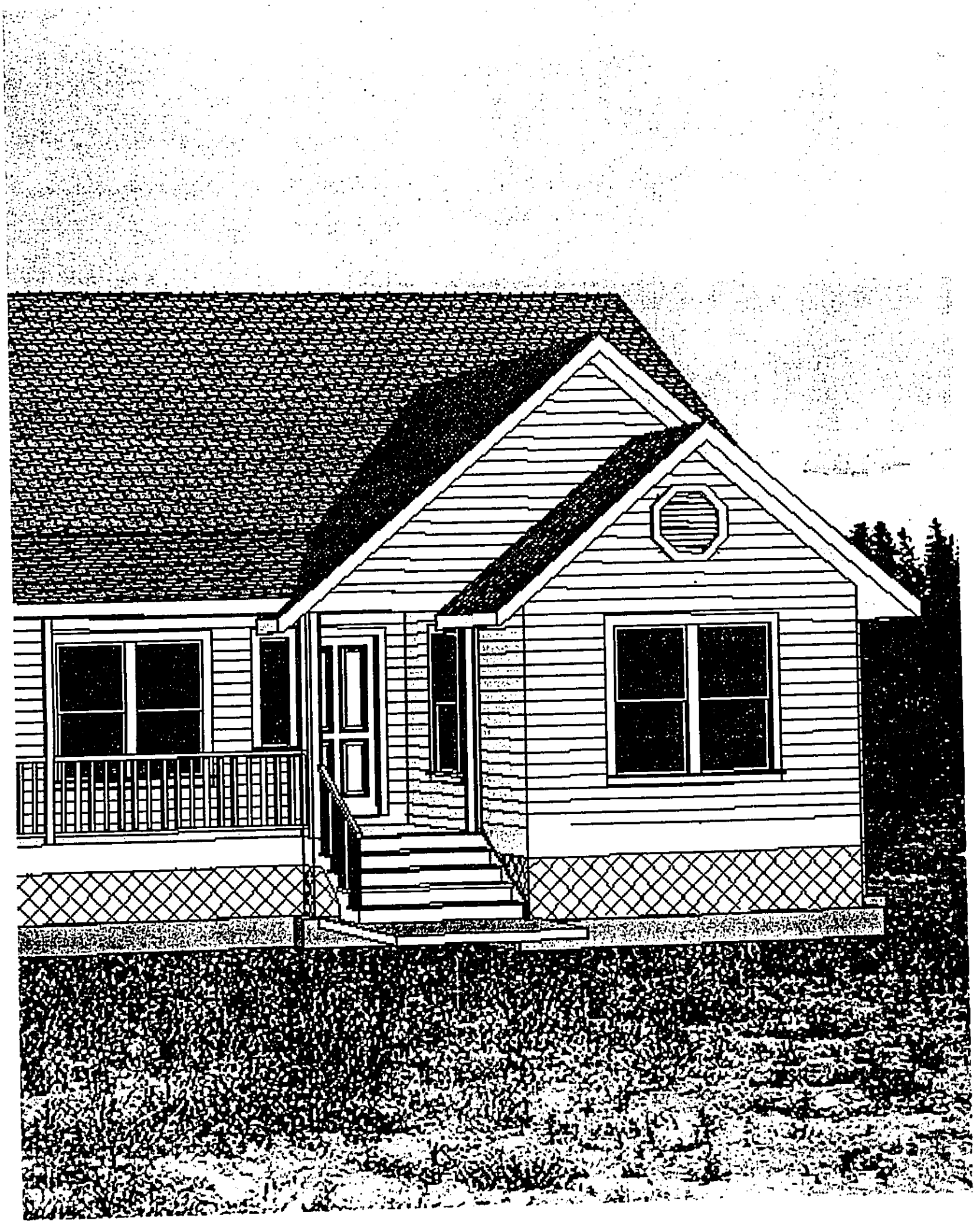

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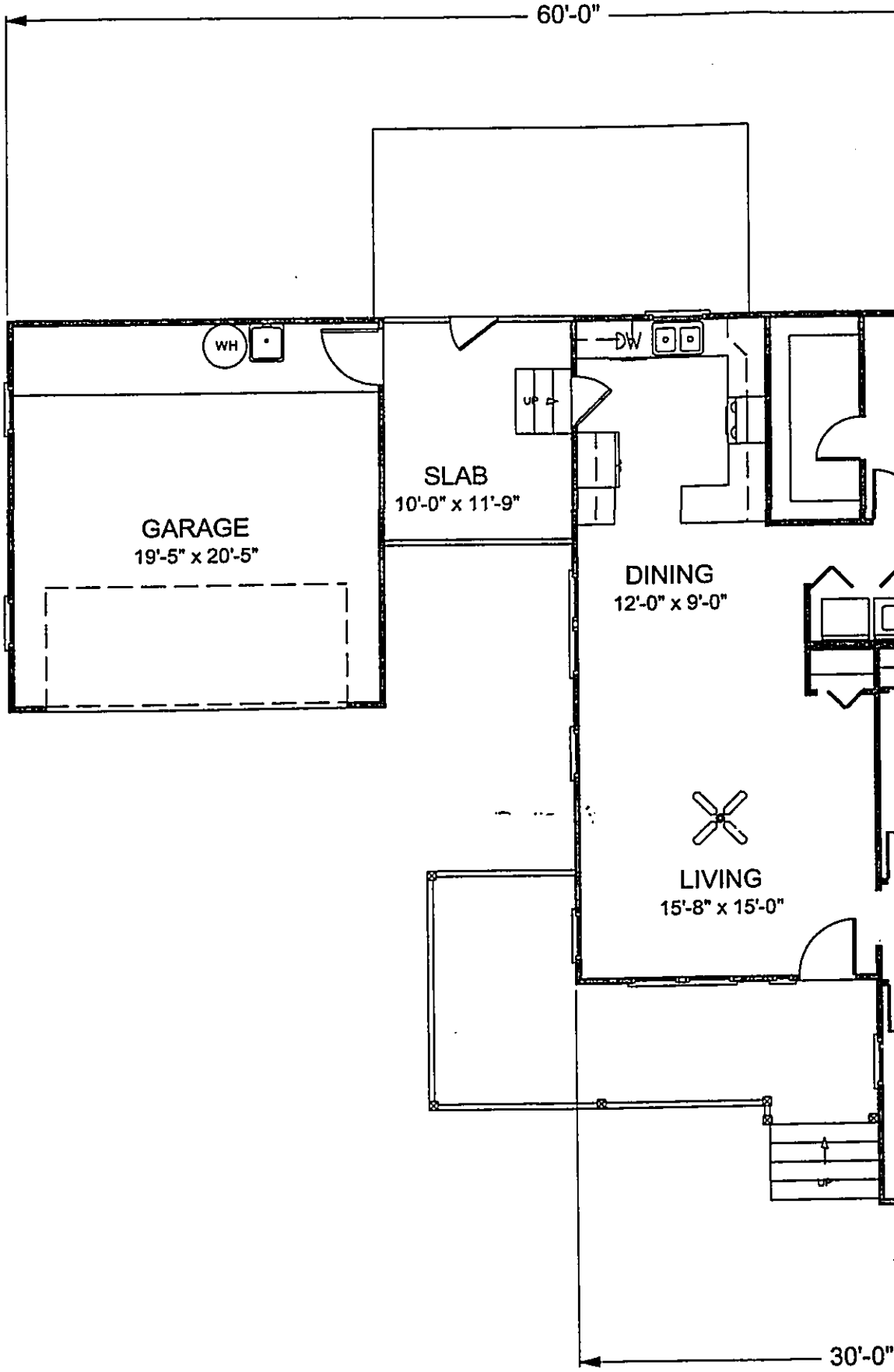
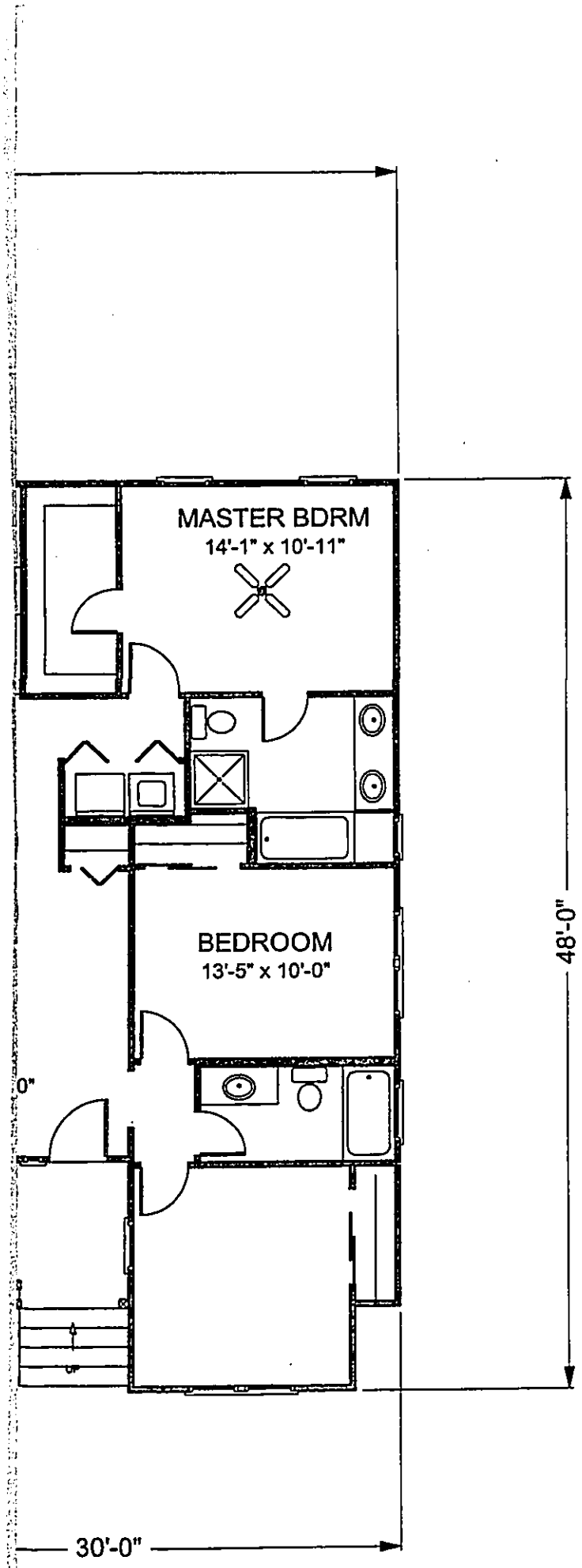
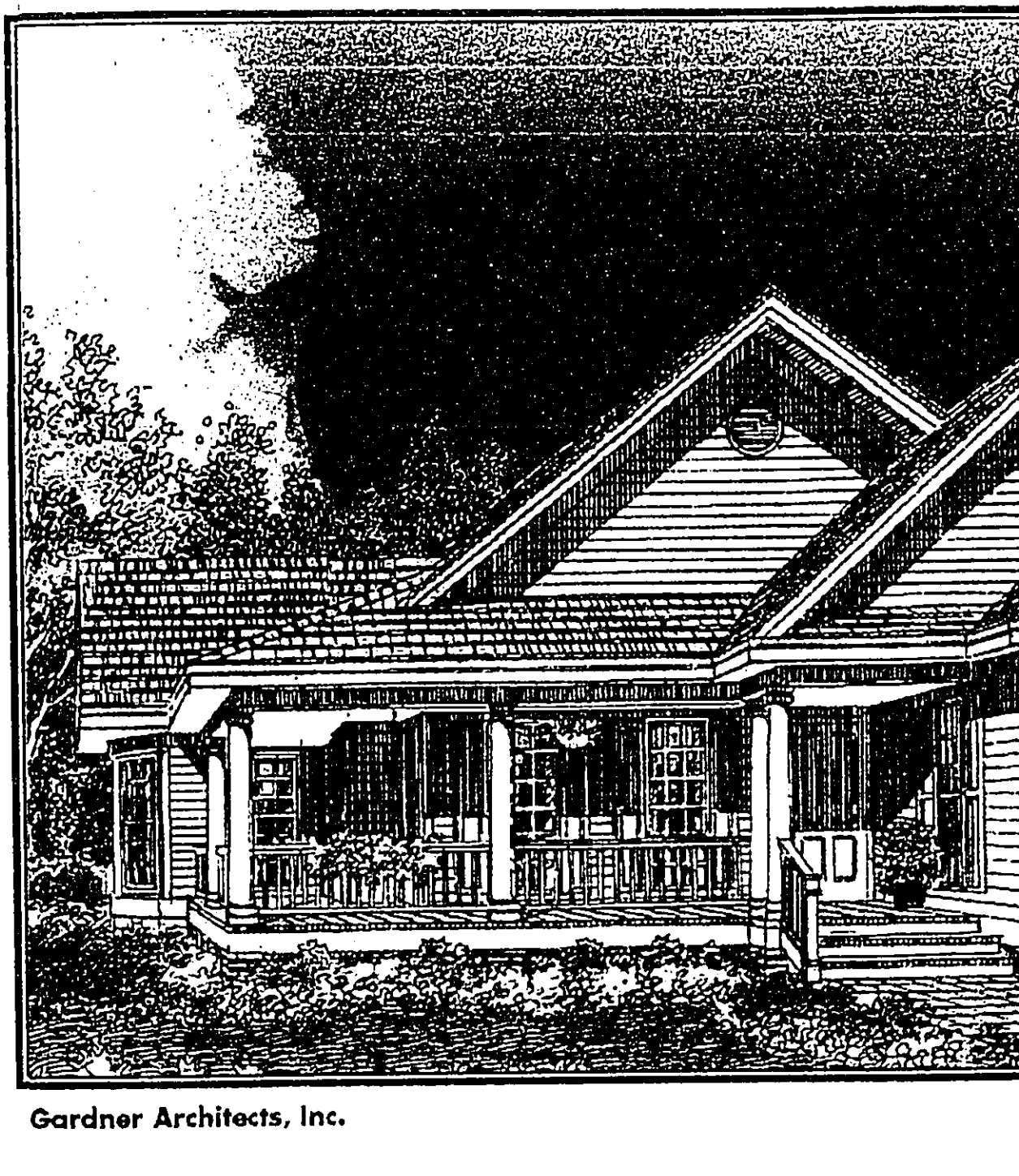
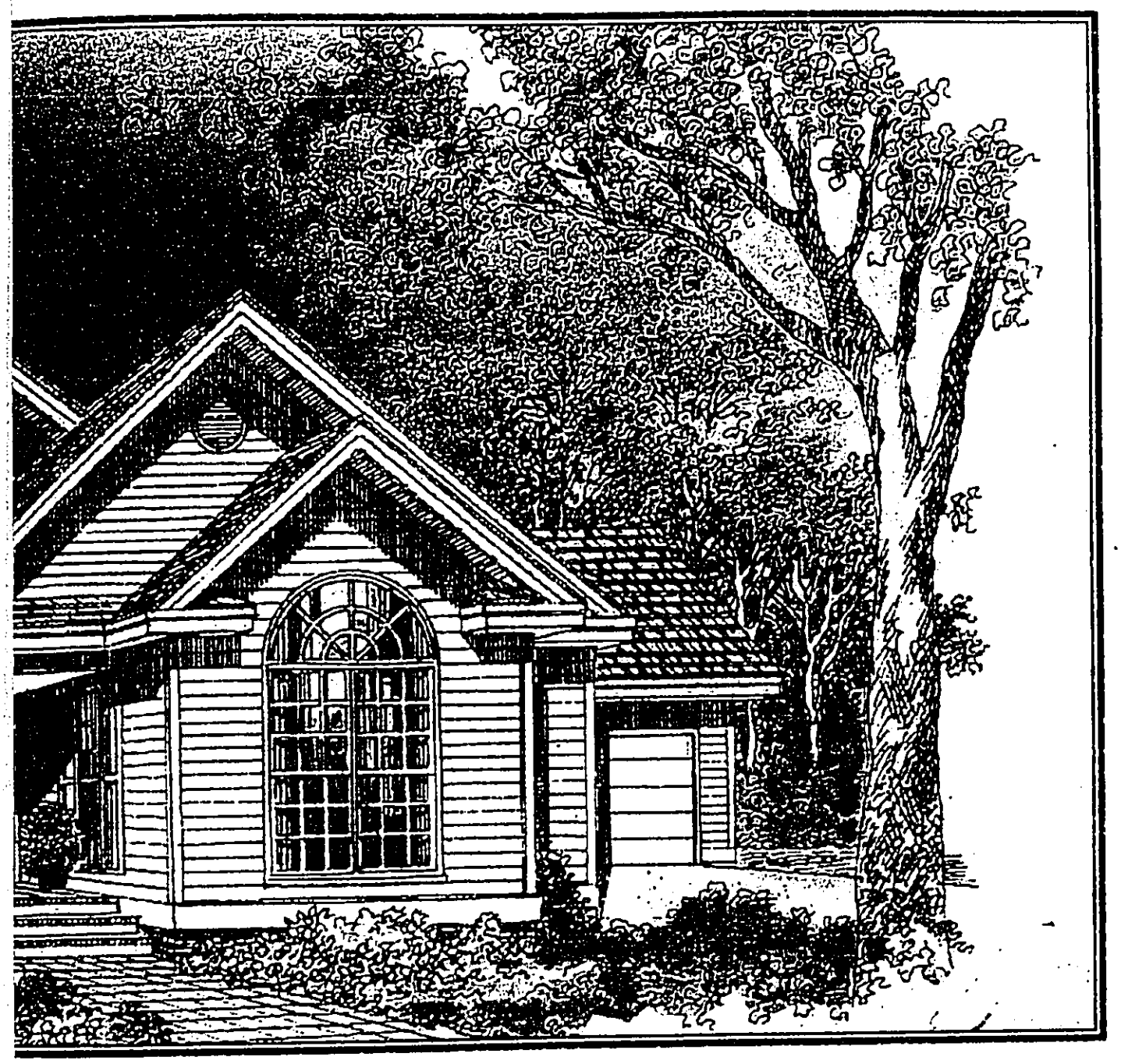

60'-0"
WH
DW
UP
SLAB
10'-0" x 11'-9"
GARAGE
19'-5" x 20'-5"
DINING
12'-0" x 9'-0"
LIVING
15'-8" x 15'-0"
UP
30'-0"


MASTER BDRM
14'-1" x 10'-11"
BEDROOM
13'-5" x 10'-0"
48'-0"
0"
30'-0"



Gardner Architects, Inc.



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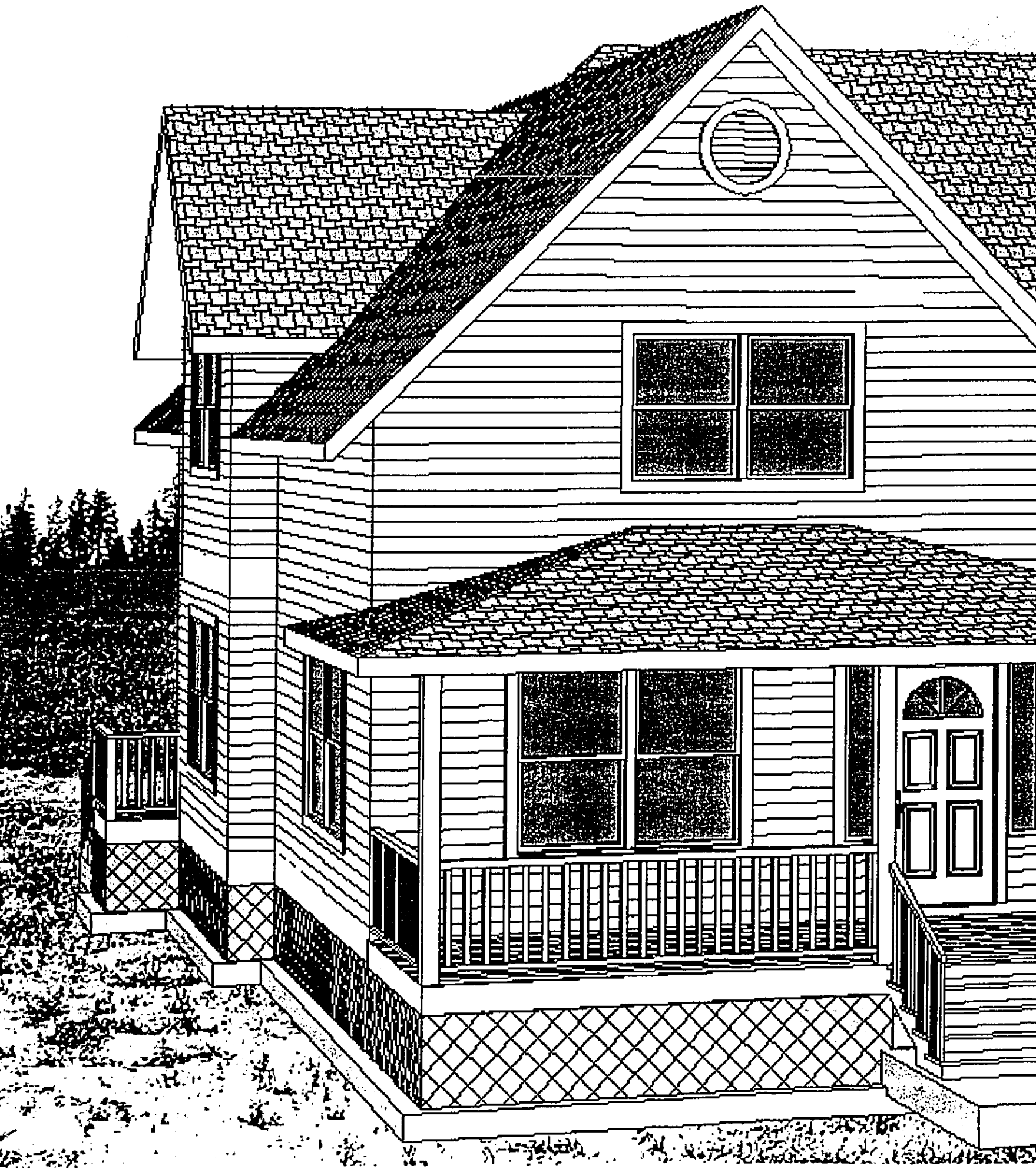
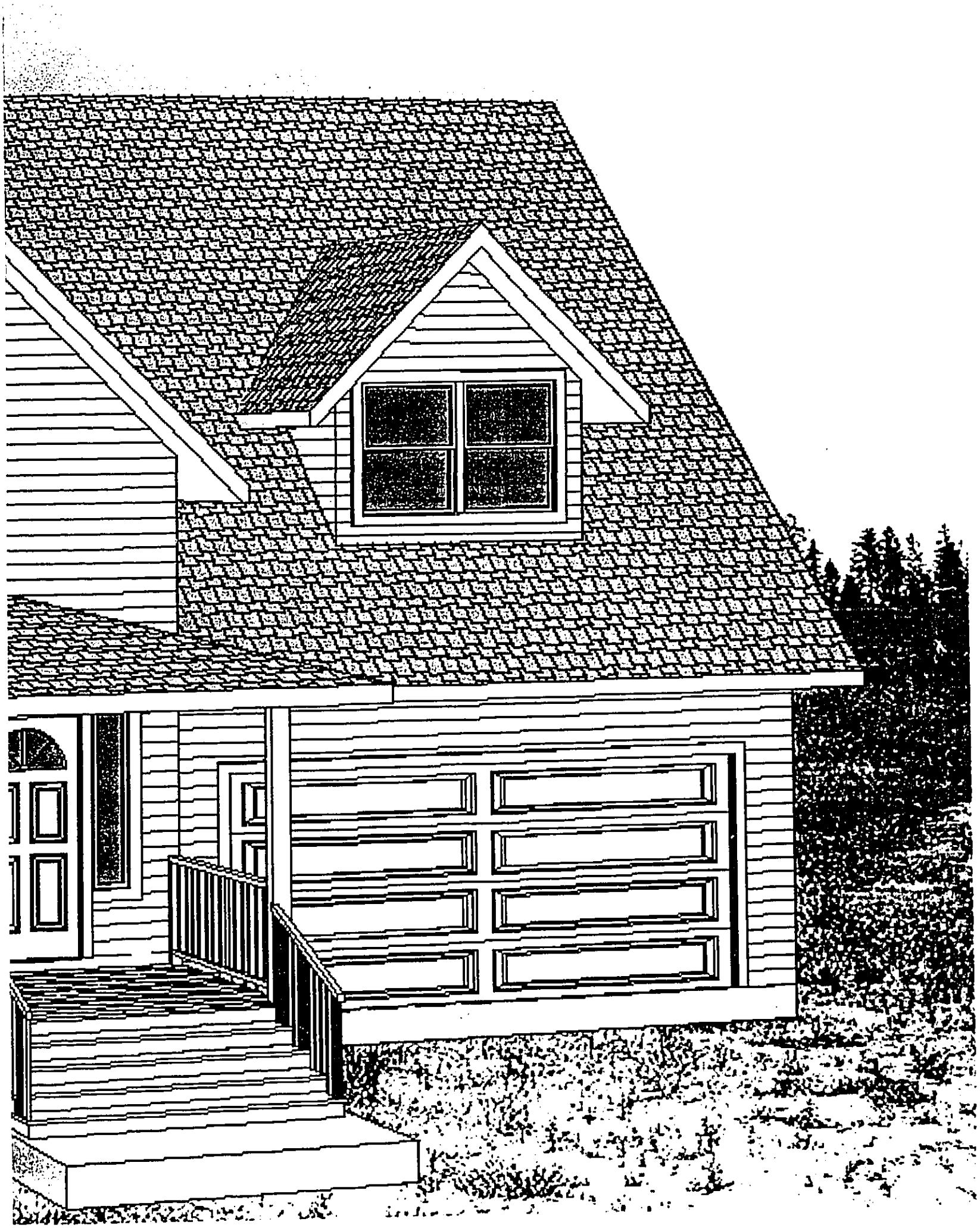
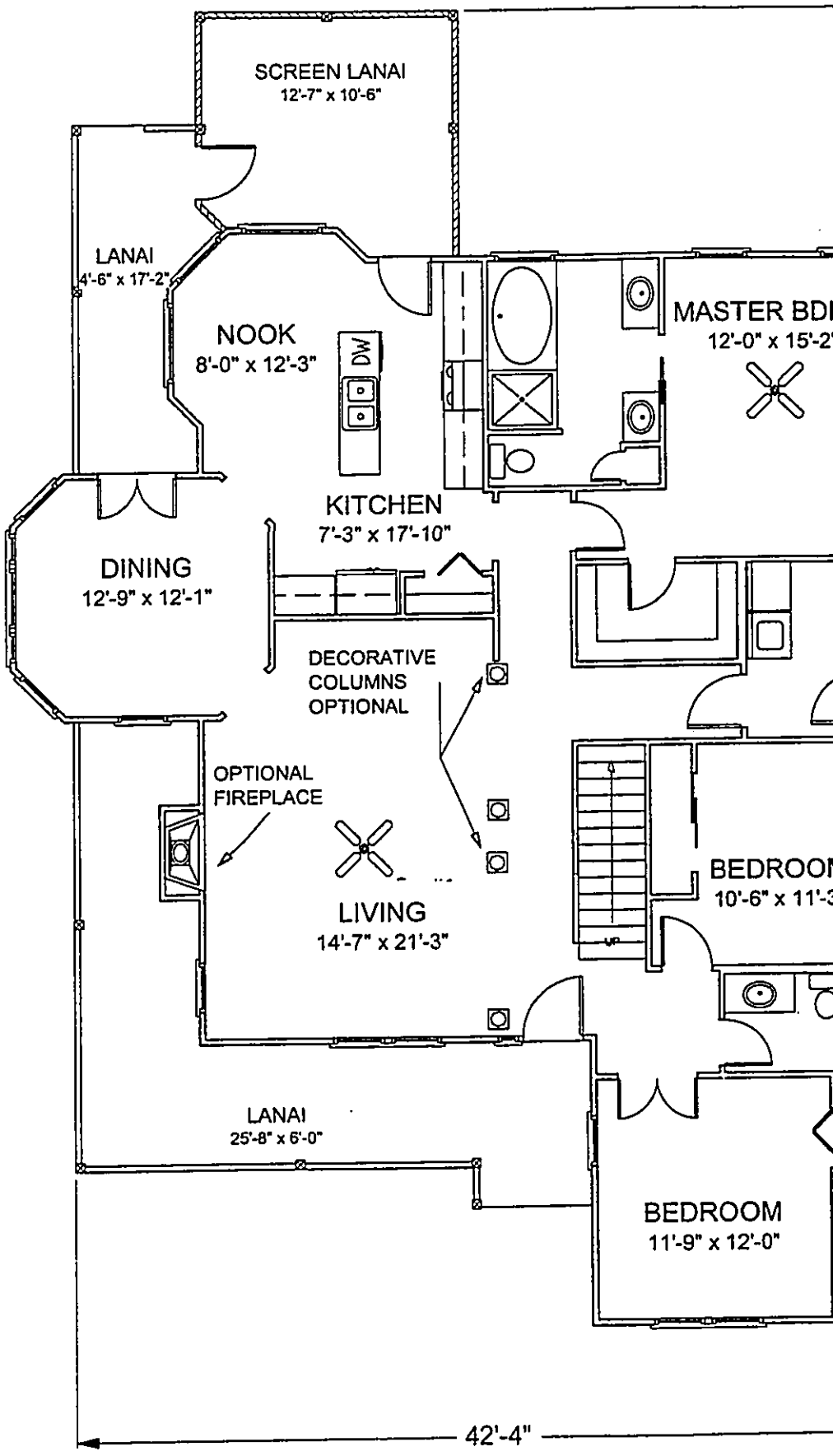
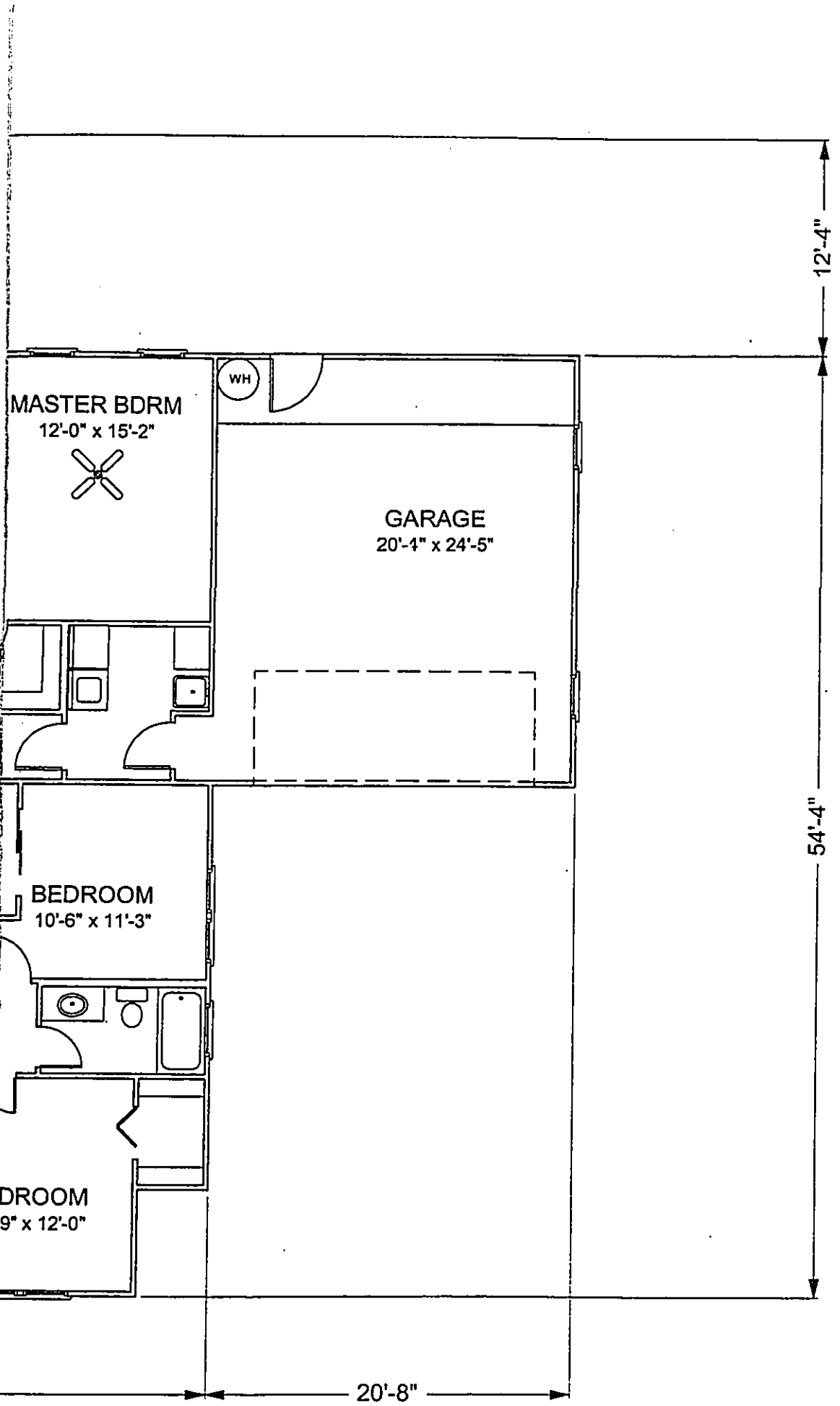


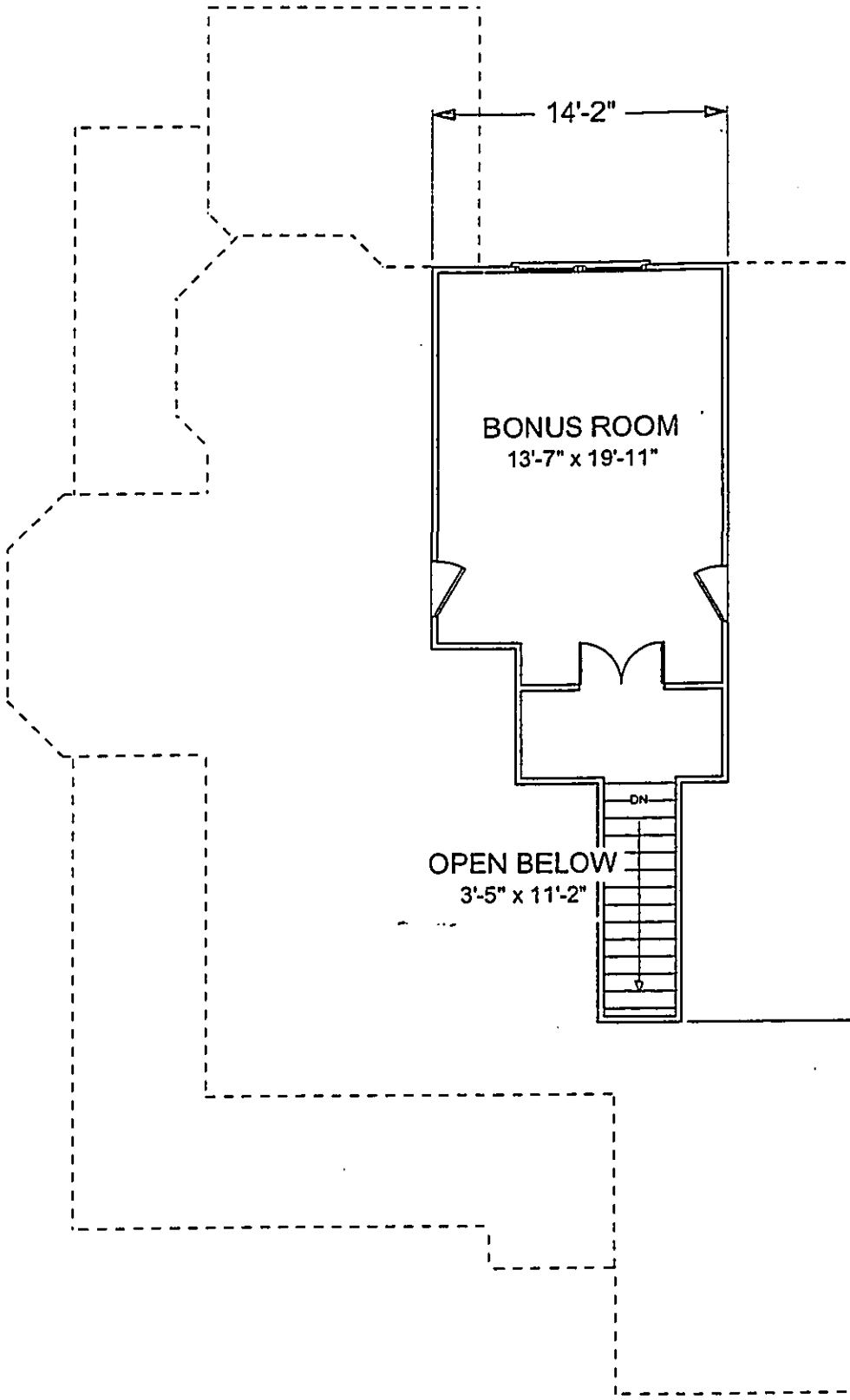


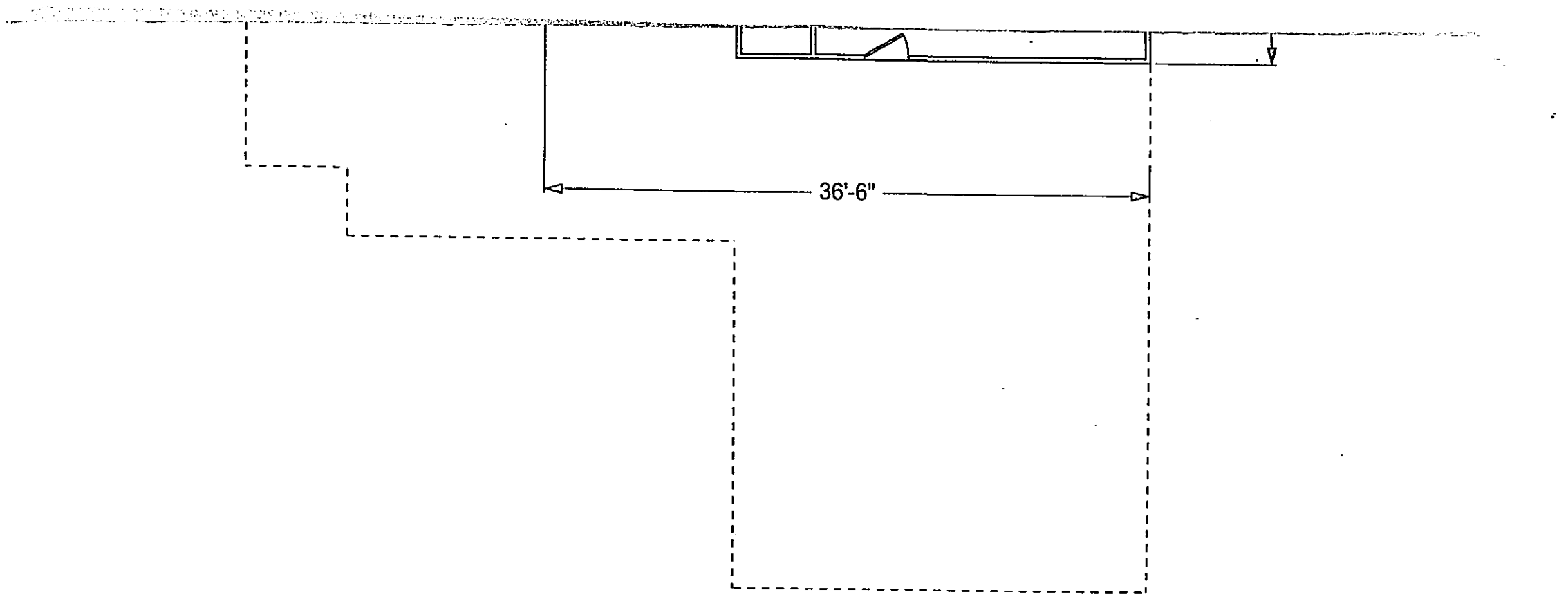
Model C

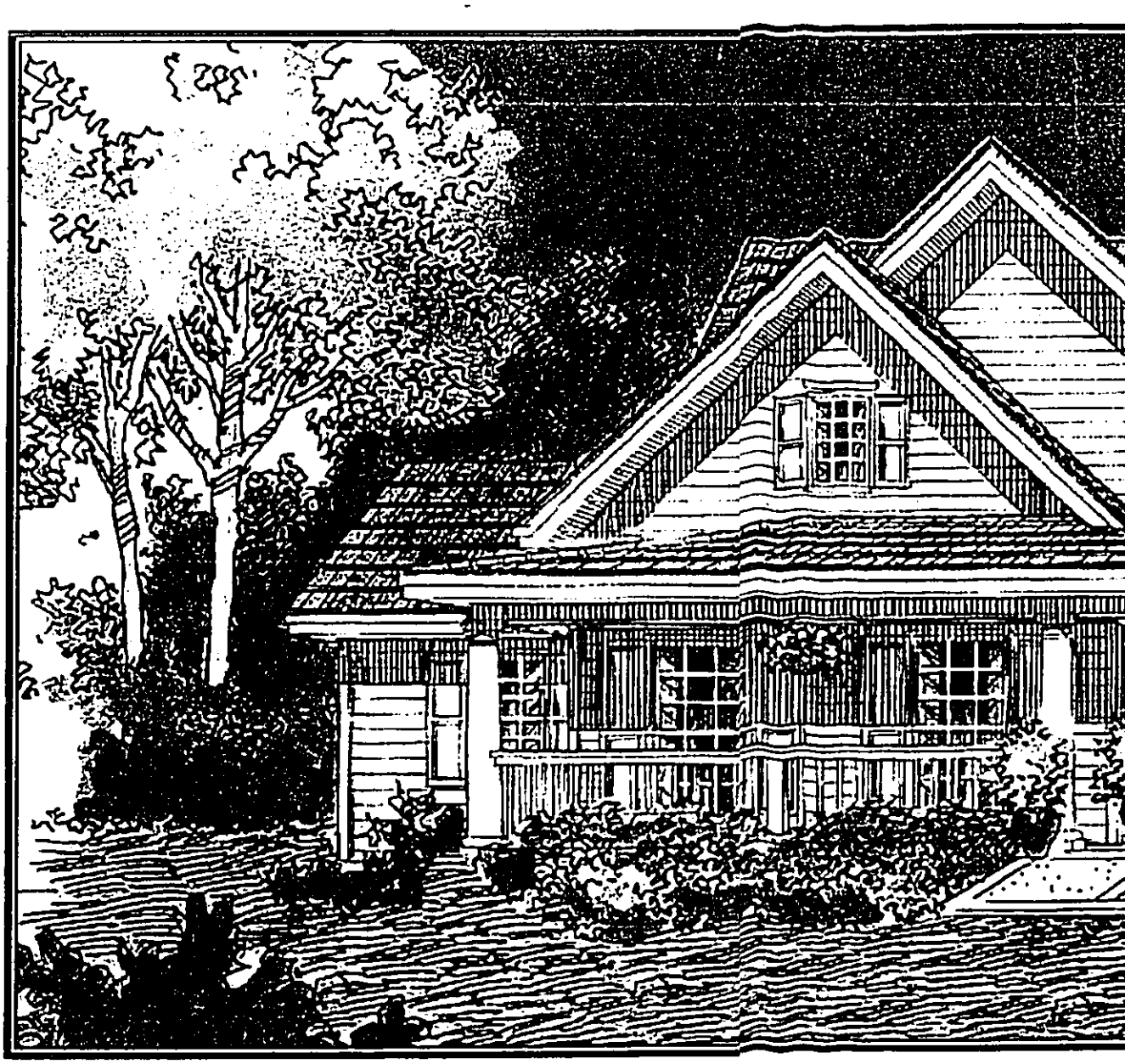

SCREEN LANAI
12'-7" x 10'-6"
LANAI
4'-6" x 17'-2"
NOOK
8'-0" x 12'-3"
DW
MASTER BDI
12'-0" x 15'-2
KITCHEN
7'-3" x 17'-10"
DINING
12'-9" x 12'-1"
DECORATIVE
COLUMNS
OPTIONAL
OPTIONAL
FIREPLACE
LIVING
14'-7" x 21'-3"
BEDROOM
10'-6" x 11'-3
LANAI
25'-8" x 6'-0"
BEDROOM
11'-9" x 12'-0"
42'-4"


MASTER BDRM
12'-0" x 15'-2"
WH
GARAGE
20'-4" x 24'-5"
BEDROOM
10'-6" x 11'-3"
DROOM
-9" x 12'-0"
12'-4"
54'-4"
20'-8"

Model C




36'-6"



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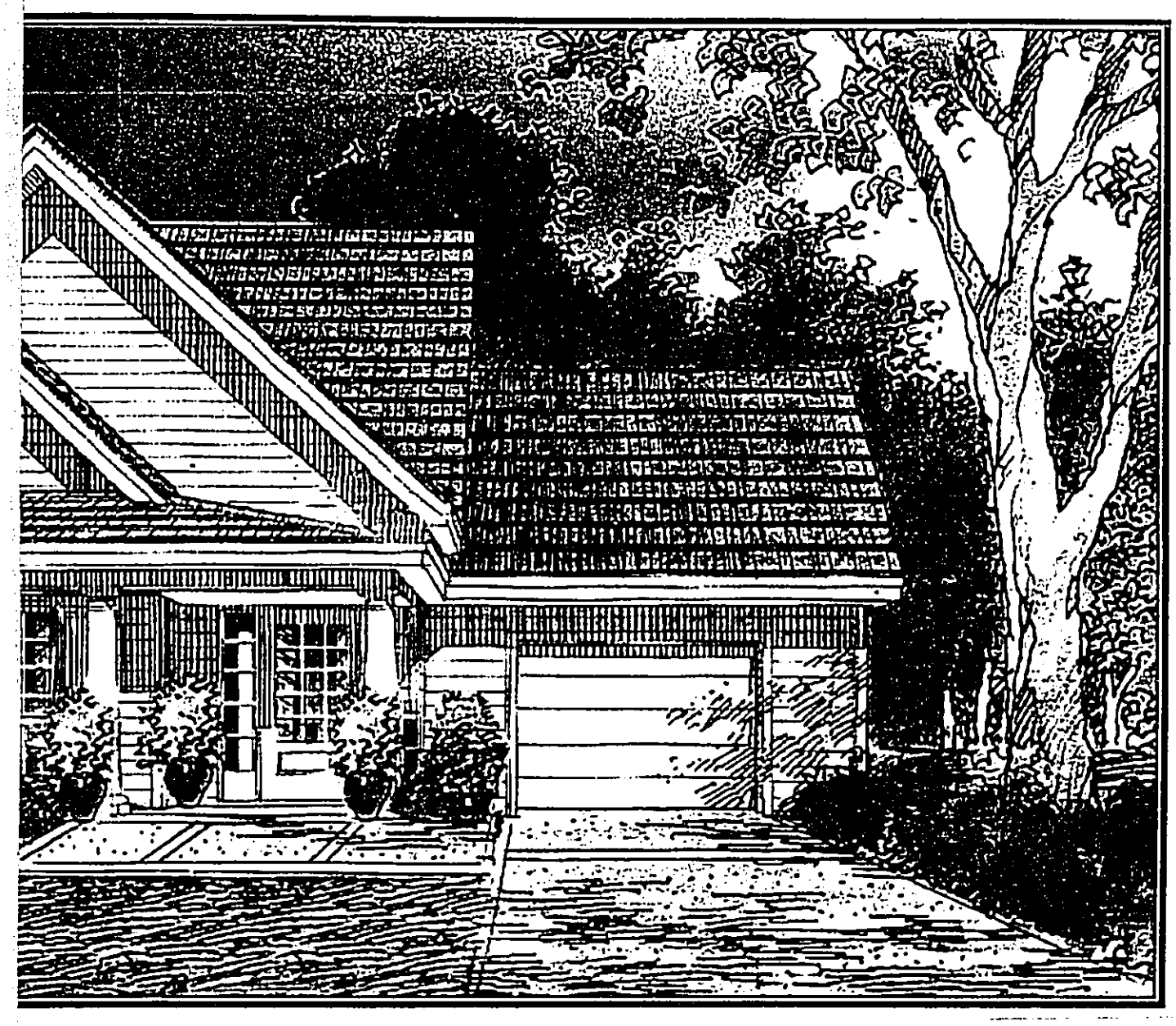
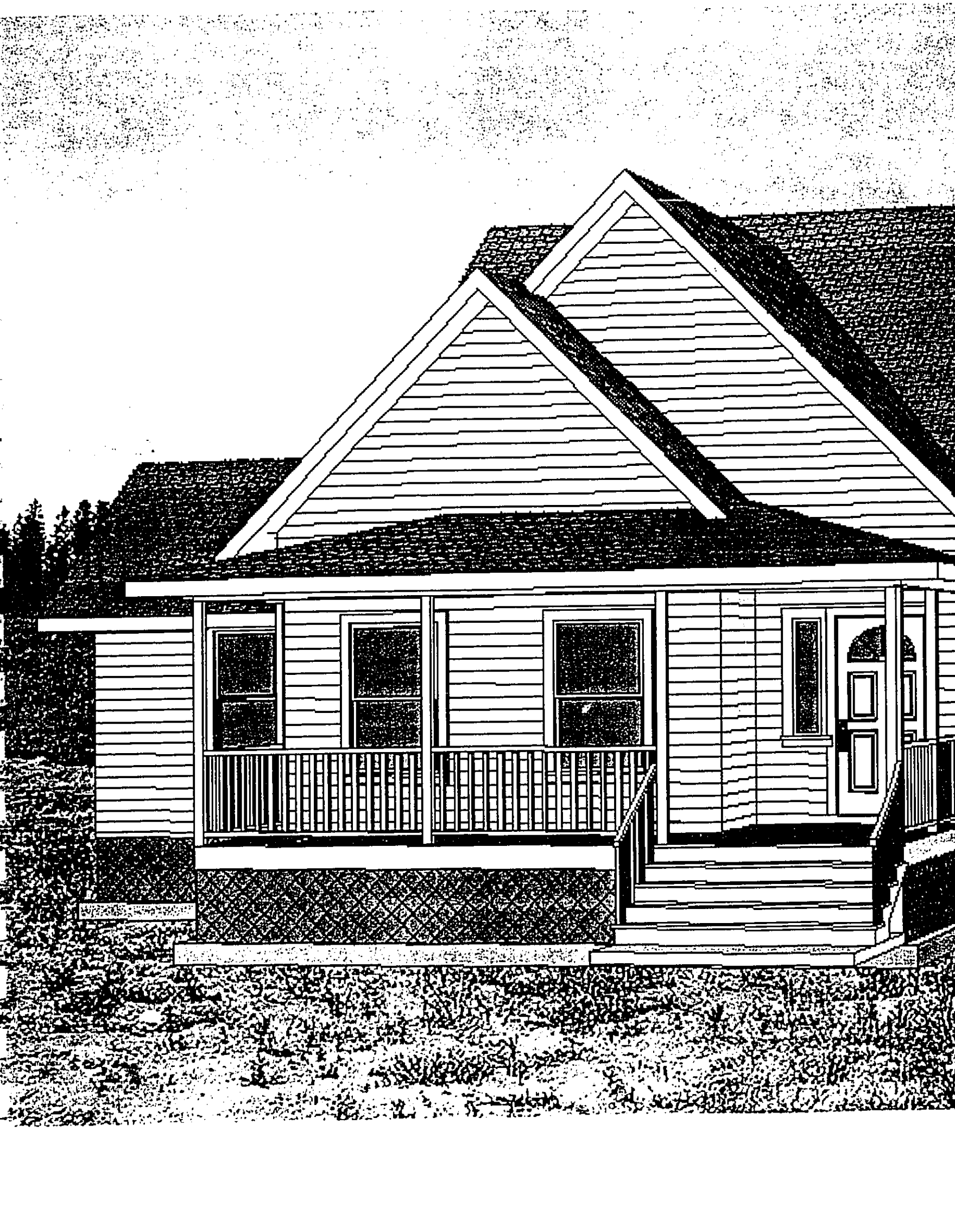
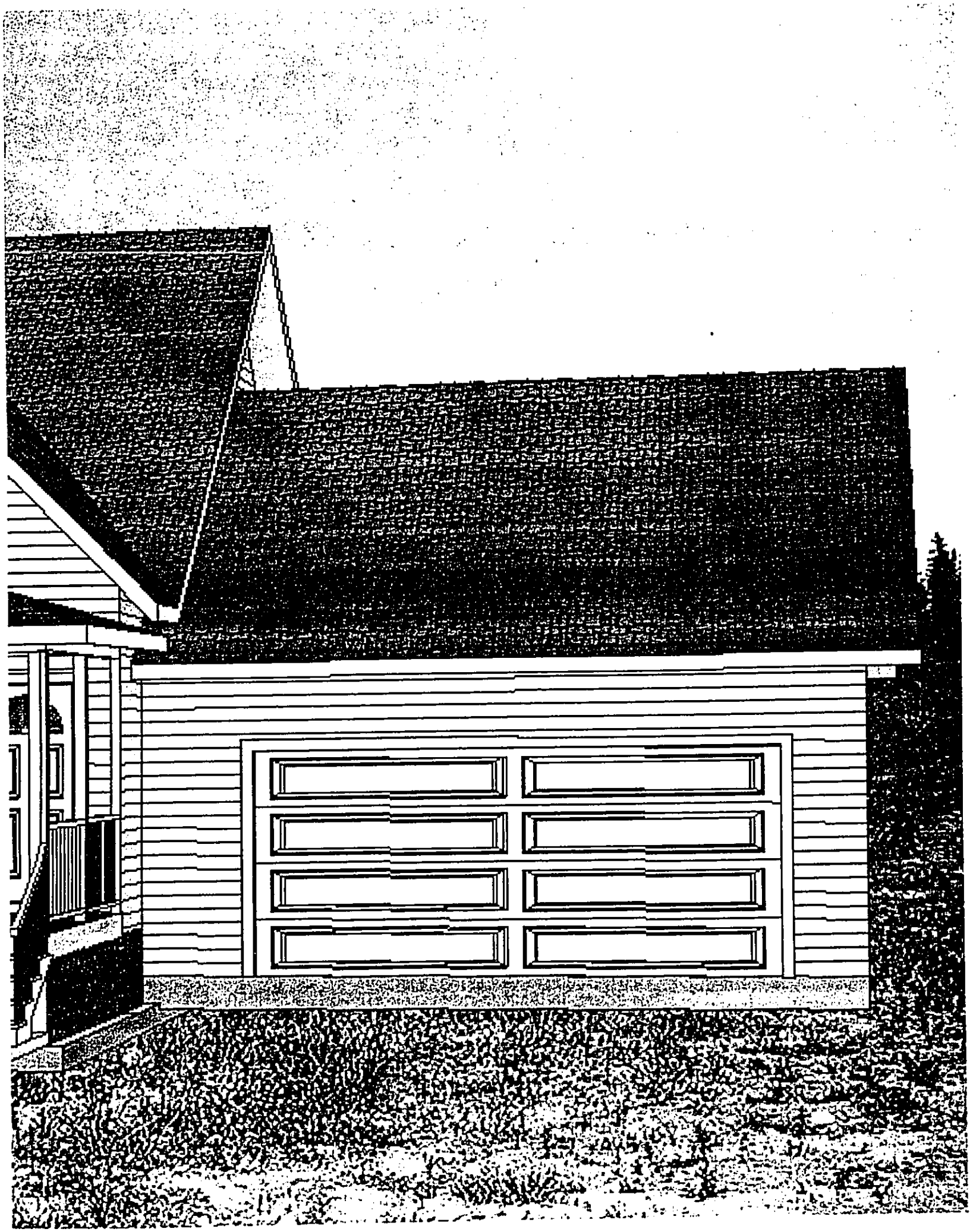


Model D





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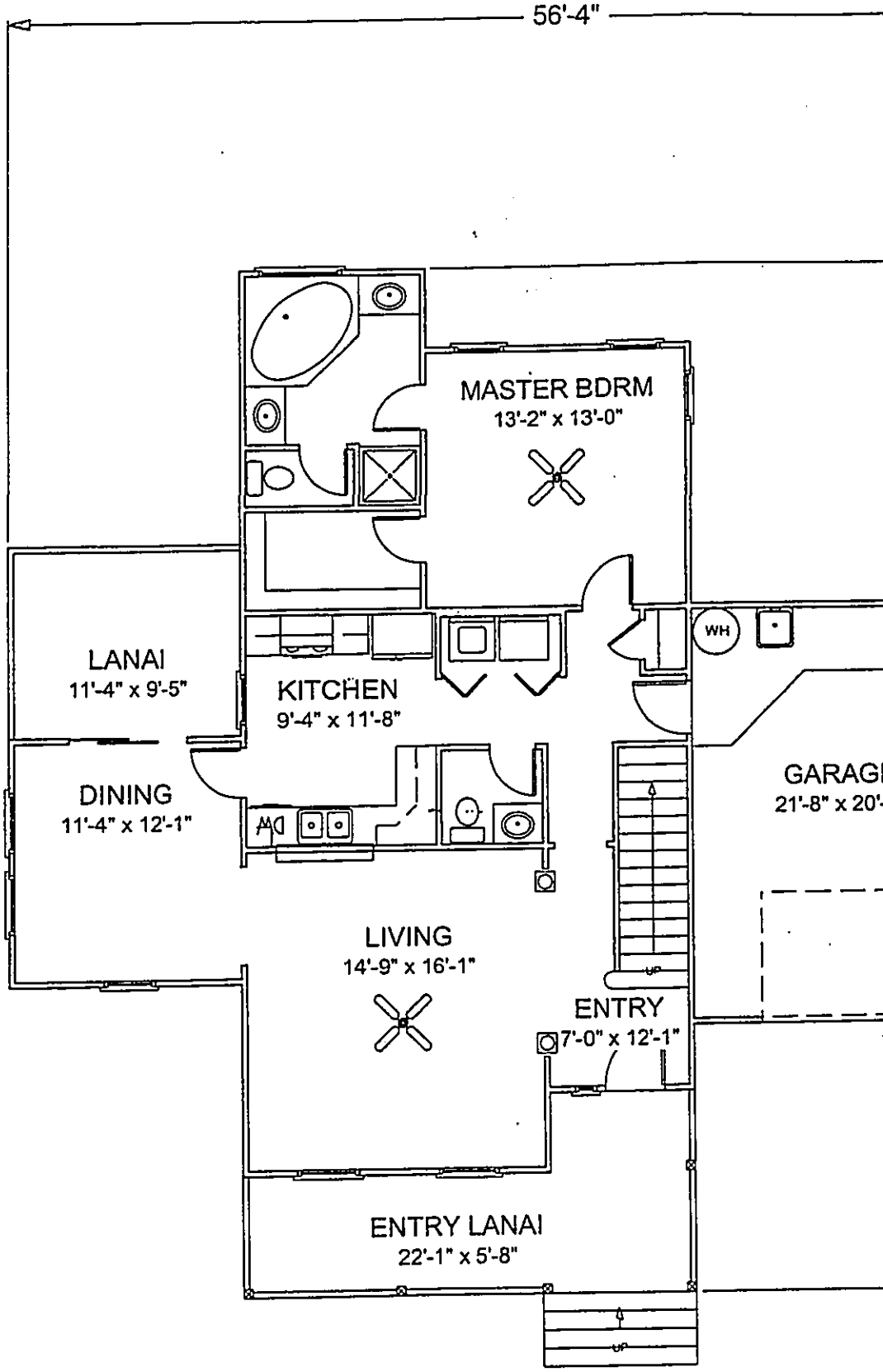
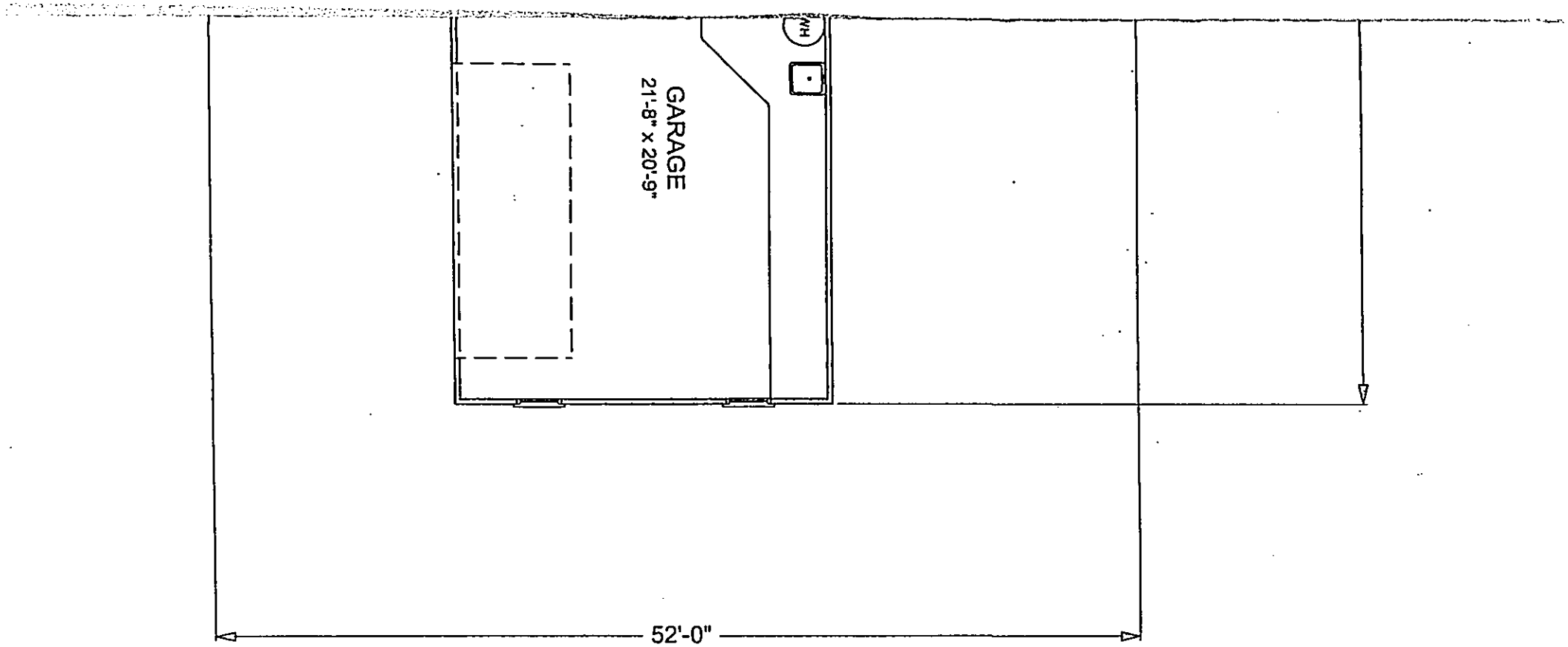
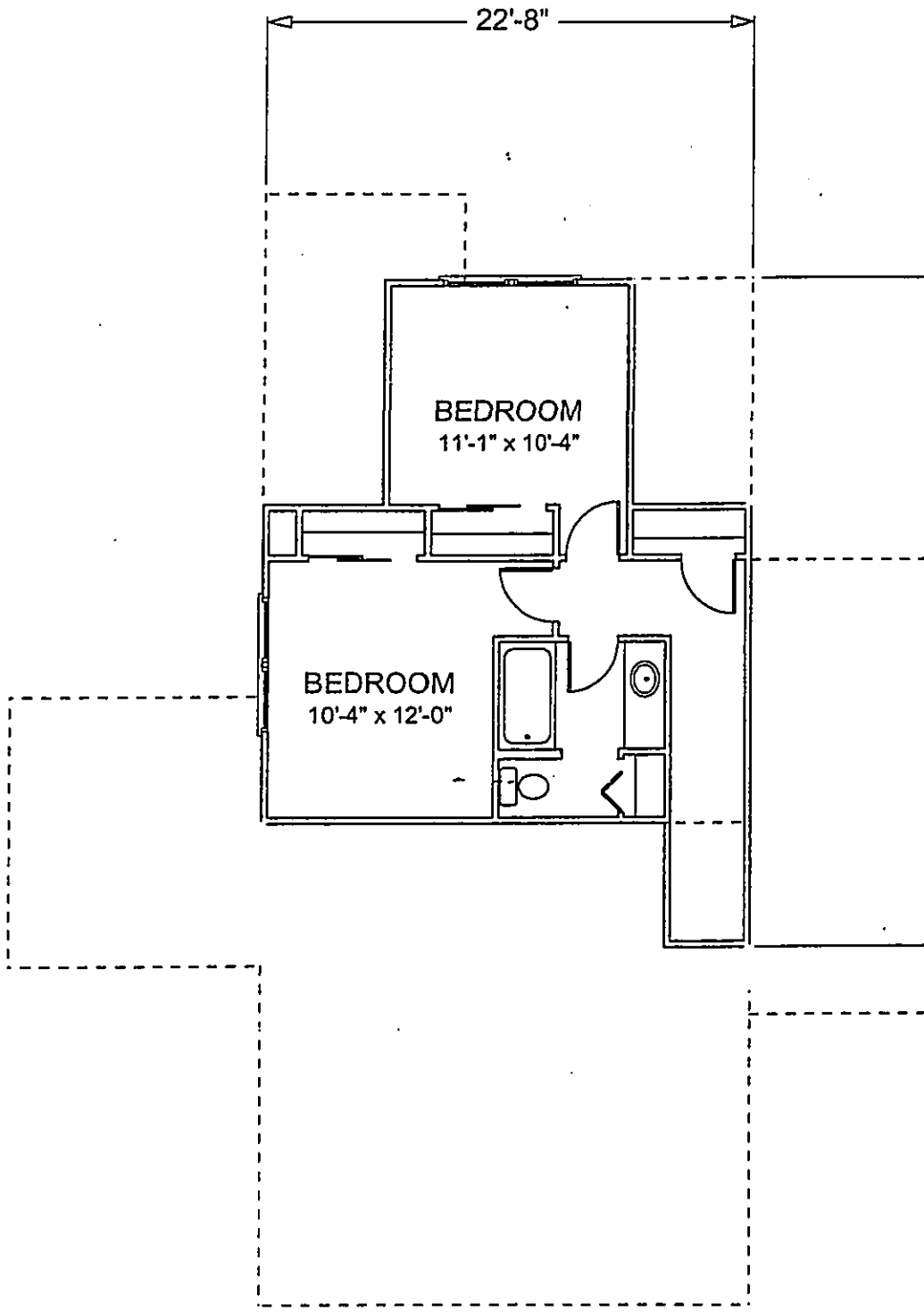
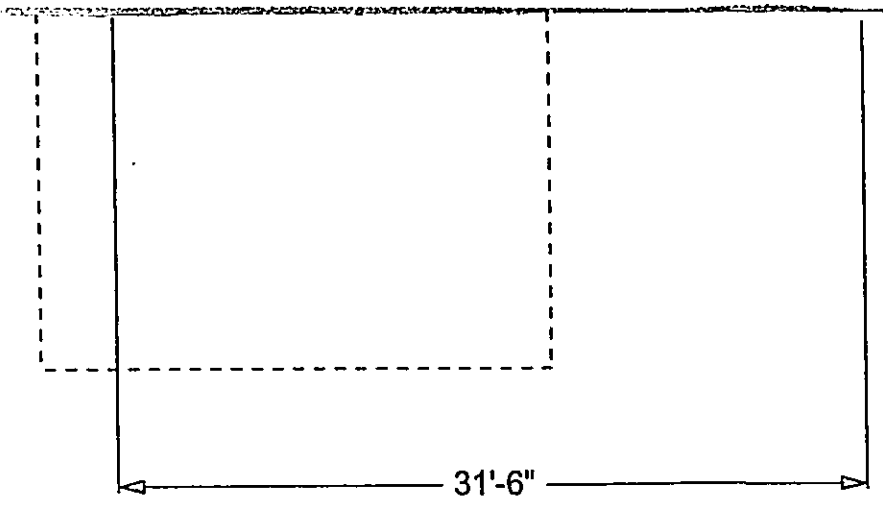

56'-4"
MASTER BDRM
13'-2" x 13'-0"
WH
LANAI
11'-4" x 9'-5"
KITCHEN
9'-4" x 11'-8"
DINING
11'-4" x 12'-1"
LIVING
14'-9" x 16'-1"
ENTRY
7'-0" x 12'-1"
ENTRY LANAI
22'-1" x 5'-8"


GARAGE
21'-8" x 20'-9"
WH
52'-0"

Model D




31'-6"

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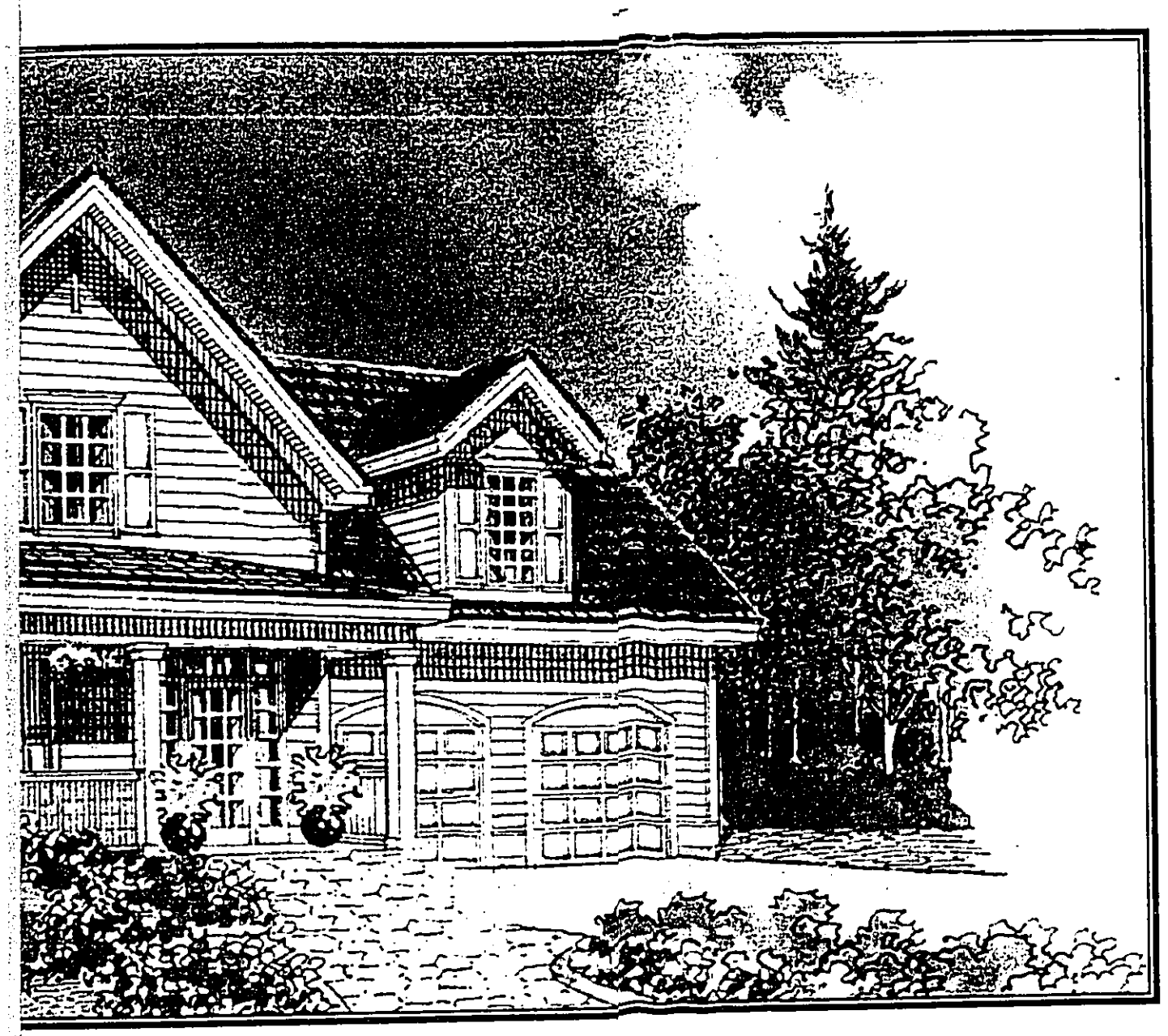
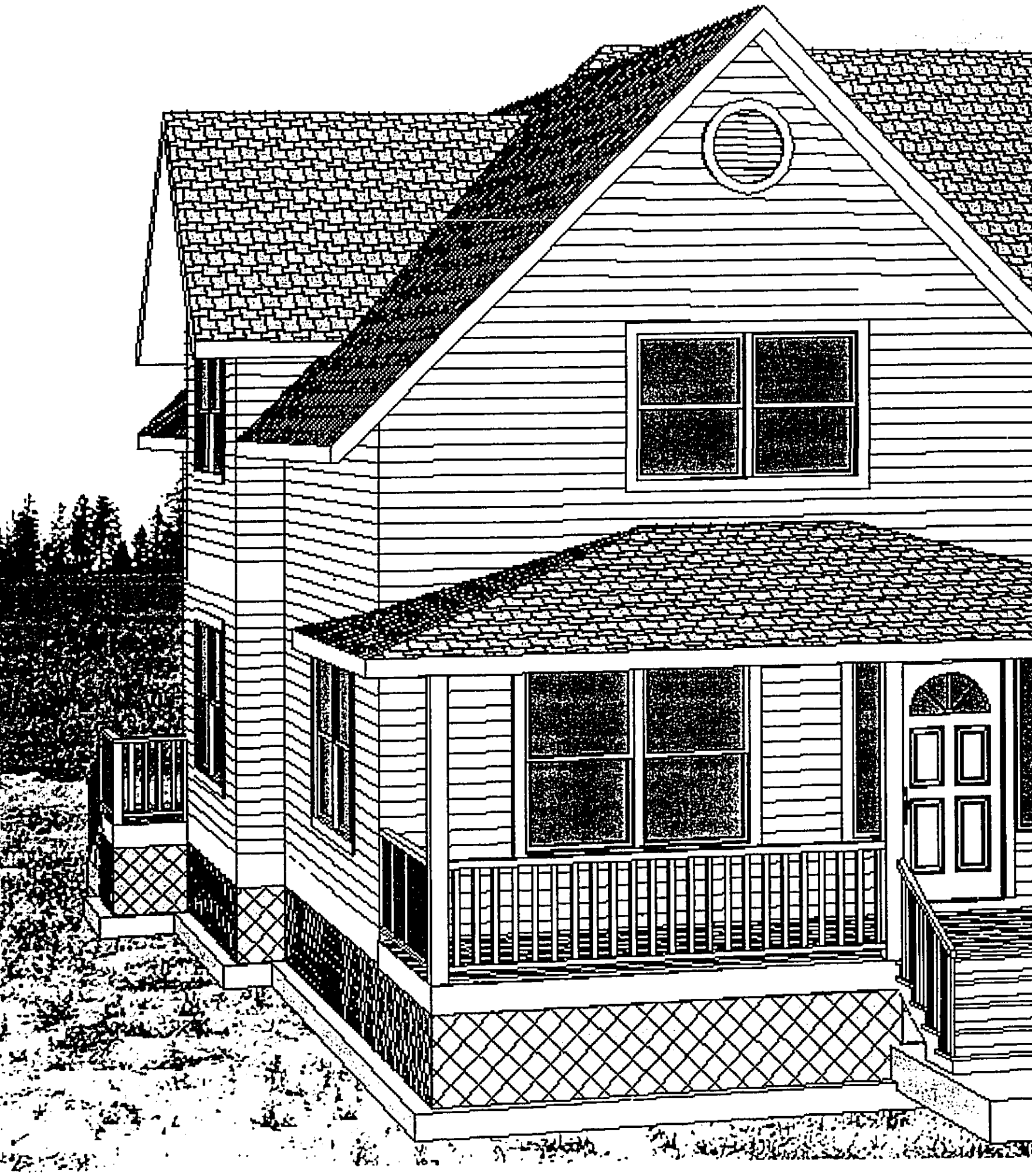
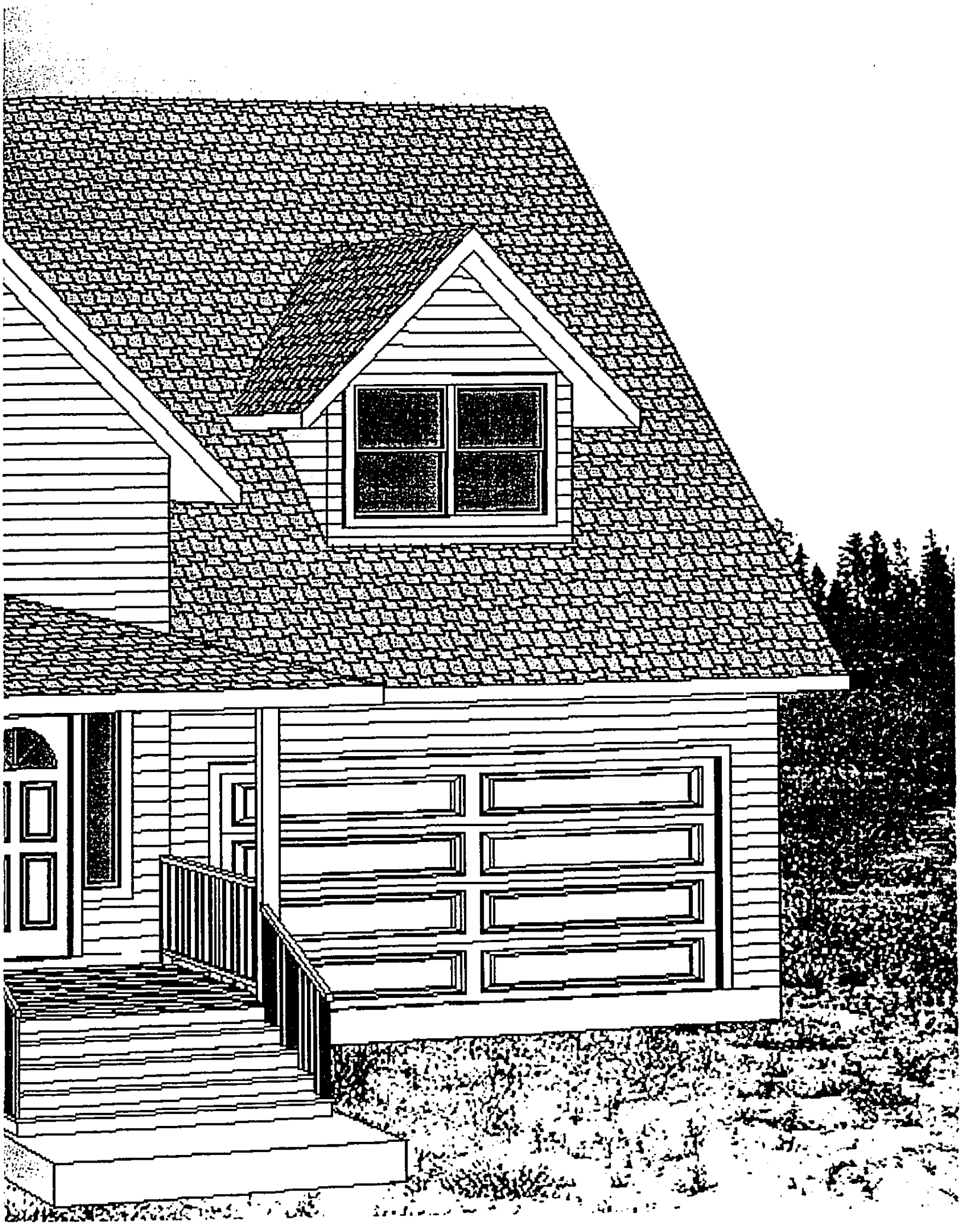
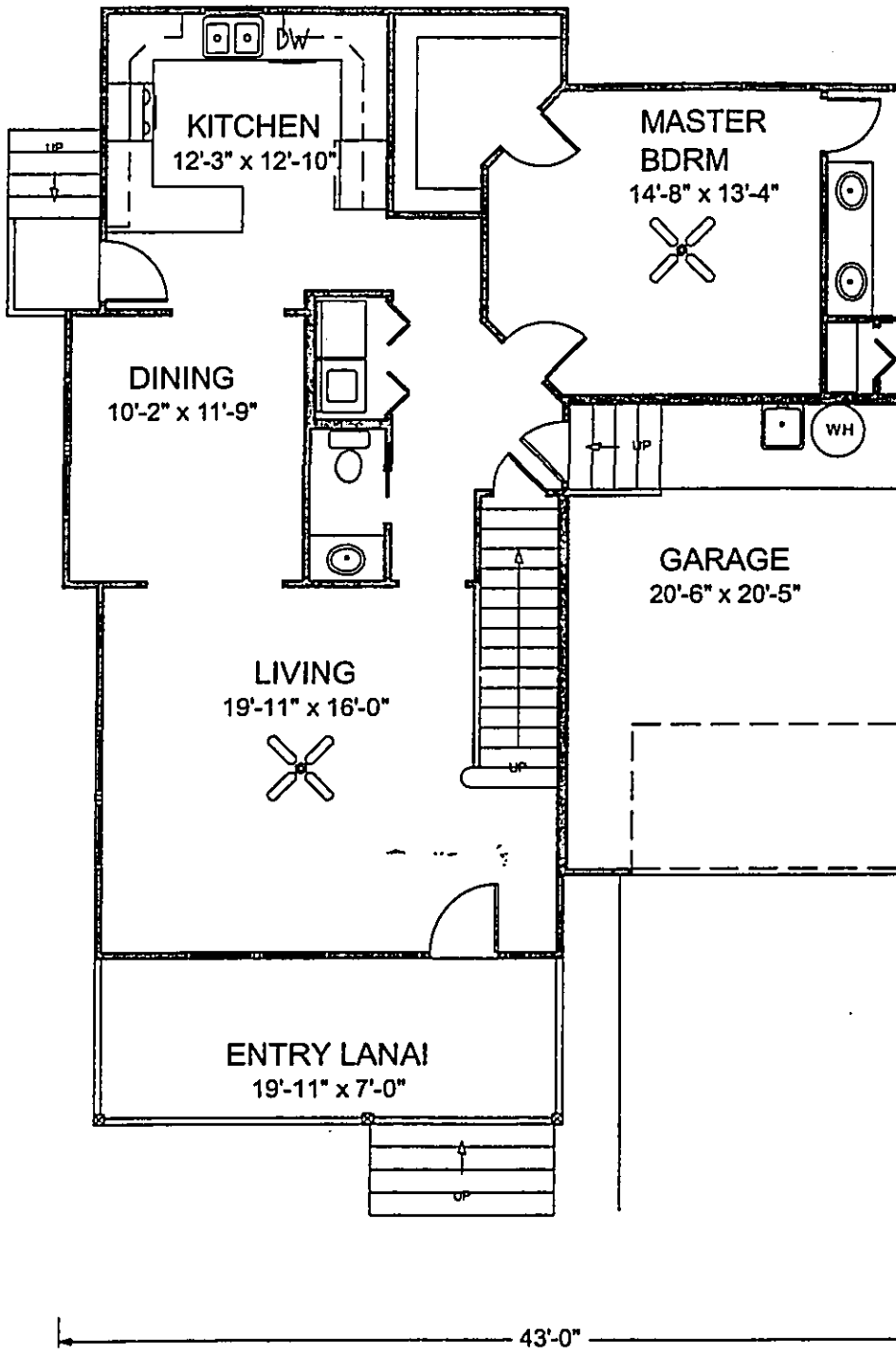


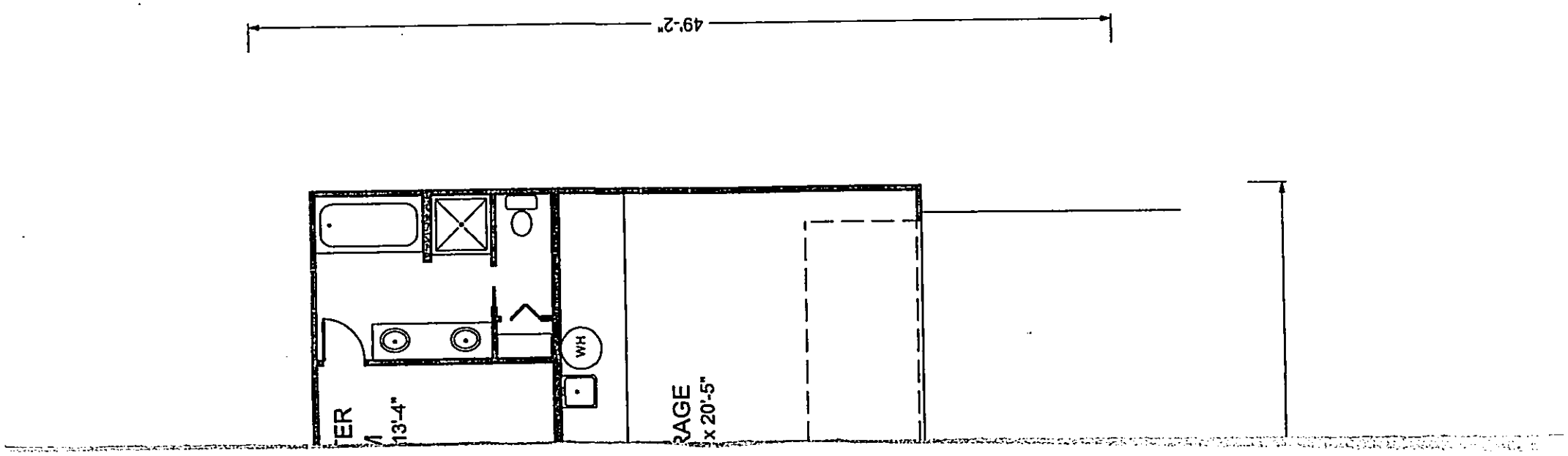
Model E



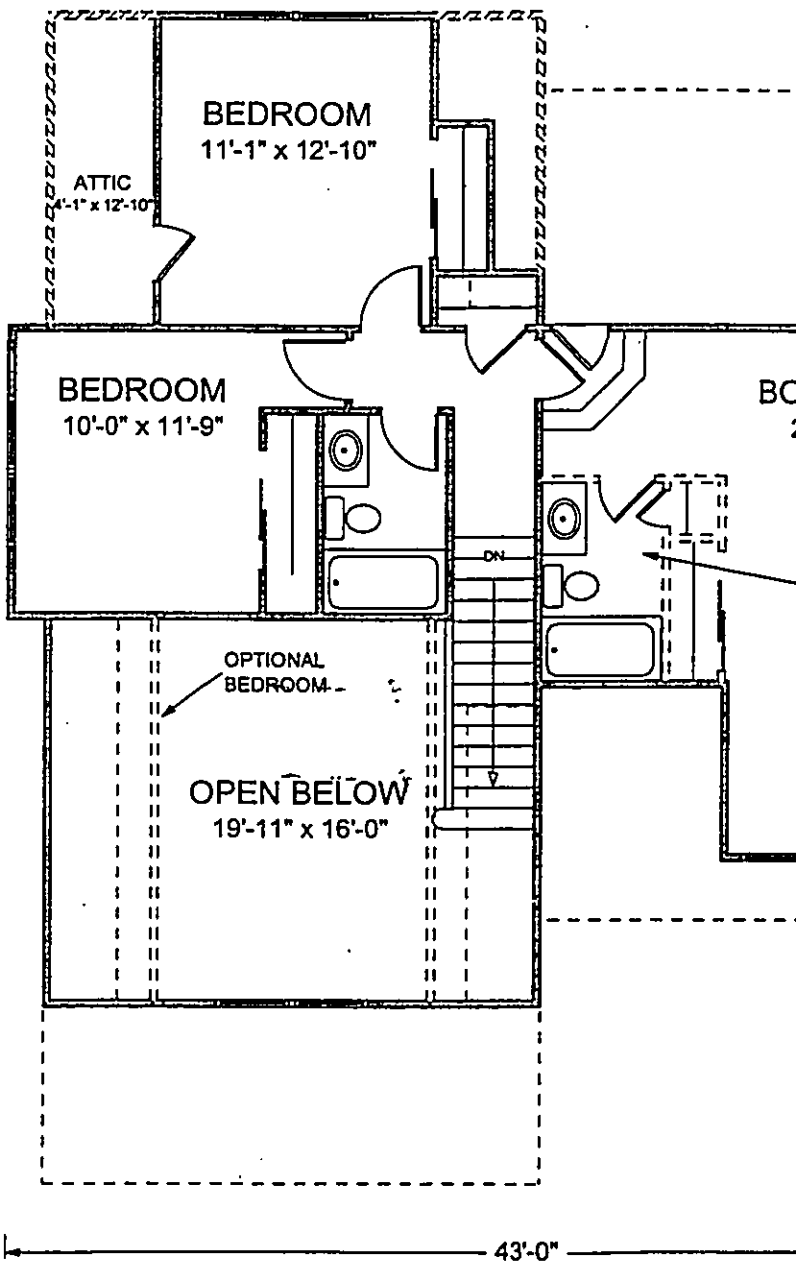


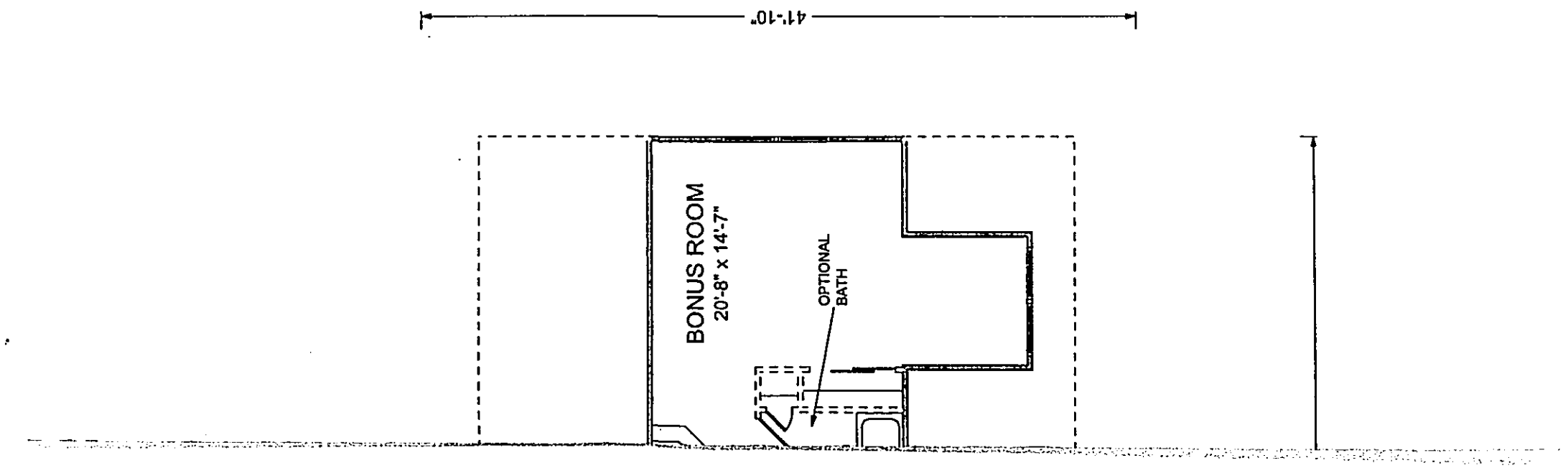
Model E


DW
KITCHEN
12'-3" x 12'-10"
UP
MASTER
BDRM
14'-8" x 13'-4"
DINING
10'-2" x 11'-9"
WH
UP
GARAGE
20'-6" x 20'-5"
LIVING
19'-11" x 16'-0"
UP
ENTRY LANAI
19'-11" x 7'-0"
UP
43'-0"


49'-2"
WH
13'-4"
20'-5"

Model E

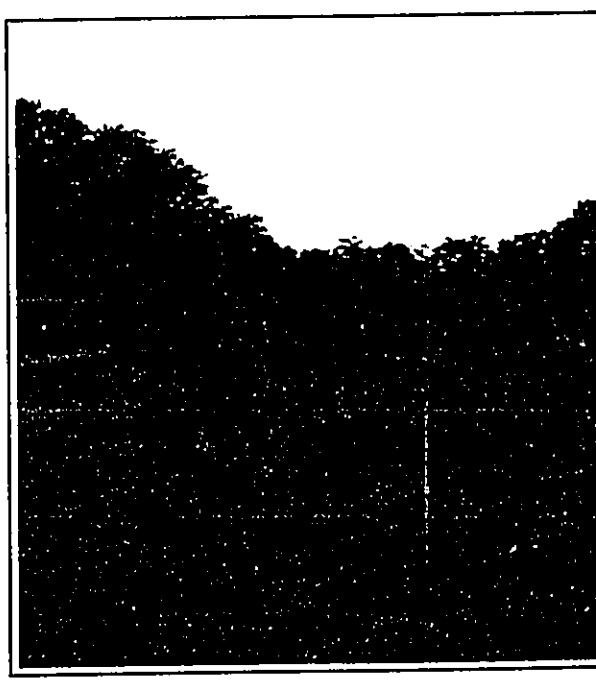

BEDROOM
11'-1" x 12'-10"
ATTIC
11'-1" x 12'-10"
BEDROOM
10'-0" x 11'-9"
DN
OPTIONAL
BEDROOM
OPEN BELOW
19'-11" x 16'-0"
43'-0"


41'-10"
BONUS ROOM
20'-8" x 14'-7"
OPTIONAL
BATH

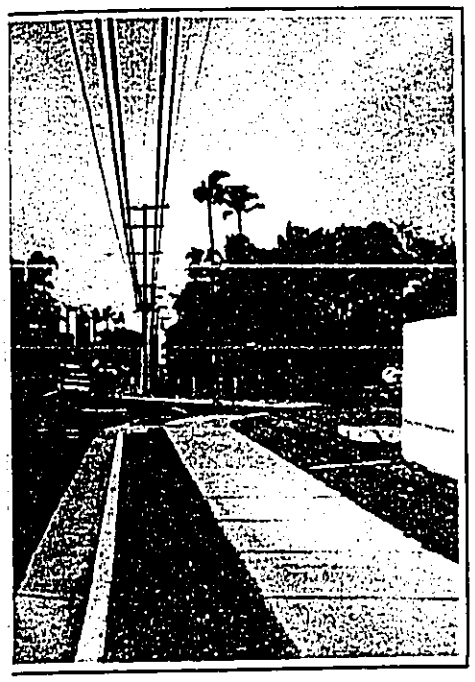
Looking north along South Kihei Road from the entrance to the subject property.

Looking north along South Kihei Road tow
of South Kihei Road and Kulanihakoi Roa

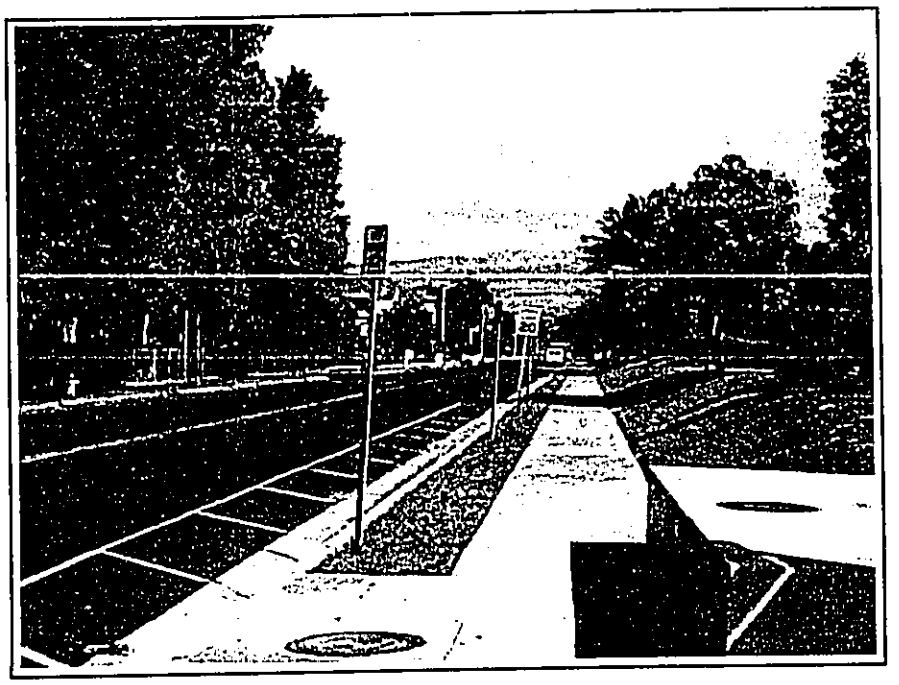
Looking west along Kulanihakoi Road.



Looking south at the future roadway rese
the primary entrance to the project.



ıei Road towards the intersection
nihakoi Road.



Looking east along Kulanihakoi Road.

adway reserve that will serve as
roject.

Looking south at an existing bikeway along the future North-South Collector Road.

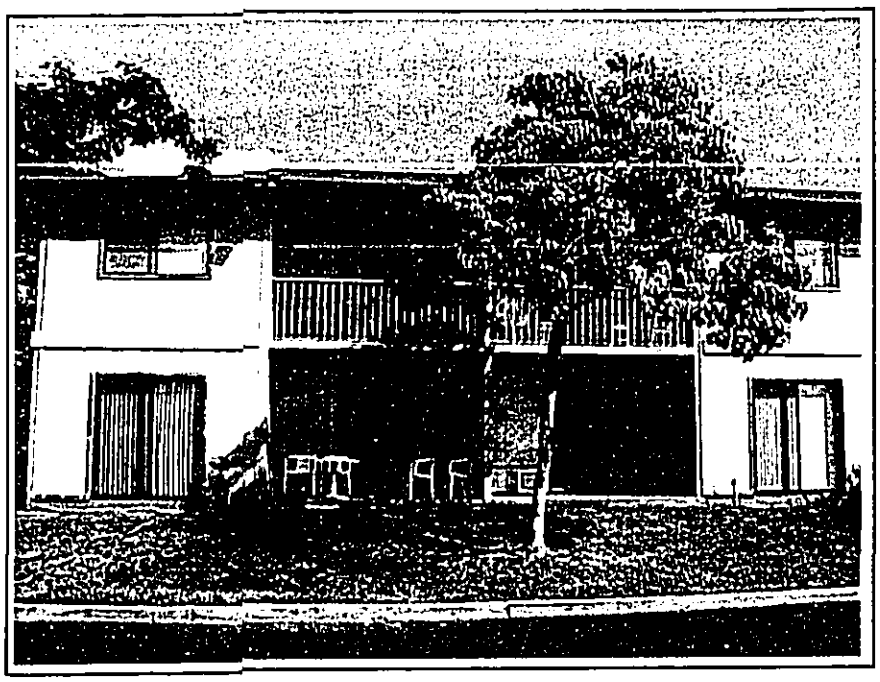
FIGURE 11, A

SITE PHOTOGRAPHS

WAIPUILANI ESTATES

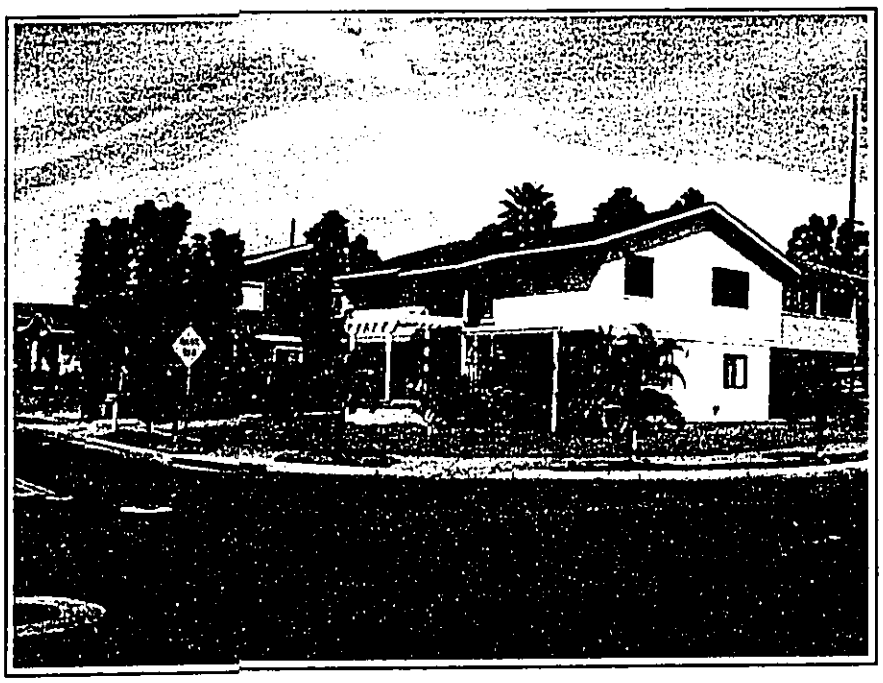
08/2002

CHRIS HART & PARTNERS

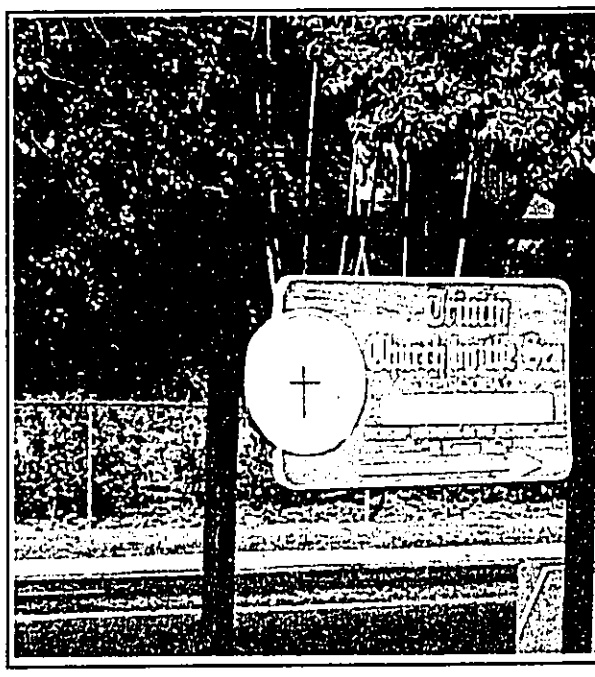


The Paradise Gardens apartment complex abuts the northwest corner of the subject property.

Single-family residential dwellings and lan
across Kulanihakoi road within 500 feet of

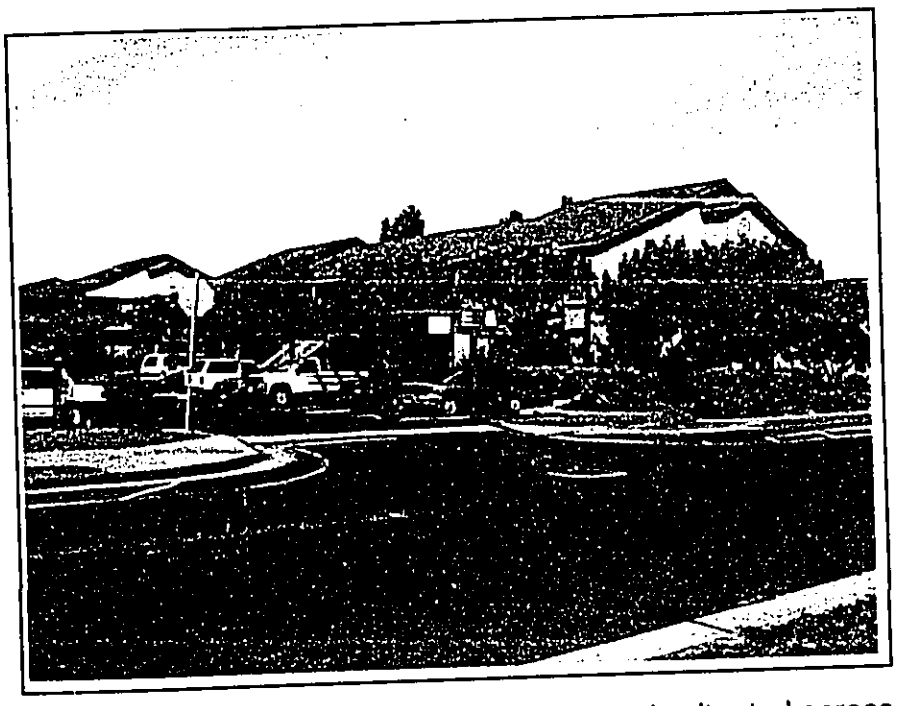


Looking at Single-family residences situated across Kulanihakoi Road within 500 feet of the subject property.



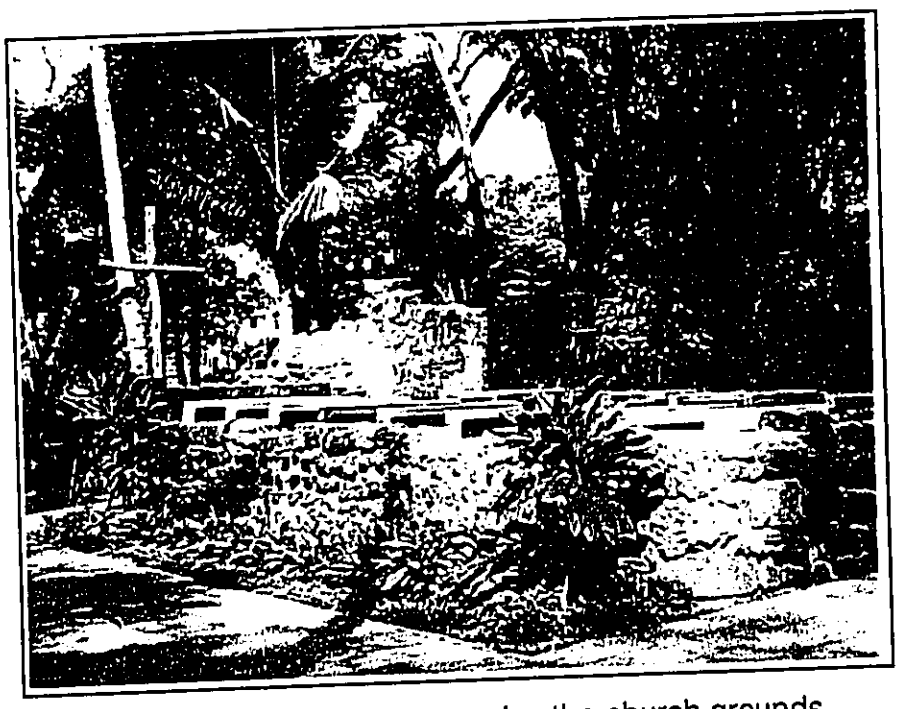
The Trinity Episcopal Church by the Sea a
northern boundary line.

ings and landscape planting situated
n 500 feet of the subject property.



The Haleakala Gardens apartment complex is situated across Kulanihakoi road and is within 500 feet of the subject property.

ɔy the Sea abuts the subject property's



Numerous historic features comprise the church grounds.

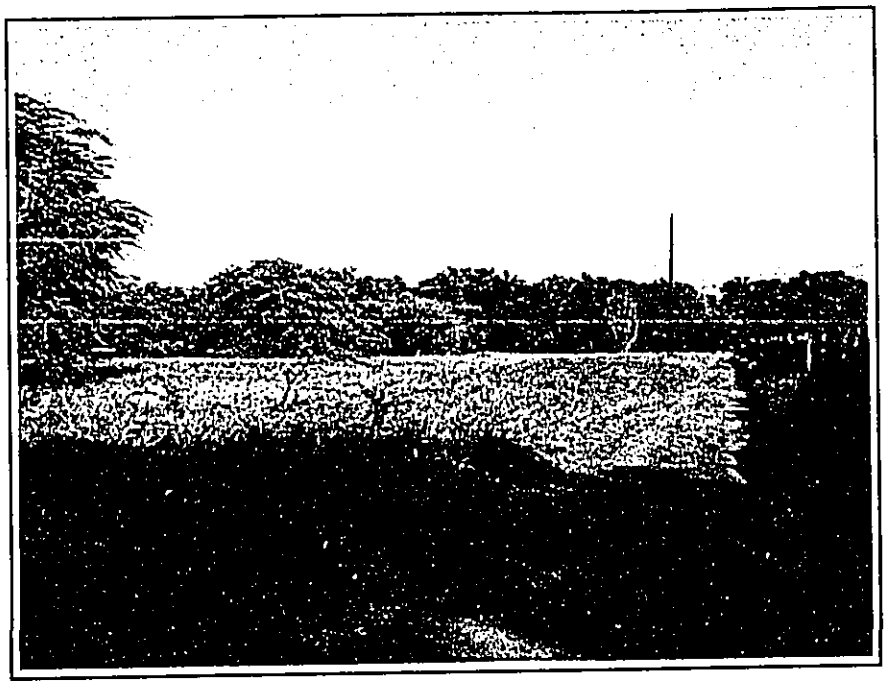
FIGURE 11, B

SITE PHOTOGRAPHS

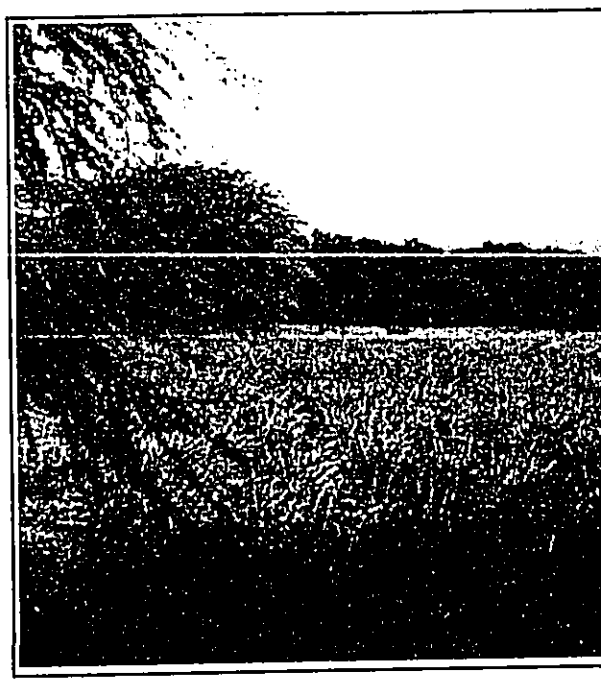
WAIPUILANI ESTATES

08/2002

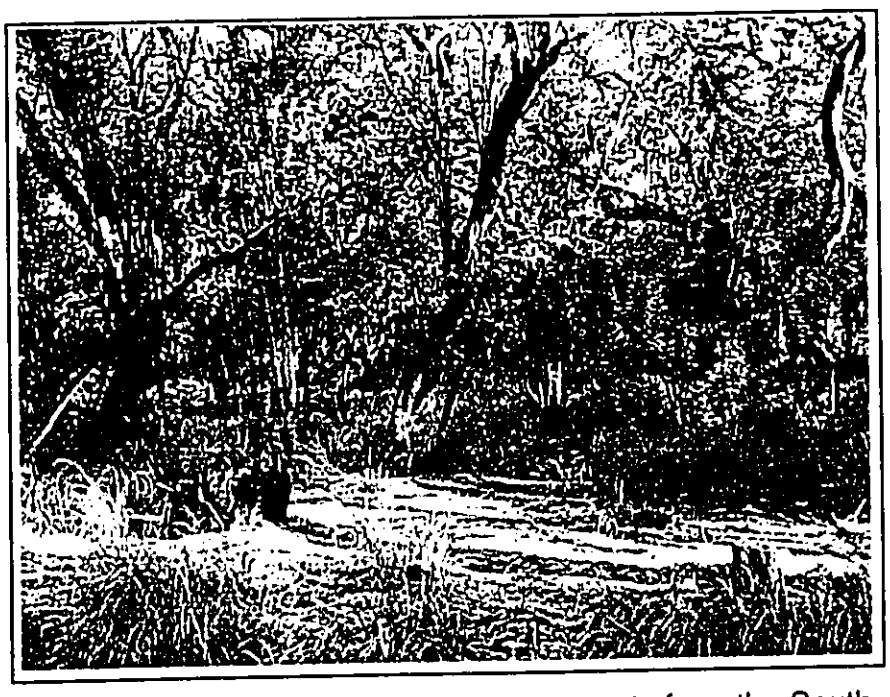
CHRIS HART & PARTNERS



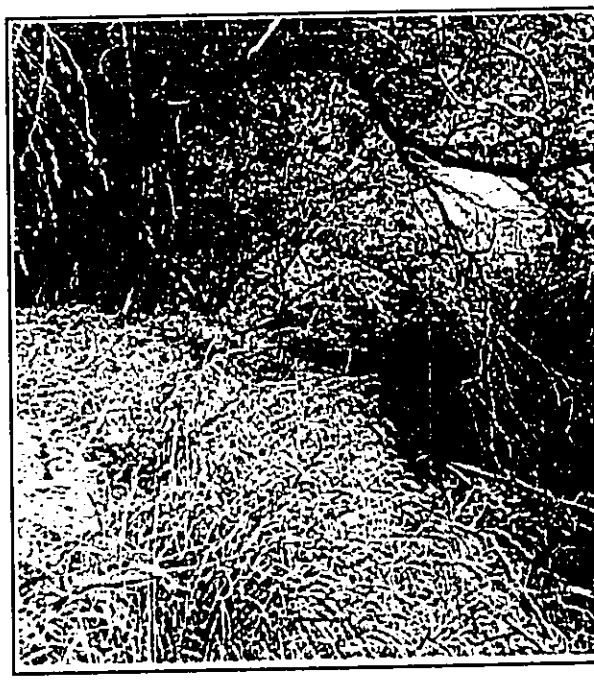
Looing east (mauka) through the interior of the subject property.



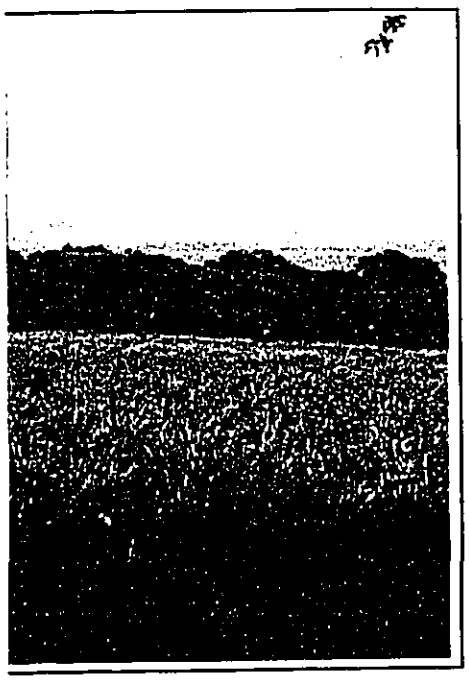
Looking southeast across the subject prop



Looking at the interior of the subject property from the South Kihei Road frontage.

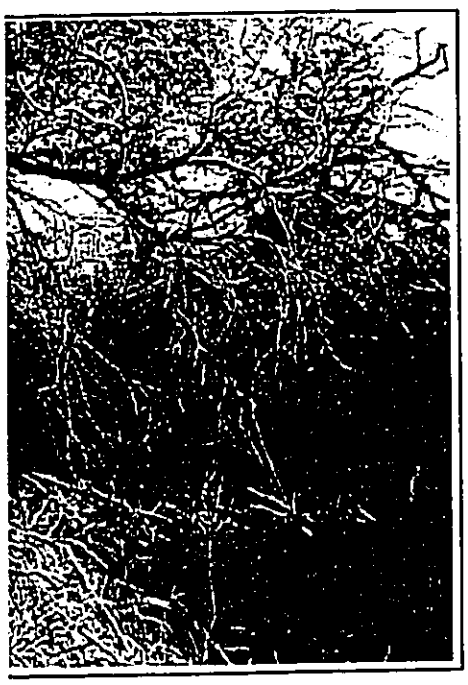


Waipuilani Gulch which runs parallel to th

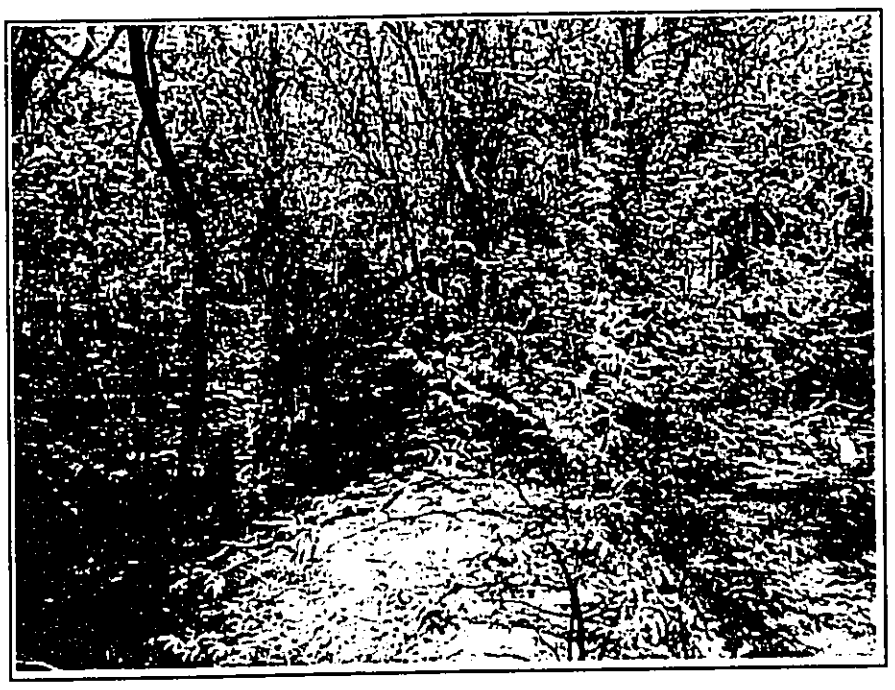


subject property.

Looking southeast across TMK's: 3-9-034:027 and 3-9-007:007.



arallel to the southern boundary.



Interior vegetation.

FIGURE 11, C

SITE PHOTOGRAPHS

WAIPUILANI ESTATES

08/2002

CHRIS HART & PARTNERS

APPENDICES

Appendix - A

Pre-Consultation

- List of consultation activities with agencies, community organizations, and neighbors prior to public hearing
- Agency and adjacent property owner pre-consultation letters and responses
- Neighborhood pre-consultation letters dated August 15, 2002, to property owners within 500' of property

List of consultation activities with agencies, community organizations, and neighbors prior to public hearing

List of Consultation Activities with Agencies, Community Organizations, and Neighbors prior to submittal of the Draft Supplemental Environmental Assessment and Special Management Area (SMA) Permit

Agencies

1. January 24, 2001, meeting with Department of Public Works and Waste Management.
2. Letter dated February 8, 2001, to the Department of Planning, Department of Public Works and Waste Management, Department of Water Supply, and the State Department of Transportation.
3. Letter dated March 20, 2001, to State Department of Transportation in response to pre-consultation letter.
4. Letter dated March 22, 2001, to the Department of Planning in response to pre-consultation letter.
5. April 23, 2001, meeting with Department of Public Works and Waste Management.
6. Letter dated April 30, 2001, to the Department of Public Works and Waste Management in response to pre-consultation letter.
7. May 18, 2001, meeting with the Department of Planning.
8. June 25, 2001, meeting with Department of Public Works and Waste Management.
9. June 27, 2001, meeting with the Department of Parks and Recreation.
10. August 3, 2001, meeting with Department of Planning.
11. August 16, 2001, meeting with Department of Public Works and Waste Management.
12. September 6, 2001, meeting with Department of Parks and Recreation.
13. Letter dated September 28, 2001, to the Department of Planning.
14. Letter dated October 3, 2001, to the Department of Parks and Recreation.
15. October 11, 2001, meeting with Department of Planning.
16. October 22, 2001, meeting with Department of Parks and Recreation.
17. November 1, 2001, meeting with Department of Public Works and Waste Management.
18. December 6, 2001, meeting with Department of Planning.
19. February 15, 2002, meeting with Department of Public Works and Waste Management.
20. July 17, 2002, meeting with Department of Planning.
21. Letters in response to agency comments regarding Draft Environmental Assessment.

Community Organizations

1. Letter dated February 8, 2001, to the Kihei Community Association informing of the project and requesting comments and concerns.
2. Meeting with the Kihei Community Association's Planning and Development Committee on April 23, 2001.
3. Meeting with the Kihei Community Association's General Membership on June 19, 2002.

Neighboring Property Owners

1. Letter dated February 8, 2001, informing neighboring property owners of project and requesting comments and concerns.
2. Letter dated August 15, 2002, informing all property owners within 500 feet of subject property of project and meeting scheduled for August 27, 2002, to discuss the project.
3. Meeting with property owners within 500 feet of the subject property to discuss the project and address concerns.

Urban Design and Review Board

1. May 21, 2002, public hearing before the Urban Design and Review Board.

Maui Planning Commission Public Hearing

1. June 11, 2002, public hearing before the Maui Planning Commission on previously submitted application in support of a 64-lot residential subdivision.

Agency and adjacent property owner pre-consultation letters and responses

CHRIS HART
& PARTNERS, INC.

April 30, 2001

Mr. Brian Minaai
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Minaai:

RE: Pre-Consultation Letter for an Environmental Assessment in support of Waipuilani Estates, Kihei, Maui, TMK (TMK: (2) 3-9-001:009)

Thank you for your letter dated March 12, 2001, regarding the preparation of an Environmental Assessment for the above-referenced project.

Please note that a Traffic Impact Analysis Report was prepared for the project and will be made available for your review and approval.

Should you have further questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

for Mike J. Summers

Rory Frampton
Senior Planner

Cc. Mr. John Min, Director of Planning
Mr. Doyle Betsill, Betsill Brothers Construction

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

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

IN REPLY REFER TO:

HWY-PS
2.1966

MAR 12 2001

RECEIVED
MAR 13 2001

Mr. Rory Frampton
Chris Hart & Partners, Inc.
Landscape Architecture and Planning
1955 Main Street, Suite 200
Wailuku, Hawaii 96793-1706

Dear Mr. Frampton:

Subject: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, Kihei, Maui, TMK: (2) 3-9-001: 009

Thank you for your transmittal of February 8, 2001, requesting our input regarding the subject project.

A Traffic Impact Analysis Report must be prepared and submitted to us for our review and approval.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

CHRIS HART
& PARTNERS, INC.

April 30, 2001

Mr. David Goode
Director
Department of Public Works and Waste Management
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Goode:

RE: Pre-Consultation Letter for an Environmental Assessment in support of Waipuilani Estates, Kihei, Maui, TMK (TMK: (2) 3-9-001:009)

Thank you for your letter dated April 16, 2001, which provided pre-consultation comments regarding the preparation of an Environmental Assessment for the above-referenced project. For your information, we offer the following:

1. A Solid Waste Management Plan for the disposal/recycling of construction waste and cleared and grubbed material will be prepared and submitted to your office for review and approval.

2. The proposed project will comply with the County's subdivision and grading ordinances.

Should you have further questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

Rory Frampton
Senior Planner

Cc. Mr. John Min, Director of Planning
Mr. Doyle Betsill, Betsill Brothers Construction

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 · WAILUKU, MAUI, HAWAII 96793-1706 · PHONE: 808-242-1955 · FAX: 808-242-1956

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

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

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

April 16, 2001

RECEIVED
APR 2 0 2001
Landscape Architecture & Planning

Mr. Rory Frampton
Chris Hart & Partners, Inc.
1955 Main Street, Suite 200
Wailuku, Hawaii 96793

Dear Mr. Frampton:

SUBJECT: PRE-CONSULTATION-ENVIRONMENTAL ASSESSMENT
WAIPUILANI ESTATES
TMK: (2) 3-9-001:009

We reviewed the pre-consultation summary of the proposed project and have the following comments.

1. Submit a Solid Waste Management Plan for the disposal/recycling of construction waste and cleared and grubbed material.

2. Compliance with the subdivision and grading ordinances is required.

If you have any questions, please call me at 270-7845.

Sincerely,

for DAVID GOODE
Director of Public Works
and Waste Management

MA:da/mt
S:\LUCA\CZM\waipuilani.wpd

CHRIS HART
& PARTNERS, INC.

March 22, 2001

Mr. John Min
Director
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

RE: Pre-Consultation Letter for an Environmental Assessment in support of Waipuilani Estates, Kihei, Maui, TMK (TMK: (2) 3-9-001:009)

Thank you for your letter dated March 7, 2001, regarding the preparation of an Environmental Assessment for the above-referenced project. Pursuant to your letter, we offer the following comments:

1. R-O Lot Overlay. We are proposing that the subject property be developed pursuant to the standards established in Maui County Code, Chapter 19.84 "R-O Zero Lot Line Overlay District", which allows for a minimum lot size of 4,000 Square Feet for land zoned R-3, Residential.

2. Traffic. Phillip Rowell & Associates has been contracted to prepare a Traffic Impact Assessment Report for the subject development. The report will assess project related impacts to pertinent intersections along South Kihei Road, Kulanihakoi Road, and Piilani Highway. The report will also make recommendations for project related roadway improvements as warranted.

3. Traffic Calming. Curvilinear streets and roundabouts have been incorporated into the design of the internal street network in order to reduce traffic speeds. In addition, a pedestrian bicycle easement will provide access to the North South Collector Road.

4. Archeology. An Archeological Inventory Survey will be conducted in order to determine if any archeological sites exist on the property.

5. Flora/Fauna. Based upon a site reconnaissance investigation conducted by our staff, it does not appear that endangered species of plant and animal life exist on the subject property. Results of the reconnaissance investigation will be documented in the Environmental Assessment.

Should you have further questions, please contact myself, or Mr. Michael Summers, Staff Planner.

Sincerely yours,

for Mike J. Summers

Rory Frampton
Senior Planner

Cc. Mr. Doyle Betsill, Betsill Brothers Construction

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

March 7, 2001

RECEIVED
MAR 09 2001
CHRIS HART & PARTNERS
Landscape Architecture Urban & Planning

Mr. Rory Frampton
Chris Hart & Partners, Inc.
1955 Main Street
Wailuku, Hawaii 96793

Dear Mr. Frampton,

Re: Pre-Consultation for an Environmental Assessment for a Proposed 96-Lot Single-Family Development at TMK:3-9-001:009

Thank you for the opportunity to comment on the above project. Based on the limited information received, we have the following comments:

1. How are you planning to do 5,000 sq. ft. lots when 6,000 sq. ft. is the minimum lot size under standard residential subdivisions? Is there a plan for R-0 overlay?

2. Traffic is a key issue in the Kihei-Makena region as well as internally. Traffic assessments should look beyond adjacent roadways and include Kulanihakoi Road, South Kihei Road, and Piilani Highway intersections as a minimum. Improvements should go beyond abutting roadways.

3. Internal traffic calming measures, other than humps, should be incorporated in the subdivision layout (e.g., roundabouts and cureliner streets). Access to the North-South Collector road should be incorporated.

4. Project site contains large kiawe trees which may indicate that the project has been undisturbed and that the low lying areas is subject to flooding. Historic site and native birds and plants may be present on the site. If archeological sites are present, a discussion should be given to its connection to adjacent archeological sites.

5. Wildlife analysis should incorporate discussion on migratory birds and whether the site is used seasonally.

Should you require further clarification, please contact, Mr Joseph W. Alueta, Staff Planner, of this office at 270-7735.

Very truly yours,

JOHN E. MIN
Planning Director

JEM:JWA:cmb
c: Clayton Yoshida, AICP, Deputy Planning Director
Project File
General File
S:\ALL\JOE\waipuilani draft ea.wpd

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Mr. John E. Min
Director
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Min:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

Chris Hart & Partners, Inc. is preparing an Environmental Assessment (EA) as part of a Special Management Area (SMA) permit application for Waipuilani Estates, a proposed single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii. As part of the EA pre-consultation process, we are requesting input from interested parties on topics they wish to be considered in the assessment. A brief description of the project and topics to be addressed by the EA are below.

Project Description

Waipuilani Estates is proposed as a 96-lot single-family residential development on property that is zoned and community planned for residential use. The proposed project will offer 96 house and lot packages on lots ranging in size from approximately 5,000 to 10,000 square feet. The subject lots are anticipated to be largely affordable to Maui's median income households.

The subject property is an undeveloped 20.002-acre parcel situated in North Kihei along the mauka side of South Kihei Road approximately 400 feet south of the intersection of South Kihei and Kulanihakoi Roads. The subject property is bound to the west by South Kihei Road and multi-family residential development beyond, to the south by single-family residences and undeveloped land zoned for residential use, to the east by single-family residences, and to the north by a church, and multi- and single-family residences (See Figures "1" and "2'). Access to the property will be from Kulanihakoi and South Kihei Roads.

Topics to be addressed by the Environmental Assessment include:

Physical Environment, including:

- Land Use
- Topography / Landforms / Soils
- Air Quality
- Noise Characteristics
- Biological Resources
- Flood and Tsunami Hazard
- Archaeological / Cultural Resources
- Visual Resources

Public Services, including:

- Solid Waste Disposal
- Police and Fire Protection
- Educational Resources
- Medical Services

Social/Economic Environment, including:

- Population and Economy

Local Infrastructure, including:

- Water
- Drainage
- Wastewater
- Electrical and Telephone Systems
- Transportation

State and County Land Use Laws and Policies, including:

- HRS, Chapter 205A
- HRS, Chapter 343
- Kihei Makena Community Plan
- Title 19, MCC

The EA will also contain the following specific impact assessments prepared by qualified professionals:

- Drainage and Erosion Control
- Traffic
- Archeological
- Cultural

Should you have any additional issues that you would like to see addressed in the EA or have any comments or concerns, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

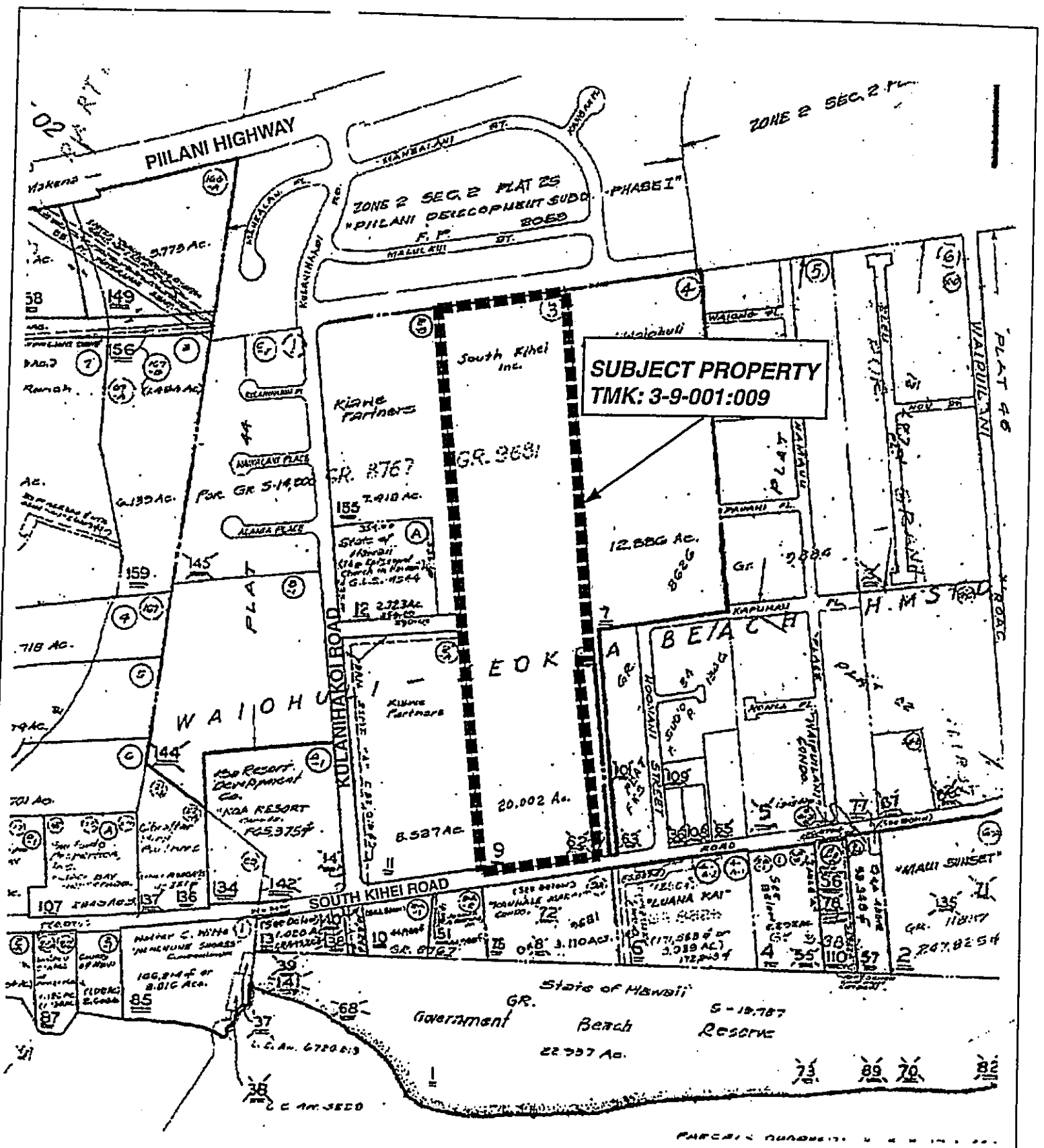


FIGURE 1

TAX MAP KEY
PLAT NO. 3-9-001

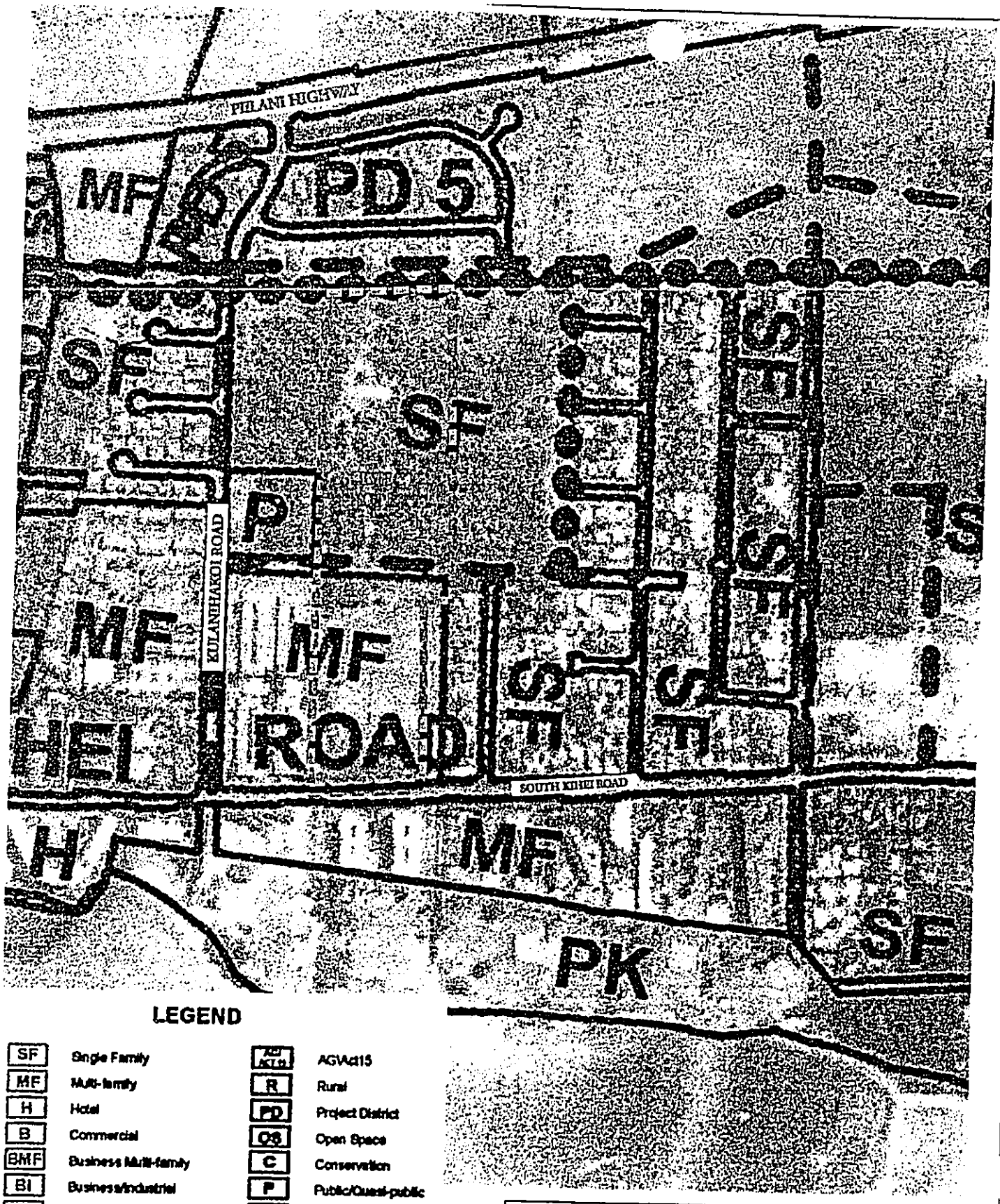
N

WAIPUILANI ESTATES

NOT TO SCALE

CHRIS HART & PARTNERS

DOCUMENT CAPTURED AS RECEIVED



LEGEND

SF	Single Family	AG/Ag15	AGVAc15
MF	Multi-family	R	Rural
H	Hotel	PD	Project District
B	Commercial	OS	Open Space
BMF	Business Multi-family	C	Conservation
BI	Business/Industrial	P	Public/Quasi-public
SBR	Service Business/Residential	PK	Park
LI	Light Industrial	PK/GC	Park/Golf Course
HI	Heavy Industrial		Kealia Pond NWR
A	Airport		Roadway Plan
AG	Agriculture		Bikeway Plan

SOURCE: Kihei Makena Community Plan

FIGURE 2

COMMUNITY PLAN OVERLAY MAP

N.

WAIPUILANI ESTATES

NOT TO SCALE

CHRIS HART & PARTNERS

CHRIS HART & PARTNERS, INC.

February 8, 2001

Mr. David Goode
Director of Public Works and Waste Management
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Goode:

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The subject property is an undeveloped 20.002-acre parcel situated in North Kihei along the mauka side of South Kihei Road approximately 400 feet south of the intersection of South Kihei and Kulanihakoi Roads. The subject property is bound to the west by South Kihei Road and multi-family residential development beyond, to the south by single-family residences and undeveloped land zoned for residential use, to the east by single-family residences, and to the north by a church, and multi- and single-family residences (See Figures "1" and "2"). Access to the property will be from Kulanihakoi and South Kihei Roads.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Mr. David R. Craddick
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-6109

Dear Mr. Craddick:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Mr. Barney Eiting
Kihei Community Association
Chairman, Planning and Development Committee
P.O. Box 662
Kihei, Maui, Hawaii 96753

Dear Mr. Eiting:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Mr. Leroy Scharber
Resident Manager
Kauhale Makao
930 S. Kihei Road
Kihei, HI 96753

Dear Mr. Scharber:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Battaglia LLC
3366 Via Lido
Newport Beach, CA 92663-3907

To Whom It May Concern:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

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Project Description

Waipuilani Estates is proposed as a 96-lot single-family residential development on property that is zoned and community planned for residential use. The proposed project will offer 96 house and lot packages on lots ranging in size from approximately 5,000 to 10,000 square feet. The subject lots are anticipated to be largely affordable to Maui's median income households.

The subject property is an undeveloped 20.002-acre parcel situated in North Kihei along the mauka side of South Kihei Road approximately 400 feet south of the intersection of South Kihei and Kulanihakoi Roads. The subject property is bound to the west by South Kihei Road and multi-family residential development beyond, to the south by single-family residences and undeveloped land zoned for residential use, to the east by single-family residences, and to the north by a church, and multi- and single-family residences (See Figures "1" and "2'). Access to the property will be from Kulanihakoi and South Kihei Roads.

Topics to be addressed by the Environmental Assessment include:

Physical Environment, including:
- Land Use
- Topography / Landforms / Soils
- Air Quality
- Noise Characteristics
- Biological Resources
- Flood and Tsunami Hazard
- Archaeological / Cultural Resources
- Visual Resources

Public Services, including:
- Solid Waste Disposal
- Police and Fire Protection
- Educational Resources
- Medical Services

Social/Economic Environment, including:
- Population and Economy

Local Infrastructure, including:
- Water
- Drainage
- Wastewater
- Electrical and Telephone Systems
- Transportation

State and County Land Use Laws and Policies, including:
- HRS, Chapter 205A
- HRS, Chapter 343
- Kihei Makena Community Plan
- Title 19, MCC

The EA will also contain the following specific impact assessments prepared by qualified professionals:

- Drainage and Erosion Control
- Traffic
- Archeological
- Cultural

Should you have any additional issues that you would like to see addressed in the EA or have any comments or concerns, please contact myself, or Mr. Michael Summers, at 242-1955.

Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART & PARTNERS, INC.

February 8, 2001

State of Hawaii
Episcopal Church in HI
Queen Emma Square
Honolulu, Hawaii 96813

To Whom It May Concern:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

Chris Hart & Partners, Inc. is preparing an Environmental Assessment (EA) as part of a Special Management Area (SMA) permit application for Waipuilani Estates, a proposed single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii. As part of the EA pre-consultation process, we are requesting input from interested parties on topics they wish to be considered in the assessment. A brief description of the project and topics to be addressed by the EA are below.

Project Description

Waipuilani Estates is proposed as a 96-lot single-family residential development on property that is zoned and community planned for residential use. The proposed project will offer 96 house and lot packages on lots ranging in size from approximately 5,000 to 10,000 square feet. The subject lots are anticipated to be largely affordable to Maui's median income households.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART
& PARTNERS, INC.

February 8, 2001

Mr. Joseph G. Kealoha
409 Liholiho St.
Wailuku, Hawaii 96793

Dear Mr. Kealoha:

RE: Pre-Consultation for an Environmental Assessment *in support of* Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

Chris Hart & Partners, Inc. is preparing an Environmental Assessment (EA) as part of a Special Management Area (SMA) permit application for Waipuilani Estates, a proposed single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii. As part of the EA pre-consultation process, we are requesting input from interested parties on topics they wish to be considered in the assessment. A brief description of the project and topics to be addressed by the EA are below.

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LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 • WAILUKU, MAUI, HAWAII 96793-1706 • PHONE: 808-242-1955 • FAX: 808-242-1956

Topics to be addressed by the Environmental Assessment include:

Physical Environment, including:
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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART & PARTNERS, INC.

February 8, 2001

Maui Waiohuli Partners
495 Hukilike St Bay 4
Kahului, HI 96732

To Whom It May Concern:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

CHRIS HART & PARTNERS, INC.

February 8, 2001

Mr. Robb C. Fleischer
1855 Laguna St.
San Francisco, CA 94115-2823

Dear Mr. Fleisher:

RE: Pre-Consultation for an Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

Chris Hart & Partners, Inc. is preparing an Environmental Assessment (EA) as part of a Special Management Area (SMA) permit application for Waipuilani Estates, a proposed single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii. As part of the EA pre-consultation process, we are requesting input from interested parties on topics they wish to be considered in the assessment. A brief description of the project and topics to be addressed by the EA are below.

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Sincerely,

Rory Frampton
Chris Hart & Partners, Inc.

CC: Doyle Betsill, Betsill Brothers Construction, Inc.

Neighborhood pre-consultation letter dated August 15, 2002, to property owners within 500' of property

CHRIS HART
& PARTNERS, INC.

August 15, 2002

Dear Neighboring Property Owner:

RE: Pre-Consultation for a Draft Supplemental Environmental Assessment in support of Waipuilani Estates, a single-family residential development situated along South Kihei Road, Kihei, Maui, Hawaii; TMK: (2) 3-9-001:009.

This is to inform you that Chris Hart & Partners, Inc., on behalf of Betsill Brothers Construction, Inc., will soon be filing an application with the County of Maui's Department of Planning for a Special Management Area (SMA) Permit for Waipuilani Estates, a proposed 95-unit single-family R-0 Lot Line residential subdivision situated along South Kihei Road, across from the Kauhale Makai Village by the Sea condominium project (See attached location maps). The subject property is zoned R-3 Residential and is identified as Single-Family and Multi-Family on the Kihei-Makena Community Plan Map. The following is a brief description of the project:

- ***Single-family residences***. Ninety-five single-family residences featuring five distinct 2-, 3-, and 4-bedroom models. The project will be developed using post and pier and slab on grade construction with traditional plantation era architectural detailing including front porches.

- ***Neighborhood park***. An approximate 1.103-acre internal neighborhood park will be developed and made available to the community. The proposed park will feature an asphalt all-weather play court with basketball hoop, children's playground, picnic area, passive recreational area, and on-site parking. In addition, an approximate 1.733-acre open space detention area abutting the park will feature a bikeway/pedestrian path linking the North-South Collector Road and South Kihei Road. The majority of the park will be grassed with shade trees and shrubs that will emphasize native plant species and beautify the area.

- ***Access***. A roadway access will be constructed along the south side of Kulanihakoi Road, approximately 800 feet east of South Kihei Road, between the Trinity by the Sea Church and the Paradise Gardens Apartments into the project. A second roadway access is proposed along South Kihei Road and will be restricted to right turns in and out only.

LANDSCAPE ARCHITECTURE AND PLANNING
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- ***Site Improvements***. On-site improvements will consist of, but are not limited to, an internal street network with 40-feet of right-of-way, 24-feet wide paved streets, concrete sidewalk, curb and gutters, on-street parking pockets for visitors, and landscape planting. Utility improvements will consist of underground drainage, sewer, water distribution, fire protection systems, as well as, underground electrical, telephone, and cable distribution systems.

- ***Construction***. Construction is anticipated to begin once all of the required State and County permits have been issued. It is anticipated that full build-out of the site will require approximately 18 months to complete. During the constructions phase, standard mitigation measures, as required by State and County law, will be employed to control noise, dust, run-off, and other construction phase impacts.

Waipuilani Estates will offer a mixture of affordable and market-priced units within an attractive and livable community.

Please note that we will be available at the **Trinity Episcopal Church by the Sea (100 Kulanihakoi Street) on Tuesday, August 27, 2002, at 7:00 p.m.** to provide an overview of the project. Should you have any comments or concerns about the project, we encourage you to attend this meeting. If you are not able to attend this meeting, and have comments or concerns about the project, please contact myself, or Mr. Michael Summers, at 242-1955.

Thank you very much for your attention to this matter.

Sincerely yours,

Christopher L. Hart, ASLA
Landscape Architect - Planner

Enclosure: Regional Location Map, TMK Map, Concept Landscape Master Plan
cc: Mr. Doyle Betsill, President, Betsill Brothers Construction, Inc.
Mr. Gary Zakien, Esq., Betsill Brothers Construction, Inc.
Ms. Julie Higa, Department of Planning

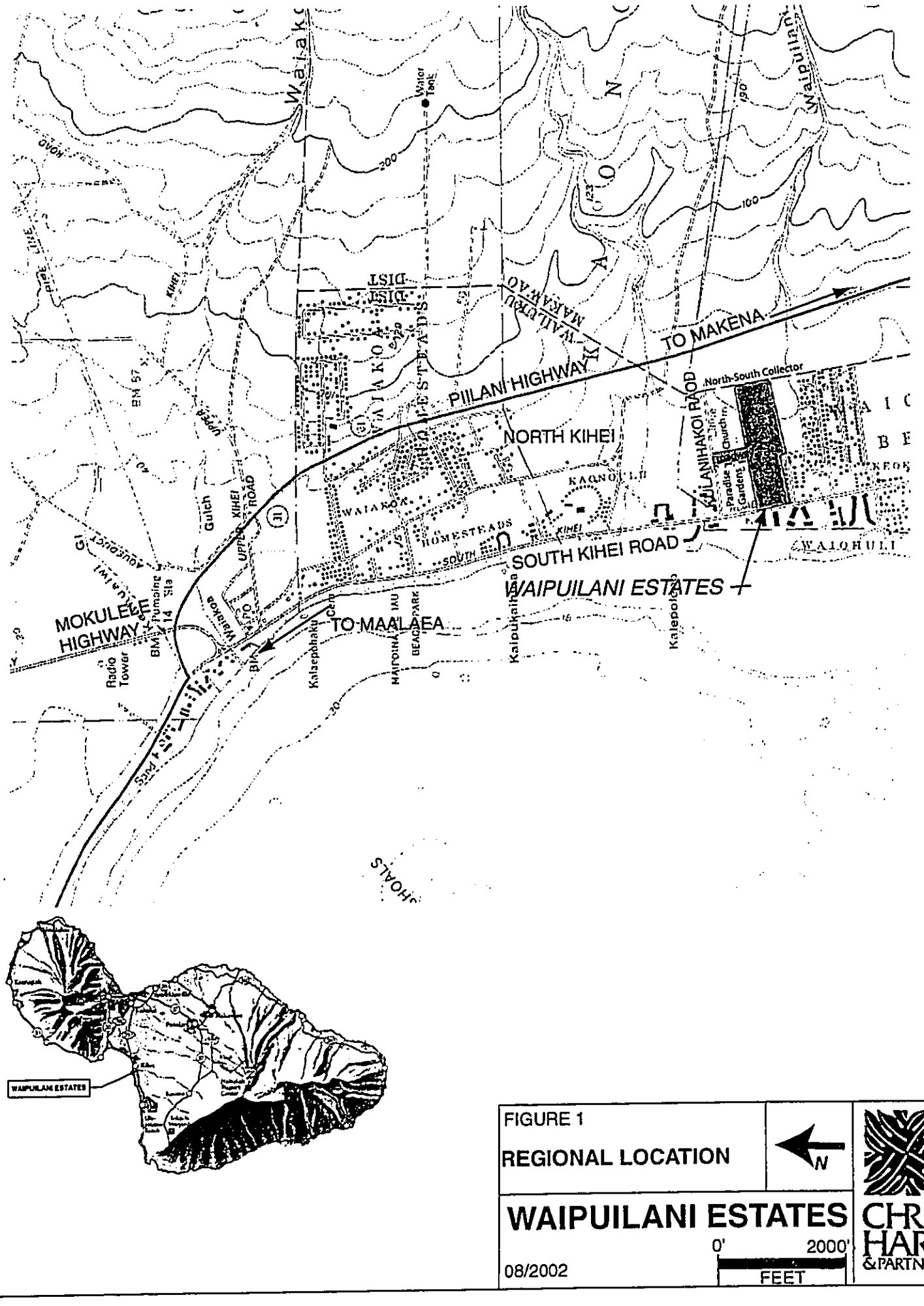


FIGURE 1

REGIONAL LOCATION

N

WAIPUILANI ESTATES

0' 2000'

FEET

08/2002

CHRIS HART & PARTNERS

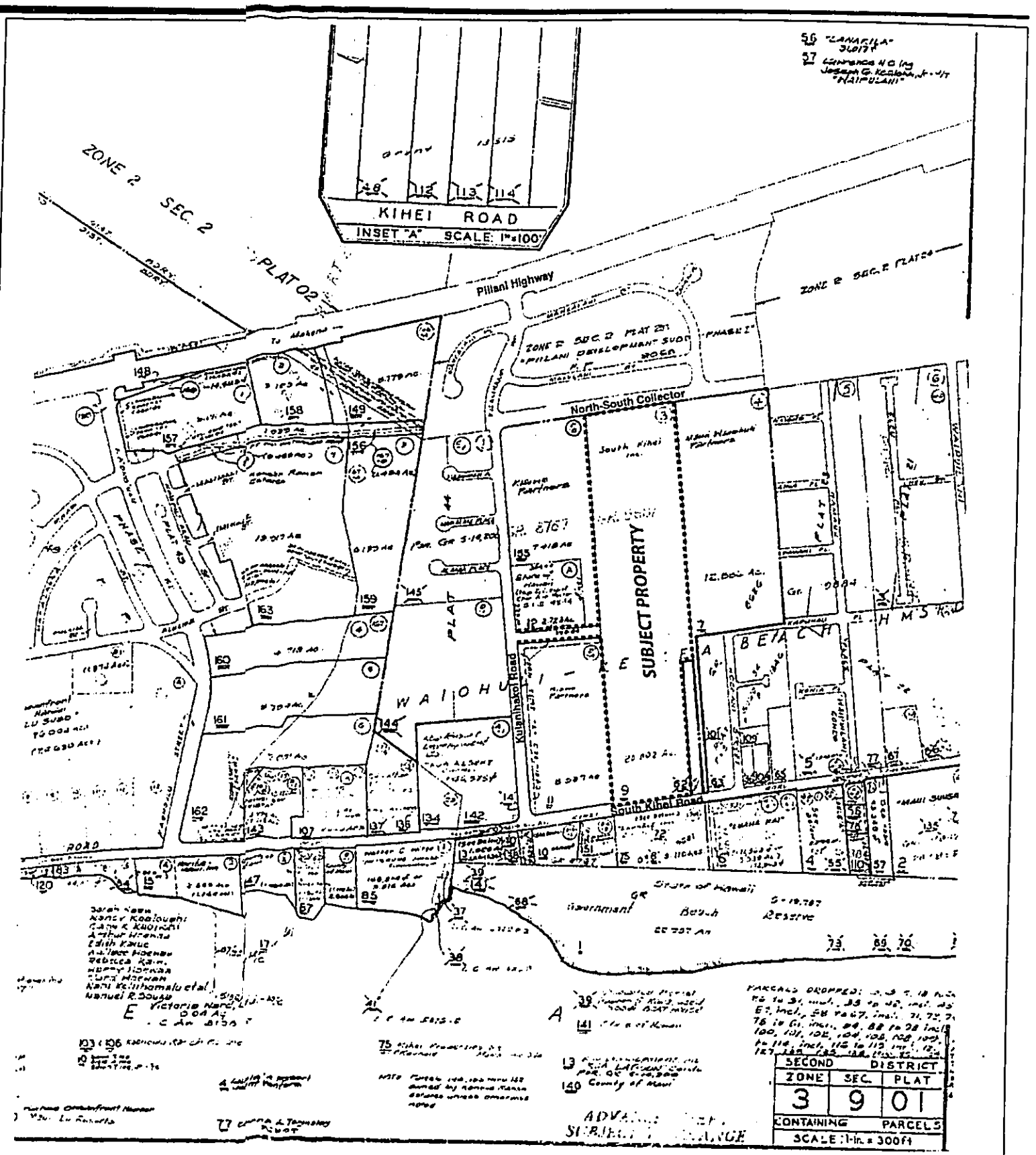


FIGURE 2

TAX MAP KEY

PARCEL NO. 3-9-001: 009

N

WAIPUILANI ESTATES

08/2002 NOT TO SCALE

CHRIS HART & PARTNERS

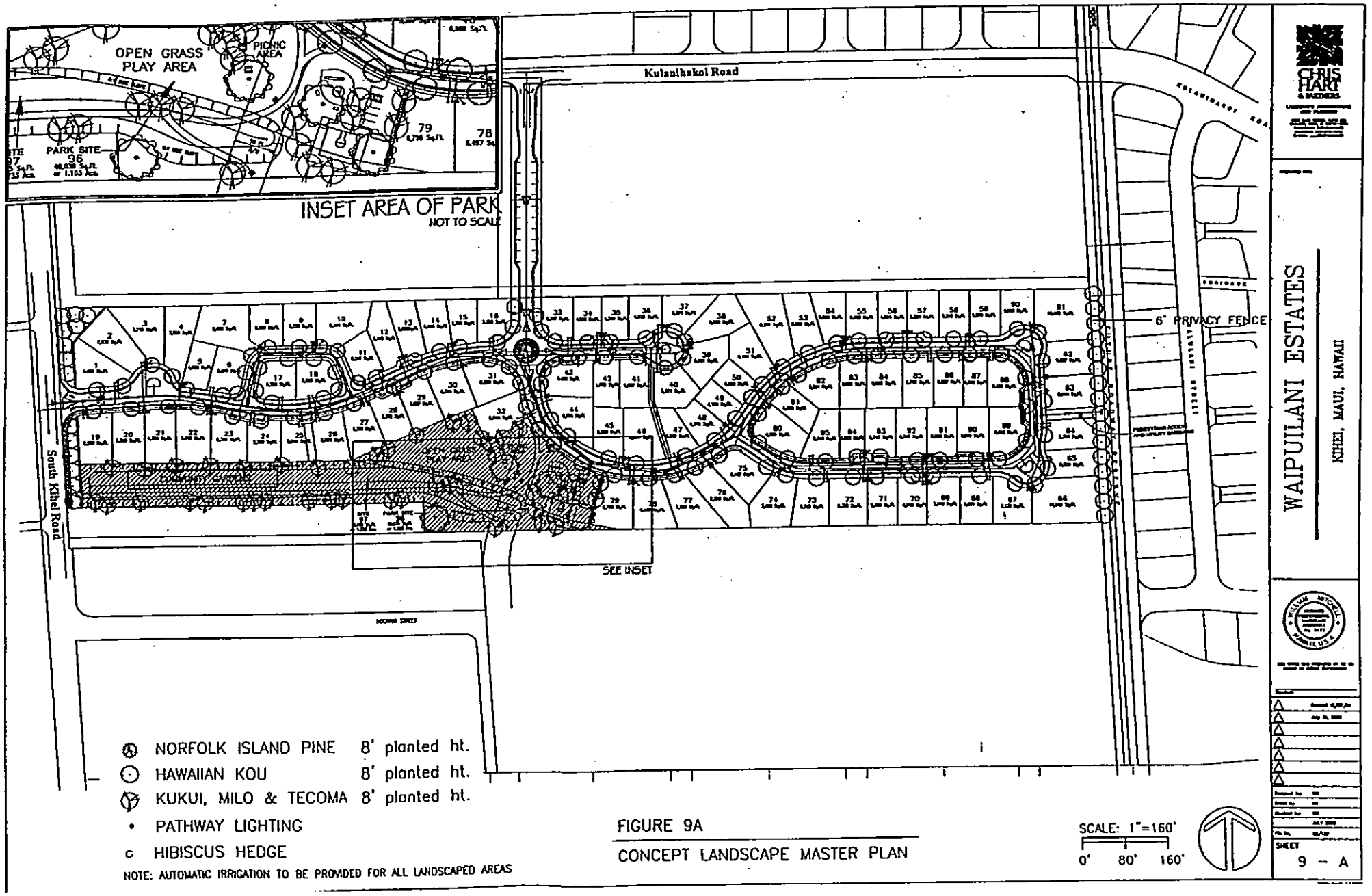


FIGURE 9A

CONCEPT LANDSCAPE MASTER PLAN

Appendix – B
Archaeological Inventory Survey

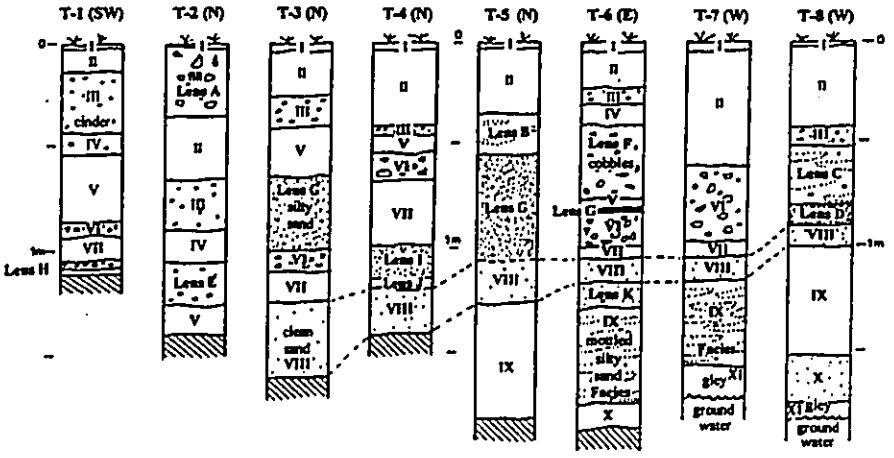
ASC0110-1

ARCHAEOLOGICAL INVENTORY SURVEY AND ADDITIONAL SUBSURFACE TESTING AT THE PROPOSED 96-LOT RESIDENTIAL SUBDIVISION IN KIHEI, WAIOHULI *AHUPUA`A*, WAILUKU, MAUI

(TMK 3-9-01: 9)

by

Lisa Rotunno-Hazuka
Jeffrey Pantaleo, M.A.
Laura Prishmont, M.A.
and
Aki Sinoto



for

Betsill Brothers Construction, Inc.
635 Kenolio Road
Kihei, Maui, Hawaii 96753

Revised
October 2001

Aki Sinoto Consulting
2333 Kapiolani Blvd. #2704
Honolulu, Hawaii 96826

in association with

Archaeological Services Hawaii, LLC
16 South Market Street, Suite G
Wailuku, Hawaii 96793

ABSTRACT

Archaeological Services Hawaii, LLC of Wailuku in association with Aki Sinoto Consulting of Honolulu, conducted archaeological inventory survey and subsequent additional subsurface testing of a 20.0-acre parcel of land, at the request of Betsill Brothers Construction, Inc. The project area is Lot 3 of the Waiohuli-Keokea Beach Homesteads located in Kihei, Waiohuli *ahupua`a*, Wailuku District, Maui Island. The project area is being proposed for the development of a 92 lot residential subdivision. The objective of the current archaeological undertaking was to determine the presence/absence, extent, and significance of potential cultural resources located within the project area. The objective of the supplemental testing was to determine the presence/absence of Site 50-50-09-4981, the buried remains of a pond/wetland, that was identified in the adjoining area to the north during previous investigations.

The area was found to have previously undergone extensive compounded disturbances and as a result, no significant archaeological features were present on the surface of the property. Due to the complete absence of surface features and other indications, eight backhoe trenches were initially excavated in selected locations within the project parcel. This was followed by the excavation of three additional trenches during the subsequent phase of fieldwork.

No cultural remains were encountered during the initial subsurface testing. No evidence of any culturally significant activities resulted from the initial investigation, although past environmental changes in the area were indicated in the stratigraphic record. However, the subsequent testing encountered evidence paralleling buried sediments of a former pond/wetland that was originally identified in the adjoining parcel to the north and designated Site 50-50-09-4981. Whether these buried sediments are directly associated with Site 4981 or represent a similar pond/wetland feature was not conclusively established. The stratigraphic record gleaned from all 11 trenches generally indicated an area of prograding shoreline with ponded or wetland areas that formed and subsequently underwent in-filling through the interaction of a variety of dynamic events including stream flooding, marine inter-tidal action, aeolian forces, and human activities.

No further archaeological work prior to construction appears warranted. However, due to the presence of subsurface sand deposits and a neighboring historic cemetery, archaeological monitoring of ground-disturbing construction activities in designated areas is recommended. The preparation of an archaeological monitoring plan and its approval by the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources are required prior to commencement of any development-related construction.

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TABLE

INTRODUCTION

At the request of Betsill Brothers Construction, Inc. of Kihei Archaeological Services Hawaii, LLC. of Wailuku, in association with Aki Sinoto Consulting of Honolulu, conducted an archaeological inventory survey of a parcel of land located in Kihei, Waiohuli *ahupua`a*, Wailuku District, Maui Island. The subject parcel is being proposed for development of a residential subdivision.

The 20.0-acre parcel of land is located adjacent to State Site 50-50-09-4981, a subsurface historic property considered significant for its information content regarding early coastal habitation in the Kihei area. Previous archaeological investigations (McDermott et al. 2000 and Pepalis and Kolb [in press]) located buried pond deposits adjoining the central section of the current study parcel to the north. Subsurface testing was conducted on February 13, 2001 to determine the presence/absence of cultural deposits in selected localities within the project parcel. The negative results of this initial testing prompted Archaeological Services Hawaii, LLC., in consultation with the State Historic Preservation Division, Department of Land and Natural Resources (SHPD/DLNR), to conduct additional archaeological testing on September 18, 2001 in order to confirm the presence/absence of deposits associated with Site 50-50-09-4981 within the subject project area. The results of the initial inventory survey and the additional archaeological testing are presented in this report.

PROJECT LOCATION

The project area is located on the coastal flat of Waiohuli *ahupua`a*, close to its boundary with Kaonoulu *ahupua`a* to the north, in the District of Wailuku, in the southwest portion of East Maui (Fig. 1). It is located within the Waihouli-Keokea Beach Homesteads area, situated *makai* of Piilani Highway and fronted by Kihei Road. The 20.0-acre rectangular parcel (TMK 3-9-01:9), is bounded on the east by the existing Phase I of the Piilani Development Subdivision and on the west by Kihei Road (Fig. 2). The eastern half of the northern boundary consists of open *kiawe* land with the western half occupied by an Episcopalian Church (Kalepolepo Church and Lihue Cemetery) and the existing Kiawe Terrace Apartment complex. Also located in this area is State Site 50-50-09-4891, a subsurface site consisting of alluvial deposits locating the presence of a former inland pond with midden and charcoal indicating Hawaiian land use of the pond (McDermott et al. 2000). The eastern half of the southern boundary is also open *kiawe* land, with existing residential lots fronting Hoonani Street on the western half. A truck farm bounded by a dust fence is still in operation within the southwest quadrant of the parcel (Fig. 3).

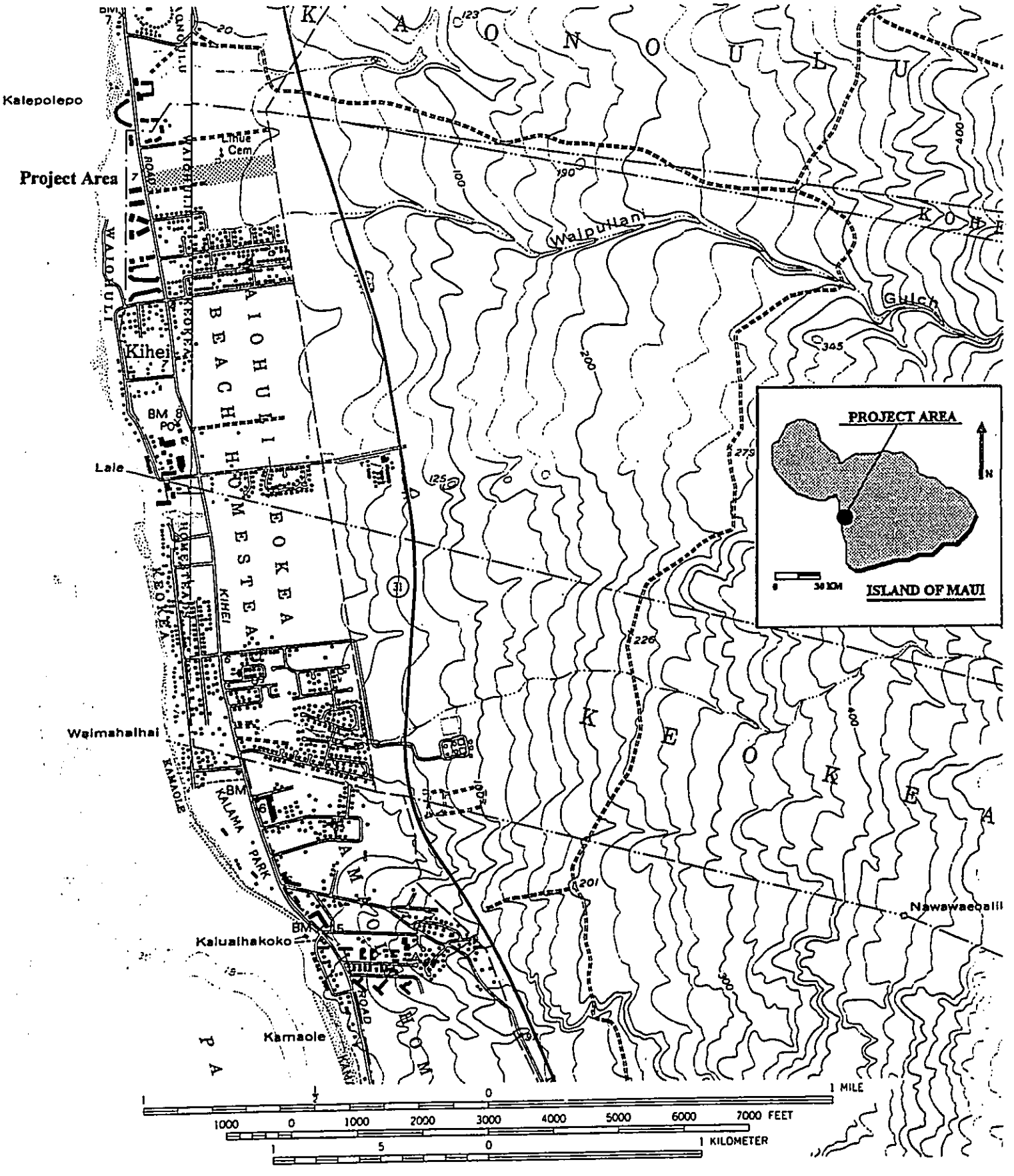


Figure 1. Location of Project Area on USGS Puu O Kali and Maalaea Quadrangles.

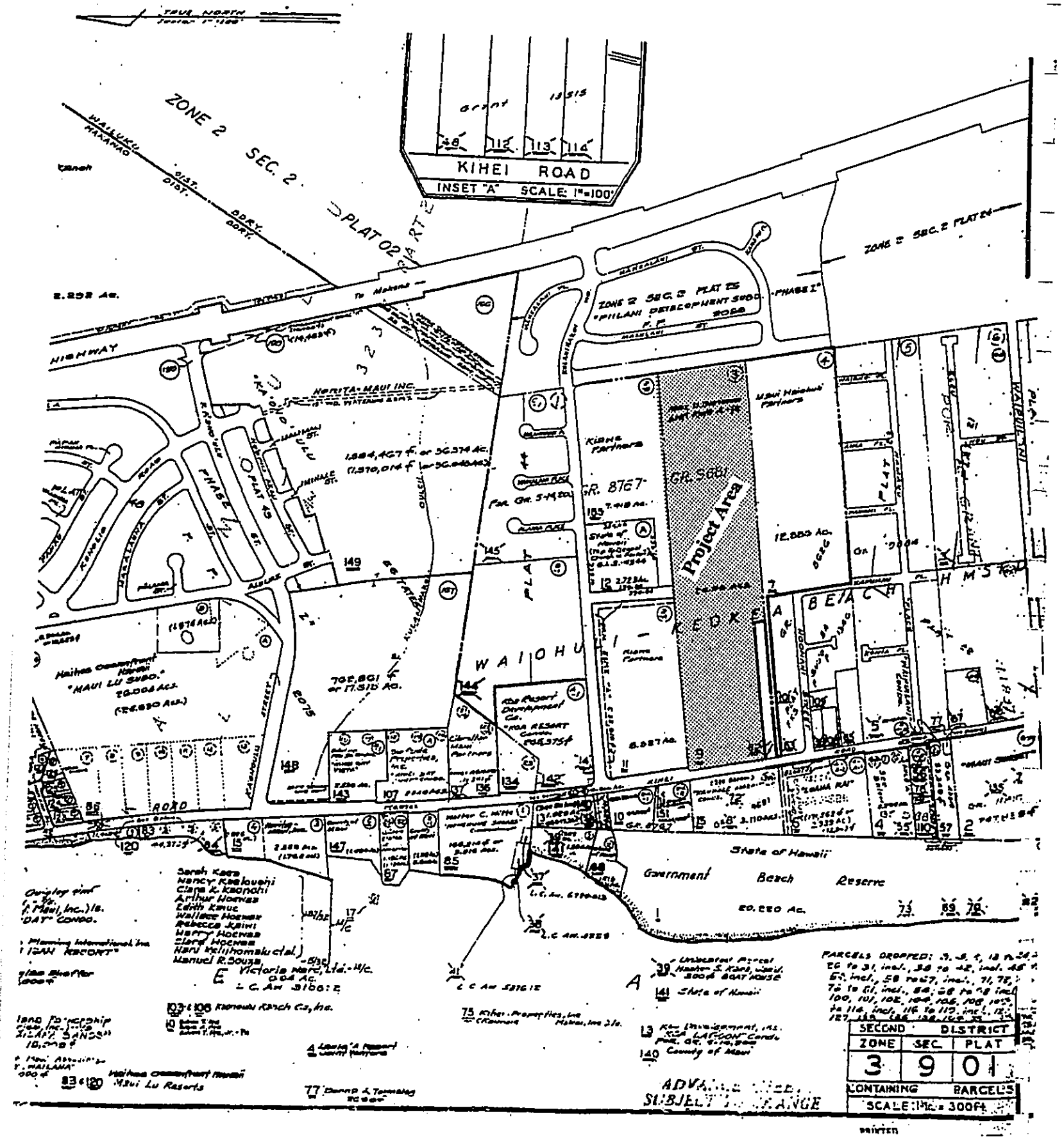


Figure 2. Project Parcel Location on Portion of TMK 3-9-01.

Figure 3. Overview of Existing Truck Farm. View to West.

ENVIRONMENT

The project area topography, slightly sloping westward towards the shoreline, is characterized by two drainages along the northern and southern boundaries that interrupt the otherwise flat grass and *kiawe* covered terrain. The northern drainage appears artificial and only the southern one, Waipuilani Gulch, is named. Waipuilani Gulch is one of three principal intermittent streams in the Kihei watershed, which include Kulanihako'i to the north and Keokea to the south, and these streams flow only during periods of heavy rainfall. The stream channels are narrow, poorly defined, and unable to contain peak flows during heavy storms, thereby contributing to flooding events in coastal Kihei (McDermott 2001:49).

The project area landscape also incorporates previous disturbance and debris from construction in adjacent areas, especially along the eastern, northern, and western boundaries of the parcel. Large portions of the parcel consist of level areas that exhibit a marked absence of surface stones (Fig. 4). The elevation roughly ranges from 6 to 25 feet above mean sea level. Rainfall averages below 10 inches per year with increased precipitation only during the winter months of November through February. Prevailing surface winds bear from the north or northeast with wind speeds averaging 18 miles per hour (Armstrong 1973).

Occupying the lower southwest slopes of the west rift zone of Haleakala, pahoehoe and a'a lava flows in the area originate from the Kula volcanic series of the late Pleistocene and the more geologically recent Hana series (MacDonald and Abbott 1970). The project area occurs in the vicinity of the boundary between the Waiakoa and Alae Series soils. The project area consists predominantly of Alae sandy loam derived from volcanic ash and recent alluvium consisting of basic igneous rock. The soil is excessively drained, but with slow runoff that poses only a slight erosion hazard. At the western periphery of the project area, along Kihei Road, is a small area of Kealia silt loam, a poorly drained soil with a high salt content. Brackish water table that fluctuates with the tides occurs close to the surface in the shoreline areas. Areas of Dune land, Beach sand, and Jaucas sand occur on the surface in areas to the west and south of the project parcel. However, these deposits occur below the surface within the project area, underlying the surface silt loams.

Vegetation consists of dry grasses as the dominant ground cover with intermittent stands of small *kiawe* trees and a central thicket of larger *kiawe* trees. The western half of the parcel is markedly devoid of trees other than the narrow buffer along Kihei Road. The project area has been previously cleared mechanically for agricultural use. This is evidenced by the marked absence of stones and boulders over much of the surface area. The size and type of vegetation are also indicative of secondary growth following extensive clearing.

Figure 4. Project Area Overviews: (top) West Portion to east (bottom) East Portion to east.

Oral information was obtained from Mr. Buddy Igarta, who currently operates the truck farm. According to his informal oral testimony, a piggery was being run by the Goya family during the late sixties in the eastern half of the property. A vegetable farm, growing mostly tomatoes, operated by another Japanese family, was present in the western half, which Mr. Igarta took over in 1974. He also told of the brackish-water well located in the central *kiawe* thicket and said that the concrete foundations and other irrigation-related features were associated with the piggery and truck farm.

HISTORICAL BACKGROUND

Assumptions based on archaeological models from other islands in the Hawaiian archipelago, supported by some archaeological evidence, suggest that the windward regions of Maui were occupied around A.D.300-600, with a shift in emphasis to the drier, *kula* regions by A.D.1000-1200 (Cordy 1974, Kirch 1985, Gosser et al. 1993/1997). The settlement survey by Kolb et al. (1997)of the Kula district suggests that permanent occupation of the coast and uplands occurred concurrently between A.D. 1200-1400, and that prior to this, land use for the exploitation of natural resources was of very low intensity. After A.D. 1400, archaeological evidence clearly shows an increase in permanent habitation in the uplands, and oral tradition dates four fishponds associated with coastal Kula to the 1500's (Kolb et al. 1997:66, cited in McDermott et al. 2001:99).

Oral traditions indicate that Maui was under unified rule from the late A.D. 1500's to the time of western contact in 1778. At the time of European arrival, Maui, in conjunction with the islands of Lana`i and Kaho`olawe, was under the rule of the *mo`i* Kahekili. The districts of Hana and Kipahulu were controlled by Hawai`i Island chiefs since 1759 and wars between Kalaniopu`u of Hawai`I and Kahekili resulted in invasions of Maui-controlled territories from 1777 to 1779 (Fornander 1969). The subsequent death of Kalaniopu`u in 1782 and the fragmentation of the Hawaiian polity into three parts allowed Kahekili to extend Maui's territorial claims, resulting in the conquest of O`ahu in 1793.

Civil disorder on the Island of Hawai`i from Kamehameha's conflict with rival claimants resulted in a united island under one ruler. Inconclusive battles between Kamehameha and Kahekili were waged in the interim with combined forces from Maui, O`ahu, and Kaua`i participating in attacks on Kamehameha. Kalanikupule's role as ruler of Maui (1794) marked the end of an era, for in the following year (1795), Kamehameha invaded Lahaina, Moloka`i, and O`ahu. Kalanikupule's defeat at the Battle of Nu`uanu established Kamehameha as absolute ruler of the Hawaiian Islands, with the exception of Kaua`i (Fornander 1969).

European involvement in Maui during the preceding events was confined to exploitation of the coast by Cook (1779), La Perouse (1786), and Vancouver (1793). These expeditions reported on the contrasts in vegetation and climate between windward east Maui and leeward Maui. The French navigator Jean Francois de Galaup La Perouse, who followed Captain James Cook, was the first to land on Maui on May 30, 1786. He described the leeward coast as desolate and inhospitable (LaPerouse 1799).

By 1795, Maui was part of the newly established Kingdom of Hawai'i. The new political arrangement brought great changes to traditional demographics, religion, politics, and land use. On Maui, Lahaina became the focus of political life serving as the Kingdom's capital and residence of Kamehameha III from A.D.1836 to 1844 (Kamakau 1961). Whaling, shipping, and the cultivation of imported crops such as Irish potatoes became mainstays of the local economy.

By the mid-1800's, the influence of western culture brought changes to the traditional subsistence economy and forever altered the traditional lifeways of Hawaii in general, as well as this region. After the Great Mahele of 1848, lands which had formerly been under the guardianship of chiefs became available for private ownership. Large tracts of land in the region changed hands and large scale agricultural endeavors including crop cultivation and ranching brought more changes to the landscape and daily life. Settlement pattern changes occurred as habitation concentrated around commercial centers such as boat landings. Permanent settlements flourished along the coastal areas and foot trails were modified into horse and cart paths. Much of the arid lower slopes were utilized for ranching.

Kalepolepo

Prior to and during the Mahele, Irish potato cultivation flourished in the upland regions of Kula between 1830 and 1850. In the early years, potatoes were being sold to the seasonal whaling ships, but once the California Gold Rush began in the late 1840's, there was an increased demand for potatoes from San Francisco merchants. It was at this time that John Joseph Halstead, a native New Yorker who had been a carpenter for the king, moved his family from Lahaina to Kalepolepo (Wilcox 1921:65). Halstead opened Kalepolepo Store just *mauka* of Kalepolepo fishpond at the coast (Fig. 5). Ships would drop anchor in the bay here and trade for goods from the Kula region: "To meet the growing trade, and to supply the ships large and small that then frequented Kalepolepo for potatoes, this building [Kalepolepo Store] or rather pile of buildings was erected to serve as warehouses, stores, and dwellings" (Honolulu Advertiser, 25 June 1864).

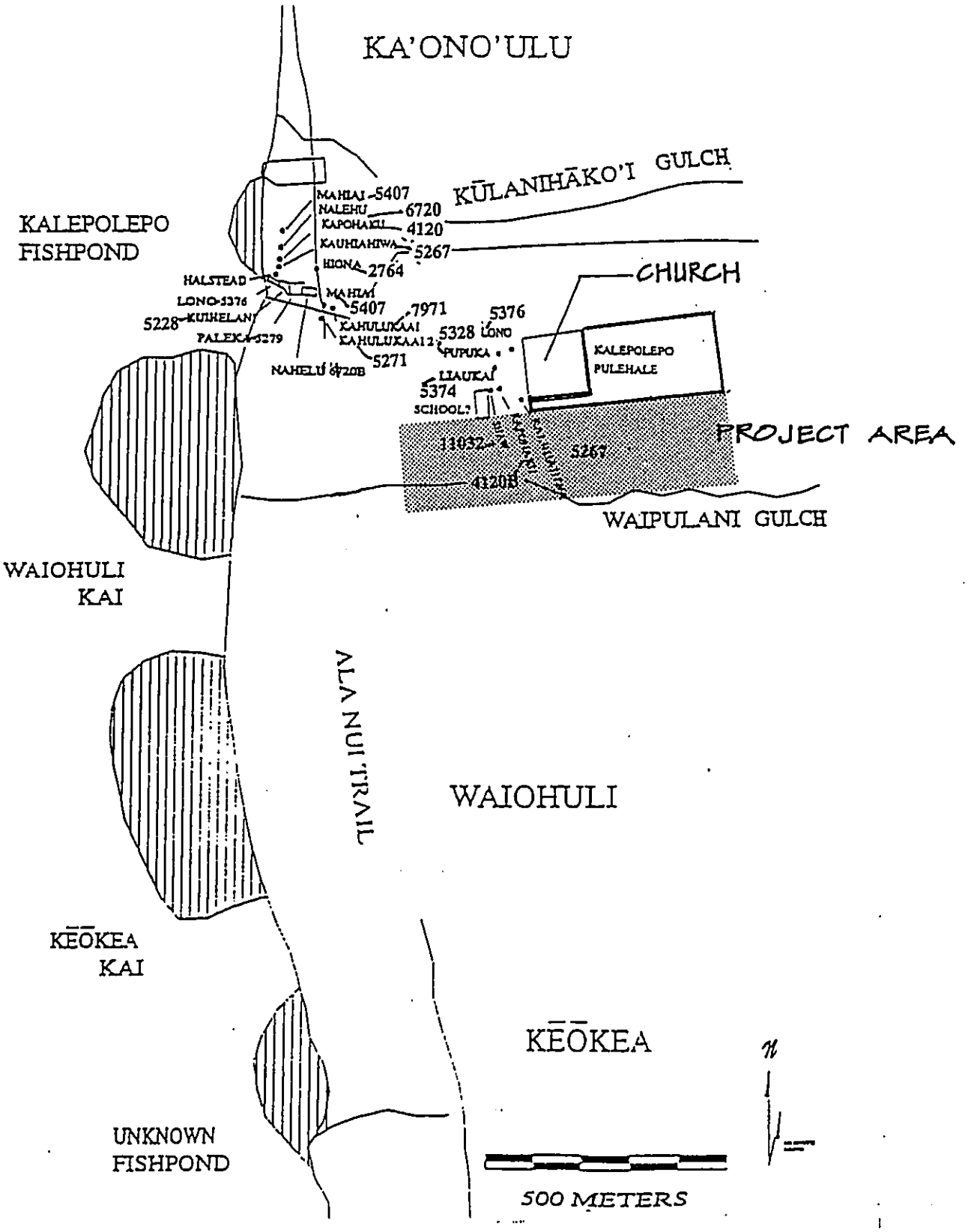


Figure 5. Map Showing Relationship of Project Area to LCA of Kalepolepo and Fishponds (Map from McDermott et al. 2000:14, Figure 4)

Kalepolepo was a thriving village with two thousand residents in 1843 (Sterling 1998:249, cited in McDermott 2001:71). The town had a Mormon church and a Calvinist Church (Wilcox 1921:66). The Calvinist Kiolani Church (State Site 1587) was built in the 1850's and was the ministry of David Malo; this church parcel is located immediately north of the current project area (see Figure 5). In the vicinity of the village, there were pools of water with taro and coconut growing along the banks, and Kalepolepo fishpond was apparently still in use:

> The big pond (Kalepolepo fish pond) had not then filled up with sand and silt, but was still full of choice mullet... Kalepolepo was not so barren looking a place. Coconut trees and kou trees grew beside pools of clear water, along the banks of which grew the taro and ape (a giant plant which grows nowhere else on earth today), and was the scene of the labors of David Malo, the noted Hawaiian scholar. (Wilcox 1921:66-67)

The walls of Kalepolepo fishpond had been rebuilt by prisoners from Kahoolawe in the 1840's. In order to repair the fishpond walls, they used stones from the nearby Waiohuli pond, which, along with the Keokeakai pond, had long been abandoned (Wilcox 1921:67).

There were a number of Land Commission Awards (LCA's) granted in Kalepolepo at this time (Table 1). Figure 5 locates most of the LCA's *mauka* of Kalepolepo fishpond and *makai* of the church. LCA's 5267, 11032, and 4120B are located near the current project area. The land commission records indicate that LCA 4120B had a house site at Kalepolepo and that the claimant also cultivated taro upslope and pasture lands in Wailuku. The other two awards do not list the land use for Kalepolepo. In general, the records indicate that the LCA's in Kalepolepo were house sites, and that the residents with other land awards outside of Kalepolepo used their land for the cultivation of Irish potatoes, some taro farming, and cattle pasture. The readers should also note the location of the Waipulani Gulch to the current project area; it is located just south of the parcel suggesting a high-energy mode of alluvial deposition due to flooding in the area. This may be why most of the LCA parcels were located further north of the gulch.

With the demise of the Irish potato trade in the 1860's, Kalepolepo town was no longer the economic hub it had been. Mr. Halstead closed his store in 1876 and moved to Ulupalakua. Cattle ranching and the cultivation of sugar became dominant economic niches for the Kula region. Grazing cattle in the uplands destroyed much of the vegetation, and this had devastating environmental consequences for Kalepolepo town as well as the fishpond:

Table 1. Land Commission Claims in Kalepolepo and Vicinity
(McDermott et al. 2000:15, Table 1)

Ahupua`a	`Ili/Ahupua`a, Award	Land Use	Claimant	Claim #	Acreage / not awarded (na)	TMK located, Other comments
Kaonoulu	Kupulaia	Ir. potato mala(s)	Nahiona	2764	na	
Kaonoulu	Kapukahawai, aw Kupalaia, aw Kaonoulu	1 potato patch potato patch & land house lot	Kuihelani	5228	1 ap. 28 Acs 1 ap. 1.8 Acs	
Kaonoulu	Kaukaulua, aw	[no significant text?]	Kauaua	5267B	1 ap. 4.5 Acs	
Kaonoulu	Kupalaia, aw Puuokuhihewa, aw	kula, 2 mala Ir. potatoes kula	Pupuka	5328	1 ap. 2.04 Acs 1 ap. 5.14 Acs	
Kaonoulu	Kalepolepo, aw Kaonoulu, aw	house lot kula	Lono	5376	1 ap. .022 Acs 1 ap. 2.17 Acs	
Kaonoulu	Kaonoulu, aw Kalepolepo Kupalaia	 small house lot on kuapa 3 Ir. potatoes	Mahiai	5407	2 ap. 3.491 Acs	
Keokea	Wailuku Molokai Maunakilowaa, aw Piimoo, aw Pualoa Kalepolepo, aw [Puuokeokeo], aw	pasture pasture taro taro 2 pastures house site [not given]	Kapohaku	4120B	 1 ap. 2.9 Acs 1 ap. 11.7 Acs 1 ap. .25 Ac. 1 ap. 3.04 Acs	TMK 2-2-03 ap. 4 TMK 2-2-03 ap. 1 ap. 3 ap. 2? 3.003 acs
Keokea	Kupuni	2 kulas of Ir.	Kahulukaeiopio	5271	na	
Keokea	Kalepolepo, aw Paliku, aw Wailuku, aw (2 ap.) Piimoo Pualoa	house site taro taro pasture	Kapelekai / Palekai	5279	1 ap. .08 Ac. 1 ap. 10.4 Acs 2 ap. 2.75 Acs	TMK 2-2-03 ap. 1, 2 TMK 2-2-04 ap. 4 ap. 1 1± Ac. ap. 2 1.44 Acs TMK 2-2-02 Ap. 5 5± Acs
Keokea	Keokea	Ir. potatoes	George Shaw	11032	na	
Waiohuli	Kahuihanau Kahilinananaenae	kula kula	Nahelu	6720B	na	

> In the seventies [1870's] and later, the Kula mountains had gradually become denuded of their forests, torrential winter rains were washing down earth from the uplands, filling with silt the ponds at Kalepolepo. And cattle trampling down the brush and grass of the nearby fields caused sand dunes to drift, filling up the big Kalepolepo pond, and the daily breezes which once cooled the heated air had changed to a scorching daily simoon, sweeping clouds of dust and drifting sand over the partly abandoned site of the village. ...[R]uins of grass huts partly covered by drifting sand, and a few weather-beaten houses perched on the broad top of the old fish pond wall at the edge of the sea, with the Halstead house looming over them dim and shadowy in the daily swirl of dust and flying sand, impressed on the passerby that unlovely name bestowed on the village in song and story as a reproach- Kalepolepo, "the dirty place." (Wilcox 1921:67)

During the Mahele, native Hawaiians who were living as tenant farmers claimed their kuleana. Twenty-seven of such claims, recorded for Waiohuli ahupua`a, are all located at upper elevations far beyond the current project area, in the vicinity of the Haleakala and Kula Roads around the 3000-foot elevation. McDermott et al. (2000:13) note that substantial forest clearing occurred in the Kula region during this time period.

The 1880 government survey of the Kula region (RM 913) shows that many of the LCA's had been replaced with grants or had no longer existed (McDermott et al. 2000:16). Apparently much of Kula was government land, and in 1911, the territorial government of Hawaii sold large acres of public lands. On March 5, 1917, the Governor of Hawaii wrote a letter to the Land Commissioner in which he gave him a plot of land owned by the Kalepolepo Church and another applied for by a Mr. Dias. He writes, "On this piece are graves of natives and deceased members of the Church" (Governor of Hawaii to the Commissioner of Public Lands). The following day, the Commissioner responded to the Governor's letter: "I will take this matter up as soon as possible, with the view of giving Mr. Dias a suitable area elsewhere, in place of the lot on which there are a number of graves" (Commissioner of Public Lands to Governor of Hawaii, 6 March 1917).

In the 1920's, large tracts of coastal lands were set aside as beach homestead lots. Land conveyance records show that the project area is a portion of Grant 9681which awarded Homestead Beach Lots 3 and 3A to Mrs. Mary K. Rose in 1929.

PREVIOUS ARCHAEOLOGY

Following Winslow Walker's 1931 survey of prominent heiau sites on Maui which included the uplands of Kula, a large number of archaeological studies have been completed in the coastal portions of Kihei, Wailea, and Makena, especially since the 1970s (Fig. 6). The reader is again referred to previous reports (McDermott 2001, Kolb et al. 1997, Gosser et al. 1993/1997, Fredericksen 1995) for a summary of work pertinent to the region.

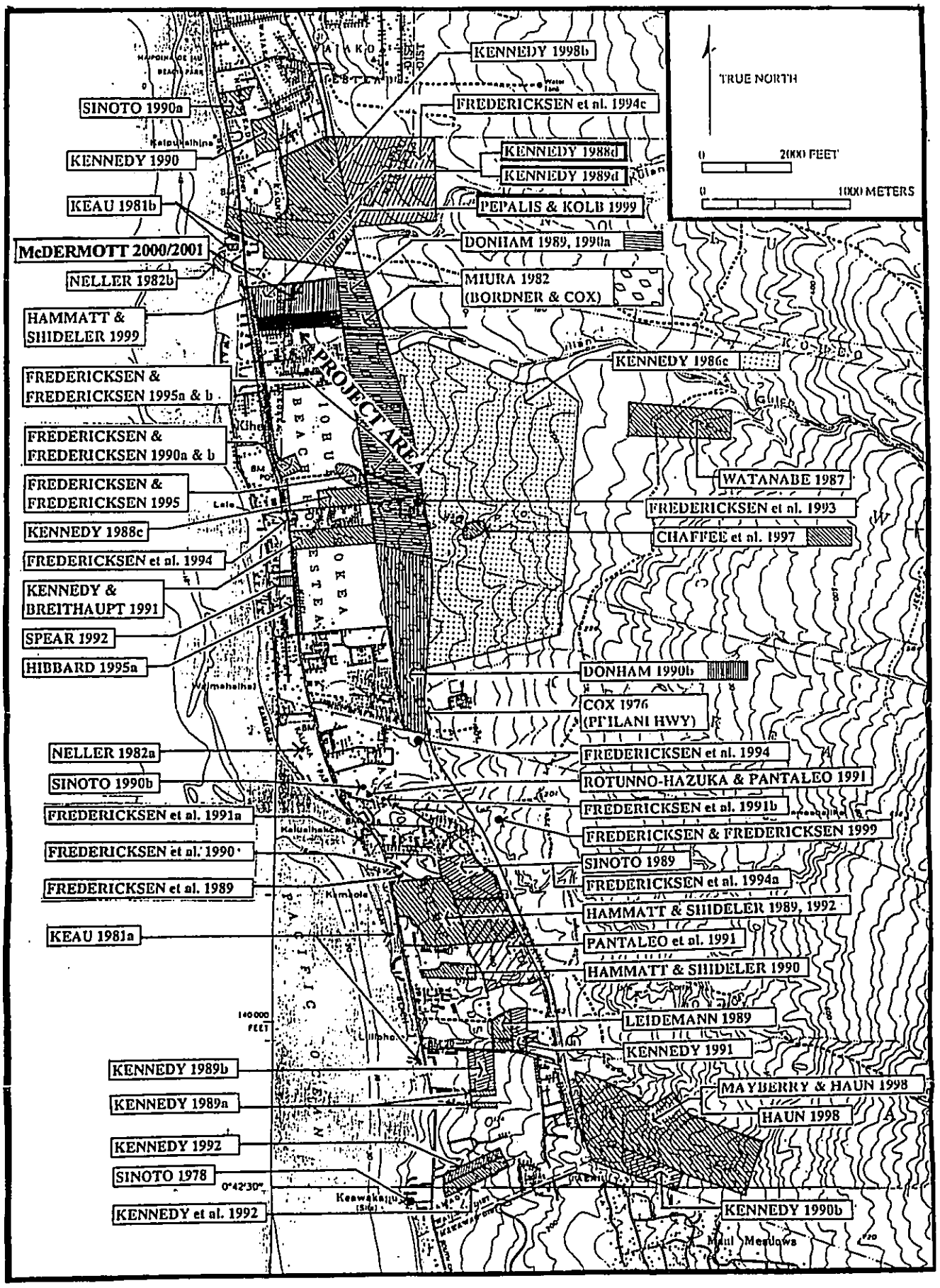


Figure 6. Locations of Previous Archaeology in the Project Area Vicinity (Map by McDermott et al.)

No previous archaeological survey has been conducted within the boundaries of the current project. However, Pepalis and Kolb (in press), McDermott et al. (2000), and McDermott (2001) undertook studies in the parcel immediately north of the current project area (see Fig. 6). An artificial drainage located along the northern border of the parcel separates the current project area from these previously investigated areas, although this drainage is not visible on the map.

Pepalis and Kolb's (in press) excavations provided subsurface stratigraphic evidence of an inland pond and cultural deposits associated with prehistoric Hawaiian land use of the pond and nearby vicinity (site 50-50-09-4981). Oral tradition records a small pond near the mouth of Waipuilani Gulch (McDermott 2000:16). Archival research during the current project confirms the presence of inland ponds at the mouth of Waipuilani Gulch; the 1921 U.S. Geological Survey Kihei Quadrant depicts a number of inland ponds in this location (Fig. 7). Historic maps also show house lot's located in a crescent shape pattern *makai* of the church; Pepalis and Kolb believe this pattern suggests the location of the pond as the house lots may have been originally built along the western extent of the pond (see Figure 5; McDermott 2000:16).

In general, the authors posit that the stratigraphy representing the in-filling of the former pond is evidenced as thin layers (~20 cm thick) of silty loam and silty clay loam, which indicate low energy depositional events as would be expected in a calm pond environment. These layers were inter-bedded with layers of sand and gravelly sand alluvium, suggesting intermittent higher energy depositional episodes such as occasional flooding events (McDermott 2000:36-37). Charcoal concentrations were indicative of localized burning in the immediate vicinity. Radiocarbon dating of charcoal rich, terrigenous sediments with marine midden from Trench 1 produced calibrated ranges (Oxcal) of A.D. 420- 720 for Layers XVI-XVII (247-286 cmbs) and A.D. 1390-1530 to 1570-1639 for Layer XV (224-247 cmbs) (McDermott 2000:37, 48). Pollen analysis was inconclusive due to poor micro-flora preservation; samples from 160 and 200 cmbs produced pollens from dry mesic forest, including shrubs and grasses, with Cheno-am pollens in the sample from 200 cmbs (McDermott 2000:36-37). Faunal material was also recovered:

> The bone of a plover (Pluvaliealis) was found in Stratum XV (240 cmbs). There is a marked concentration of invertebrate marine midden, consisting of sea urchin, Turbo, Hipponix, Littorina, and Nerita, at 247-263 cmbs (Stratum XVI). Two unidentified vertebrate bones were also recovered from this layer. A single vertebrae of Chondrichthyes (ray or shark) was recovered from 280 cmbs (Stratum XVII)... All faunal remains were found in fine-grained alluvial sediments most likely derived from low energy deposition. The faunal remains are therefore thought to be primary deposits that have not been moved by erosion. (cited from McDermott et al. 2000:37)

Pepalis and Kolb concluded that the presence of low energy depositional events recorded in the stratigraphic profiles provided evidence of infilling of an inland prehistoric-historic pond which existed near the area

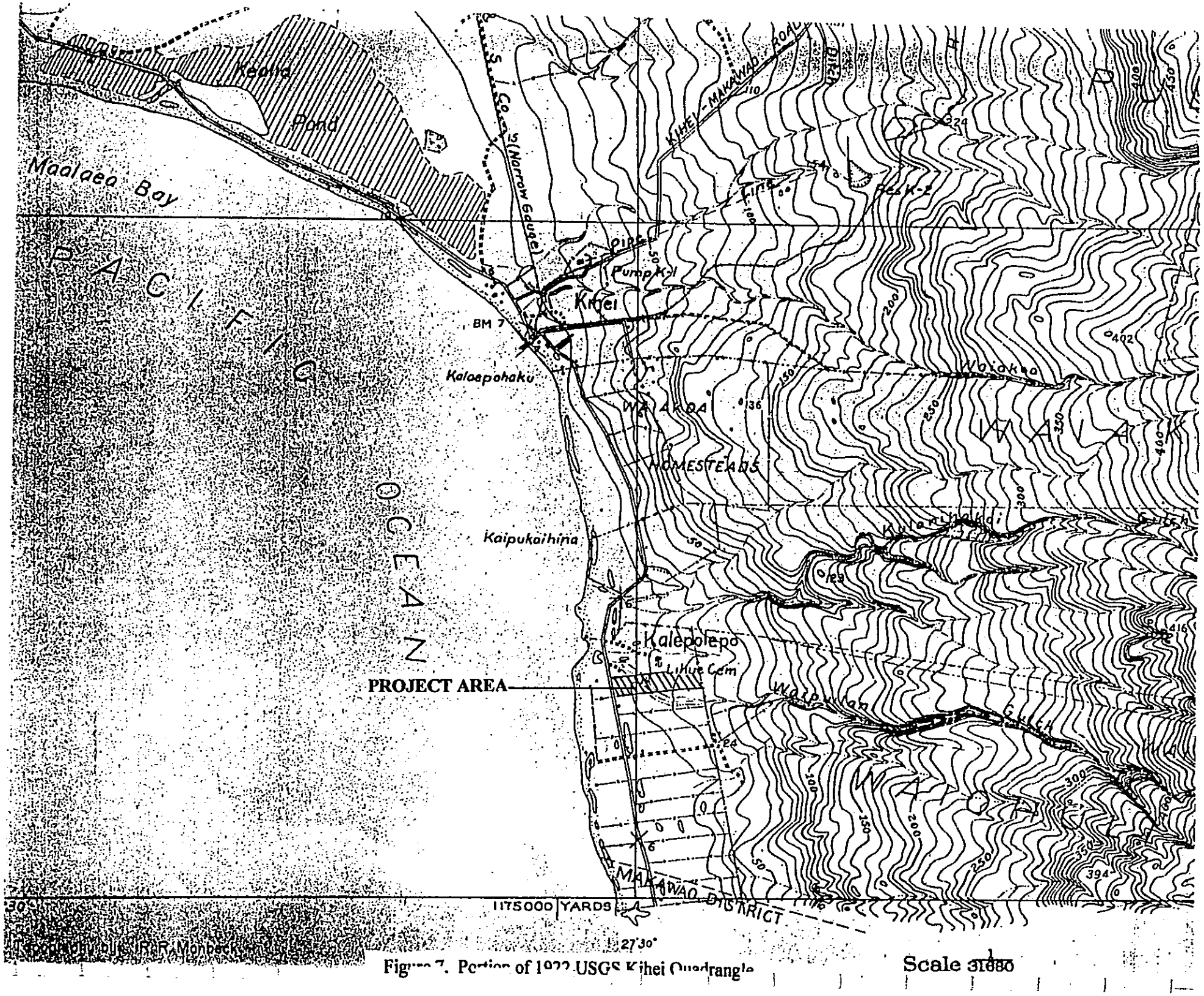


Figure 7. Portion of 1972 USGS Kihei Quadrangle

where Kiolani Church (site 1587) was later built, and that the *in situ* presence of midden and charcoal suggested Hawaiian use of the area as early as A.D. 1390. The calibrated date range from the lower cultural layer (280 cmbs), A.D. 420-720 was dismissed as the result of an old piece of wood (McDermott 2000:62). They suggested that the pond may have been utilized for stream-fed agriculture, given the ethnographic description of the area (McDermott 2000:39).

McDermott et al. (2000) also recorded evidence of this inland pond, but the authors conclude that Hawaiian land use of the area predates A.D. 1400 by over half a millennium (McDermott et al. 2000:i). A stratigraphic sequence similar to Pepalis and Kolb's data was observed in Trenches 1 and 2 although the more recent deposits were not correlatable; the authors suggest this was due to the dynamic alluvial environment in Kihei (McDermott 2000:62). The deeper and older deposits were charcoal rich, but lacked the midden deposits observed in Pepalis and Kolb's excavations. Accelerated Mass Spectrometor (AMS) dating of Layer XVIII (260 cmbs) in Trench 1 produced a calibrated (Oxal) A.D. 980-1160 date; Layer XVI (250 cmbs), Trench 2 produced a calibrated A.D. 680-900 date (McDermott 2000:48). Pollen analysis of these deeper layers confirmed the presence of Polynesian introduced economic plants: two pollen grains of indigenous/endemic Hibiscus and a single grain of *ki* (*Cordyline fruticosa*)(McDermott 2000:49-50).

Pollen analysis also showed a significant decrease in the pollen grains of *Pritchardia, Dondonaea viscosa,* and *Kanaloa kahoolawensis* over time, becoming infrequent after A.D. 1380 (McDermott 2000:50). According to Ward (McDermott 2000:Appendix A), these species are often seen in the pollen record prior to Polynesian arrival, with a marked decrease thereafter. McDermott's dates for more recent deposits (A.D. 1440-1640 in Stratum XII and A.D. 1380-1450 in Stratum XIV), together with a lack of *Pritchardia, Dondonaea viscosa,* and *Kanaloa kahoolawensis* pollen, confirm for the author that there was expanded Hawaiian land use in the area by this time (McDermott 2000:64). This data contributes to Kolb et al.'s (1997) thesis that permanent occupation of the Kula region included the coastal areas after A.D. 1400.

Trench 3 stratigraphy revealed deposits of alluvial sedimentation which McDermott et al. concluded were due to a high energy depositional environment produced by intermittent drainages and flooding during heavy rains (McDermott 2000:54). McDermott concluded that the eastern boundary of the former inland pond was therefore between the location of Trenches 2 and 3 at one time.

McDermott et al. conclude that Site 50-50-09-4981 undeniably represents an inland pond, but add to Pepalis and Kolb's (in press) research by establishing an early Hawaiian cultural deposit dating to A.D. 680-900. The early date, charcoal, and dense midden observed in Pepalis and Kolb's excavations, along with the

McDermott et al.'s pollen results, radiocarbon dating, and high charcoal concentration, provide the evidence for their conclusion that early Hawaiian land use of coastal Kihei predates A.D. 900.

Other archaeological studies completed in the immediate vicinity include a surface survey conducted along the corridor of the proposed Piilani Highway in 1976. A total absence of archaeological remains was reported in the segment of the corridor traversing across Waiohuli *ahupua`a* (Cox 1976).

Cordy (1977) conducted a reconnaissance survey for the proposed Kihei flood control improvements project. The project area included a 6.5 mile by 200 foot wide corridor along the coastal side of the proposed Piilani Highway alignment from the east end of Kealia Pond to Wailea, and the coastal portions of 9 gulches along this corridor. Two sites (1703 and 1704) were identified in Waiohuli *ahupua'a* in the vicinity of the current project area. Site 1703 was the remains of a collapsed modern frame house, and 1704, a possible fishpond wall extending offshore, seen only on aerial photographs, were recorded in Waipuilani Gulch. Further archaeological work including mapping and testing by cross-sectioning the fishpond wall was recommended at Site 1704.

Five archaeological surveys were conducted in the vicinity of the current project area by Archaeological Consultants of Hawaii, Inc. An archaeological walk-through survey was conducted in 1986 for the proposed Haleakala Gardens and Haleakala Village apartment complexes. No surface cultural remains were identified during this survey, and no further work was recommended (Kennedy 1986).

An archaeological walk-through reconnaissance survey of TMK 3-9-1:11, located adjacent to the east, south, and west of Kalepolepo Church, was conducted in 1988. No surface cultural remains were identified; however, the possible presence of unmarked human burials associated with the church cemetery existing in the current project area was considered. It was recommended that in the event human burials are encountered during construction activities, a systematic testing program be implemented to recover any remains (Kennedy 1988a).

Subsequent archaeological subsurface testing was conducted in 1989 to determine whether unmarked burials existed beyond the Kalepolepo Church property into the current project area. A total of two backhoe trenches and ten auger probes were excavated along the east and west fenced boundary of the church and subject project area. No subsurface cultural remains or burials were encountered during testing, and the report concluded that no unmarked burials existed beyond the current church property (Kennedy 1989).

An archaeological walk-through survey of the proposed Kaonoulu Subdivision was conducted in 1988. No surface cultural remains were identified during the survey. Further archaeological work including subsurface testing to determine presence/absence of buried cultural deposits and human burials was recommended on a mounded sandy area in Parcel 15, located adjacent to the north of Kalepolepo Fishpond (Kennedy 1988b).

An archaeological reconnaissance survey, of TMK 3-9-01:64, was conducted in 1990. No surface cultural remains were identified, and no further work was recommended (Kennedy 1990).

Scientific Consultant Services, Inc., conducted an archaeological inventory survey for the Kihei School off-site drainage improvements project (Burgett and Spear 1998). The project consisted of a survey of the drainline corridors, wetland areas, and the drainage channel crossing the Kihei Kauhale Nani property, and limited subsurface testing along the drainline corridor. No cultural remains were identified during the surface survey or excavations, and no further work was recommended.

Another archaeological inventory survey was undertaken by Xamanek Researches in conjunction with a proposed road corridor paralleling the segment of Lipoa Street located *makai* of Piilani Highway. One archaeological site (3529), a low overhang shelter with an *in situ* cultural deposit was located during the surface survey and underwent testing. Seventeen shovel tests and one controlled test unit were excavated. Midden and several indigenous artifacts were recovered. This site, interpreted as an apparently undisturbed precontact temporary habitation site, was deemed significant and recommended for further data recovery work (Fredericksen 1995).

SETTLEMENT PATTERN

A tentative settlement pattern for Waiohuli *ahupua`a* can be inferred from the information gleaned from the historical and archaeological summaries. Kolb et al. (1997) have suggested that permanent occupation of the Kula district's coast and uplands occurred concurrently between A.D. 1200-1400 and that prior to this, land use for the exploitation of natural resources was of very low intensity. McDermott et al.'s inventory survey in coastal Kihei included paleoenvironmental information which supports this, and they suggest that Hawaiian land use of the coast may have begun as early as A.D. 680 (2000:48, see section entitled "Previous Archaeology"). After A.D. 1400, archaeological evidence clearly shows an increase in permanent habitation in the uplands, and oral tradition dates four fishponds associated with coastal Kula to the 1500's (Kolb et al. 1997:66, cited in McDermott et al. 2001:99).

Permanent occupation, based on dry land agriculture, in the higher elevations of Kula are indicated by the prominent heiau sites recorded by Walker. The feature types consist of enclosures and platforms for the

heiau and permanent residential structures. Walls, alignments, and terraces would comprise the agricultural features. The permanent or seasonally recurring occupation of the coastal areas to exploit the marine resources is evidenced by coastal feature types consisting of smaller enclosures and overhang shelters representing the earlier occupation sites with trails, *ahu*, and some agricultural features, such as mounds and small planting areas, in selected localities. Later during the protohistoric period, the permanent occupation sites would consist of larger enclosures and terraces, with some heiau sites reflecting similar construction to the inland types. During the historic periods, the coastal occupation sites were defined with walls that enclosed the residential structures with some surrounding land. Cattle walls and pens became more ubiquitous and large tracts of land were cleared for ranching purposes.

The intermediate or "barren" zone, within which the current project area is located, has been interpreted primarily as a zone of transit for travelling between the coastal and upland zones (Cordy 1977). Temporary habitation sites, *ahu* or markers, and trails characterize the archaeological remains of the prehistoric period in this zone.

During the historic period, culminating around the 1850s, the inland zones were heavily utilized for the cultivation of Irish and sweet potatoes with permanent habitation occurring at the coast. During the latter half of the nineteenth century, vegetable farming took place in the uplands, while the lower elevations were utilized for large-scale ranching. This use probably continued into the 1930s.

Prior to the Second World War, the coastal portions of Waiohuli *ahupua`a*, including the current project area, were established as Beach Homestead Lots. Today, much of coastal Waihouli has been developed for housing, tourism, and commercial uses. The intermediate zone has been partially developed for golf course, residential, commercial, and high tech park uses. The remaining areas are open lands with some *mauka* lands still used for ranching.

SITE EXPECTABILITY

Based on the results of previous archaeological investigations which located Site 50-50-09-4981 (Pepalis and Kolb in press; McDermott 2000, 2001) adjacent to the current project area, subsurface cultural deposits associated with habitation, agriculture, and resource-procurement and processing activities may be encountered. Paleoenvironmental deposits associated with the inland pond/wetland (Site 4981) are also expected, and these deposits are relevant in interpreting the relationship between cultural sites and the former environment, including the ancient fishponds along the coast, the shoreline, and the intermittent drainages.

Features associated with temporary habitation, seasonal agriculture, and *mauka-makai* transit are expectable in low densities. Modified natural features such as outcrops and overhang shelters can be expected in dry gulches and around ridges and knolls. Also the remains of walls, fences, corrals, and other features associated with historic period ranching activities may also be present. Remains from the Beach Homestead era may also be present in the form of frame houses, agricultural activities, and other historic debris. However, due to the accessibility of the subject parcel and its location adjacent to existing developments, more recent disturbances are also expected.

FIELD METHODS AND PROCEDURES

During the initial inventory survey period, a surface assessment of the project area was undertaken by walking along east-west and north-south transects. All transects were spaced in 5-10 m wide intervals. Vegetated areas consisted primarily of high cover and ground visibility was good. Any areas of potential cultural sensitivity were closely inspected. Due to the absence of surface features with excavation potential and the nature and extent of previous disturbances in the area, backhoe trenching was deemed the most appropriate method of subsurface sampling. Locations to perform backhoe testing were selected on the basis of providing a representative sampling along the length of the project area. Trenches were excavated using a CAT-416C backhoe with a .70m wide bucket provided and operated by Betsill Brothers Construction, Inc.

Recording entailed locational mapping, documenting representative profiles of backhoe trenches, narrative descriptions, and photography. Currently approved, standard archaeological techniques and procedures were followed for all recording and other data gathering procedures. Subsequent to fieldwork completion, test trench locations marked with flagging tape, are slated to be plotted by professional surveyors. Since no cultural remains were encountered, a representative stratigraphic column was recorded for each trench with a brief narrative description of each layer. Lisa Rotunno-Hazuka, Jeffrey Pantaleo, M.A., and Aki Sinoto conducted the inventory survey on February 13, 2001.

Following the initial testing, in order to determine the presence/absence of deposits associated with Site 50-50-09-4981 in the project area, additional subsurface testing using a backhoe for the excavation of three archaeological test trenches, Trenches 9 through 11, was undertaken. These trenches were located approximately 40 m south of the area where deposits associated with the former inland pond were known to occur. The test trenches could not be located immediately south of the known deposits due to the presence of a mechanically excavated drainage, averaging 10 m in width, which defines the northern boundary of the project area. The three trenches were oriented east to west (*mauka-makai*), essentially paralleling previous

excavations in the neighboring area (McDermott et al. 2000), with the intention of locating corresponding stratigraphic layers (see Figure 8).

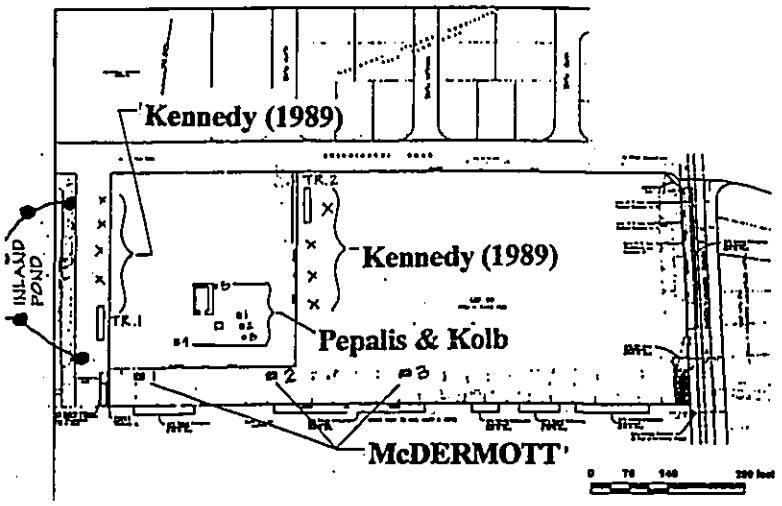
The three backhoe trenches were excavated with a 24-inch bucket by slowly scraping the deposits, no more than 20 cm at a time. Excavations were continuously monitored. The excavated matrix was not screened. Trench faces were cleaned with shovel and trowel when excavations were approximately 2.50 meters (m) deep. The trenches were closely examined for stratigraphic information and any sign of cultural deposits, and photographed with 35-mm color print film. Stratigraphic profiles were drawn and sediment samples were collected for field comparison with other trenches. Excavations then continued to etablish the influx of the water table, or to approximately 3.20 m below the surface, and the continuing stratigraphic sequence exposed in each trench was fully recorded.

All soils and sediments were described for each of the three test trenches according to U.S. Department of Agriculture Soil Survey Staff (1989 draft) recommendations, using the format preferred by the National Soil Survey Center of the U.S. *Department of Agriculture* (1998). Strata were designated with Roman numerals (I-XVI) proceeding downward from the ground surface beginning with Layer I. Characteristics recorded include color (Munsell Color 2000); moisture condition; mottle abundance; wet consistence (stickiness and plasticity); root abundance and diameter; other organic matter; rock types and sizes, including sand grain size and type; cultural materials; cementation; shells and other materials; and boundary distinctness and topography.

Laura Prishmont, MA, completed the additional archaeological testing on September 18, 2001.

RESULTS OF INVENTORY SURVEY

The inventory survey did not locate significant surface features or areas of exposed cultural deposition, although evidence of environmental change in the area was recorded. A total of eight backhoe trenches were excavated during the initial testing. These trenches were selectively placed in an east to west pattern, to sample representative subsurface conditions along the length of the project parcel (Fig. 8). Trench 1 was located near the southeastern corner, with Trenches 2 through 6 sampling the central portion, Trench 7 was near the northwest periphery, and Trench 8 was close to the southwest periphery of the parcel. Figures 9 through 16 present photographic overviews of each trench. Table 2 presents the dimensions and stratigraphic information for each trench. Representative stratigraphic profiles of the eight test trenches and their correlated stratigraphy are depicted on Figure 17.



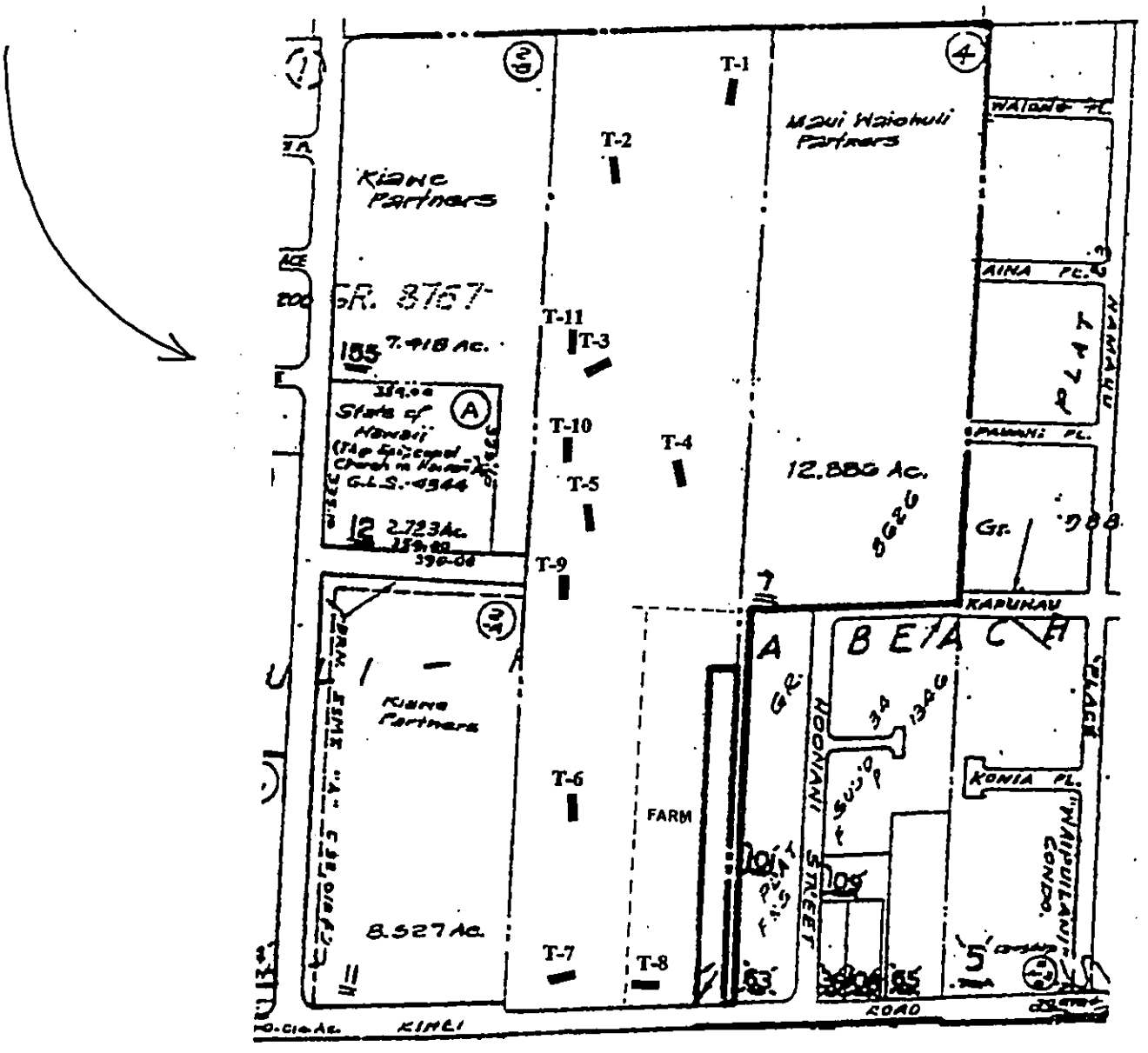


Figure 8. Estimated Locations of Backhoe Trenches within Parcel on TMK 3-9-01:9

Figure 9. Southwest Face of T-1

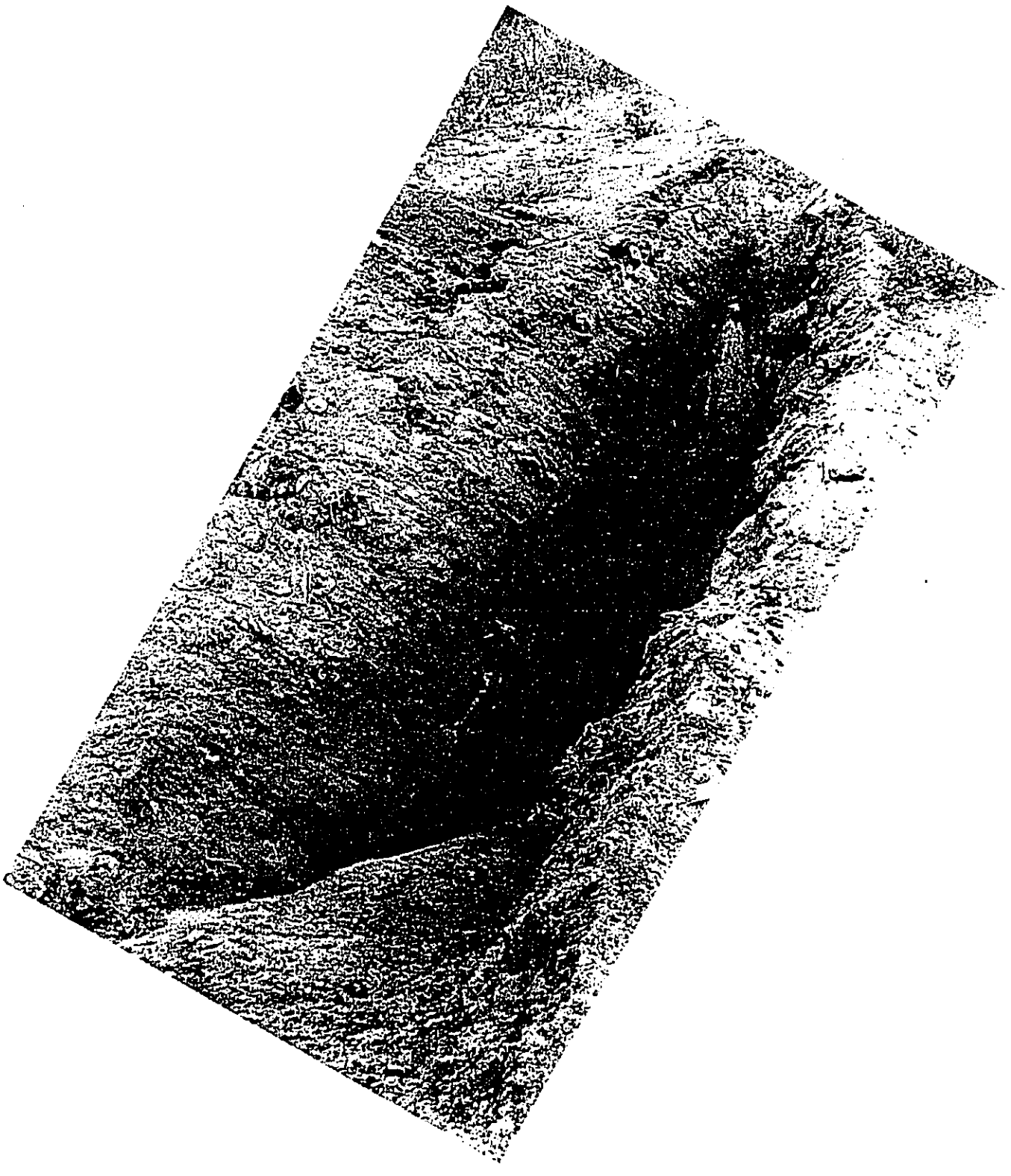


Figure 10. North Face of T-2

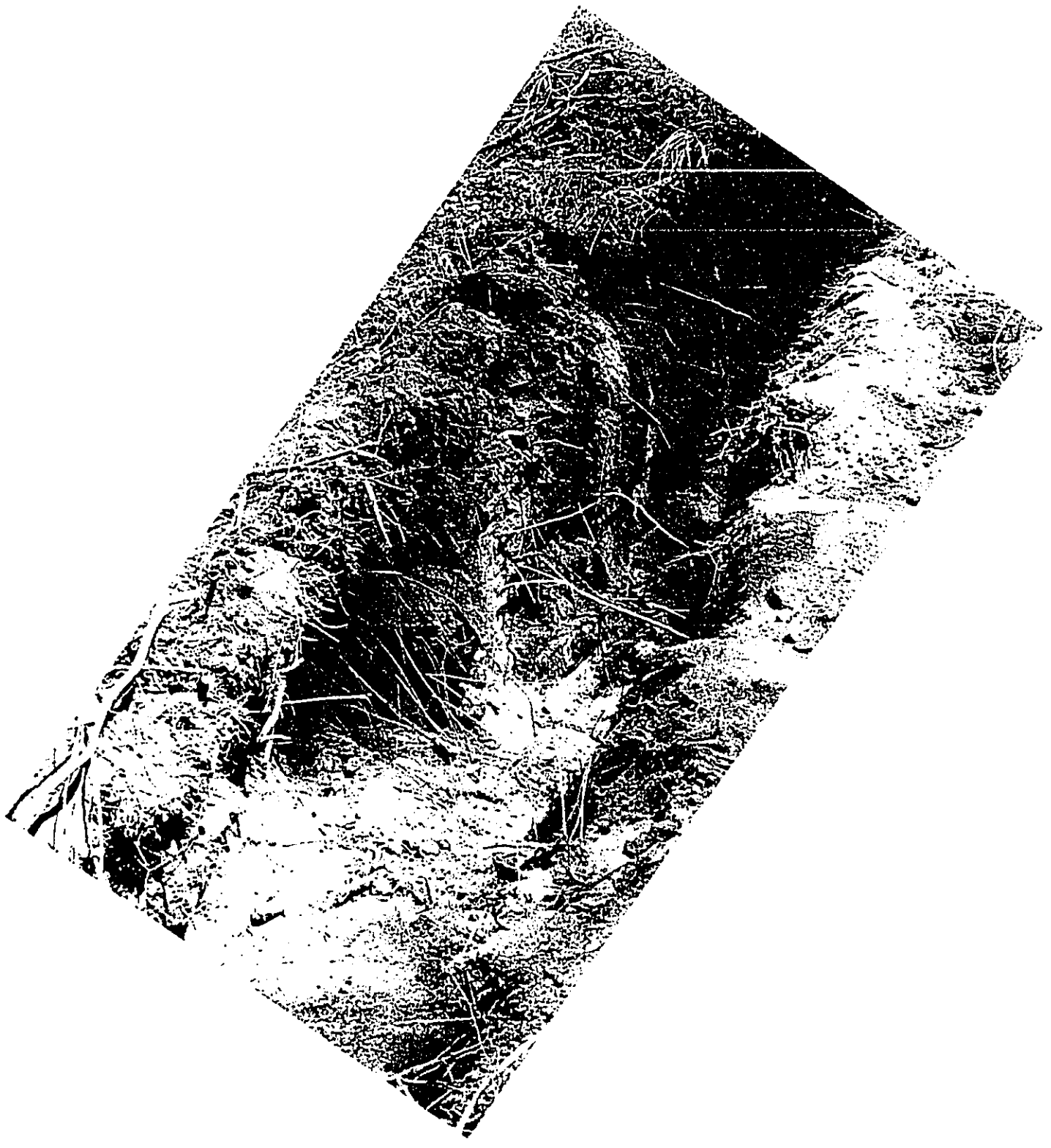


Figure 11. North Face of T-3

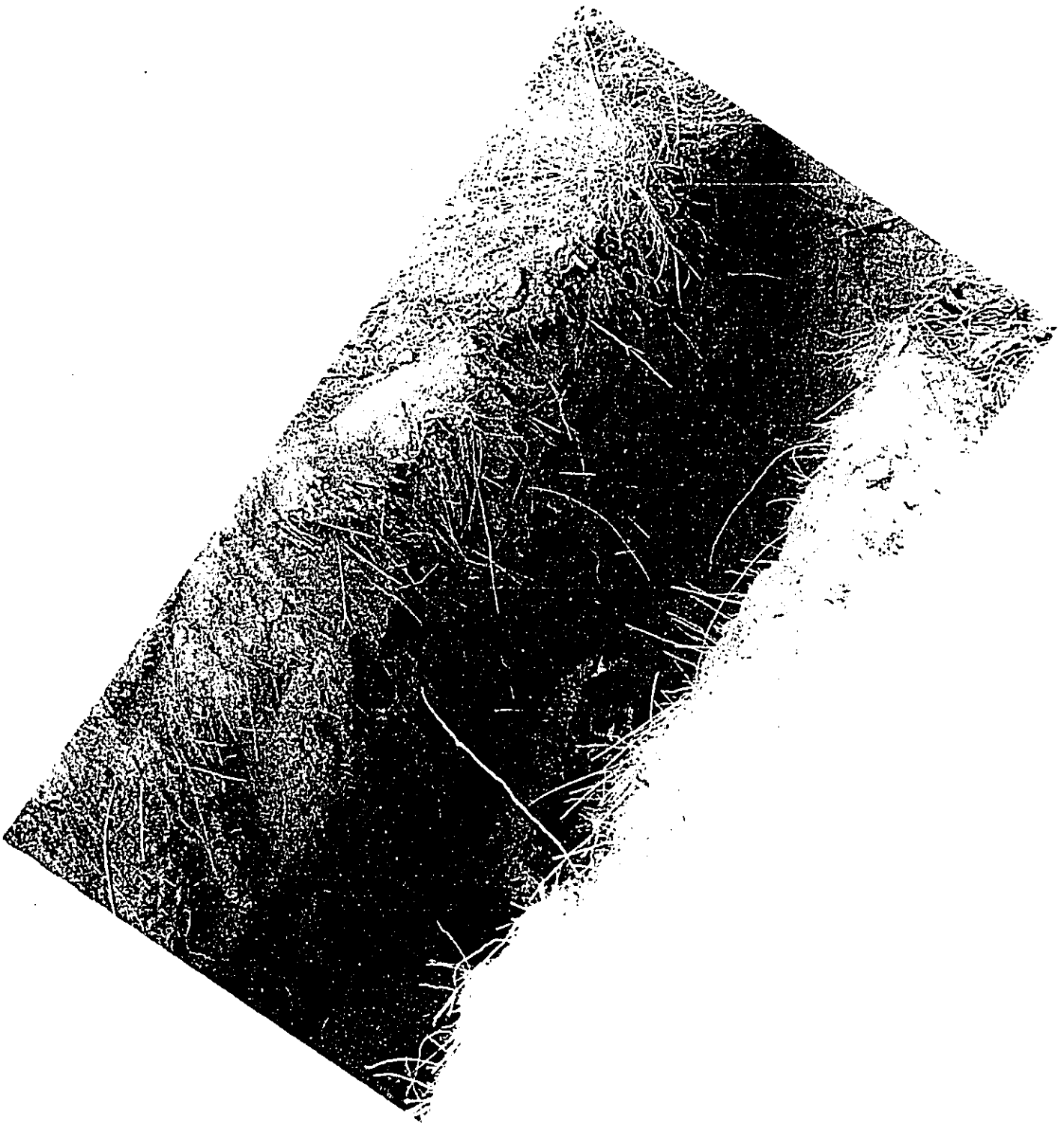


Figure 12. North Face of T-4

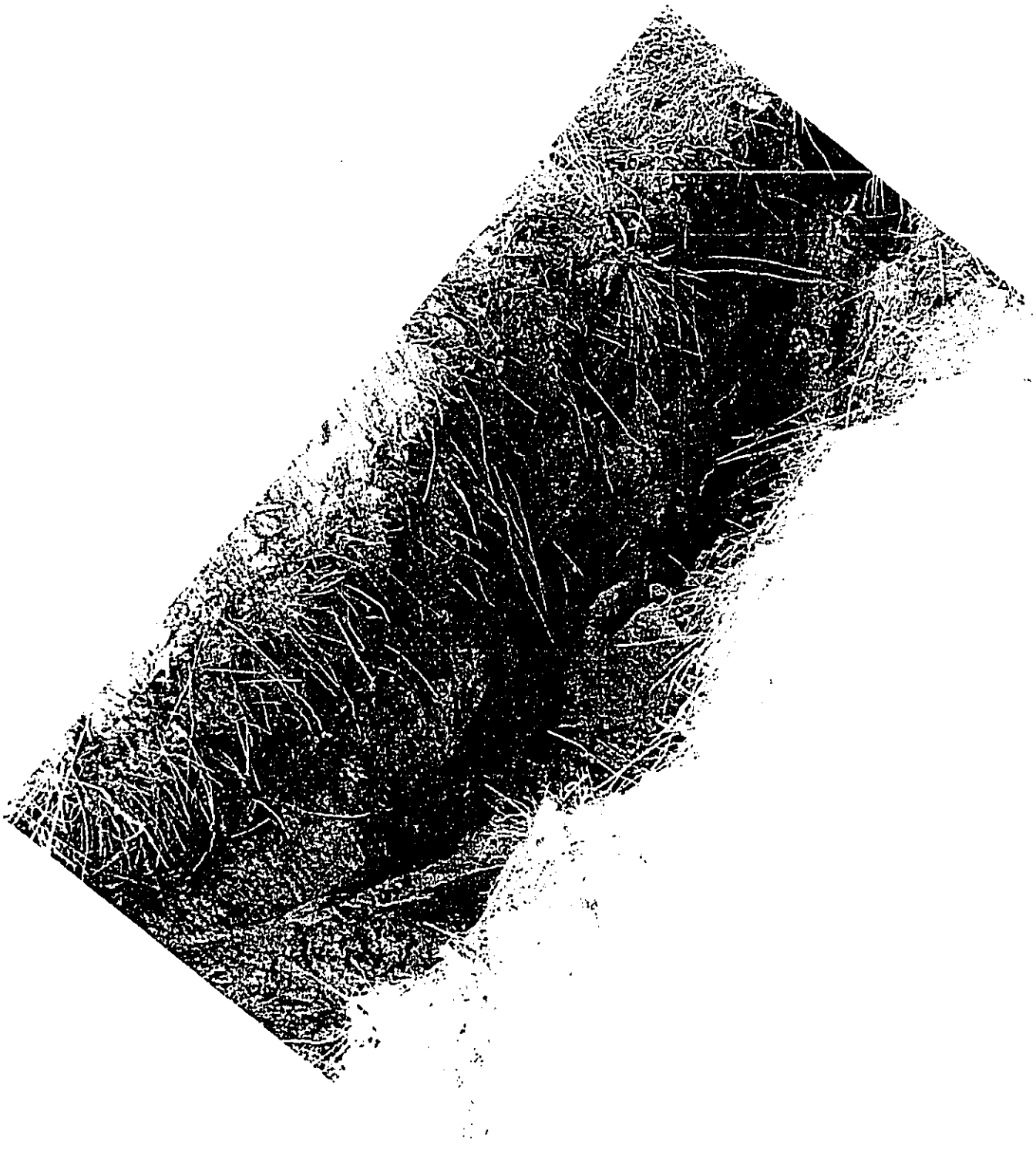


Figure 13. North Face of T-5

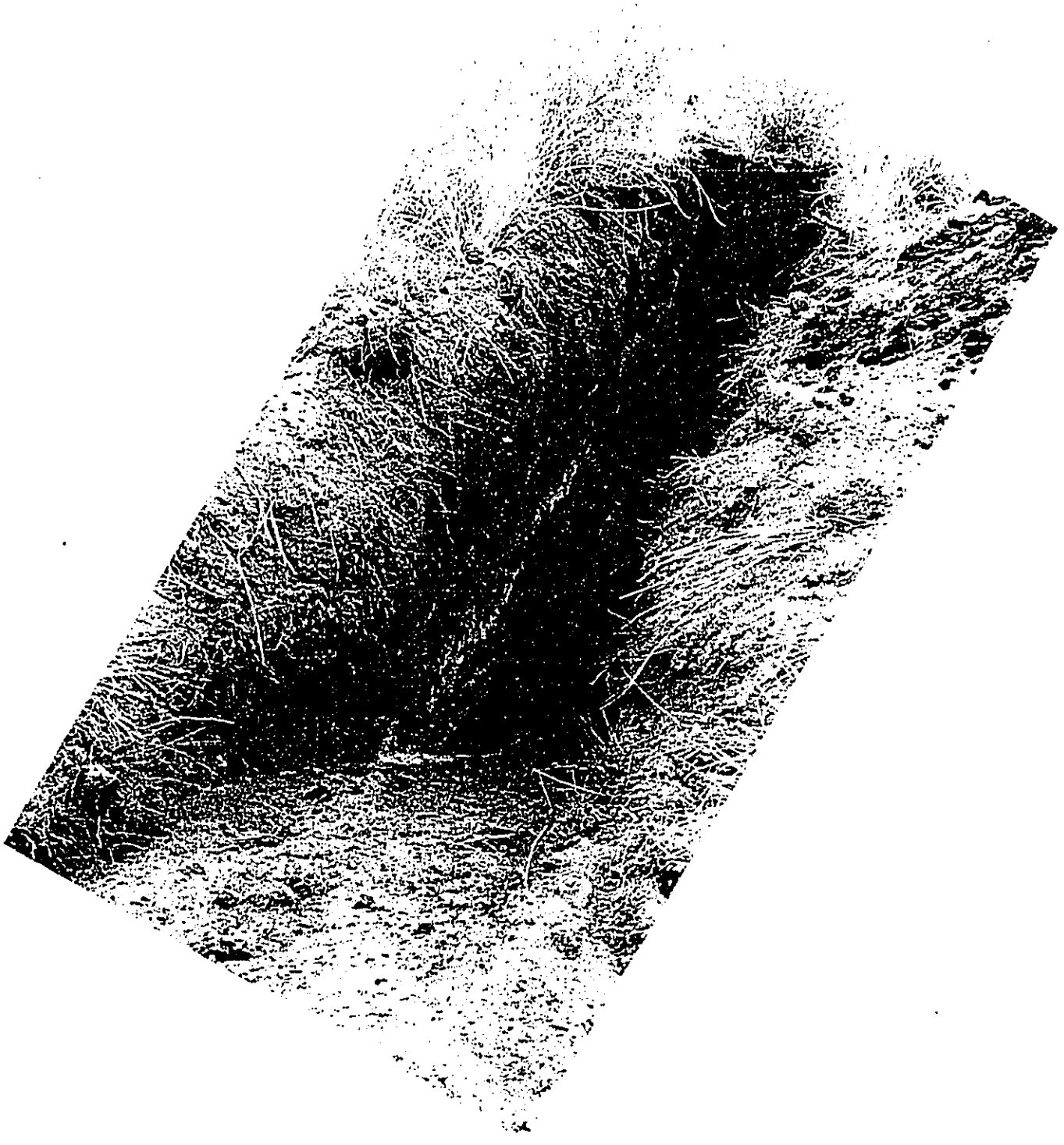


Figure 14. West Face of T-6

Figure 15. West Face of T-7

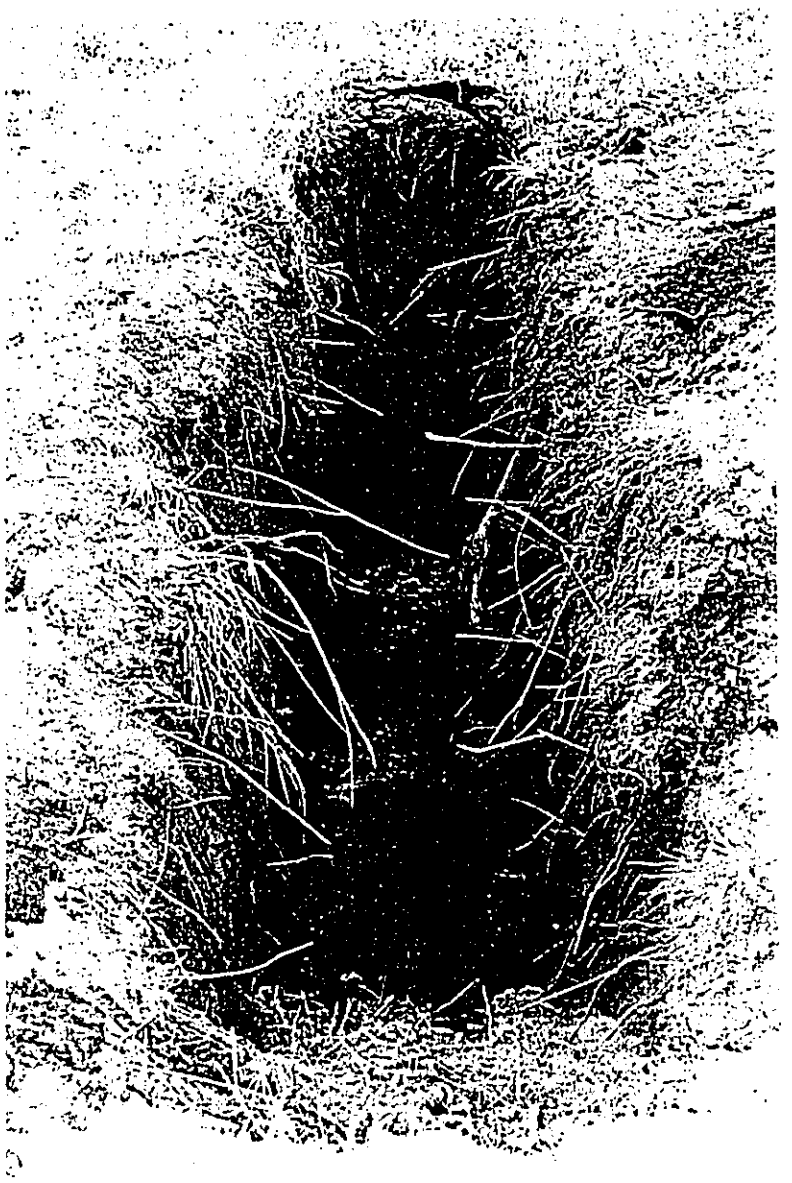


Figure 16. South Face of T-8

Table 2. Backhoe Trench Specifications

T-	LENGTH	WIDTH	DEPTH	ORIENT.	CULTURAL
1	5.0m	1.0m	1.1m	132	no
2	6.0m	1.0m	1.4m	85	"
3	6.0m	1.0m	1.6m	116	"
4	5.0m	1.0m	1.45m	75	"
5	5.0m	1.0m	1.8m	78	"
6	5.0m	1.0m	1.85m	338	"
7	5.0m	1.0m	1.70m	300	"
8	5.0m	1.0m	1.80m	158	"
9	4.0m	.80m	3.30m	84	?
10	4.0m	.80m	3.20m	84	?
11	4.0m	.80m	3.2	84	?

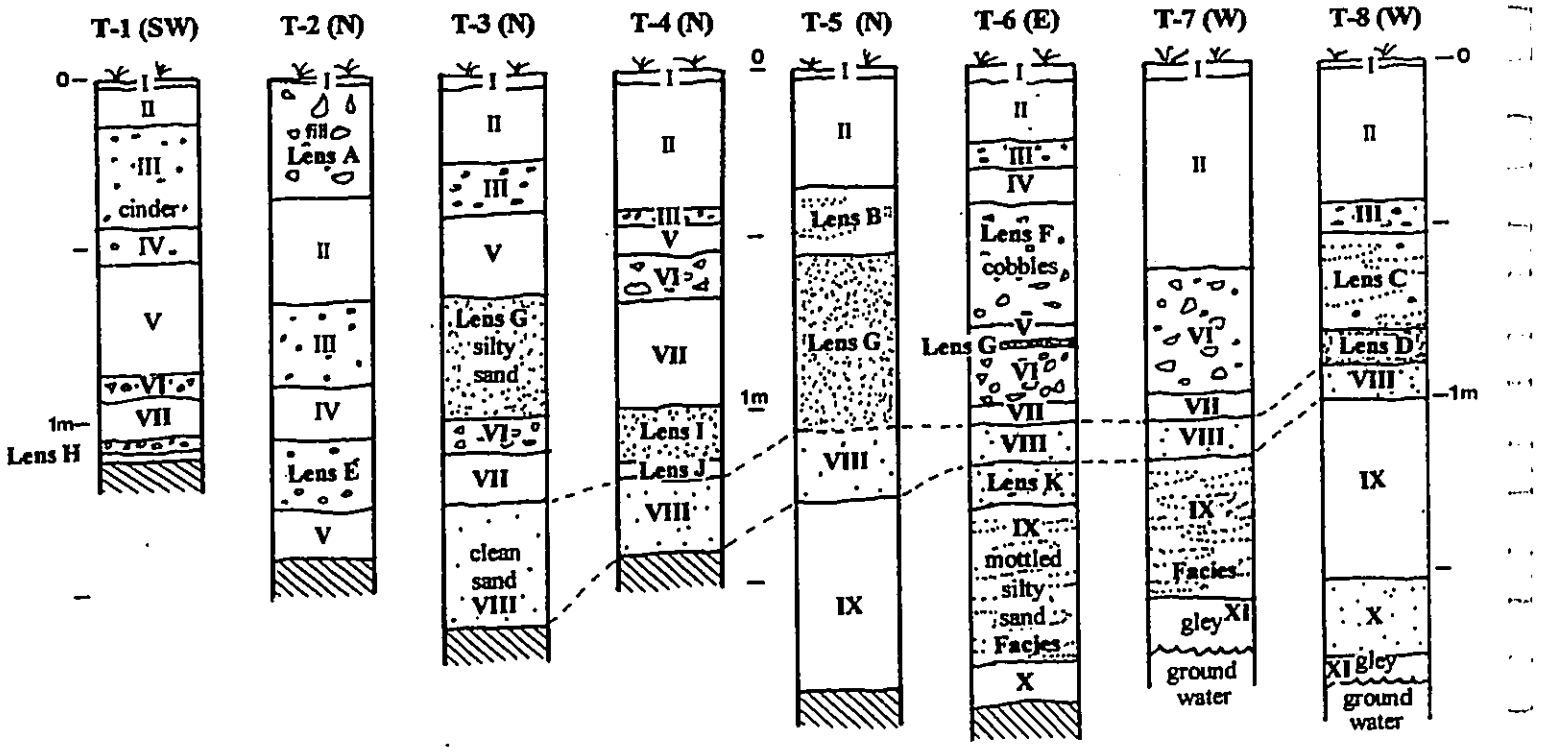


Figure 17. Representative Stratigraphic Columns

GENERALIZED STRATIGRAPHY

Evidence of the former inland pond (site 50-50-09-4981) was not encountered in any of the eight initial test trenches. Although the trenches did not expose any cultural materials, they did expose a sequence of events relating to environmental change in the area. Other than localized variations in overburden, depths, lenses, and the presence/absence of particular layers, the constituent soils remained fairly identical throughout the project area with the exception of Layer XI, a gley sand being present in the ground-water saturated layers of Trenches 7 and 8. The layer descriptions are as follows:

Layer I: very dark brown (10 YR 2/2) silt loam; non-sticky, non-plastic, friable, and soft with many rootlets and organic debris

Lens A (T-2): dark brown (7.5YR 3/4) gravelly silt loam fill deposit; non-sticky, non-plastic, and with roots and rootlets

Layer II: dark brown (7.5YR 3/4) silt loam; non-sticky, non-plastic, and with roots and rootlets

Lens B (T-5): mottled fill deposit

Layer III: dark brown (7.5YR 2.5/3) gravelly silt loam with angular cinder inclusions which are dark gray/black and very dark brown (N3, 10YR 2/2).

Lens C (T-8): mottled deposit

Lens D (T-8): gravelly sand with cinder

Layer IV: dark brown (7.5YR 3/4) silt loam; non-sticky, non-plastic

Lens E (T-2): dark brown (7.5YR 2.5/3) cinder with some silt loam

Lens F (T-6): gravelly loam with cobbles

Layer V: dark brown (7.5YR 2.5/3) silt loam; sticky, plastic; homogenous

Lens G (T-3, 5, 6): yellowish brown (10YR 5/4) loamy sand; very coarse, loose

Layer VI: dark reddish brown (5YR 3/4) gravelly silt loam; sticky, plastic, some cinder

Layer VII: dark reddish brown (5YR 3/4) silt loam; sticky, plastic, some cinder

Lens H (T-1): cinder

Lens I (T-4): yellowish brown (10YR 5/4) loamy sand; very coarse, loose

Lens J (T-4): dark reddish brown (5YR 3/4) gravelly silt loam; sticky, plastic, some cinder

Layer VIII: light yellowish brown (10YR 6/6) sand; single grain, loose, homogenous

Lens K (T-6): gravelly sand with cinder

Layer IX: dark brown (7.5YR 2.5/2) silty clay loam; hard, friable, slightly sticky and plastic

Layer IX Environmental Facies: mottled loam

Layer X: light yellowish brown (10YR 6/6) sand; single grain, loose, homogenous

Layer XI: very dark gray (N2.5) gleyed silty sand; water table few coral fragments

Layers I through VII (see Figure 17) are composed of silt loam and gravelly silt loam with lenses of gravelly silt loam, gravelly sand, cinder, gravelly loam, gravelly loam with cobbles, and loamy sand. These predominantly terrigenous sediments appear to have been deposited via high energy depositional events, such as those associated with flooding, due to the coarse grained particle size and inclusions of gravels, cobbles, and cinder. These alluvial deposits were expected since Waipuilani Gulch is located less than 0.2 kilometers south of the project area (see Fig. 1). Kihei, in general, has a history of flooding, whereby heavy rains upslope cause water to carry sediments downslope to the coastal areas; the close proximity of Waipuilani Gulch would have intensified this effect in the project area.

In general, Layers I through VII appear to correlate quite well with the stratigraphic sequence exposed in McDermott et al.'s (2000:59) Trench 3. While McDermott et al. observed evidence of the inland pond (Site 50-50-09-4981) in their Trenches 1 and 2 (2000:40-56), Trench 3 exhibited a stratigraphic sequence composed of riverine sediments similar to those exposed during the current project.

Layer VIII is a light yellowish brown marine sand that was exposed in all the test trenches except Trenches 1 and 2 which were located in the far eastern (*mauka)* section of the project area (see Figure 8). This layer may have been deposited by the northeasterly trade winds which would have blown sand from the beach, which is presently located less than 0.1 kilometers west of the project area.

Layer IX was observed in the western most (*makai*) trenches, Trenches 5 through 8, and is a silty clay loam which is the finest textured deposit encountered in the project area. This indicates that lower energy depositional events, such as those occurring from sheet wash, were carrying finer grained alluvial sediments into the project area. Layer IX was also assigned to Trenches 6 and 7, although in these locations, the sediment appeared mottled with a higher sand component. This represents an environmental facies change in the area which could be due to a highly localized low-energy stream or flood event that may have meandered its way through the project area.

Layers X and XI are marine sand deposits and appear to represent the former beach. Trenches 7 and 8 were located on the far western (*makai)* end of the project area, and these trenches exposed Layer XI just above the water table. Layer XI was the only gleyed deposit encountered in the project area and this is not surprising as Trenches 7 and 8 were the only trenches excavated below the water table.

RESULTS OF ADDITIONAL ARCHAEOLOGICAL TESTING

Archaeological evidence consisting of sparse charcoal, shell fragments and alluvial sedimentary deposits associated with the in-filling of the former pond, State Site 50-50-09-4981, were encountered in the project

area during the additional subsurface testing. No other cultural materials or any human skeletal remains were encountered.

GENERALIZED STRATIGRAPHY

Stratigraphic sequences documented from Trenches 9 through 11 are presented in this section.

In general, only Layers I and II could be correlated across the project area, including the strata exposed in the eight trenches excavated during the initial inventory survey. It was not possible to correlate all stratigraphic layers due to very different depositional forces that occurred in each trench location. Layer I is an O horizon soil dominated by organic material, and Layer II is an A horizon soil as evidenced by an accumulation of humified organic matter. Layers I and II were the only soils encountered in the project area, all other layers were predominantly identified as alluvial sediments with some aeolian deposited sands and insitu beach deposits. As a brief introduction to the terms "soils" and "sediments," soils have weathered in place to the point where they support vegetation, while sediments have been transported from another location and have not weathered in place long enough to support vegetation. Soils represent periods of stability, when soil weathering is able to proceed, while sediments represent periods of instability, with renewed erosion and deposition in the area.

Trench 9

Trench 9 was 4 m long, 0.80 m wide and was excavated to a maximum depth of 330 cmbs (centimeters below surface). The water table was encountered at 320 cmbs. The long axis of the trench was oriented east to west, or *mauka-makai*, at 84 degrees true north. Seven stratigraphic layers and two lenses were identified (Table 3, Figures 18-19).

Layers I and II are soils that can be correlated across the project area; see the "Generalized Stratigraphy" section above.

Layer III, a brown loam, correlates with Layer III in nearby Trench 10. A small portion of a thick black plastic bag or tarp was observed in Layer III Trench 10. The presence of plastic indicates that the deposit has been disturbed quite recently. A truck farm is located in the south eastern section of the project area (see Figure 8) and a map based on a 1956 land use study (Maui Land Use Map 1960) shows one orchard and four truck crop parcels within grazing land in the Kalepolepo vicinity. Black plastic tarp is commonly used for water retention and/or weed control in modern farming on the islands. The plastic may also be trash, as the surface of the project area is littered with garbage. What is important here is to note that Layer III in the location of Trenches 9 and 10 has been recently disturbed.

Layer IV is a thin (1-8 cm) gravelly, loamy basalt sand with a wavy, discontinuous lower boundary. Although it is not likely, this layer could have been deposited by a singular flood event, due to the gravelly, very coarse texture of the deposit which indicates a high energy mode of deposition. A modern disturbance is more likely the source for this deposit, especially in light of the Layer III deposit above and the wavy, discontinuous lower boundary which is not a typical feature of flood deposited sediments.

Table 3. Stratigraphic Profile of Trench 9

Layer	Thickness Range (cm)	Layer Description
I	5-10	Very dark grayish brown (10YR 3/2, moist) sandy loam; not sticky or plastic; grass surface with many, very fine and medium roots; abrupt, wavy boundary.
II	10-14	Dark brown (10YR 3/3, moist) silt loam; slightly sticky and plastic; common, fine roots; abrupt, smooth boundary.
III	6-14	Brown (7.4YR 4/2, moist) loam; slightly sticky and plastic; few, fine roots; fine coralline sand grains; abrupt, smooth boundary.
IV	1-8	Dark brown (7.5YR 3/2, moist) gravelly, loamy sand; not sticky or plastic; few, very fine to fine roots; coarse basalt sand; abrupt, discontinuous boundary.
V	100-105	Dark brown (7.5YR 3/3, moist) silt loam; slightly sticky and plastic; few, charcoal flecking; common, medium roots; lenses of silt loam (Lens A) and sand (Lens B); abrupt, irregular boundary.
Lens A	1-14	Dark brown (7.5YR 3/2, moist) silty clay loam; slightly sticky and plastic; few, medium roots; fine to medium basalt and coralline sand; clear, discontinuous boundary.
Lens B	1-6	Yellowish brown (10YR 5/6, moist) sand; not sticky or plastic; medium to fine basalt and coralline sand grains; abrupt, discontinuous boundary.
VI	60-65	Yellow (10YR 7/6, moist) sand; medium to fine coralline and basalt sand grains; abrupt, smooth boundary.
VII	Not Determined	Light yellowish brown (10YR 6/4, moist) sand; fine coralline and basalt sand; water table reached at 320 cmbs and excavation halted at 330 cmbs.

Layer V is a thick deposit (100-105 cmbs) composed of silt loam with medium roots common, occasional charcoal flecking, and lensing. Lens A is a silty clay loam, very similar to the surrounding matrix, but with a slightly darker color and higher silt and clay percentage which is probably due to decomposing organics. Lens B is a fine to medium grained coralline and basalt sand which was probably transported to this location by the northeasterly winds which blow sand inland from the shoreline. The irregular lower boundary of Layer V may be due to bioturbation caused by a burrowing animal or tree root. This layer is interpreted as an alluvial deposit that may be related to the infilling of the former pond, although the evidence is not very convincing when compared to the finer textured and multi-layered deposits associated with Trench 10. The predominantly homogeneous nature of this deposit with occasional lensing and an irregular lower boundary, along with the historic evidence for farming in the immediate vicinity, create the impression that this layer may have been disturbed by farming activities. An interpretation involving some type of disturbance is likely, especially when comparing this profile with the sixteen strata exposed in Trench 10, located approximately 35 m east, or with any of the other stratigraphic sequences encountered during the original inventory survey.

T-9

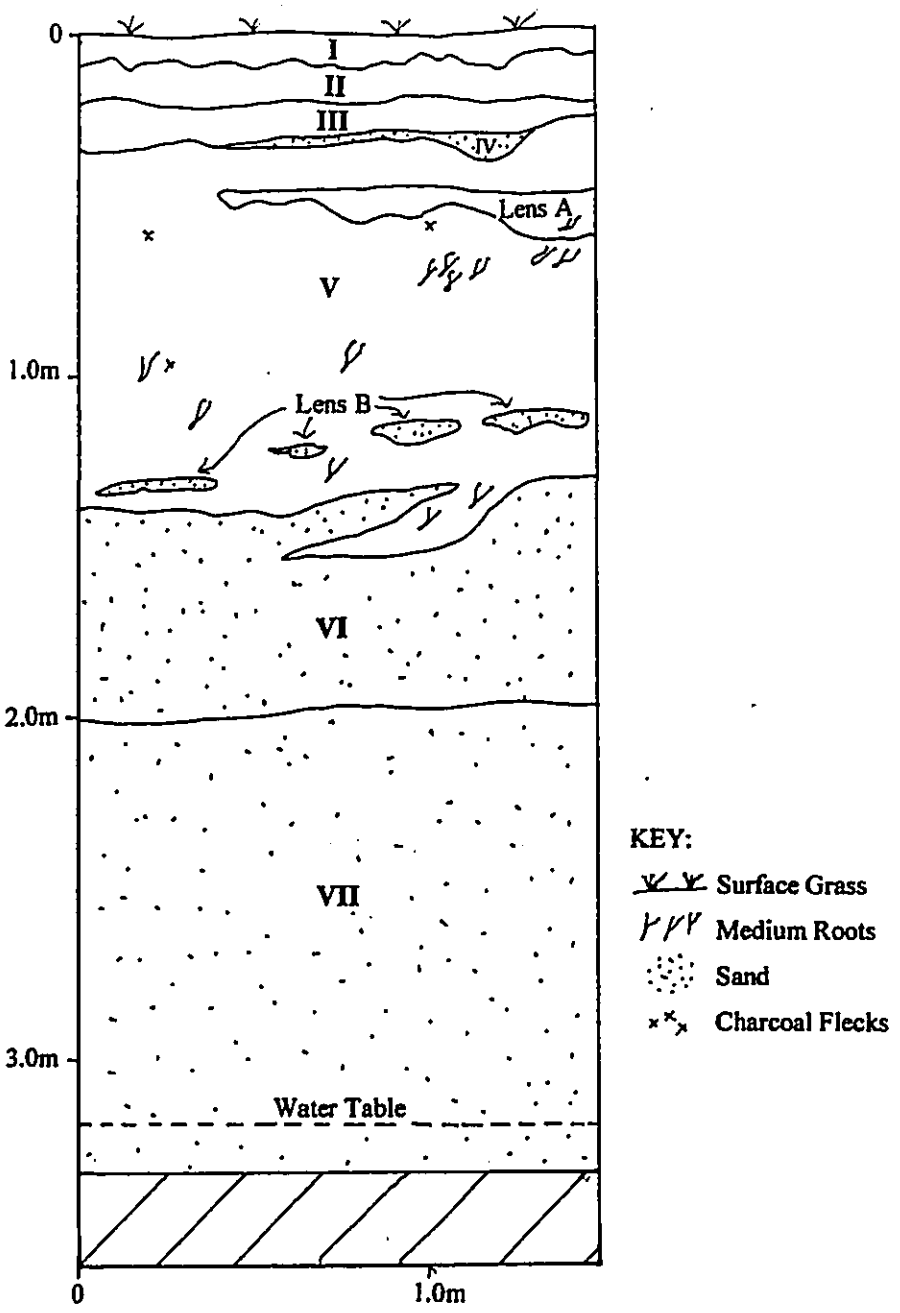


Figure 18. Trench 9, South Face Profile

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Figure 19. Trench 9. South Face Photograph

Layers VI and VII are composed of fine and fine to medium coralline and basalt sand respectively, occurring from 140 cmbs through to the base of excavation at 330 cmbs. The water table was encountered at 320 cmbs. Although the finer texture of these layers suggests aeolian transport and deposition typical to sand dune formation, no sedimentary bedding was observed. Conspicuous stratigraphy composed of thin (0.5-2 cm) sedimentary bedding inclined at an angle is a classic indication of sand dune deposits (Macdonald et al. 1983:247-249). None-the-less, these layers are undoubtedly associated with back beach deposits near the former shoreline.

Trench 10

Trench 10 was 4m long, 0.80 m wide, and was excavated to a maximum depth of 320 cmbs. The water table was not encountered. The trench was oriented east to west at 84 degrees true north which is the orientation of Trenches 9 and 10. Sixteen stratigraphic layers and one lens were identified (Table 4, Figures 20-21). These deposits appear to be associated with the infilling of the former inland pond, Site 50-50-09-4981.

Layers I through III correlate with Trench 9. Refer to the discussion of these layers above. Lens A is a 1-2 cm thick fine to medium textured coralline and basalt sand which was probably transported to this location by aeolian forces.

Layers IV through XV are composed of silt loam, fine to medium and coarse coralline and basalt sand, silty clay loam, loam, mottled silty loam, and silty clay with abrupt or clear and smooth lower boundaries that are horizontal. The finer textured deposits in Layers IV, VII, VIII, IX, XI, XIII, XIV, and XV are interbedded with Layer V, VI, X, and XII sand deposits. Layer VI is the only sand layer with predominantly basaltic coarse sand that indicates a high energy depositional event, such as flooding, which carried terrigenous sediment to this locale; the other three sand layers are fine or fine to medium grained coralline and basalt sand. In fact, Layer V may be have been deposited by the same flood event which would have deposited the heavier grained sediments of Layer VI first, leaving the finer grained deposits in suspension until the event subsided (Layer V). This is not an unlikely scenario as the basalt component Layer V was considerably higher when compared to sand Layers X and XII, and the color of Layer V is only one value and two chroma (Munsell 2000) higher than Layer VI below it. Sand Layers X and XII are marine deposits as evidenced by the high coralline component, and these layers may have been deposited by aeolian forces. While it is possible that they were deposited by a storm surge, the lack of coarser grained sand and/or marine shell often associated with this type of event, along with the fine and fine to medium grain size, leave the impression that these were deposited by wind action.

T-10

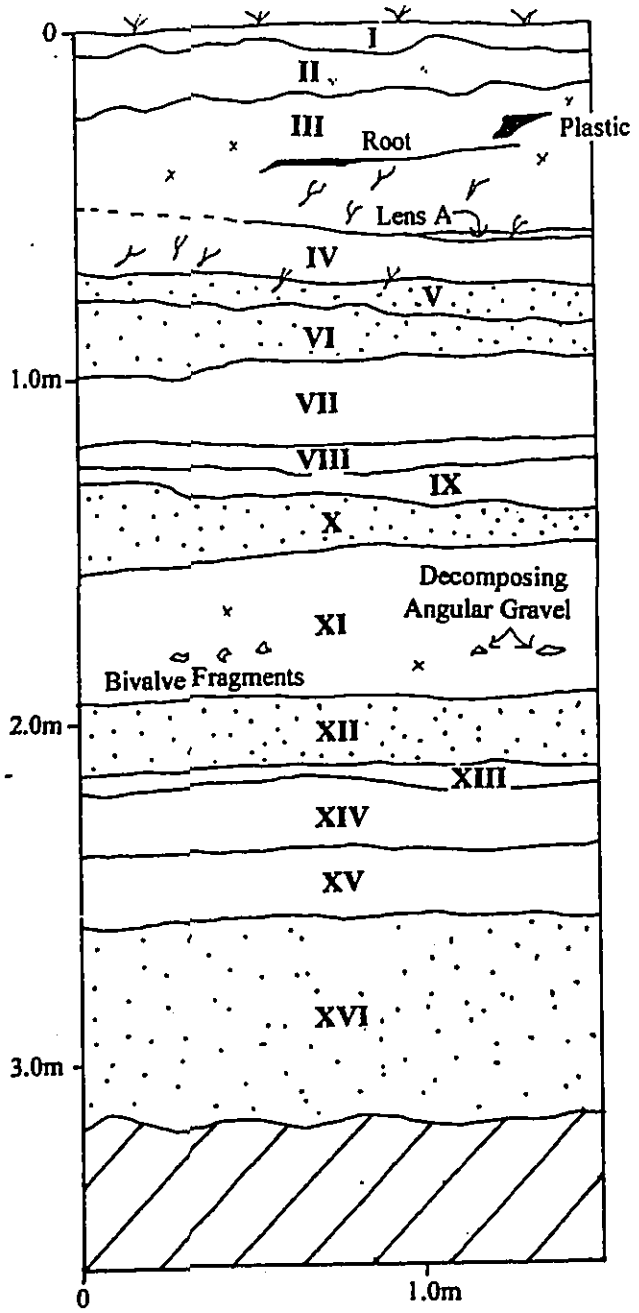

Figure 20. Trench 10, South Face Profile

Figure 21. Trench 10, South Face Photograph

Table 4. Stratigraphic Profile of Trench 10

Layer	Thickness Range (cm)	Layer Description
I	5-9	Very dark grayish brown (10YR 3/2, moist) sandy loam; not sticky or plastic; grass surface with many very fine and medium roots; abrupt, wavy boundary.
II	8-18	Dark yellowish brown (10YR 4/4, moist) loam; slightly sticky and plastic; common, fine roots; few, charcoal flecking; abrupt, smooth boundary.
III	28-40	Brown (7.4YR 4/2, moist) loam; slightly sticky and plastic; few, medium to fine roots; few, charcoal flecking; plastic bag; clear, smooth boundary.
Lens A	1-2	Yellowish brown (10YR 5/6, moist) sand; not sticky or plastic; fine to medium basalt and coralline sand grains; abrupt, discontinuous boundary.
IV	10-18	Dark brown (7.5YR 3/2, moist) silt loam; slightly sticky and plastic; few, fine to medium roots; abrupt, smooth boundary.
V	6-10	Brown (10YR 4/3, moist) sand; not sticky or plastic; fine to medium coralline and basalt sand grains (there is a higher percentage of basalt grains in this layer when compared with sand Layers X and XII below); clear, smooth boundary.
VI	8-25	Very dark gray (10YR 3/1, moist) sand (with some silt); not sticky or plastic; predominantly coarse basalt sand grains; clear, smooth boundary.
VII	18-24	Very dark brown (10YR 2/2, moist) silty clay loam; sticky and plastic; common, very fine white roots; abrupt, smooth boundary.
VIII	4-9	Reddish brown (5YR 4/4, moist) silt loam; slightly sticky and plastic; abrupt, smooth boundary.
IX	4-12	Dark brown (10YR 3/3, moist) loam; slightly sticky and plastic; abrupt, smooth boundary.
X	10-26	Yellow (10YR 7/6, moist) sand; not sticky or plastic; fine coralline and basalt sand grains; abrupt, smooth boundary.
XI	38-45	Brown (7.5YR 4/4, moist) silt loam with many, very coarse, distinct, dark brown (7/5YR 3/2, moist) mottles; few, angular basalt gravels (<15 % by volume; appear to be decomposing); very sparse charcoal flecking; two *brachiodontis sp.* shell fragments; abrupt, smooth boundary. Sediment sample #1 was collected from this layer.
XII	20-22	Yellow (10YR 7/6, moist) sand; medium to fine coralline and basalt sand grains; abrupt, smooth boundary.
XIII	3-5	Very dark grayish brown (10YR 3/2, wet) silty clay; very sticky and plastic; abrupt, smooth boundary.
XIV	19-20	Yellowish red (5YR 4/6, moist) silty clay; very sticky and plastic; abrupt, smooth boundary.
XV	20	Very dark grayish brown (10YR 3/2, moist) silty clay; very sticky and plastic; abrupt, smooth boundary.
XVI	Not Determined	Light yellowish brown (10YR 6/4, moist) sand; fine coralline and basalt sand; excavation halted at 320 cm below the surface.

In general, Layers IV through XV are predominantly fine textured and relatively thin layered deposits when compared to all other profiles in the project area, including Trenches 1-8 excavated during the original inventory survey. However, it needs to be noted that Trenches 1-8 were excavated to a maximum depth of 180 cmbs. This profile clearly indicates that distinctly different depositional forces were at work in this location.

The multi-layered, thin deposits of finer textured sediments in this profile are interpreted as having been deposited in a low energy depositional environment associated with in-filling of the inland pond/wetland, Site 50-50-09-4981. The stratigraphy in this location is very similar to the deposits observed in McDermott et al.'s (2000:40-56) Trench 1, and to a lesser extent Trench 2, both of which were interpreted as the former pond/wetland. The stratigraphy of Trench 10 and McDermott's Trench 1, while not strictly correlatable, are especially similar from 1 m below the surface through to the base of excavation beginning with Layer VII in

both profiles. Both profiles display multi-layered, thin deposits of finer textured sediments with occasional marine sediments. Although Trench 10 did not contain the extensive midden and charcoal deposits observed in Pepalis and Kolb's (in press) test excavations, Layer XI (~40 cm thick, mottled silt-loam) did contain very sparse charcoal and two fragments of *brachiodontis sp.*, which is a bi-valve shell that lives in ponded environments and brackish water estuaries. The presence of sparse charcoal and two bi-valve shell fragments, along with stratigraphic evidence, supports the interpretation that Trench 10 encountered either Site 50-50-09-4981, or the buried remains of another pond/wetland, in the current project area.

Layer XVI is a fine-textured, coralline and basalt sand encountered from 260 cmbs through to the base of excavation at 320 cmbs. This deposit is interpreted as representing the former back beach in this locale.

Trench 11

Trench 11 measured 4 m by 0.80 m and was excavated to a depth of 320 cmbs; the water table was not encountered. The trench was oriented *mauka-makai* at 84 degrees true north. Nine layers were exposed (Table 5, Figs. 22-23).

Table 5. Stratigraphic Profile of Trench 11

Layer	Thickness Range (cm)	Layer Description
I	5-7	Very dark grayish brown (10YR 3/2, moist) sandy loam; not sticky or plastic; grass surface with many very fine and medium roots; abrupt, wavy boundary.
II	10-20	Dark yellowish brown (10YR 4/4, moist) loam; slightly sticky and plastic; common, fine roots; few, charcoal flecking; abrupt, smooth boundary.
III	18-25	Very dark grayish brown (10YR 3/2, moist) sand; not sticky or plastic; fine to very coarse basalt sand; this layer is composed of sedimentary bedding ranging from 0.5-2 cm in thickness; few, medium to fine roots; abrupt, smooth boundary.
IV	20-25	Dark yellowish brown (10YR 4/4, moist) silt loam; slightly sticky and plastic; many, medium roots; clear, smooth boundary.
Va	20	Very dark grayish brown (10YR 3/2, moist) and yellow (10YR 7/6, moist) sand; not sticky or plastic; medium coralline sand and medium to coarse basalt sand; this layer is composed of alternating very dark grayish brown and yellow sedimentary bedding ranging from 0.5-2 cm in thickness; abrupt, smooth boundary.
Vb	2-3	Very dark grayish brown (10YR 3/2, moist) very gravelly sand; not sticky or plastic; angular basalt gravel and very coarse basalt sand; abrupt, smooth boundary.
Vc	45-50	Very dark grayish brown (10YR 3/2, moist) and yellow (10YR 7/6, moist) sand; not sticky or plastic; medium coralline sand and medium to coarse basalt sand; this layer is composed of alternating very dark grayish brown and yellow sedimentary bedding ranging from 0.5-2 cm in thickness; abrupt, smooth boundary.
VI	5	Dark brown (10YR 3/3, moist) silt loam; slightly sticky and plastic; abrupt, smooth boundary.
VII	70-75	Yellow (10YR 7/6, moist) sand; not sticky or plastic; fine coralline and basalt sand; abrupt, smooth boundary.
VIII	1-3	Black (10YR 2/1, wet) silty clay; very sticky and plastic; abrupt, smooth boundary.
IX	Not Determined	Very dark brown (10YR 2/2, moist) gravelly sand; not sticky or plastic; medium to coarse basalt sand; excavation halted at 320 cm below the surface.

Layers I and II correlate across the project area; refer to the discussion of these soils in the "Generalized Stratigraphy" section.

Layers III through IX, in Trench 11, manifest a stratigraphic sequence distinctly different from any of the other trenches. Layers III, Va, Vb, Vc, and IX consist predominantly of gravelly, very coarse to medium-grained basalt sand, with a smaller component of coralline sand when compared with other trenches. The lower boundary of these layers are abrupt and smooth. Of particular significance are Layers III, Va, Vb, and Vc; these layers are composed of sedimentary bedding ranging from 0.5 to 2 cm in thickness with abrupt, smooth, horizontal boundaries. The predominantly coarse grain size of the basaltic and coralline sediments of Layers III, Va, Vb, Vc, and IX, as well as the horizontal sedimentary bedding observed in four of the layers, indicates that the deposition of these layers involved a high energy depositional environment such as a stream. This profile is very similar to McDermott et al.'s (2000:58-61) Trench 3 profile, which was also interpreted to be a portion of a stream channel.

Layer VII is a fine sand and contains a higher coralline component than do the other layers in this profile. The fine grain size suggests that this layer was deposited via aeolian forces which carried these marine sediments from the beach to this location. While former beach deposits may have once been located in the Trench 11 locale, the coarse grained particle size of the Layers above and below this deposit suggest that any *in situ* beach deposits that were here have been truncated by flooding events and stream erosion. The proximity of the project area to the mouth of Waipuilani Gulch, and the history of flooding in coastal Kihei, localized stream channel deposits such as these should not be uncommon in the project area.

Layers IV (20-25 cm thick), **VI** (5 cm thick), and VIII (1-3 cm thick) are composed of silty clay and silt loam. The layer boundaries are distinct (abrupt and smooth or clear) and horizontal. These relatively thin, finer grained layers indicate that there were episodes of lower energy deposition in this area, although the predominantly coarser grained sediments observed in the profile undeniably indicate the presence of a stream channel in this locale.

T-11

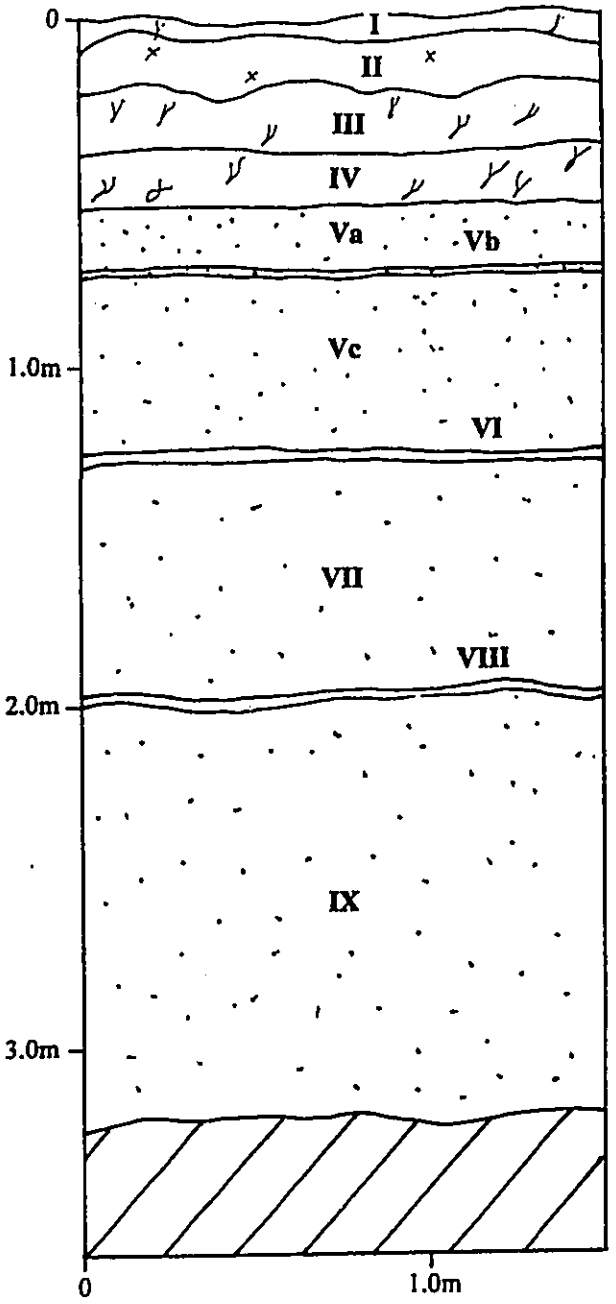

Figure 22. Trench 11, South Face Profile

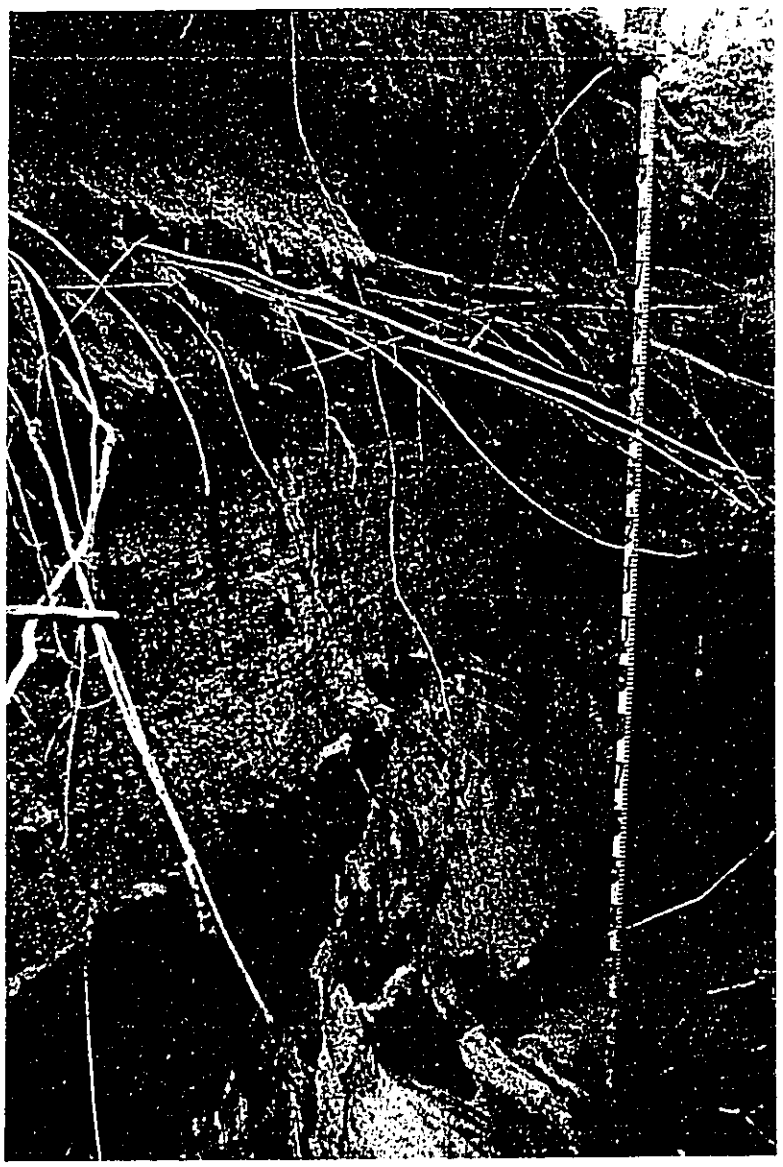

Figure 23. Trench 11, South Face Photograph

DISCUSSION

Archaeological evidence encountered during the present project in Trench 10 confirms the presence of a former pond/wetland within the project area, most likely Site 50-50-09-4981. Stratigraphic evidence in the form of multi-layered, thin deposits of finer textured alluvial sediments, along with the presence of sparse charcoal and two *brachiodontis sp.* shell fragments support this interpretation. The results of this survey suggest that Site 50-50-09-4981 extends from the location of Pepalis and Kolb (in press) excavations and McDermott et al.'s (2000) Trenches 1 and 2 into the current project area to the location of Trench 10 (see Figure 8). While it is believed that further evidence of this site may be encountered north of Trench 10 towards the previous excavation of Pepalis and Kolb (in press) and McDermott et al. (2000), the stratigraphic integrity of any existing deposits may be highly disturbed due to the presence of an artificial drainage along the northern boundary of the project area; approximately 20 m north to Trench 10. At the same time, however, since several ponds were located in the vicinity in the part, the deposition encountered in Trench 10 may well be the buried remains of another pond/wetland.

No other cultural remains or deposits associated with Site 50-50-09-4981 were observed during the inventory survey. The advent of modern agricultural activities, with effects of extensive and compounded land clearing and tilling, may have impacted remains that once existed. Deposits associated with high energy depositional forces were also documented in the project area. Archival documents locating the mouth of Waipuilani Gulch just south of the project area in 1921, clearly indicate the presence of dynamic depositional forces, such as intermittent drainages and flooding, that could have truncated and redeposited sediments throughout the project parcel. Evidence for disturbances via modern farming and environmental processes are especially reflected in the more recent deposits (0-100 cmbs) in all of the test trench locations and the Trench 11 profile locates a former stream channel in the project area.

The archaeological research of Pepalis and Kolb's (in press), McDermott et al. (2000), and McDermott (2001) document evidence of Site 50-50-09-4981 in and around the Kalepolepo Church yard. The fact that the parcel of land where the previous research took place is unlikely to be affected by future development is important since the buried deposits will be available for future research (McDermott et al. 2000:I).

Archaeological testing conducted at historic cemetery sites at Ukumehame, Maliko Gulch (Fredricksen in press) and Bak Property (Rotunno-Hazuka in press) confirmed the presence of unmarked burials outside of defined cemetery boundaries, and due these circumstances, burials are often anticipated around the

perimeter of a cemetery. However at Lihue Cemetery it seems unlikely that burials could be present on the subject property based on the following factors:

1. The closest marked grave at Lihue Cemetery is approximately 17 m (~ 50 ft.) north of the artificial drainage and property line. Within this 50 ft. swath, McDermott excavated trenches 1-3, which were devoid of any human remains (see Figure 8).
2. During the current investigation, trenches 5 and 9 within the project area near the property line were also negative for human remains.
3. No Land Commission Awards (LCA's) related to habitation were located within the project area, although there are LCA's located in the adjoining parcel.
4. The artificial drainage, which divides the project area from the adjoining parcel, does not appear to have impacted or truncated any burial features, even though the excavations for the drainage probably were not monitored.

Based on the aforementioned suppositions, it seems unlikely that burials related to Lihue Cemetery are present on the subject property; however, some form of archaeological monitoring may be warranted.

Trenches 3, 4, and 6-10 revealed *in situ* beach deposits in the lower layers of each profile and based on the archaeological record, coastal sand dunes and beaches were extensively utilized as traditional burial places during prehistoric and historic times, suggesting a potential for human burials within the western *(makai)* half of the project area.

SIGNIFICANCE EVALUATION

The significance of Site 50-50-09-4981 has been established previously by other researchers. Although, the association of the current findings to this site has not been conclusively determined, the nature of the deposit warrants the same significance attributed to the previously recorded site. Criterion D; the data yielded or the potential to yield more data significant to the prehistory or history of the region, island, or state; as set forth by the Hawaii Register of Historic Places is considered applicable.

RECOMMENDATIONS

Results of the current inventory survey located buried deposits probably associated with State Site 50-50-09-4981 or a similar pond/wetland feature in the current project area. Based on the significance of this site with regard to early coastal habitation and land use in the Kihei area, archaeological monitoring of ground-disturbing activities in some areas is recommended.

Additionally; Trenches 3, 4, 6, 7, 8, and 9 revealed beach deposits in the lower layers of each profile, suggesting a potential for human burials within the western half of the project area. Archaeological monitoring of any deep excavations, such as sewer and drain lines, is recommended. Again, although it is unlikely that burials from Lihue Cemetery exist in the project area, monitoring in areas adjacent to the existing cemetery would also be recommended.

An archaeological monitoring plan shall be prepared for approval by the State Historic Preservation Division, prior to commencement of any construction activities.

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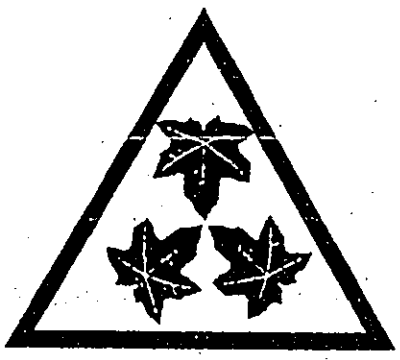
Appendix – C
Cultural Impact Assessment

Kapiioho Lyons Naone Cultural Consulting



Waipuilani Estates
Cultural Impact Assessment

P.O. Box 814, Wailuku (Maui), HI 96793 Phone: 808-871-7555; Fax: 808-893-0521

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Kapiioho Lyons Naone Cultural Consulting

Waipuilani Estates
Cultural Impact Assessment

Introduction

The author of this Cultural Impact Assessment Report is Kapiioho Lyons Naone III, a native Hawaiian who was born and raised in the Kipahulu and Hana areas of Maui. Kapiioho has been teaching cultural traditions and language in Maui and internationally for several years and currently holds a position as one of the third highest chiefs of the Royal Order of Kamehameha. This author is familiar with cultural practices and features throughout the Hawaiian Islands. In addition, he has professional and cultural access to other people of similar stature who have specific knowledge of the general Waipuilani Estates area.

The methods used to conduct this assessment included: walking and feeling the property for the proposed Waipuilani Estates; interviewing members of three different Ohana who are long-time residents of the greater Waipuilani area. Kapiioho consulted those Ohana members about cultural features and practices as well as how the land has been used for the past several years. In addition, Kahu Naone was a part-time resident of Kihei in the 1950's and a full time resident during the 1970's; thus, he has personal knowledge of the area and its use because of his familiarity with the area.

Location of Proposed Waipuilani Estates

The property lies between Ohukai and Kaonoulu Streets on the mauka side of South Kihei Road. This is Zone 3, Section 9, Plat 01, Parcel 9 (3901.09).

Summary of Interview Results

From a cultural practices and beliefs perspective, the proposed Waipuilani Estates project bears no apparent signs of cultural practices or gatherings taking place on the proposed project property either currently or for more than 30 previous years. Cattle have been grazing the land for a long time. There were no medicinal plants growing anywhere on the property of a vitality for good medicine. The area hosts mainly keawe trees and grass.

No architectural features were identified and none were recollected by the members of the Kanana Ohana, Okina Ohana, or Akaka Ohana.

Members of the three Ohana stated that the property had been owned by either the Baldwin family or the Rice family for as long as any of them could remember and further stated that it had always been used for cattle grazing in their collective memories. None of the members of any of the Ohana wished to be specifically identified and felt no such identification was necessary as the property has long been used for cattle grazing.

Methods, Interviews & Related Biographical Information

Mr. Naone went to the land for the proposed Waipuilani Estates and walked it to feel the land and conducted a cultural survey of the entire area. He took a detailed walk through the land and identified no significant sites. His tour of the property was consistent with the testimony of the Kanana, Okina and Akaka Ohana mentioned above. The property has been used for cattle grazing and bears no signs of cultural sites or practices at this time.

Constraints

There were no constraints. Due to Mr. Naone's own knowledge of the area, he believes that those parties who were contacted have given definitive testimony about area cultural beliefs and practices for the property.

Cultural Resources, Practices and Beliefs

Based on Mr. Naone's time spent on the Waipuilani Estates site and based on the collective recollections of those Ohana interviewed, Mr. Naone feels he can state that for the past 30 years at least, there have been no significant cultural practices or

beliefs associated with this particular property. He also believes there are no cultural resources that will be affected by the proposed project.

Confidential Information

No documentation is being presented separately from this report. All information was shared freely and willingly.

Conflicts

There are no known conflicts or unresolved issues regarding this assessment.

Analysis/Recommendations

1. A cultural specialist should be called to assist the developer should any skeletal remains or any artifacts be found.

2. The cultural specialist and/or the developer should contact the State Historic Preservation Division of the Department of Land and Natural Resources for the State of Hawaii and the Maui Burial Council immediately if any remains or artifacts are found.

3. If remains or artifacts are found, such skeletal remains and/or any artifacts should be temporarily stored and then reinterred at one ceremony near the time of project completion.

4. A place for reinternment should be designated although it appears that such a need is highly unlikely.

5. A cultural specialist should perform a significant Hawaiian cultural blessing ceremony of the area once the building is done.

Bibliography

Map provided by Chris Hart & Partners as follows: Waipuilani Estates Regional Location map.

Appendix – D

Maui Scenic Coastal Resources Study, Kihei Map

MAP LEGEND
8.1.3 MAALAEA — KIHEI

OPEN SPACES

MAUKA VIEWS

AREA OF SCENIC BEAUTY

COASTAL VIEW

COASTAL LAND FORM

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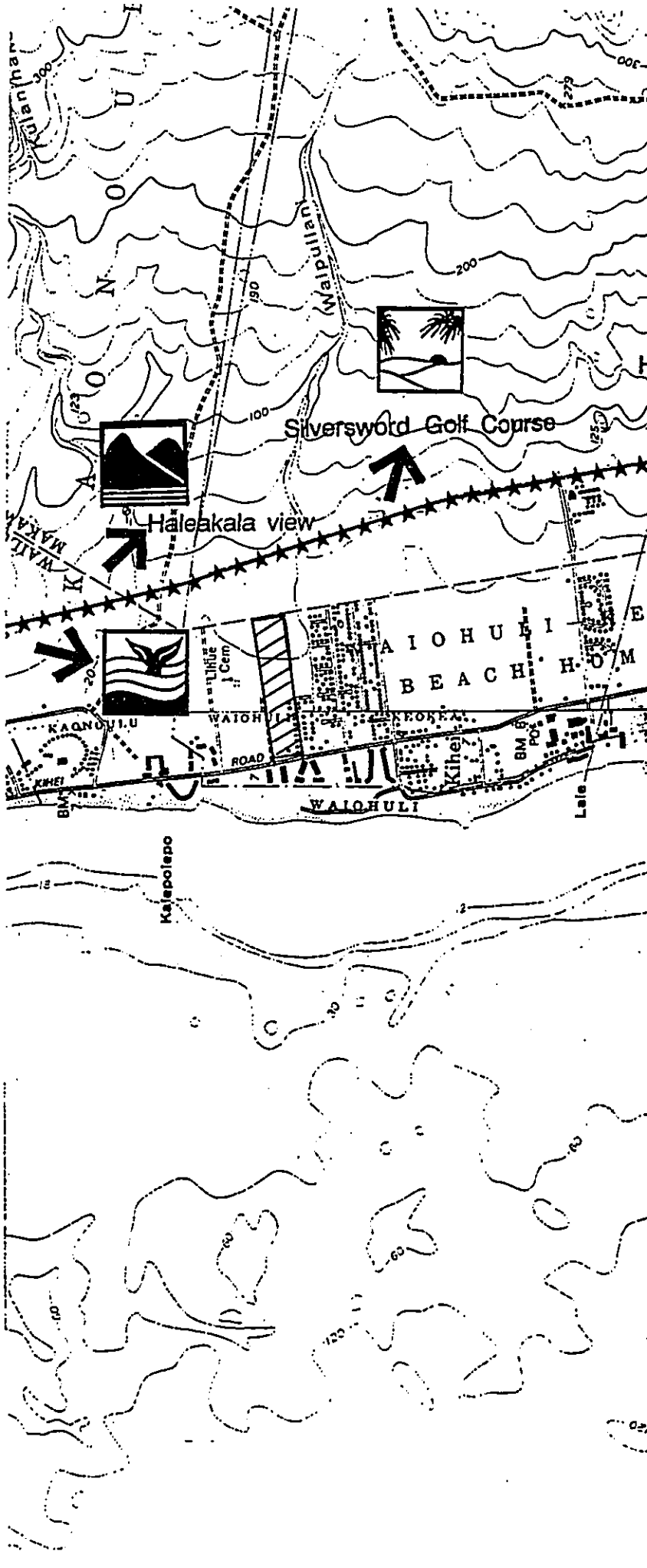

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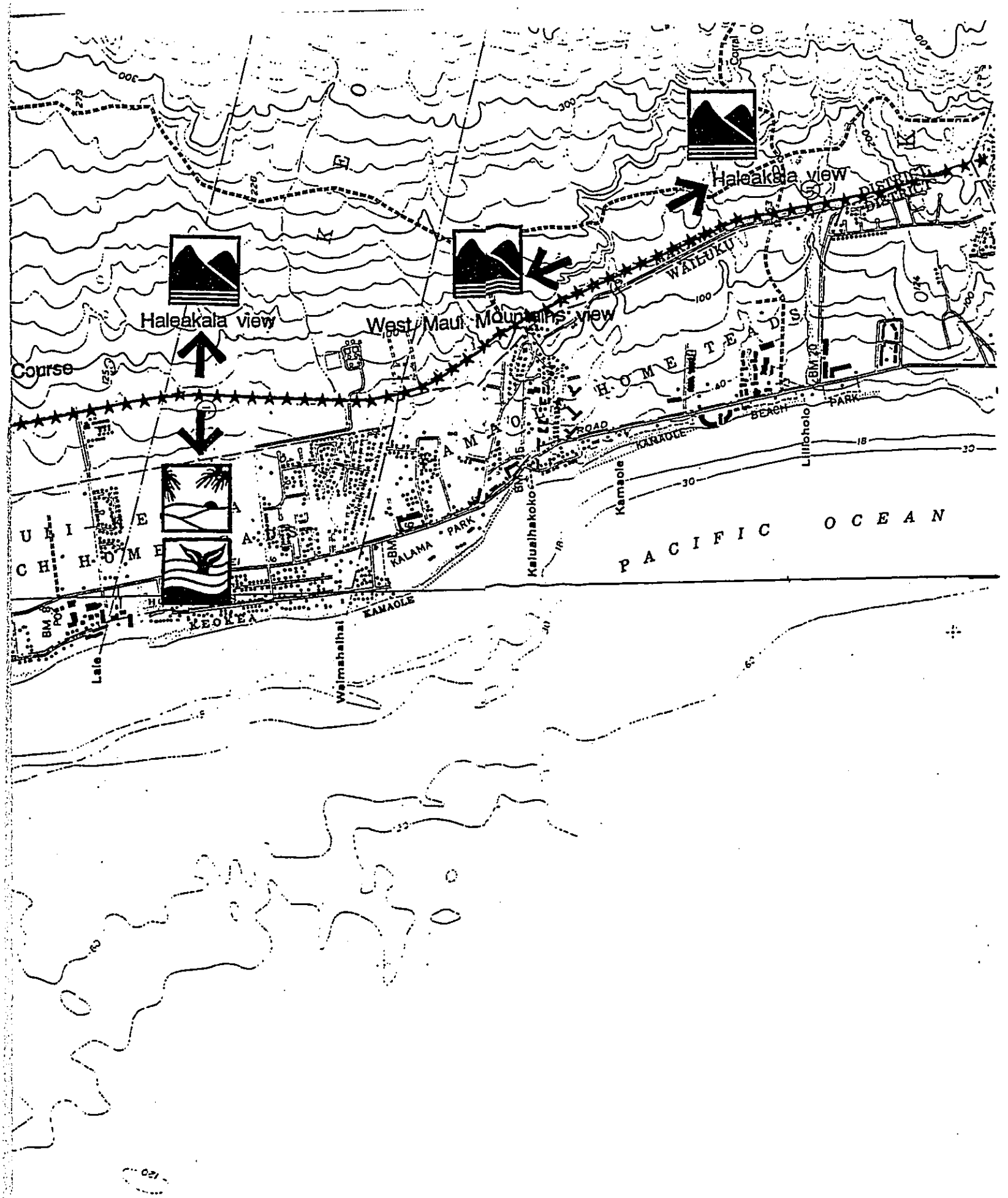


8.1.4 KIHEI

Appendix – E
Preliminary Engineering and Drainage Report / Addendum to the Preliminary Drainage Report

Established 1969

Preliminary Engineering Report

Walpullani Subdivision

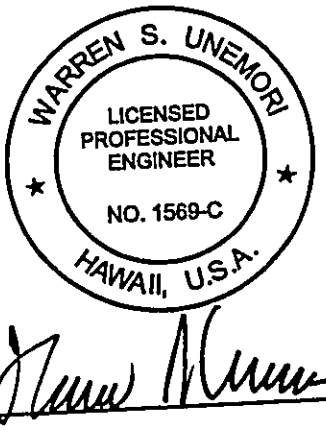
Kihei, Maui, Hawaii
TMK: (2) 3-9-01: 09

Prepared For:

South Kihei Inc.
915 South Kihei Road
Kihei, Maui, Hawaii 96753

and

Betsill Brothers Construction
635 Kenolio Road
Kihei, Maui, Hawaii 96753



Warren S. Unemori Engineering, Inc.
Civil and Structural Engineers - Land Surveyors
2145 Wells Street, Suite 403
Wailuku, Hawaii 96793

Date: March, 2001
Revised: December, 2002

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Preliminary Engineering Report
for
Waipuilani Subdivision

1.0 INTRODUCTION

The 20.0 acre project site is located east of South Kihei Road on the northerly side of Waipuilani Gulch. TMK: 3-9-34: parcel 27 at the southwesterly corner of the project site separates the project site from Waipuilani drainageway.

The project site is presently heavily overgrown with large kiawe trees. Grade across the site is fairly flat, dropping from an elevation of 24 feet at the southeast corner to around six (6) feet adjacent to Kihei Road, for an average cross slope of 0.90%.

This report briefly describes and evaluates the existing infrastructure in the vicinity of the project site. It also provides a brief summary of probable infrastructural improvements needed to support the proposed project.

2.0 EXISTING INFRASTRUCTURE

2.1 Water System

The project site is located within the Kihei low-level service area. The 18-inch low-level transmission line fed by wells at Mokuhau in Iao Valley runs along the easterly boundary of the project site within the designated future North/South road corridor. The 12-inch line on Kihei Road is interconnected to this 18-inch low-level transmission line by 12-inch lines on Kulanihakoi Street to the north and Waipuilani Road to the south of the

project site. Storage for the low-level service area is provided by the 1.5 MG storage tank located at the easterly end of Ohukai Street, about a mile northeast of the project site at elevation 220 feet. This storage tank is supplemented by the recently completed 2.0 MG tank located at elevation 228 feet above the Maui R&T Park.

2.2 Sewer System

There is an 8-inch gravity sewer line on Kihei Road. This line feeds into SPS No. 3 located north of Menehune Shores. From this pump station, a series of force mains, gravity collector and other pump stations enroute convey wastewater collected from abutting properties along Kihei Road to the Kihei Wastewater Reclamation Facility located above Piilani Highway south of the Elleair Golf Course.

2.3 Drainage

As stated previously, the project site is situated on the northerly side of Waipuilani Gulch east of Kihei Road. Waipuilani Gulch is one of four major gulches in the Kihei area. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Study, the total peak discharge from the 12.0 square mile Waipuilani drainage basin is estimated to be around 9,388 cfs for a 100 year 24-hour storm. Other studies conducted by the Corp of Engineers, and the State Department of Transportation for Piilani Highway also produced peak discharge values within this range.

Although Waipuilani Gulch is well defined in the upper reaches of the basin, between the project site and the ocean this gulch diminishes to a narrow earthen channel ranging in width between 10 to 15 feet. The drainage structure across Kihei Road consists of a 3' x 7' box culvert that is partially silted. Consequently, according to the FEMA flood insurance study, this channel overtops and floods the adjoining properties. Approximately 78% of the project site is within a flood hazard area zone as shown on Exhibit A.

Based on our runoff calculations, the peak discharge from the 20.0 acre project site under its present undeveloped condition for a 50-year storm is estimated at 14.1 cfs. According to existing grades, this onsite runoff appears to be sheet flowing in the southeast to northwest direction toward Kauhale Makai Condominium in the adjoining lot across Kihei Road. The adjoining property to the north, Kiawe Terrace, installed a drainage channel along the south boundary of their property to direct flow into storm drainlines on Kulanihakoi Street. These drainlines convey runoff across Kihei Road to the ocean. A drainage system with catch basins was also installed along the mauka side of Kihei Road by Kiawe Terrace to intercept runoff from Kihei Road.

2.4 Roadway

Piilani Highway is the main north/south arterial highway linking Kihei to other urban areas of Maui. Piilani Highway is a two-lane, undivided highway owned and maintained by the State. It consists of 12-foot travel lanes in each direction with 10-feet wide paved shoulders. Kihei Road is a two-lane County collector that parallels Piilani Highway along a more coastal route. Kihei Road abuts the westerly boundary of the project site.

Kulanihakoi Road, located 420 feet north of the project site, links Kihei Road to Piilani Highway. The intersections on both ends of this road are stop controlled intersections without traffic signals.

2.5 Electricity and Telephone

There are overhead electrical and telephone distribution systems on Kihei Road fronting the project site. An underground distribution system is also available on Kulanihakoi Street.

3.0 PROBABLE INFRASTRUCTURAL IMPROVEMENTS

3.1 Water System

Based on DWS's consumption rate of 600 gallons per lot, the domestic water demand for the proposed 95 lot subdivision is expected to total around 57,000 gpd. At a fire flow rate of 1000 gpm for two hour duration, the total storage required for fire protection amounts to 120,000 gallons.

A new 8-inch distribution system will be extended through the project from the 18-inch low-level transmission line at the easterly boundary to the existing 12-inch distribution line on Kihei Road. The onsite system will be looped, with fire hydrants installed at intervals of 300 to 350 feet. Each lot will be metered separately.

Since the existing source, storage and transmission systems to serve the project are adequate, the developer will pay his prorata share of improvement costs for these facilities in the form of the comprehensive water meter fee of $6,030 per lot per 5/8" meter.

3.2 Sewer System

The 95 lot subdivision project is expected to generate around 33,250 gpd of wastewater when fully built out. The existing collection, transmission and treatment facilities have ample capacity to handle this flow. Since these facilities were recently upgraded, the developer will be fulfilling his obligation for this upgrade by paying a one-time assessment of approximately $11.29 ($4.65 + $6.64) per gallon of additional wastewater generated by the project. According to the Division of Wastewater Management, the Kihei Wastewater Reclamation Facility has approximately 2.0 MG of capacity left.

3.3 Drainage

Peak flow drainage from the project site after development for a 50 year recurrent interval storm is expected to total 34.10 cfs for a net increase of 20.0 cfs over flows under current pre-development conditions. This additional runoff will be intercepted by an onsite storm drain system located within the subdivision streets and directed into a 2.90 acre detention facility that will be constructed at the southwest corner of the project site. This retention facility will be fully grassed and irrigated so that it can be used as a private multi-purpose neighborhood park and open space amenity. To prevent a health hazard, a small diameter release line will be installed at the northwest corner of the detention basin to drain the facility shortly after each storm. The drainline will be connected to the existing channel below Kihei Road or to the new storm drain system that will be installed on Kihei Road in conjunction with the project.

In addition, all of the homes within the flood hazard area will be elevated on piers above the flood levels specified by FEMA. All construction within the flood hazard area will be in accordance with the provisions of Chapter 19.62 of the Maui County Code and other Statutory Authority defined in Chapter 19.62.020 of said code.