

DEPARTMENT OF LAND UTILIZATION
90/SMA-41(RF)
May 1, 1990

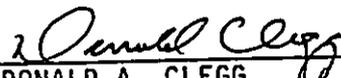
SPECIAL MANAGEMENT AREA ORDINANCE
CHAPTER 33, ROH
Environmental Assessment/Determination
Negative Declaration

Recorded Owner : Kamehameha Schools/Bishop Estate
Applicant : Bridgestone/Firestone, Inc.
Agent : Tyrone T. Kusao, Inc.
Location : Kamehameha Highway, Pearl Kai
Tax Map Key : 9-8-14: 20
Determination : Environmental Impact Statement (EIS) Not Required

Attached and incorporated by reference is the environmental assessment prepared by the applicant for the project.

On the basis of the environmental assessment, we have determined that an Environmental Impact Statement is not required.

APPROVED


DONALD A. CLEGG
Director of Land Utilization
City and County of Honolulu
State of Hawaii

DAC:s1
0338N/6

FILE COPY

ENVIRONMENTAL ASSESSMENT
SPECIAL MANAGEMENT AREA PERMIT
FOR FIRESTONE
PEARL KAI, OAHU, HAWAII
TAX MAP KEY: 89-8-14-20

BRIDGESTONE/FIRESTONE, INC.
P.O. BOX 81073, AMF
CLEVELAND, OHIO 44181-0073

APRIL, 1990

1990-05-23-0A-FEA

ENVIRONMENTAL ASSESSMENT
SPECIAL MANAGEMENT AREA PERMIT
FOR * FIRESTONE STORE
PEARL KAI, * OAHU, HAWAII
TAX MAP KEY: 9-8-14: 20

BRIDGESTONE/FIRESTONE, INC.
P.O. BOX 81073, AMF
CLEVELAND, OHIO 44181-0073

APPLICANT

Tyrone T. Kusao, Inc.
1188 Bishop Street
Suite 2507
Honolulu, Hawaii 96813

AGENT

April, 1990

TYRONE T. KUSAO, INC.
Planning and Zoning Consultant

1188 BISHOP STREET, SUITE 2507
HONOLULU, HAWAII 96813

April 2, 1990

'90 APR 12 PM 4 24
DEPARTMENT OF LAND UTILIZATION
HONOLULU

BUS. (808) 538-6652
RES. (808) 395-1338
FAX (808) 521-4292

Mr. Donald A. Clegg, Director
Department of Land Utilization
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Environmental Affairs Branch

Dear Mr. Clegg:

Subject: Environmental Assessment/Special Management Area
Permit for Firestone Store, TMK: 9-8-14:20.

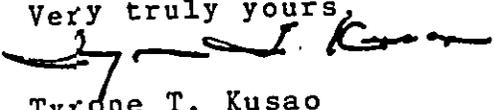
Enclosed herein are the following items in connection with
this application:

- 1 - Completed DLU Master Application Form.
- 2 - Five copies of the environmental assessment report.
- 3 - SMA filing fee in the amount of \$200.
- 4 - One set of 2' x 3' project drawings to be used for discussion purposes.

We respectfully request that this submission be processed in the most expeditious manner possible since the applicant was completely unaware of the requirement of the SMA permit and he first learned about it when he filed the building permit plans with your agency. As a result, he is considerably behind with his project time table. From our standpoint, we will do whatever is necessary to assist you in expediting the processing of this application.

Should there be questions or you require more information, please contact me.

Very truly yours,


Tyrone T. Kusao

TTK:afk

Enc.

cc: Bridgestone/Firestone Inc.
James Tsugawa and Associates

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SPECIAL MANAGEMENT AREA PERMIT

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Appendix A.

Site Photographs

Appendix B.

Soils Report, by
Ernest K. Hirata and
Associates, Inc.

**ENVIRONMENTAL ASSESSMENT
SPECIAL MANAGEMENT AREA PERMIT**

1. APPLICATION INFORMATION

APPLICANT:

Bridgestone/Firestone, Inc.
P.O. Box 81073, AMF
Cleveland, Ohio 44181-0073

RECORDED FEE OWNER:

Kamehameha Schools/Bishop Estate
567 S. King Street, Suite 200
Honolulu, Hawaii 96813

AGENT:

Tyrone T. Kusao, Inc.
1188 Bishop Street
Suite 2507
Honolulu, Hawaii 96813

PROPERTY PROFILE:

Location:	Pearl Kai, Oahu
Tax Map Key:	9-8-14:20
Land Area:	21,000 square feet
State Land Use District:	Urban
Development Plan Map:	Industrial
Public Facilities Map:	NA
Existing Zoning:	I-2 Intensive Industrial
Height Limit:	60 feet
Special District:	No
Special Management Area:	Yes
Flood Zone:	0

AGENCIES CONSULTED:

Department of Transportation
Department of Land and Natural Resources
Board of Water Supply
Fire Department
Department of Public Works

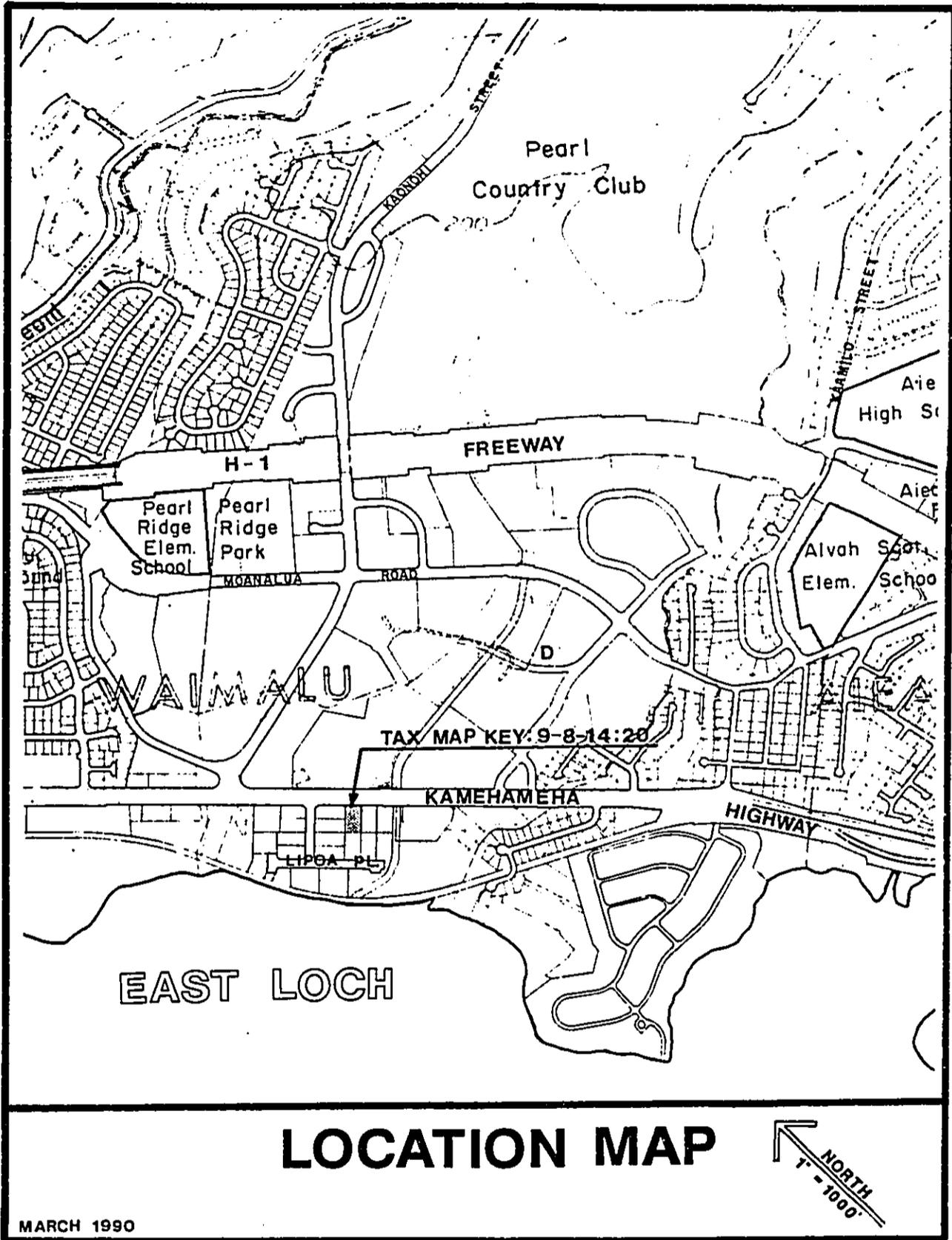
2. GENERAL DESCRIPTION

2.1 Existing Use

The project site is a parcel of 21,000 square feet fronting Kamehameha Highway between Lipoa Place and Kalauao Spring Ditch (refer to Figure 1., Location Map). It is zoned I-2 Intensive Industrial District and was previously occupied by a pool hall, the "Hustler", fronting the Highway, and an automobile body and fender shop at the rear of the parcel. Photographs of the site area included in Appendix A.

2.2 Proposed Use

The applicant proposes a new, single-story structure of approximately 7,030 square feet to house a Firestone store and repair outlet. The structure would have a building height of 17 feet and would be used for the sale and servicing of tires and related accessory parts. It would contain approximately 4,339 square feet of service area, a customer waiting area of 844 square feet, office space and restroom areas (244 square feet), with the remainder area of 1,603 square feet for new and used inventory. (See project drawings, Figures 2.A. through 2.C.)



MARCH 1990

FIGURE 1

3. TECHNICAL CHARACTERISTICS

3.1 Use Characteristics

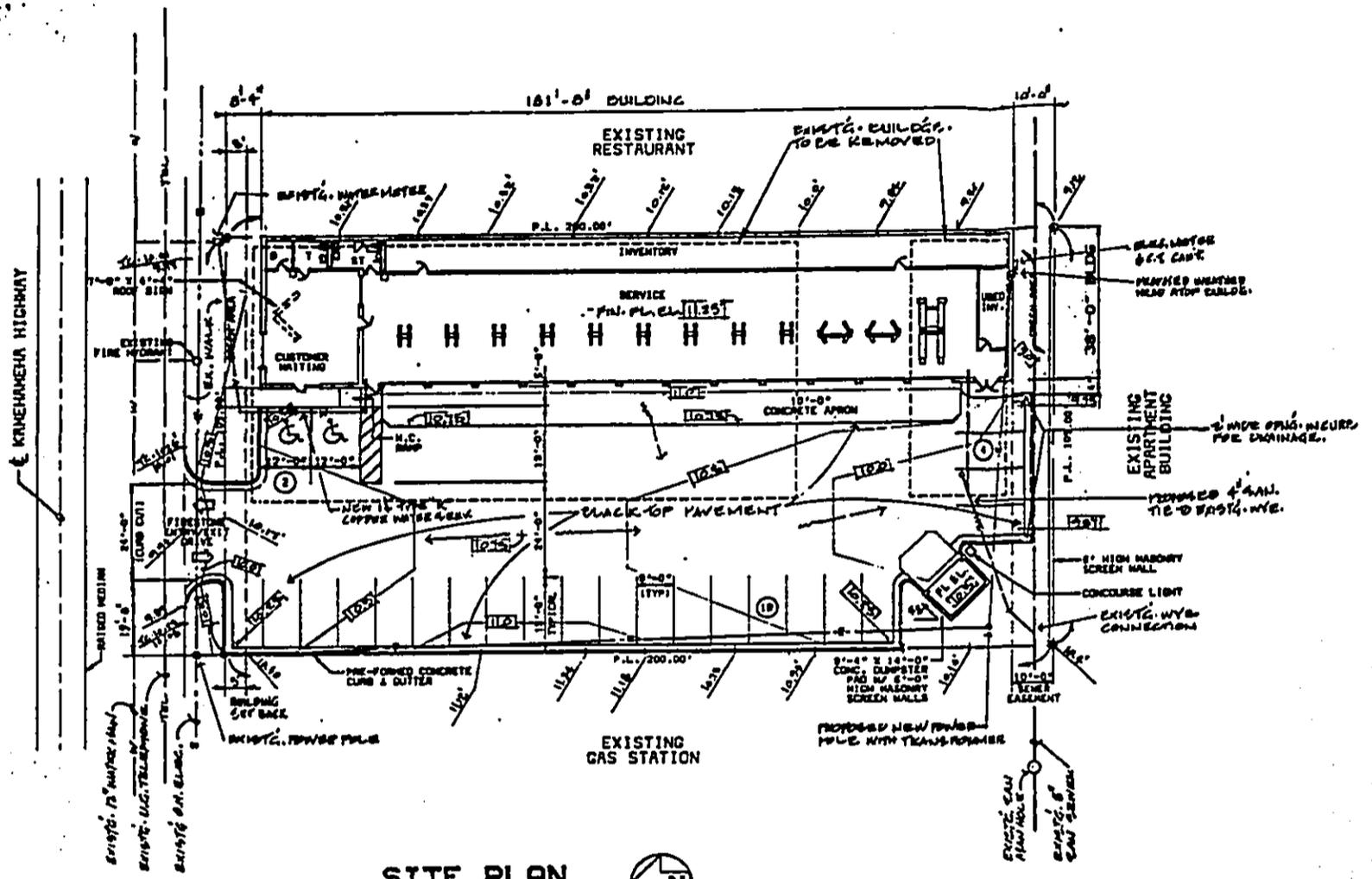
Two structures formerly occupied the site for a total square footage of approximately 10,000 square feet. The proposed structure, in terms of both density and height, is below that formerly on the site, or that permitted in the I-2 District by the Land Use Ordinance (LUO). All other LUO development standards will be met.

3.2 Physical Characteristics

The site is relatively level and, as noted above, a single structure would replace two structures formerly existing on the site. There are no unique physical characteristics now existing on the site, nor are there any significant physical characteristics on adjacent parcels or in the surrounding area, aside from the Sumida watercross farm which exists directly across from the site. Kamehameha Highway (six lanes and a median strip) separates the project site from the farm.

3.3 Construction Characteristics

The proposed structure will be of steel frame construction with CMU and metal walls. Concrete slabs on grade are planned in the building and service areas, with



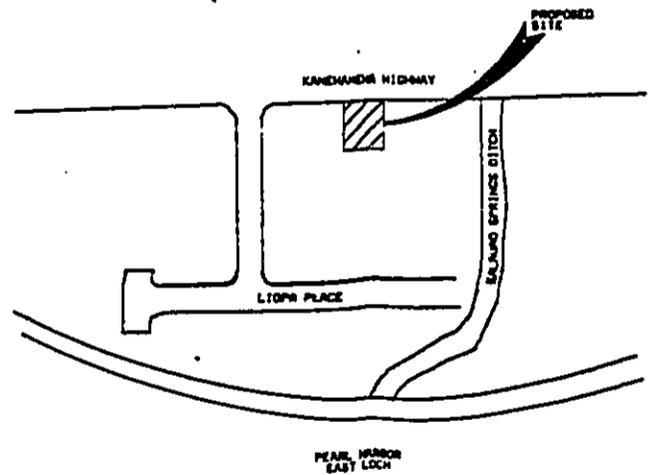
SITE PLAN

SCALE: 1" = 20'-0"



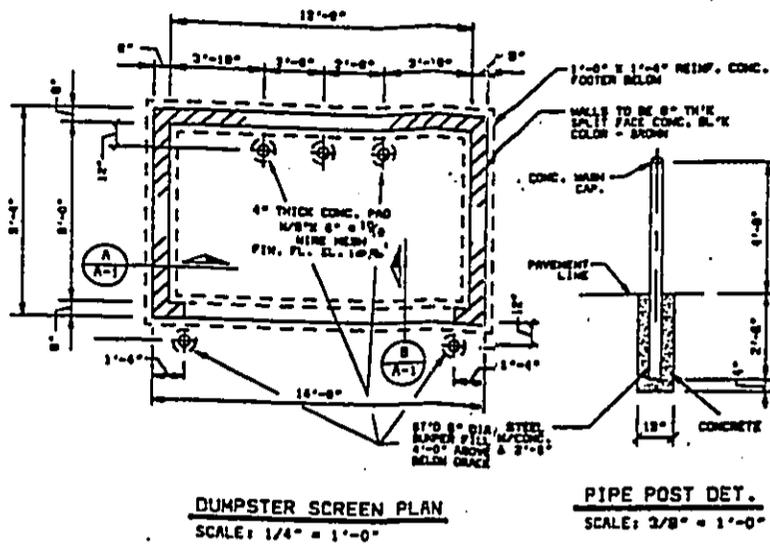
NOTE:

1. ALL CONCRETE APRONS AND SIGNALKS TO BE 4" THICK WITH 6" X 6" 10/40 WIRE MESH.
2. FOR SERVICE AREA FLOOR ELEVATIONS RING SETTINGS AND FLOOR DRAINS ELEVATION SEE SHEET A-4.



LOCATION MAP





NO.	DESCRIPTION
A-1	SITE AND CONCRETE PLAN
A-1A	LANDSCAPING PLAN
A-2	PROPERTY SURVEY
A-3	FOUNDATION PLAN
A-4	FLOOR PLAN & ROOFINGS
A-5	STONE MOUNTING
A-6	ELECTRICAL PLAN & SCHEDULE
A-7	ELEVATIONS & SECTIONS
A-8	ROOF PLAN
A-9	WALL SECTIONS
A-10	WALL SECTIONS
A-11	OVERHEAD DOOR DETAIL
A-12	STAIRCASE DETAIL
A-13	ROOF FRAMING & SECTIONS
A-13A	LITING & ROOFING DETAIL
A-14	STRUCTURAL STEEL DETAILS
A-15	STRUCTURAL STEEL DETAILS
A-16	STRUCTURAL STEEL DETAILS
A-17	PLUMBING PLAN
A-18	SANITARY PLAN
A-19	H.V.A.C. PLAN
A-20	NOTES
A-21	LITING PLAN
A-22	POWER PLAN
A-23	MEDICAL DETAIL
A-24	OIL TRANSFER SYSTEM
A-25	STAIRCASE DETAIL
A-26	ELECTRICAL DETAILS
A-27	MECH. DISTRIBUTION SYSTEM
A-28	STAIRCASE DETAIL
A-29	TRUCK DETAIL

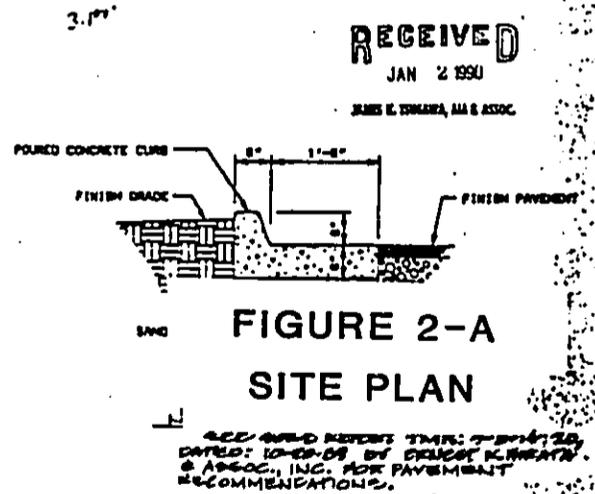
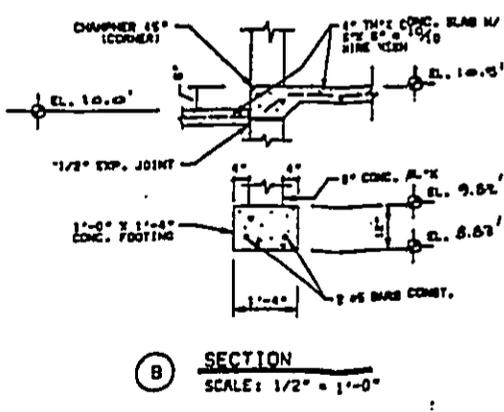
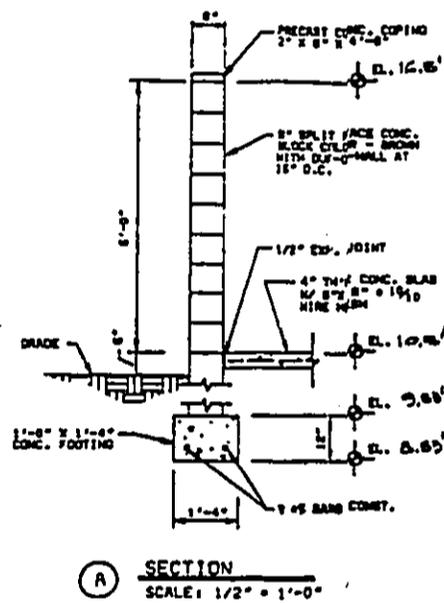
BUILDING AREA	
GRASS	844 sq. ft.
DRIVEWAY	228 sq. ft.
INVENTORY	128 sq. ft.
TOILETS & OFFICE	240 sq. ft.
SUB-TOTAL	800 sq. ft.
GRASS INVENTORY	187 sq. ft.
TOTAL	987 sq. ft.

- NOTES:**
1. DIMENSION LINES SHOWN ON THE SITE PLAN BY ONE END ONLY. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ALIGNED PROPERTY LINES ARE EXISTING GRADES. CONTRACTOR SHALL VERIFY EXISTING GRADES.
 2. DRIVE APPROACHES AND CURBS SHALL BE INSTALLED ACCORDING TO PREVAILING LOCAL CODES.
 3. THE SIGN CONTRACTOR AND GENERAL CONTRACTOR SHALL CHECK FOR THE REQUIRED HORIZONTAL AND VERTICAL CLEARANCE OF ANY OVERHEAD POWER LINES WITH THE PROPOSED LOCATION OF THE SIGN. THE SIGN CONTRACTOR SHALL SECURE THE SIGN PERMIT BEFORE THE GENERAL CONTRACTOR EXCAVATES FOR THE SIGN FOOTING.
 4. THE CONTRACTOR SHALL VERIFY ALL SERVICES (GAS, WATER, SANITARY AND TELEPHONE) INSTALLED IN ACCORDANCE WITH LOCAL CODES AND/OR LOCAL UTILITY COMPANY REQUIREMENTS.

LEGEND	
— (Dashed) —	FINN. CENTER & ELEVATION
— (Solid) —	EXISTING ELEVATION
— (Dotted) —	GRASS
— (Dash-dot) —	DRIVEWAY
— (Long Dash) —	SANITARY SERVICE
— (Short Dash) —	ELECTRICAL & TELEPHONE SERVICE
— (Wavy) —	STORM SEWER

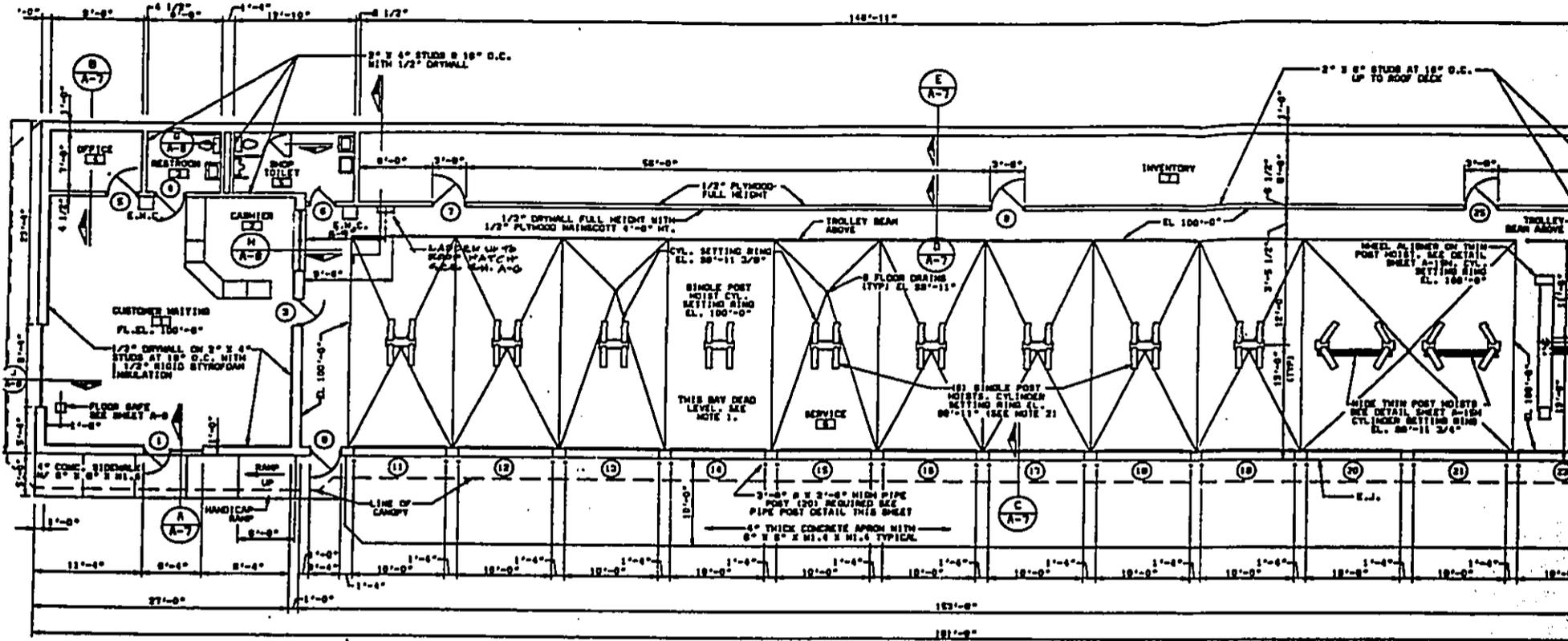
NOTE: SEE SURVEY FOR EXIST. ELEVATIONS AND ADDITIONAL INFORMATION.

EXISTING APARTMENT BUILDING
 2' HIGH MASONRY GREEN WALL
 CONCOURSE LIGHT
 EXIST. WTR. CONNECTION



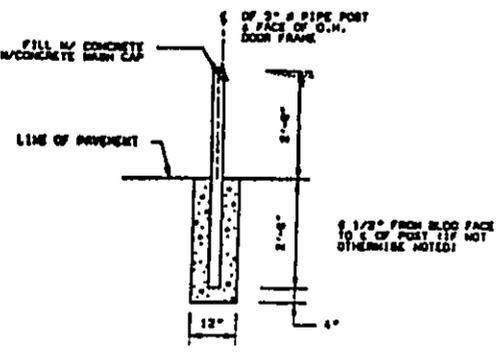
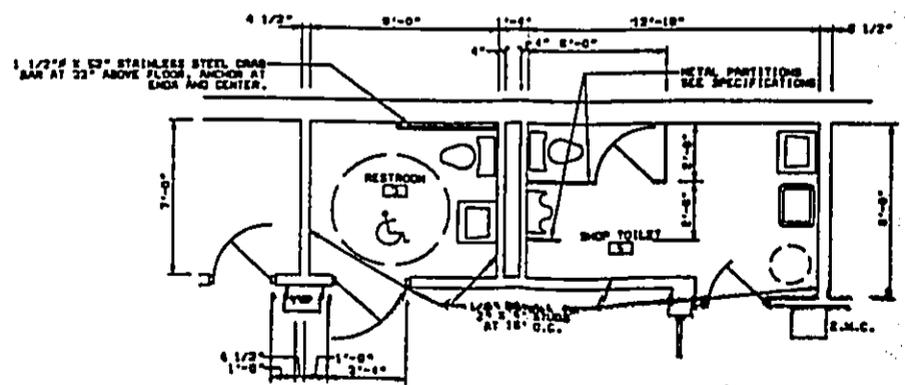
REVISIONS												PROPERTY NO.
REV.	BY	DATE	REV.	BY	DATE	REV.	BY	DATE	REV.	BY	DATE	155758
1			2			3			4			
THIS DRAWING IS THE PROPERTY OF THE FIRESTONE REAL ESTATE DEPARTMENT. THIS DRAWING IS LOANED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED IN ANY WAY DEPRECIATING TO THE INTERESTS OF FIRESTONE. THE ACCEPTANCE OF THIS DRAWING WILL BE CONSIDERED AS AN ACCEPTANCE OF THE FOREGOING CONDITION AND EXCLUSIVE OWNERSHIP IS AND TO THE DRAWING BY THE FIRESTONE REAL ESTATE DEPARTMENT.												
LEGEND -5- (A-1) SECTION A-A SHEET NO. A-6 (A-2) DETAIL NO. 1 SHEET NO. A-7 (3) REVISION DESCRIPTION												Firestone REAL ESTATE DEPT. PROPOSED FIRESTONE STORE AIEA, HAWAII 98 - 141 KANEHAMEHA HWY.
DRAWN BY JPD DATE 10/27/89 CHECKED BY DATE / / JOB NO. 7007												

IAP

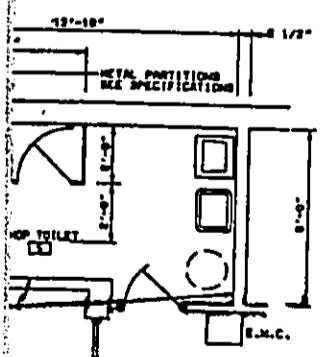
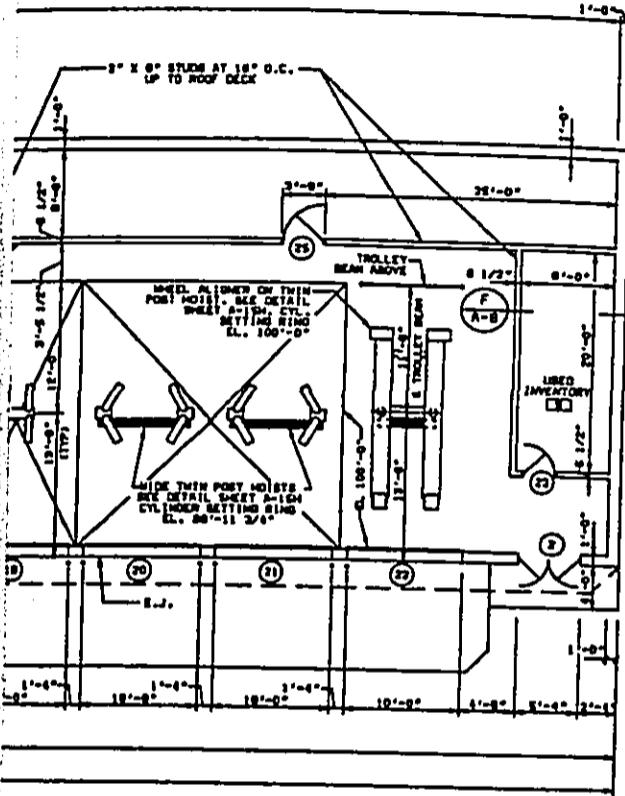


FLOOR PLAN 

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



- NOTE:**
1. THIS BAY DESIGNED FOR STATE INSPECTION OF MOTOR VEHICLES. TO MEET ALL REQUIREMENTS OF MOTOR VEHICLES (EXCEPT MOTORCYCLES, BUSES & TRUCKS OVER 21'-8" LONG, CONSTRUCT CONCRETE FLOOR DEAD LEVEL.
 2. ALL CYLINDER SETTING RING ELEVATIONS SHALL HAVE PLUS 0'-0" TO 0'-6 1/8" TOLERANCE
 3. IF STEEL STUDS ARE SUBSTITUTED IN CUSTOMER WAITING AREA 18 GA. OR HEAVIER SHALL BE USED.



ROOM FINISH SCHEDULE

NO.	NAME	FLOOR	BASE	MANSICOT		HALLS	CEILING		REMARKS
				MAT'L	NO'T.		MATERIAL	NO'T.	
1	CUSTOMER WAITING	VINYL COMP. TILE	6\"/>						

NOTE: SEE SPECIFICATION SECTION J-3 FOR SPECIFIC PRIMING & FINISH COAT PAINTING REQUIREMENTS.

DOOR SCHEDULE

NO.	TYPE	WIDTH	HEIGHT	GLASS	MAT'L	FINISH	HALLS	FRAM	TYPE	HIDDEN	MAY'L	THRES	LABEL	REMARKS
1	A	3'-0"	7'-0"	1 3/4"	ALUM.	SATIN (BRUSHED)		TUBE	4 1/2"		ALLN.	0		
2	C	3'-0"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
3	A	3'-0"	7'-0"	1 3/4"	ALUM.	SATIN (BRUSHED)		TUBE	4"		ALLN.	0		
4	B	3'-0"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		UNDERCUT 1"
5	E	2'-8"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		UNDERCUT 1"
6	B	2'-8"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		UNDERCUT 1"
7	C	3'-4"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
8	C	3'-4"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
9	C	3'-0"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
10														
11	D	10'-2"	10'-1"	1 3/4"	ALUM.	SATIN								
12	D													
13	D													
14	D													
15	D													
16	D													
17	D													
18	D													
19	D													
20	D													
21	D													
22	D	10'-2"	10'-1"	1 3/4"	ALUM.	SATIN								
23	B	3'-4"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
24														
25	C	3'-4"	7'-0"	1 3/4"	H.N.	PAINT		H.N.	5 3/4"		H.N.	0		
26														
27														
28														
29														
30														

NOTE: 1. OVERHEAD DOORS ARE ACTUAL SIZES, HAVING ALLOWED 1" LAP AT HEAD & JAMB, ALL OTHER DOOR SIZES ARE OPENING SIZES.
 2. SEE SPEC. SECT. J FOR DOOR TYPES AND SECTION J-3 FOR PRIMING & FINISH COAT PAINTING REQUIREMENTS.
 3. DOORS 2, 8 SHALL HAVE 1" HEAD FRAME MEMBERS.
 4. DOORS 1, 2, 8 SHALL HAVE BRUSH TYPE SWELPS.

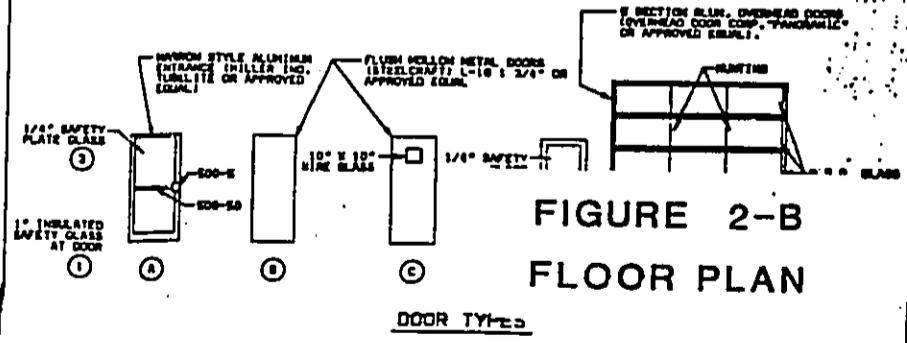


FIGURE 2-B FLOOR PLAN

DOOR TYPES

THIS DRAWING IS THE PROPERTY OF THE FIRESTONE REAL ESTATE DEPARTMENT. THIS DRAWING IS LOANED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED IN ANY WAY COLETERIOUS TO THE INTERESTS OF FIRESTONE. THE ACCEPTANCE OF THIS DRAWING WILL BE CONSIDERED AS AN ACCEPTANCE OF THE FOREGOING CONDITION AND AS ADMISSION OF THE EXCLUSIVE OWNERSHIP IN AND TO THE DRAWING BY THE

REVISIONS

REV.	BY	DATE	PROPERTY NO.									
1			2			3			4			155756
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3			4			5			6			
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5			6			7			8			
6			7			8			9			
7			8			9			10			

LEGEND

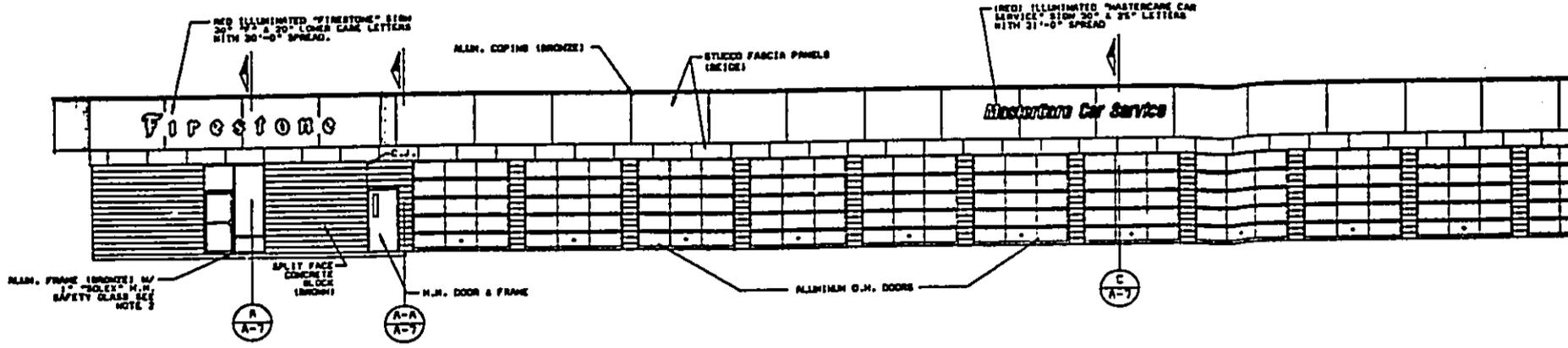
SYMBOL	DESCRIPTION
(A-B)	SECTION A-B
(1-10)	SHEET NO. 1-10
(1)	METAL NO. 1
(A-7)	SHEET NO. A-7

Firestone REAL ESTATE DEPT.

PROPOSED FIRESTONE STORE
 AIEA, HAWAII
 98 - 141 KANEHANA HWY.

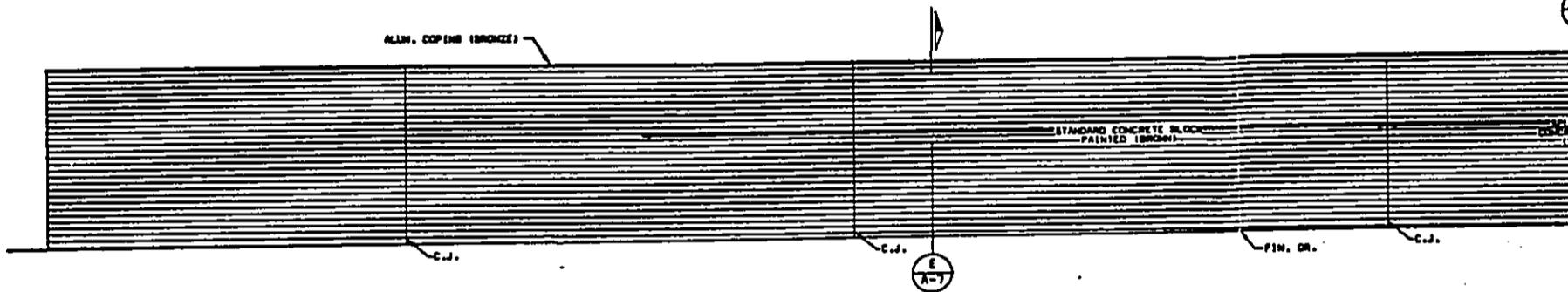
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SAVE NAME "ROS4FL"



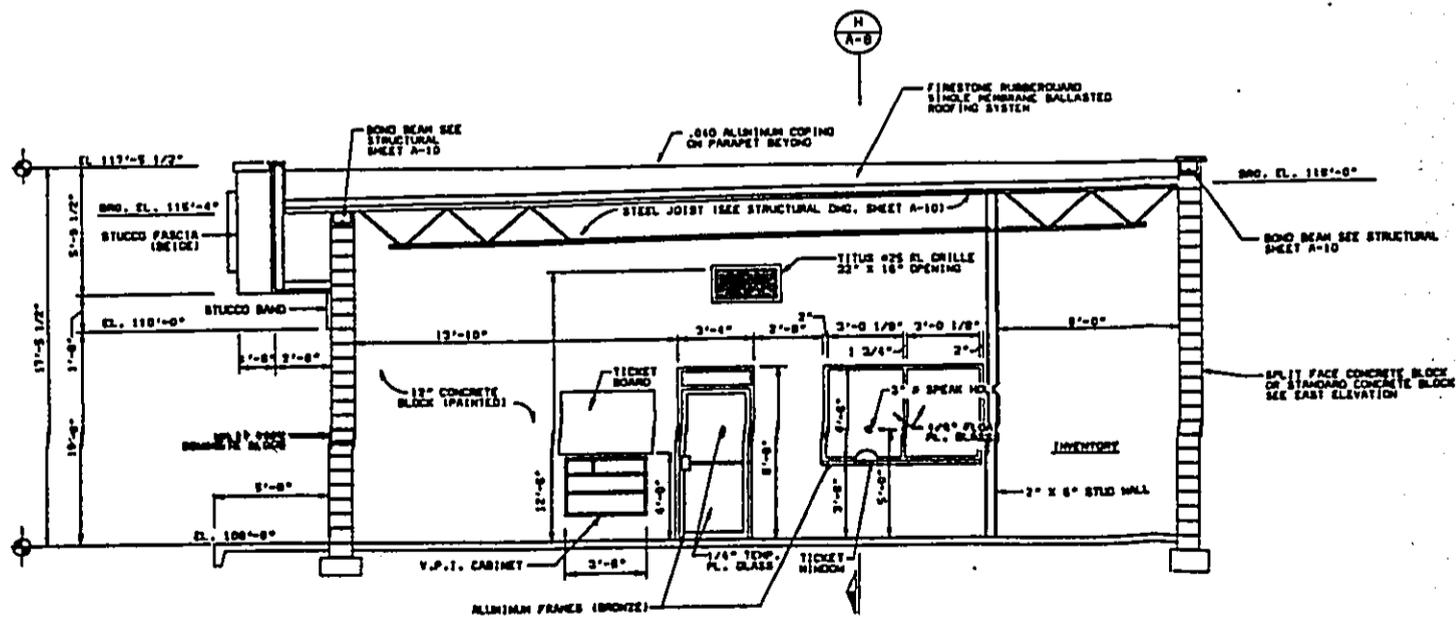
WEST ELEVATION

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



EAST ELEVATION

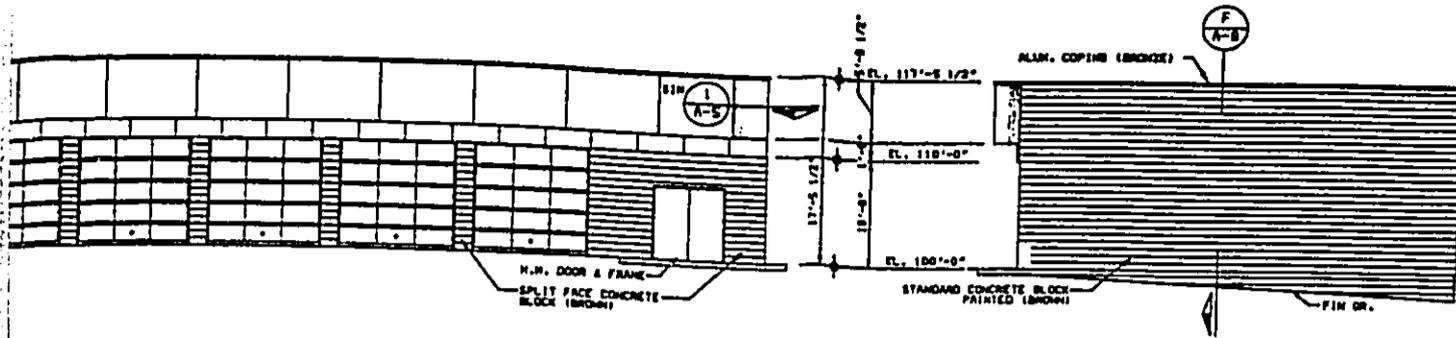
SCALE: 1/8" = 1'-0"



SECTION

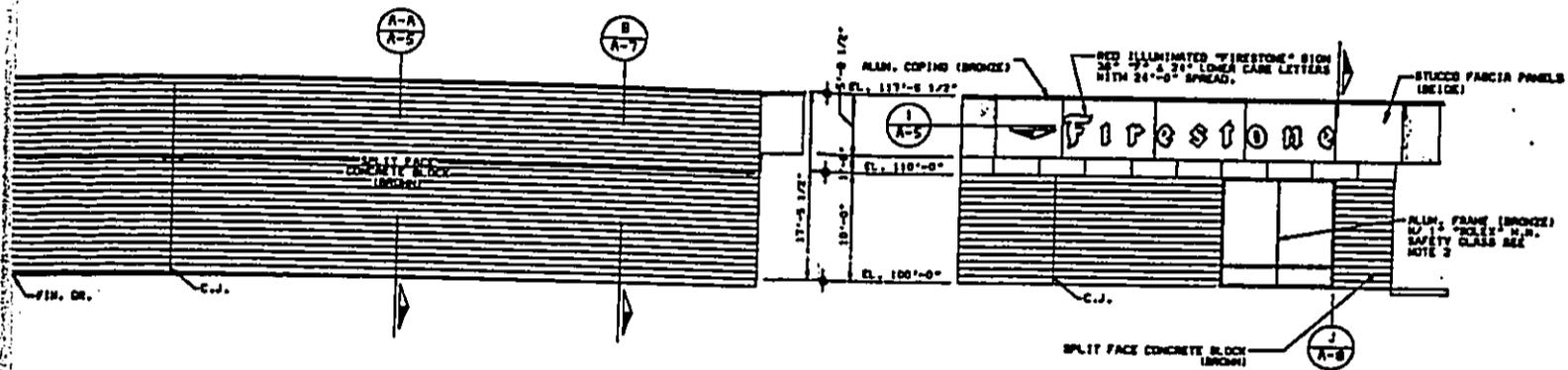
A-A

SCALE: 1/4" = 1'-0"



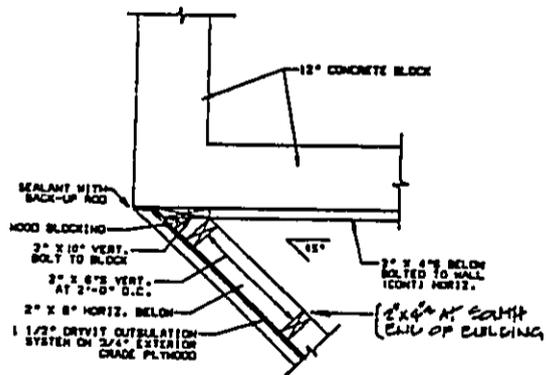
SOUTH ELEVATION

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



NORTH ELEVATION

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

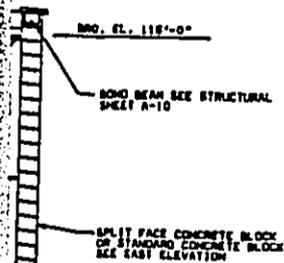


DETAIL ①

**FIGURE 2-C
ELEVATIONS & SECTIONS**

NOTE:

1. WALL SIGNS WILL BE FURNISHED AND INSTALLED BY FIRESTONE - CONTRACTOR SHALL FURNISH AND INSTALL ELECTRICAL CIRCUITS. SEE SHEET A-13
2. GLASS SHALL BE "ROLEX" ON ALL EXTERIOR EXPOSURES FOR CUSTOMER WAITING AREA EXTERIOR
3. ALL BOND BEAMS SHALL BE CONTIGUOUS - NO COMPRESS JOINTS.



SAVE NAME "R054EV"

REVISIONS										PROPERTY NO.	
REV.	BY	DATE	REV.	BY	DATE	REV.	BY	DATE	REV.	BY	DATE
1			2			3			4		
5			6			7			8		
9			10								

155756

SYMBOL	DESCRIPTION
(A-A)	SECTION A-A
(A-5)	SHEET NO. A-5
(1)	DETAIL NO. 1
(A-7)	SHEET NO. A-7
(S)	REVISION DESIGNATION

Firestone REAL ESTATE DEPT.
PROPOSED FIRESTONE STORE
AIEA, HAWAII
98 - 141 KAMEHAMEHA HWY.

DRAWN BY JPD DATE 12/27/88
CHECKED BY DATE

JOB NO.

asphaltic concrete pavement in the exterior driveway and parking areas. Only minimal grading will be needed for the project.

3.4 Utilities and Services

All utilities and services are available to serve the proposed use. Water is available from an existing 12-inch line along Kamehameha Highway. Electric and telephone services are available via existing feeders. The proposed use would demand no more service than the former existing uses on the site. The following public agencies have been consulted in this assessment: Department of Transportation, Department of Land and Natural Resources, Department of Public Works, Board of Water Supply, and Fire Department. Their responses will be forwarded as soon as possible under separate cover.

3.5 Access and Parking

An entry/exit drive would be provided off the Kamehameha Highway frontage. A total 18 parking spaces would be provided. The LUO requires 15 spaces, based on 1 per 500 square feet of floor space for the minor repair establishment proposed.

4. ECONOMIC AND SOCIAL CHARACTERISTICS

4.1 Development Costs/Phasing

Development costs are estimated at approximately \$525,000 and construction is estimated to take from five to six months.

4.2 Employment

The new Firestone Store would provided employment for approximately 8 -10 persons.

5. ENVIRONMENTAL CHARACTERISTICS

5.1 Soils/Topography

A soils report was prepared by Ernest K. Hirata and Associates, Inc., (dated October 20, 1989) and is included as Appendix B. As noted previously, the site is level. Subsurface soil conditions were found to be relatively uniform, and surface soil was classified as mottled reddish brown silty clay with highly weathered rock fragments.

There are no unique topographical conditions on the site, or on adjacent parcels. Soils are considered stable enough to support the proposed use and no adverse effects

are anticipated. A Topography Survey is included as Figure 3.

5.2 Drainage

Runoff from the parcel is directed toward the rear property line to a concrete ditch on the adjacent parcel which conveys the runoff to the Kalauao Springs Ditch. The proposed construction or use is not expected to have any adverse effects on existing drainage patterns.

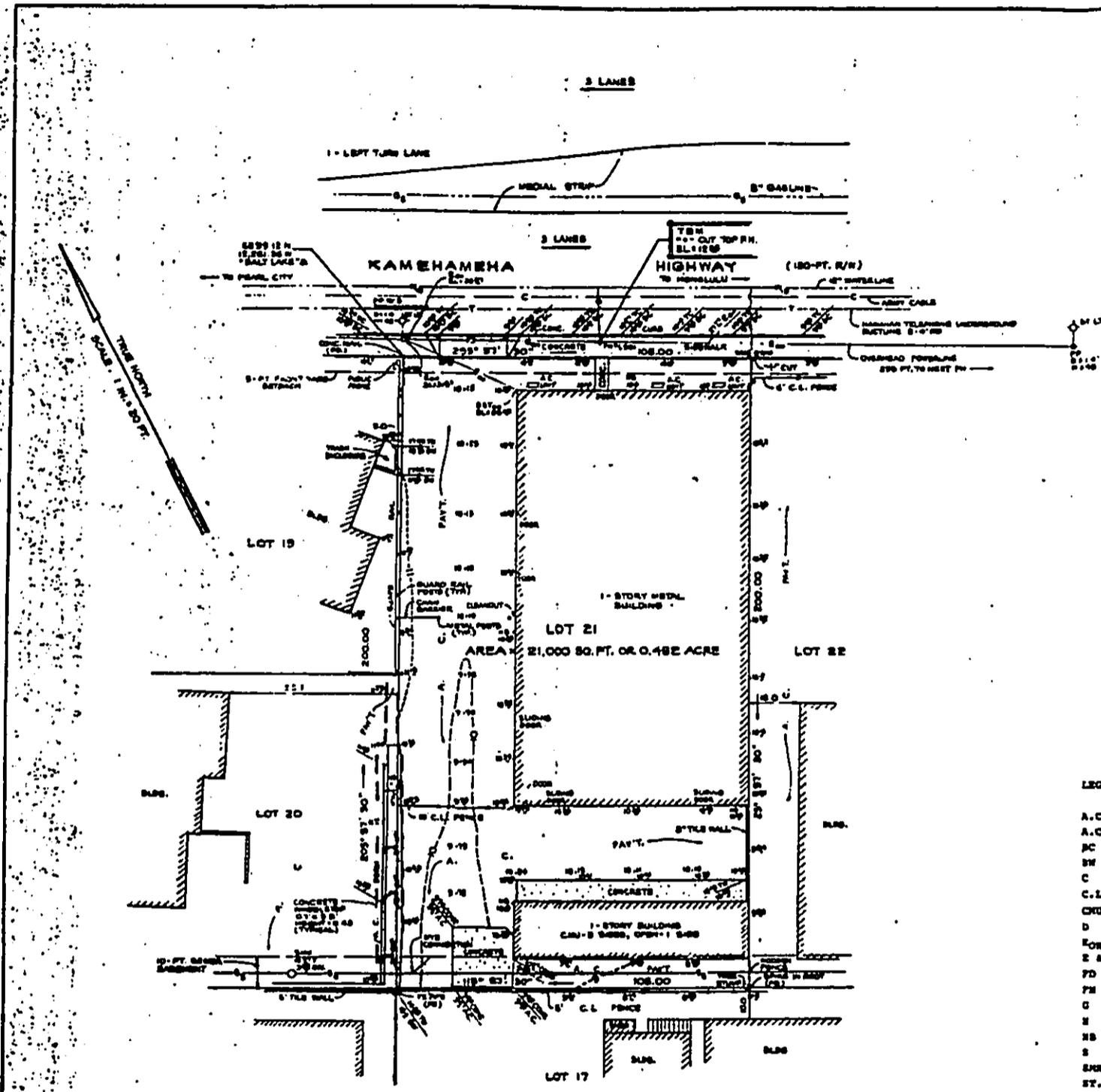
5.3 Flood Zone

The site is located within the Federal Flood Insurance Rate Map (FIRM) Zone D, designating areas in which flood hazards are undetermined. Refer to Figure 4., Flood Elevation Map.

5.4 Shoreline Survey

While the project site is located entirely within the Special Management Area (SMA), it is approximately 525 feet from the shoreline. The proposed use will have no adverse effects on the shoreline or shoreline processes.

6. AFFECTED ENVIRONMENT



TOPOGRAPHIC SURVEY
LOT 21, KALUA INDUSTRIAL PARK, UNIT 1
(FILE PLAN 754)
98-141 KAMEHAMEHA HIGHWAY
AIEA, EWA, OAHU, HAWAII 96701
 SCALE: 1 INCH = 20 FEET SEPTEMBER 23, 1989

LEGEND:

A.C. PAVT	Asphaltic Concrete Pavement
A.C. UNIT	Air Conditioning Unit
BC	Bottom of Curb Elevation
BM	Bottom of Wall Elevation
C	U.S. Army Communications C
C.L. FENCE	Chain Link Fence
CMU	Concrete Masonry Unit
D	Diameter
EL	Overhead Electrical Line
E & TOL	Overhead Electrical and Telephone Line
FD	Found
FM	Fire Hydrant
G	Gas Line
H	Height
NS	Noise SIB
S	Sanitary Sewer Line
SM	Sanitary Sewer Manhole
ST. LT.	Street Light
T	Telephone Line
TBM	Temporary Bench Mark
TC	Top of Curb Elevation
TW	Top of Wall Elevation
TYP	Typical
WM	Water Meter

SURVEY NOTES:

Ironing, setbacks, and utilities shown are for information obtained from the best available records. No guarantee of accuracy or completeness of said information.

Origin of azimuths and elevations from City and County at Lipoa Street. Azimuths and coordinates referred to G Triangulation Station "SALT LAKE". Elevations referred to Mean Sea Level.

This map is from a survey done under the direct supervision and signed on September 16, 1989.

LOT 21
KALANAO INDUSTRIAL PARK, UNIT I
(FILE PLAN 754)

LAND SITUATED ON THE SOUTHWESTERLY SIDE OF KAMAHAMUA HIGHWAY AT KALANAO,
MO. OAHU, HAWAII.

Being portions of Royal Patent 189 to William E. Gill; Land Patent 8145,
Land Commission Award 2494, Apans 1 to Julia Kahoa; Royal Patent 1963, Land
Commission Award 3324, Apans 6 to L. Konia; and Royal Patent 373, Land Commission
Award 8124-B, Apans 1 to Mahoe.

Beginning at a nail at the North corner of this parcel of land, being also the
East corner of Lot 19, Kalanao Industrial Park, Unit I (File Plan 754) on the south-
westerly side of Kamahamua Highway, the coordinates of said point of beginning referred
to Government Survey Triangulation Station "SALT LAKE" being 6999.12 feet North and
17,261.31 feet West, thence running by azimuths measured clockwise from True South:

- | | |
|-----------------|--|
| 1. 293° 37' 31" | 105.00 feet along the southwesterly side of Kamahamua Highway to a "4" set in concrete; |
| 2. 25° 37' 31" | 200.00 feet along the remainder of Land Patent 8145, Land Commission Award 2494, Apans 1 to Julia Kahoa, being also along Lot 22, Kalanao Industrial Park, Unit I (File Plan 754) to a spike in root of tree stump; |
| 3. 115° 37' 31" | 105.00 feet along the remainders of Land Patent 8145, Land Commission Award 2494, Apans 1 to Julia Kahoa and Royal Patent 1963, Land Commission Award 3324, Apans 6 to L. Konia, being also along Lot 17, Kalanao Industrial Park, Unit I (File Plan 754) to a pipe; |
| 4. 285° 37' 36" | 200.00 feet along the remainders of Royal Patent 1963, Land Commission Award 3324, Apans 6 to L. Konia; Royal Patent 373, Land Commission Award 8124-B, Apans 1 to Mahoe and Royal Patent 189 to William E. Gill, being also along Lots 20 and 19, Kalanao Industrial Park, Unit I (File Plan 754) to the point of beginning and containing an Area of 21,000 square feet. |

SUBJECT, HOWEVER, to a portion of Easement 4 (10.00 feet wide) for sanitary sewer purposes along the southwesterly boundary of the above described parcel of land as shown on File Plan 754.



Gordon V. Latta
Registered Land Surveyor
Certificate Number 2714

Asphaltic Concrete Pavement
Air Conditioning Unit
Bottom of Curb Elevation
Bottom of Wall Elevation
U.S. Army Communications Cable
Chain Link Fence
Concrete Masonry Unit
Diameter
Overhead Electrical Line
Overhead Electrical and Telephone Line
Found
Fire Hydrant
Gas Line
Height
Knee Sib
Sanitary Sewer Line
Sanitary Sewer Manhole
Street Light
Telephone Line
Temporary Bench Mark
Top of Curb Elevation
Top of Wall Elevation
Typical
Water Meter

SONING: 1-3

SETBACKS: Front - 5 feet
Side and Rear - 0

UTILITIES:

Storm Sewer (public)

Dept. of Public Works, Div. of Engineering
City and County of Honolulu
Phone: 523-4931

According to the original construction documents, runoff from the parcel is directed toward the rear property line to a concrete ditch in the adjacent parcel which conveys the runoff to the Kalanao Springs Ditch. Retention is not required.

Sanitary Sewer (public)

Dept. of Public Works, Div. of Wastewater Management
City and County of Honolulu
Phone: 523-4429

Water (public)

Board of Water Supply
City and County of Honolulu
Phone: 527-6104

Existing static pressure at 12" waterline
Existing meter number 019260030. Meters

Natural Gas (private)

The Gas Company
Phone: 547-3514

Electric and Telephone (private)

OTE Hawaiian Tel
Phone: 733-5602
Hawaiian Electric Company
Phone: 543-7771

Primary voltage - 12,470V/7200 V, 3 phase, 4 WEG

Secondary voltage - available as requested

Existing overhead secondary feeders. Underground feeder may be required depending on extent of proposed improvements.

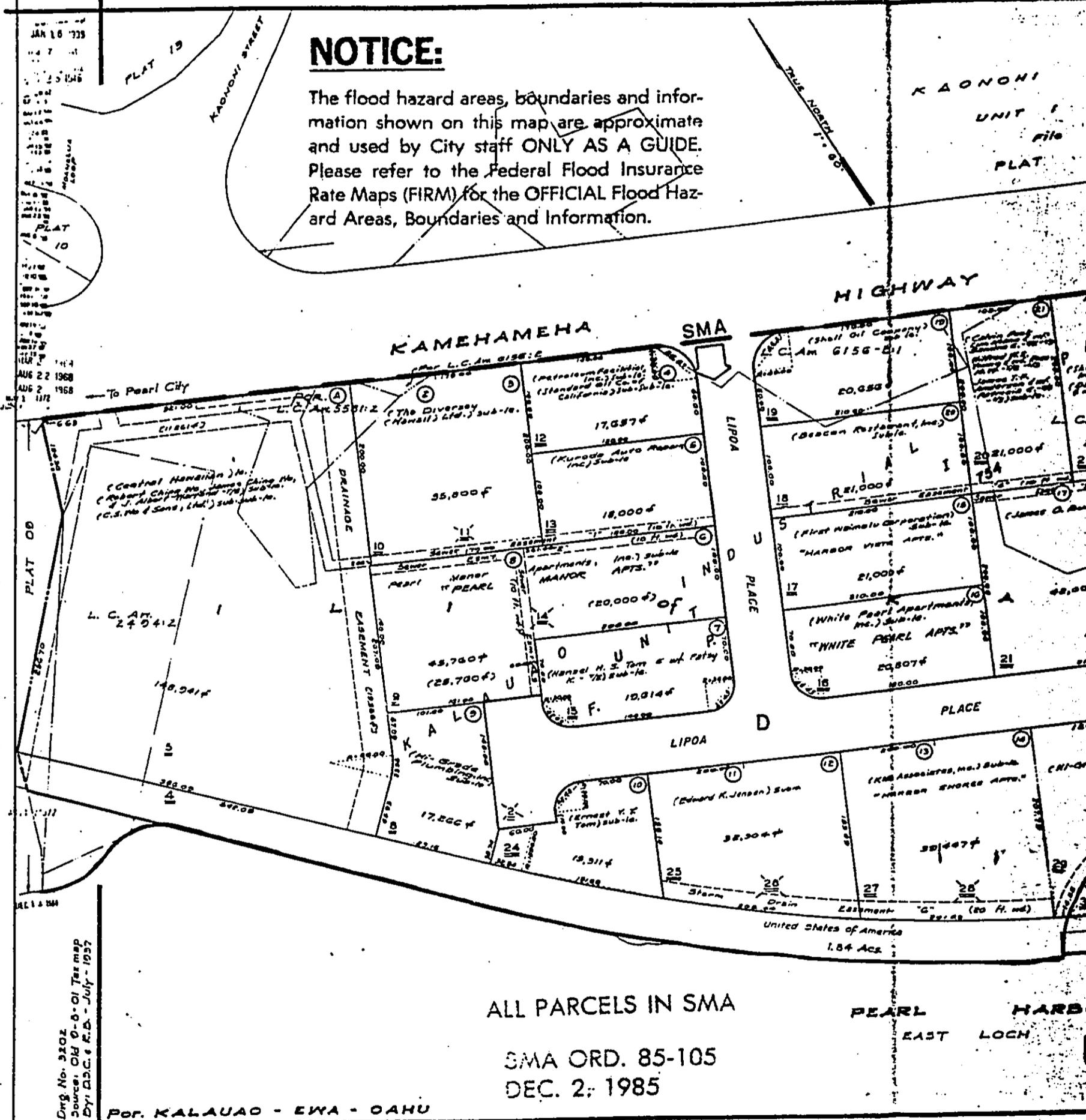
FIGURE 3

TOPOGRAPHIC SURVEY

Checks, and utilities shown are for information only and were from the best available records. No guarantee is made on the completeness of said information.
Azimuths and elevations from City and County street monument street. Azimuths and coordinates referred to Government Survey Station "SALT LAKE". Elevations referred to Mean Sea Level.
Is from a survey done under the direct supervision of the undersigned on September 16, 1989.

NOTICE:

The flood hazard areas, boundaries and information shown on this map are approximate and used by City staff ONLY AS A GUIDE. Please refer to the Federal Flood Insurance Rate Maps (FIRM) for the OFFICIAL Flood Hazard Areas, Boundaries and Information.

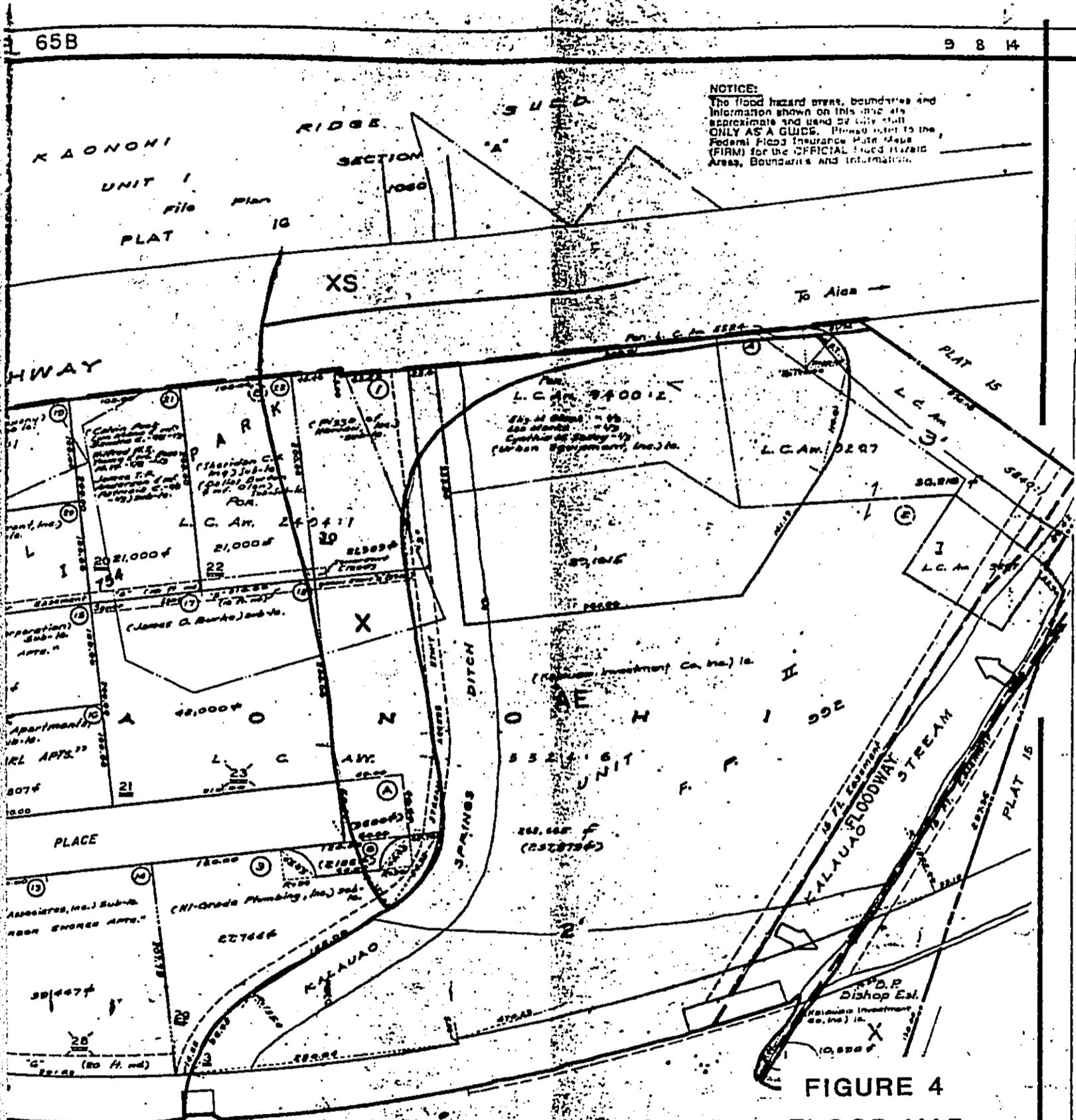


JAN 16 1935
 AUG 22 1968
 AUG 2 1968
 1 1112

Eng. No. 3102
 Source: Old D-0-0-01 Tax map
 Dyr. D.C.C. & R.D. - July - 1957

ALL PARCELS IN SMA
 SMA ORD. 85-105
 DEC. 2, 1985

NOTICE:
 The flood hazard areas, boundaries and information shown on this map are approximate and used only as a guide. Please refer to the Federal Flood Insurance Rate Maps (FIRM) for the OFFICIAL Flood Hazard Areas, Boundaries and Information.



**FIGURE 4
 FLOOD MAP**

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

FIRST DIVISION		
ZONE	SEC.	PLAT
9	8	14
CONTAINING		PARCELS
SCALE: 1 IN. = 60 FT.		

UNOFFICIAL

Subject To Change Without Notice

6.1 Relationship to Surrounding Area

As noted before, Sumida watercross farm and the Pearl Ridge Shopping Center are located across Kamehameha Highway from the site. It is also located near the Pearl Kai Shopping Center. A Shell Service Station is on the adjoining parcel to the west and a restaurant occupies the adjacent parcel to the east. Adjoining areas to the south are zoned for and developed with apartment buildings.

The apartment buildings which border the rear of the property are two-story and three-story walk-ups. Existing uses in the surrounding area fronting Kamehameha Highway are an established mixture of commercial and semi-industrial uses similar to the use proposed, e.g. low-rise, service uses with minimal effects on either the nearby apartment-zoned districts or other commercial uses in the area.

The proposed project should have no adverse effects on any of the surrounding uses in the area and less of an impact than the uses it replaces.

6.2 Relationship to Public Use Areas and Natural Resources

Because of the project site's distance from the

shoreline, no public access is affected. There are no public recreation areas or other natural resources of value within proximity of the site.

6.3 Relationship to Historic, Cultural and Archaeological Resources

There are no known historic, cultural or archeological resources of any significance on the site. The Historic Preservation Office, Department of Land and Natural Resources, has been requested to review this project. We will forward the response as soon as it is received.

6.4 Coastal Views

There are no coastal views from the site. The site is visually prominent, because of its location adjacent to a well traversed thoroughfare, but because of the low-rise structure proposed, views will not be significantly affected in the surrounding area. In this respect, the visual impact in terms of building bulk will be less than the previous structure.

6.5 Water Quality

No impact is anticipated on water quality; drainage patterns will remain essentially the same and the proposed use will not increase runoff in any appreciable manner.

7. PUBLIC POLICIES

7.1 State

The project site is located within the State Urban District, and the proposed use is permitted within the District. No State policies are affected by the proposal.

7.2 City and County Development Plan and Zoning

The site is designated for industrial use on the City's Development Plan for the area and is zoned I-2 Intensive Industrial District. The Department of Land Utilization has classified the proposed use as a minor repair establishment and as such it is considered a permitted use in the I-2 zoning district.

7.3 Coastal Zone/Special Management Area (SMA)

The site is entirely within the SMA; however, it is not adjacent to or near the shoreline and would have no significant effect on any shoreline processes. Further discussion of its relationship to specific SMA guidelines follows.

**8. RELATIONSHIP TO SECTION 33-3.2, ROH, SPECIAL MANAGEMENT
AREA GUIDELINES**

**Access to Public Beaches, Recreational Areas and
Natural Reserves**

As noted in Section 6.2, no public access to beaches is affected by the proposed use, nor are any recreational areas or natural reserves involved.

Location of Public Recreation Areas and Preserves

No park lands or wildlife preserves are located within proximity of the site.

Provisions for Liquid and Solid Waste Disposition

Liquid waste will be disposed of by a public sewer system; solid waste collection will be accomplished through a private firm.

**Alterations to Existing Land Forms, Vegetation, Effects
on Water Resources, scenic and Recreational Amenities, Flood
Danger, Landslides and Erosion**

The site is level and will require minimal grading.
There are no endangered species on the site and no scenic or

recreational amenities are affected by the proposed use. Soils are suitable for the structure proposed. There are no special erosion or potential landslide problems. The project site, designated Flood Zone D, is not subject to any LUO Flood Hazard District requirements.

Adverse Environmental or Ecological Effects and Elimination of Planning Options

No adverse environmental or ecological effects are anticipated. There are no endangered plant or animal species or archaeological resources on the site. There are no long-range planning proposals which include alternate uses for the site. The site is within the State Urban District and the proposed use is permitted in the I-2 zoning district. The site is surrounded by uses of a similar nature and the proposed use would be compatible with these.

Consistency With Existing SMA Policies and Guidelines

The proposal will be consistent with all SMA policies and guidelines and will have no adverse effects on the SMA.

Consistency With the General Plan and Zoning

There will be no negative impacts on General Plan population policies and the project will be in conformance with all zoning (LUO) standards.

Dredging, Filling and Other Alterations

No dredging or fill will be required, and grading will be minimal. There will be no major alteration of land forms on the site.

Reduction of Beaches or Other Recreation Areas

The project will not result in a reduction of beaches or recreational areas, since none are near the project site.

Access to Tidal and Submerged Lands

The proposed project will not impact on tidal or submerged lands.

Line of Sight Toward the Sea from the Coastal Highway

No coastal views are available from the project site.

Effects on Water Quality, Fishing Grounds, Wildlife Habitat and Agricultural Lands

The project will have no effect on water quality, fishing grounds or wildlife habitats. There are no agricultural lands near the site.

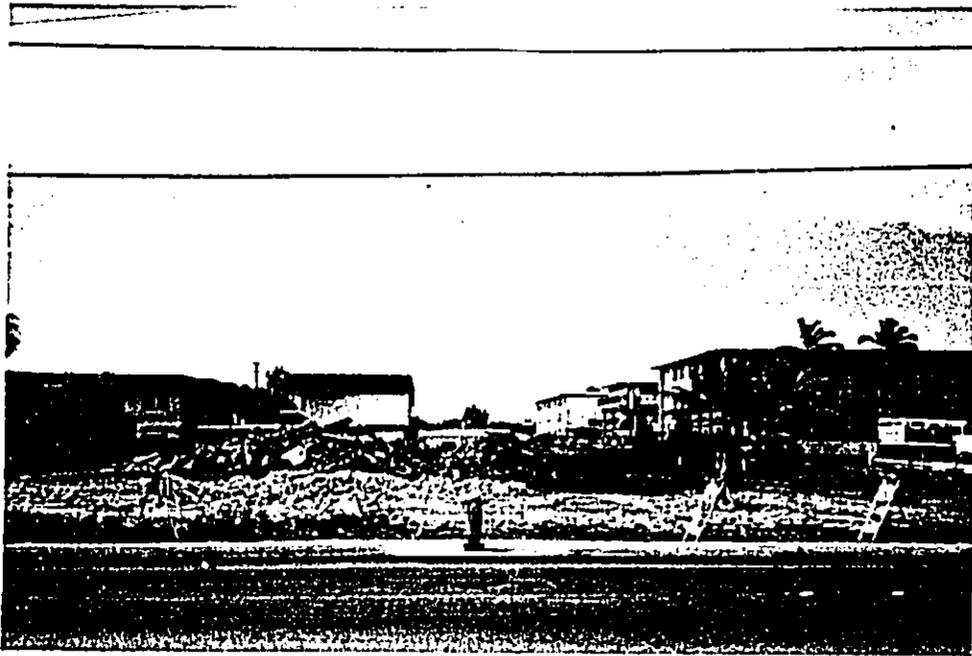
9. POTENTIAL IMPACTS AND MITIGATIVE MEASURES

There will be no potential negative impacts on the SMA or surrounding area as a result of the proposed project, and no mitigative measures are required.

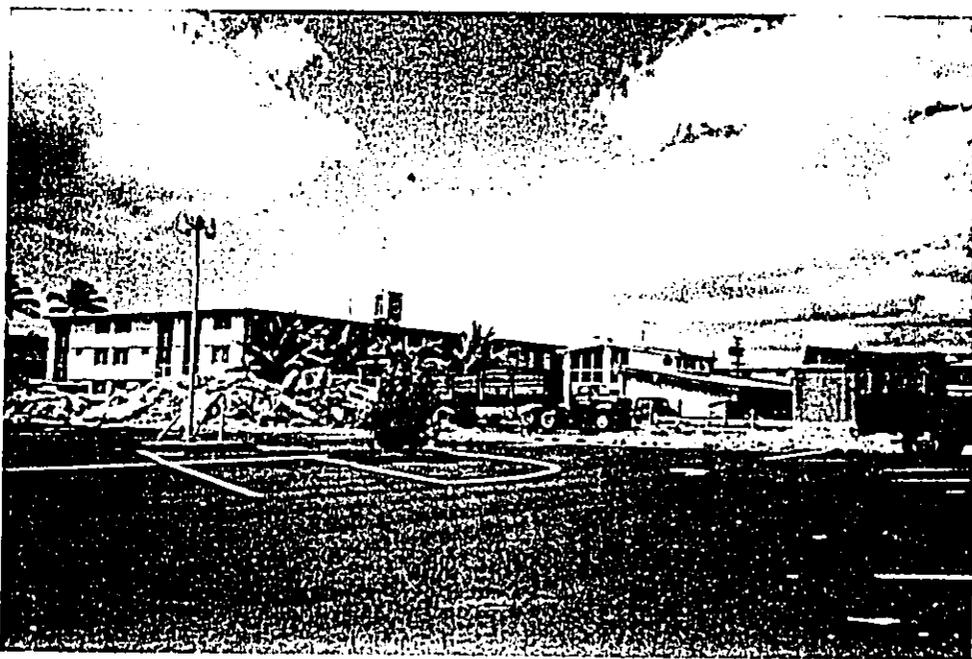
APPENDICES

APPENDIX A
SITE PHOTOS

APPENDIX A. - PHOTOS



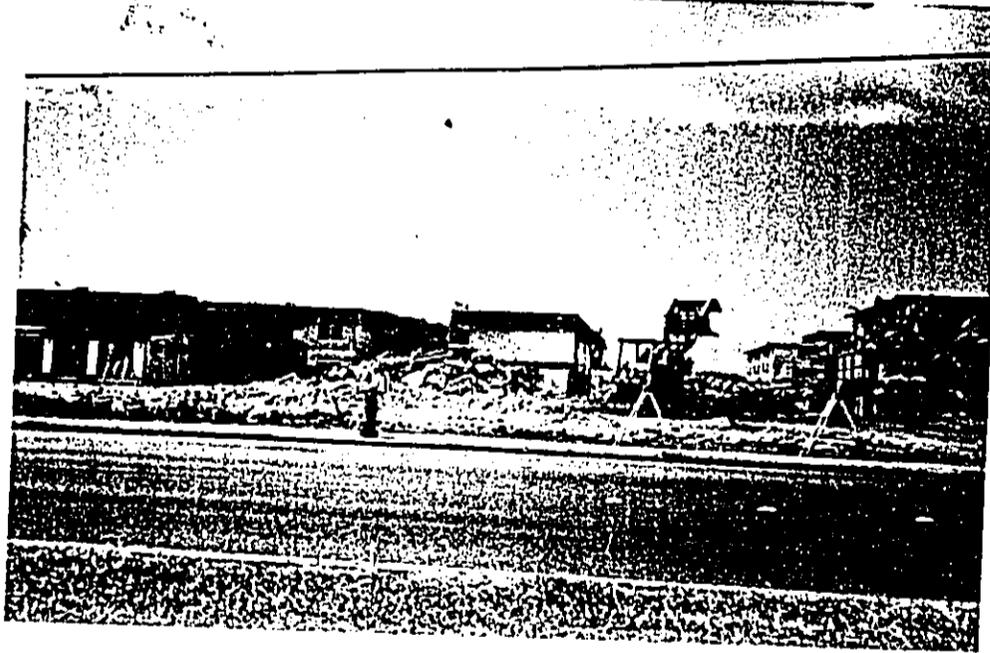
Full view of project site from Kamehameha Highway;
low-rise apartments are in the background.



View of site from adjacent parking lot which
serves a restaurant.



A Shell Service Station borders the project site on the west.



View showing restaurant on adjacent parcel to the east of the project site.

SOILS REPORT

APPENDIX B

APPENDIX B

FOUNDATION INVESTIGATION
NEW FIRESTONE STORE
98-141 KAMEHAMEHA HIGHWAY
AIEA, OAHU, HAWAII
TMK: 9-8-14: 20

for

FIRESTONE, INC.

W.O. 89-1847
October 20, 1989

— **E**
H

ERNEST K. HIRATA & ASSOCIATES, INC.

TABLE OF CONTENTS

	<u>Page No.</u>
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PROJECT CONSIDERATIONS	2
SITE CONDITIONS	2
FIELD EXPLORATION	3
SITE GEOLOGY	3
SOIL CONDITIONS	4
CONCLUSIONS AND RECOMMENDATIONS	
Foundations	5
Lateral Design	6
Floor Slabs	6
Pavement Design	7
Site Grading	7
Construction Monitoring	8
Limitations	8

APPENDIX

Appendix of Laboratory Testing	Pages 1 and 2
Boring Logs	Plates A1 through A4
Consolidation Test Reports	Plates B1 through B3
Direct Shear Test Results	Plates C1 and C2
Location Map	Plate 1
Site Plan	Plate 2

PROJECT CONSIDERATIONS

Information concerning the proposed project was furnished by personnel from your staff.

The new store will be a single story building with plan dimensions of approximately 30 by 180 feet. We assume that the building will be of steel frame construction with CMU and metal walls. Concrete slabs on grade are planned in the building and service area, with asphaltic concrete pavement in the exterior driveway and parking areas.

Structural loads are expected to be relatively light, with column and wall loads on the order of 50 kips and 3 kips per lineal foot, respectively. Only minimal grading is expected for the project.

SITE CONDITIONS

The property is located near the Pearl Kai Shopping Center in Aiea. The site is situated on the southwest side of Kamehameha Highway, near its intersection with Lipoa Place. A service station and restaurant border the site on the west, with an apartment building on the south.

The site is relatively level, with total relief less than 24 inches. Two single story structures are presently located on the site. The larger building, located in the front, has plan dimensions of approximately 65 by 130 feet. The smaller building has plan dimensions on the order of 25 by 65 feet. The remaining areas are paved with asphaltic concrete.

FIELD EXPLORATION

The site was explored on August 18, 1989, by drilling 4 exploratory test borings with a truck mounted drilling machine. The borings varied in depth from 13.5 to 20.5 feet. The soils were continuously logged by our field engineer and classified by visual examination in accordance with the Unified Soil Classification System. The approximate boring locations are shown on Plate 2, and the soils encountered are logged on Plates A1 through A4.

Undisturbed and bag samples were recovered from the borings for selected laboratory testing and analyses. Undisturbed samples were obtained by driving a 3 inch O.D. thin-walled split tube sampler with a 140 pound hammer from a height of 30 inches. The blow count required for twelve inches of penetration is shown on the enclosed Boring Logs.

SITE GEOLOGY

The property is located along the northeast shore of East Loch in Pearl Harbor. Pearl Harbor is essentially a drowned river system with its several branches. Initially, a slight embayment was created at the south end of the island when the Koolau lavas banked against the older Waianae Range. The Waikele, Waiawa and two other large streams entered the bay area, cutting deep canyons in the hard basalt. During the great submergence of Oahu, a broad barrier reef developed across the mouth of the bay. The continued sinking of the island created alternating beds of limestone, volcanic tuff, alluvium and marine clays. The resistant coral reef kept the mouth of the

bay narrow, but softer deltaic sediments north of the reef were easily eroded, creating broad and shallow tributary valleys. These sediments and gravels suffocated some of the corals and filled the harbor bottom.

Later eruptions from Salt Lake and Makalapa spread volcanic ash over the land surface. Eventually the sea rose again and during the Waipio Stand, coral reefs grew around the ridges close to the ocean. The formation of the reefs never blocked the entrance to the harbor. Later, the sea level dropped, forming broad tributary valleys. The sea rose to the present level and submerged the valleys to form East, Middle and West Lochs.

SOIL CONDITIONS

The subsurface soil conditions were relatively uniform throughout the site. The surface soil was classified as mottled reddish brown silty clay with highly weathered rock fragments. The upper portion of this stratum was medium stiff to stiff. However, the soil gradually graded to a firm to soft condition from depths of approximately 5 feet.

Underlying the silty clay at a depth of approximately 8 feet were lagoonal deposits consisting of gray clayey silt. The clayey silt was slightly organic, and in a soft and highly compressible condition. The organic silt extended to the maximum depths drilled. Our previous work in this area indicates that the lagoonal deposits can extend to depths in excess of 100 feet.

Groundwater was encountered at depths ranging from 7 to 7.2 feet below existing grade.

CONCLUSIONS AND RECOMMENDATIONS

Conventional shallow foundations may be used to support the proposed structure. However, settlement of foundations due to the compressible soils underlying the site may be a concern. To minimize the potential for excessive settlement, a relatively low bearing value of 1500 pounds per square foot is recommended for use in the design of foundations.

Analyses were performed to provide an estimate of settlements expected due to structural loads. Based on a column load of 50 kips and wall loads of 3 kips per lineal foot, maximum settlements on the order of 1/2 to 3/4 inch were computed. Our analyses assumed a bearing pressure of 1500 pounds per square foot.

Using a bearing value of 2000 pounds per square foot, settlements slightly in excess of 1 inch were computed. We believe that settlements of this magnitude are beyond the tolerable limits of the proposed structure.

Foundations

Conventional spread footings founded on the surface silty clay may be used to support the structure. Footings may be designed for a bearing value of 1500 pounds per square foot, and should be a minimum of 16 inches in width. Footings should be founded as high as possible, but at least 12 inches below finish adjacent grade.

The bottom of all footing excavations should be thoroughly tamped prior to placement of reinforcing steel and concrete.

Lateral Design

The bearing value indicated above is for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading which includes the effect of wind and seismic forces. Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure acting on the buried portions of foundations.

An allowable coefficient of friction of 0.4 may be used with the dead load forces. Passive earth pressure may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 3000 pounds per square foot. Unless covered by pavement or concrete slabs, the upper 12 inches of soil should not be considered in computing lateral resistance.

For active earth pressure considerations, equivalent fluid pressures of 40 and 55 pounds per cubic foot per foot of depth may be used for freestanding and restrained conditions, respectively. To prevent buildup of hydrostatic pressures, weepholes or subdrains should be included in the design of all retaining structures.

Floor Slabs

To provide uniform support and a capillary break, all slabs on grade should be underlain by a 4 inch cushion of clean gravel, such as #3 Fine (ASTM Size 67). All building slabs should also be

protected by a plastic moisture barrier placed between the slab and cushion material. A thin layer of sand may also be placed between the slab and moisture barrier to aid the curing process.

Concrete slabs in the service area should be underlain by a 6 inch layer of base course. The subgrade and base course should be compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78.

Pavement Design

The flexible pavement section may be designed based on 2.5 inches of asphaltic concrete underlain by 6 inches of base course and 6 inches of select borrow. The subgrade, select borrow, and base course should be compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78.

Site Grading

The project site should be cleared of all vegetation, concrete footings, slabs, asphaltic concrete fragments, and other deleterious material, and be wasted from the area. Prior to placement of fill, the existing ground should be scarified to a depth of six inches and compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78.

The onsite soils may be reused in compacted fills provided all rock fragments larger than six inches in maximum dimension are removed.

Any imported structural fill shall be well graded, non-expansive granular material. Specifications for imported structural fill should state that not more than 20 percent of soil by weight shall pass the #200 sieve. In addition, the P.I. of that portion of the soil passing the #40 sieve shall not be greater than 10. Yard fill necessary for landscaping need not adhere to these specifications.

All structural fill shall be placed in horizontal lifts restricted to eight inches in loose thickness and compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78. Fill placed in areas which slope steeper than 5:1 (horizontal to vertical), should be continually benched as the fill is brought up in lifts.

Construction Monitoring

The preparation of all footing excavations for placement of reinforcing steel and concrete should be monitored by an engineer from our staff. All structural fill placement should also be monitored and tested by personnel from our office.

Limitations

The boring logs indicate the approximate subsurface soil conditions encountered only at those times and locations where our borings were made, and may not represent conditions at other times and locations.

During construction, should subsurface conditions differ from those encountered in our borings, we should be advised immediately in order to review and to revise our recommendations.

Our professional services were performed, findings obtained, and recommendations prepared in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. This warranty is in lieu of all other warranties expressed or implied.



Respectfully submitted,

Ernest K. Hirata & Associates, Inc.

Ernest K. Hirata
Paul S. Morimoto, P.E.

APPENDIX OF LABORATORY TESTING

Classification

Field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification is determined by both visual examination and Atterberg Limit tests performed in general accordance with ASTM D423 and D424. The final classification is shown at the appropriate locations on the Boring Logs, Plates A1 through A4.

Moisture-Density

The field moisture content and dry unit weight are determined for each of the undisturbed samples. The information is useful in providing a gross picture of the soil consistency between borings and any local variations. The dry unit weight is determined in pounds per cubic foot while the moisture content is determined as a percentage of the dry unit weight. Samples are obtained from a 3 inch O.D. split tube sampler. Test results are shown at the appropriate depths on the Boring Logs, Plates A1 through A4.

Consolidation

Settlement predictions of the soil's behavior under load are made on the basis of consolidation test results. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen, having an inside diameter of 2.40 inches and a height of 1 inch, to permit addition and release of pore fluid. Results of tests on undisturbed samples are plotted

on the Consolidation Test Reports, Plates B1 through B3.

Shear Tests

Shear tests are performed in the Direct Shear Machine which is of the strain control type. The rate of deformation is approximately 0.02 inches per minute. Each sample is sheared under varying *confining loads* in order to determine the Coulomb shear strength parameters, cohesion and angle of internal friction. Eighty percent of the maximum value is taken to determine the shear strength parameters. Test results are presented on Plates C1 and C2.



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

905 Makahiki Way, Makai Side • Honolulu, Hawaii 96826 • Phone 941-5055

BORING LOG

W.O. 89-1847

BORING NO. B1 DRIVING WT. 140 lb. DATE OF DRILLING 8-18-89
SURFACE ELEV. 99.8+ * DROP 30 in. WATER LEVEL @7.2 FT

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		CL	14	88	33		Silty CLAY- Mottled reddish brown, moist, stiff, with highly weathered rock fragments. Covered by 2 inches of asphaltic concrete. Grading firm from 5 feet.
5			20	90	24		
5			6	87	37		
10		ML-OL	4	52	80		Clayey SILT- Gray, soft, organic, with shell fragments. Grading sandy form 14.5 feet.
15			4	62	64		
20			3	64	60		
20.5							End boring at 20.5 feet. * See site plan for reference benchmark elevation.
25							
30							

Plate A1



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

905 Makahiki Way, Makai Side • Honolulu, Hawaii 96826 • Phone 941-5055

BORING LOG

W.O. 89-1847

BORING NO. B2 DRIVING WT. 140 lb. DATE OF DRILLING 8-18-89
SURFACE ELEV. 100.1± DROP 30 in. WATER LEVEL @7.0FT.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		CL	14	91	29		Silty CLAY- Mottled reddish brown, moist, stiff, with highly weathered rock fragments. Covered by 2 inches of asphaltic concrete.
5			11	91	34		
10		ML-OL	3	67	63		Clayey SILT- Gray, soft, organic, with shell fragments.
15			5	63	58		
20							End boring at 15 feet.
25							
30							

Plate A2



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

905 Makahiki Way, Makai Side • Honolulu, Hawaii 96825 • Phone 941-5055

BORING LOG

W.O. 89-1847

BORING NO. B3 DRIVING WT. 140 lb. DATE OF DRILLING 8-18-89
SURFACE ELEV. 99.9+ DROP 30 in. WATER LEVEL @7.1 FT.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		CL	11	89	32		Silty CLAY - Mottled reddish brown, moist, medium stiff, with highly weathered rock fragments. Covered by 2 inches of asphaltic concrete. Grading firm to soft from 5 feet.
5			4	77	45		
10		ML-OL	5	58	71		Clayey SILT - Gray, soft, with shell fragments. Grading sandy from 12 feet.
12			4	68	56		
13.5						End boring at 13.5 feet.	
15							
20							
25							
30							

Plate A3



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

905 Makanihi Way, Makai Suite • Honolulu, Hawaii 96826 • Phone 941-5055

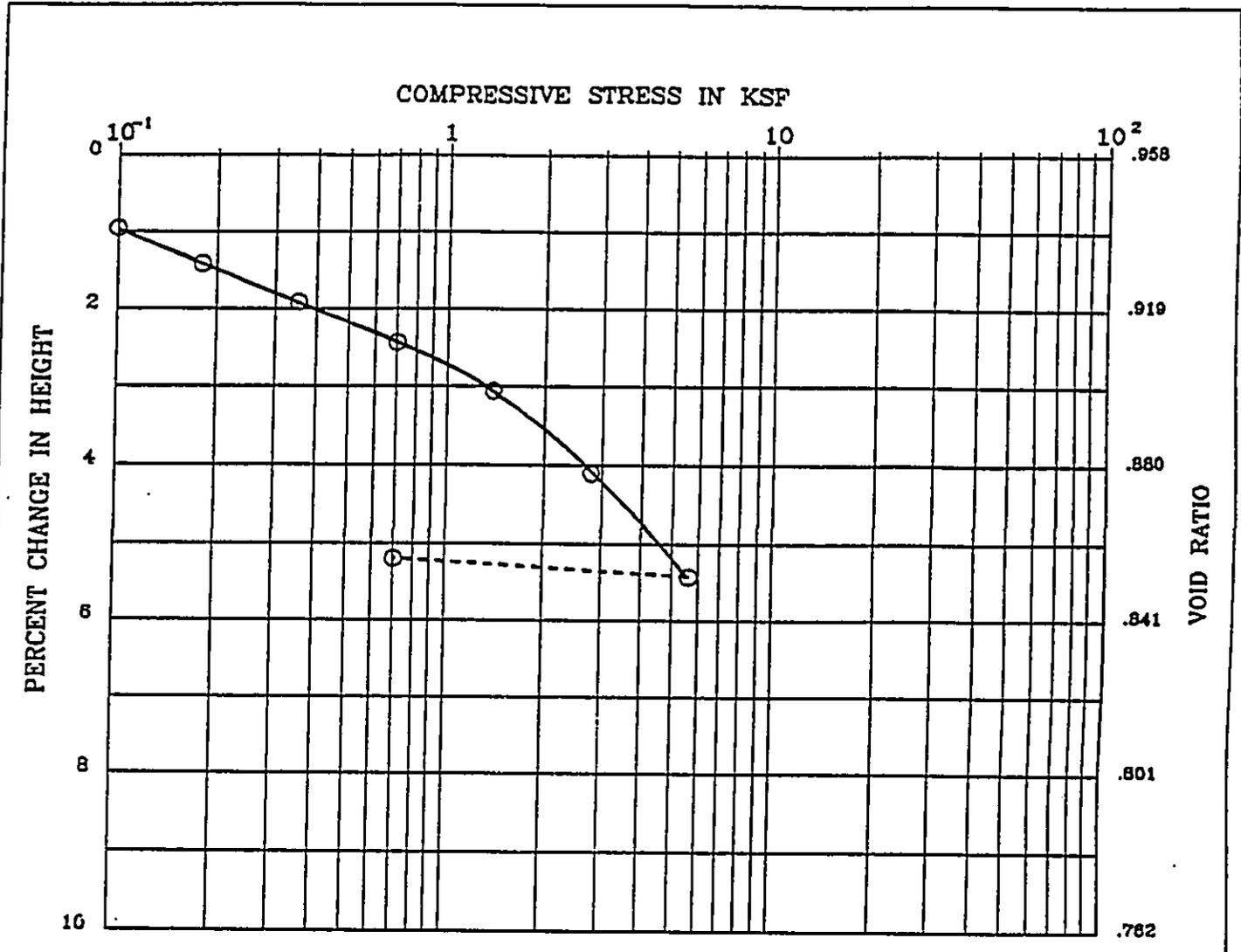
BORING LOG

W.O. 89-1847

BORING NO. B4 DRIVING WT. 140 lb. DATE OF DRILLING 8-18-89
 SURFACE ELEV. 100.2+ DROP 30 in. WATER LEVEL @7.0FT.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0	[Diagonal hatching symbol]	CL	16	94	30		Silty CLAY - Mottled reddish brown, moist, stiff. Covered by 2 inches of asphaltic concrete. Grading firm to soft from 5 feet.
5			4	78	41		
10	[Vertical lines symbol]	ML-OL	6	60	69		Clayey SILT - Gray, soft, organic, with shell fragments. Grading sandy from 15 feet.
15			4	56	79		
20			3	No Recovery			
25							End boring at 20 feet.
30							

Plate A4

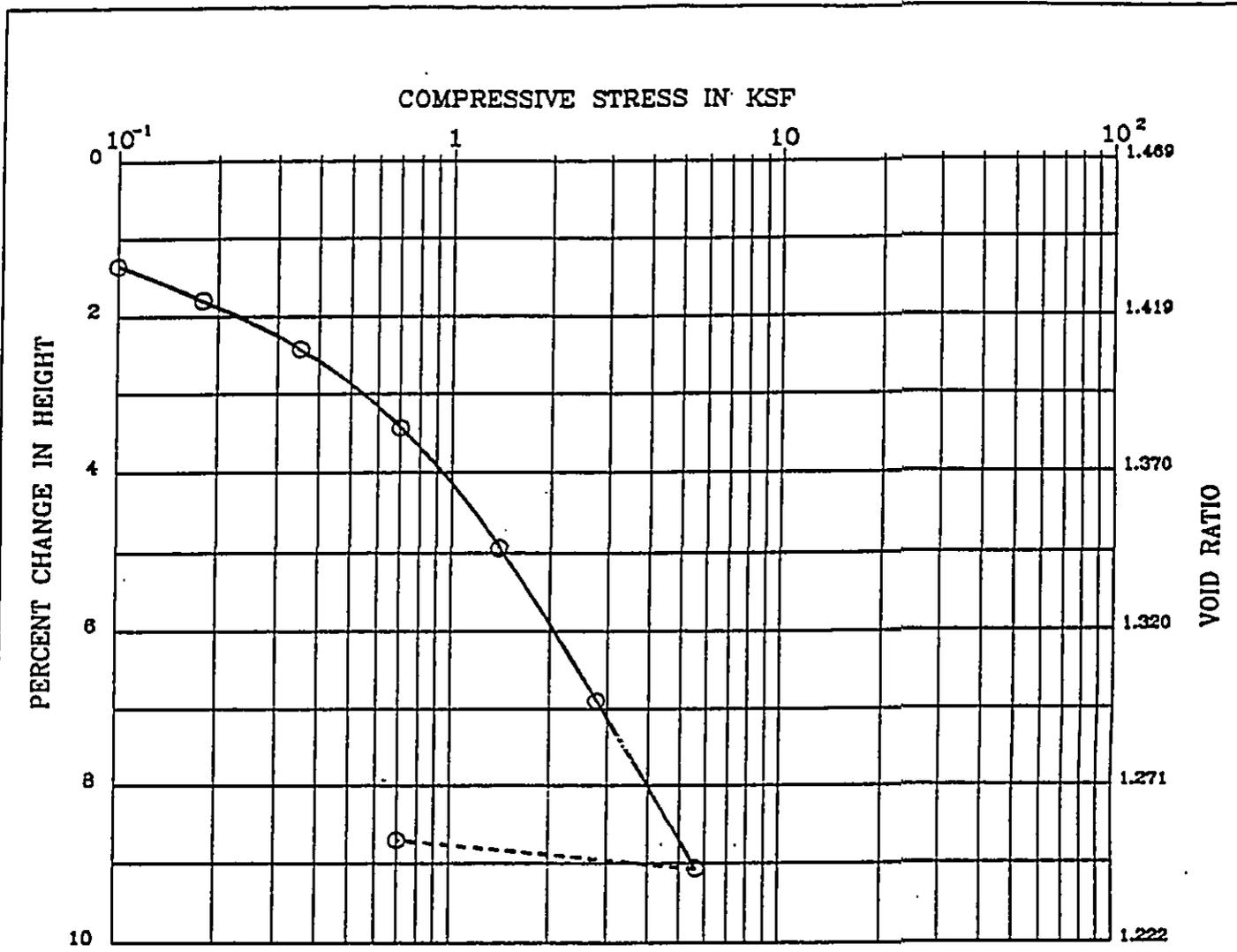


BORING : B1
 DEPTH (ft) : 3'
 SPEC. GRAVITY : 2.70
 DESCRIPTION : Mottled Reddish Brown Silty Clay
 LIQUID LIMIT : ..
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	34.0	86.1	96	.958
FINAL	31.2	90.9	99	.856

Remark : Date: 8/23/89

W.O. 89-1847	Firestone, Kam Hwy, Aiea
Ernest K. Hirata & Associates, Inc.	CONSOLIDATION TEST Plate B1



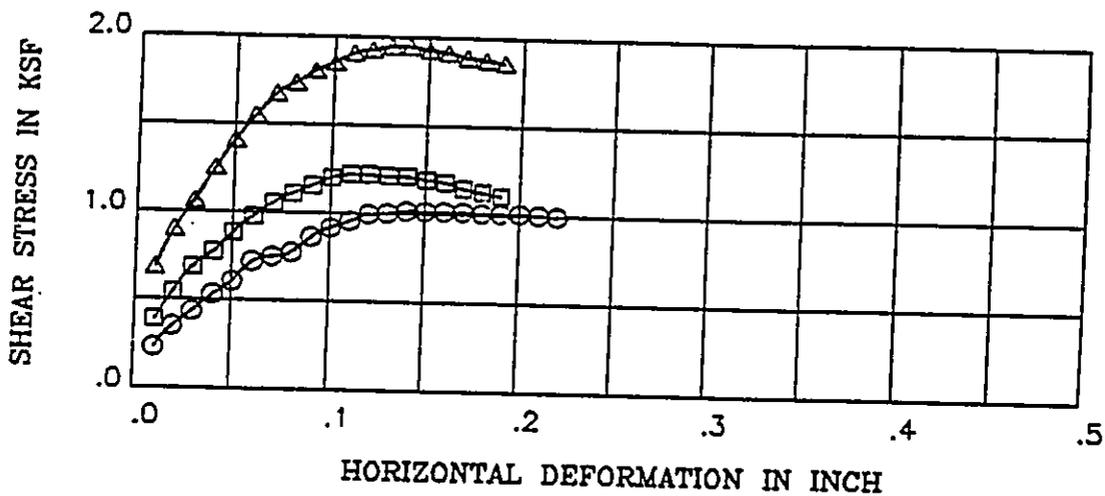
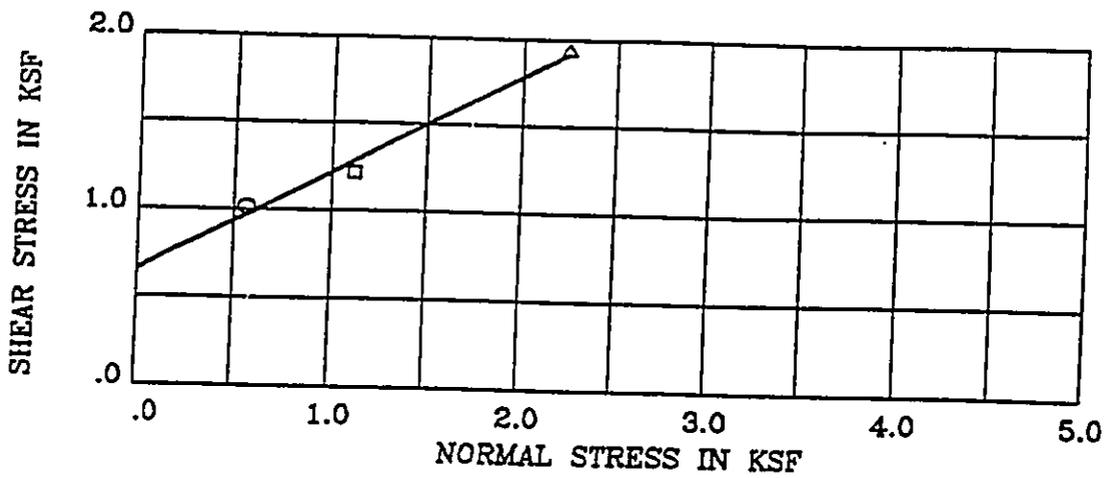
BORING : B3
 DEPTH (ft) : 5'
 SPEC. GRAVITY : 3.18

DESCRIPTION : Mottled Reddish Brown Silty Clay
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	44.8	80.5	97	1.469
FINAL	39.3	88.2	100	1.254

Remark : Date: 8/24/89

W.O. 89-1847	Firestone, Kam Hwy, Aiea
Ernest K. Hirata & Associates, Inc.	CONSOLIDATION TEST Plate B2



BORING/SAMPLE : B2 DEPTH (ft) : 2'
 DESCRIPTION : Mottled Brown Silty Clay
 STRENGTH INTERCEPT (C) : .653 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 29.6 DEG (PEAK STRENGTH)

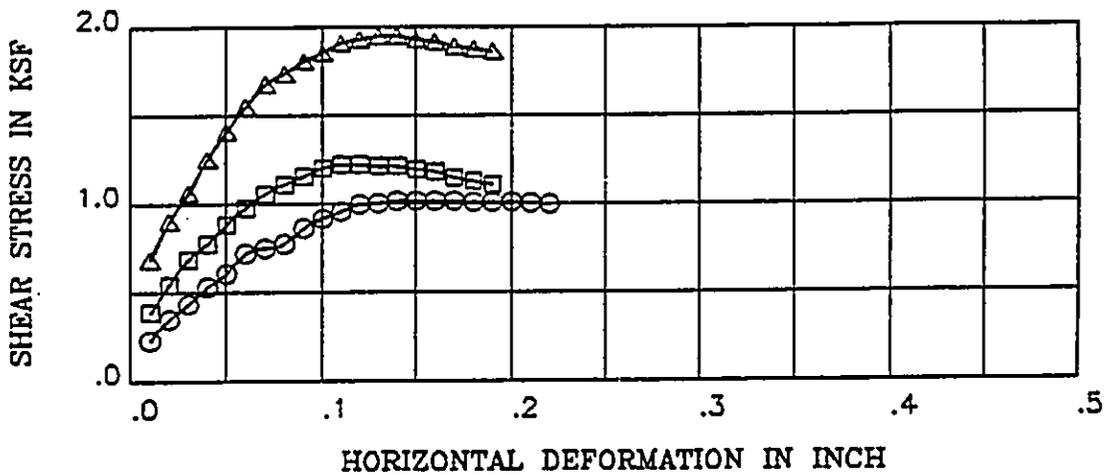
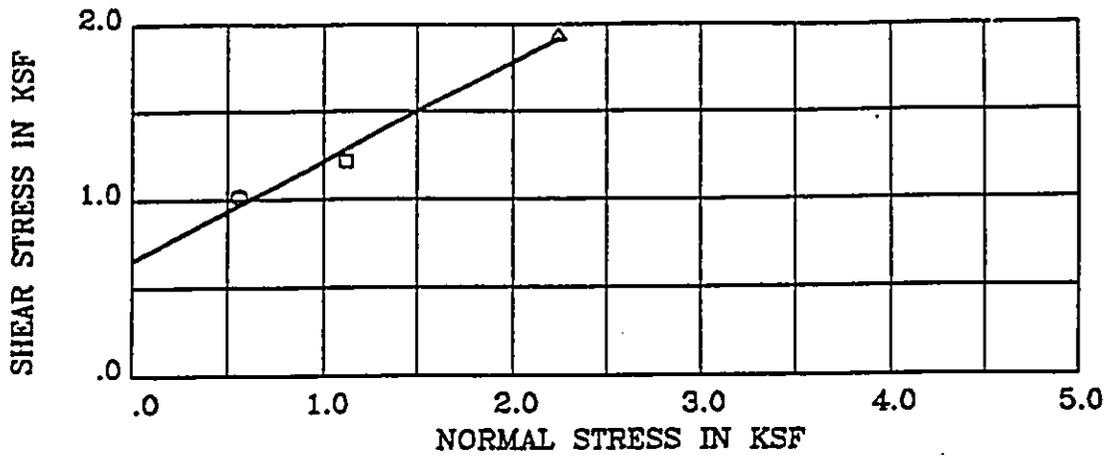
SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	28.8	90.9	.853	.56	1.02	.99
□	28.8	90.9	.853	1.12	1.22	1.11
△	28.8	90.9	.853	2.24	1.95	1.86

Remark : Date: 8/23/89

W.O. 89-1847	Firestone, Kam Hwy, Aiea
Ernest K. Hirata & Associates, Inc.	DIRECT SHEAR TEST Plate C1

CORRECTION

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

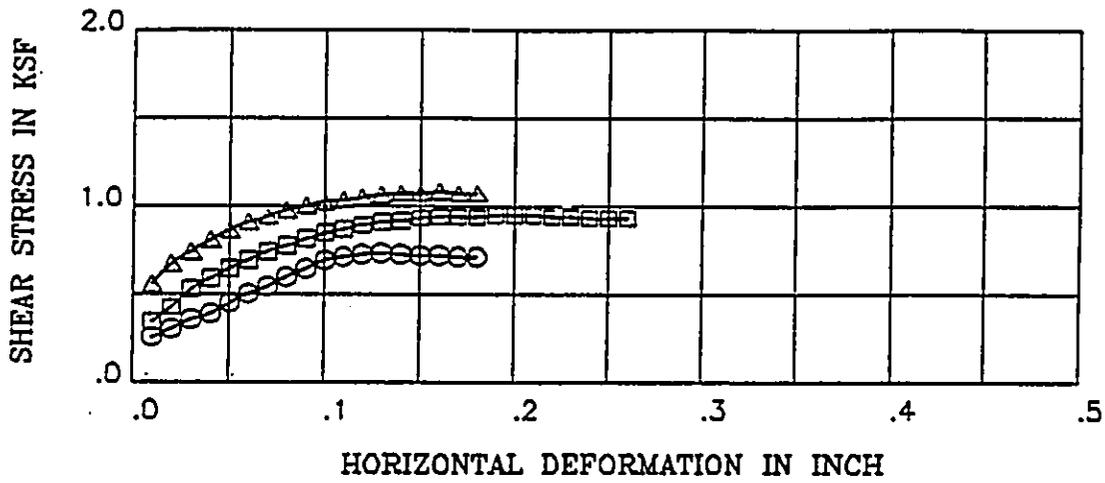
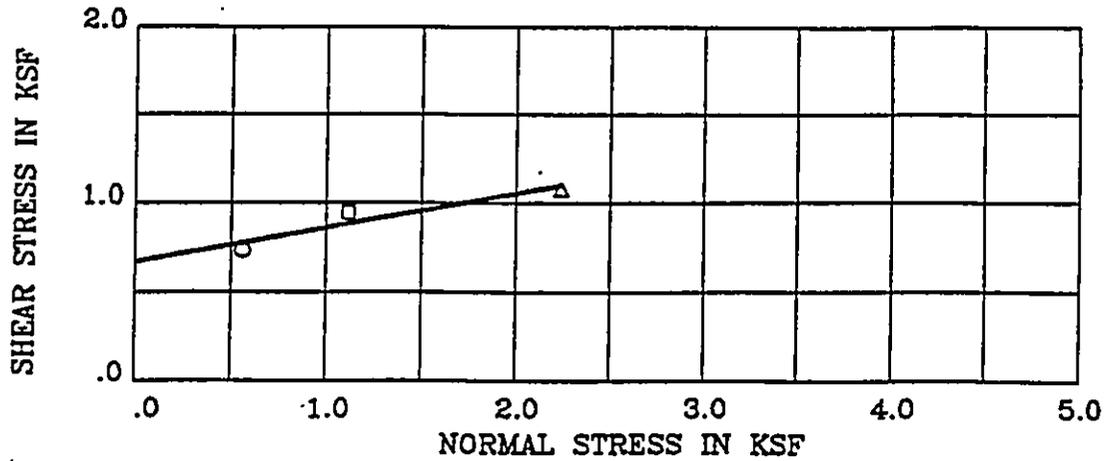


BORING/SAMPLE : B2 DEPTH (ft) : 2'
 DESCRIPTION : Mottled Brown Silty Clay
 STRENGTH INTERCEPT (C) : .853 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 29.6 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	28.8	90.9	.853	.56	1.02	.99
□	28.8	90.9	.853	1.12	1.22	1.11
△	28.8	90.9	.853	2.24	1.95	1.86

Remark : Date: 8/23/89

W.O. 89-1847	Firestone, Kam Hwy, Aiea
Ernest K. Hirata & Associates, Inc.	DIRECT SHEAR TEST Plate C1

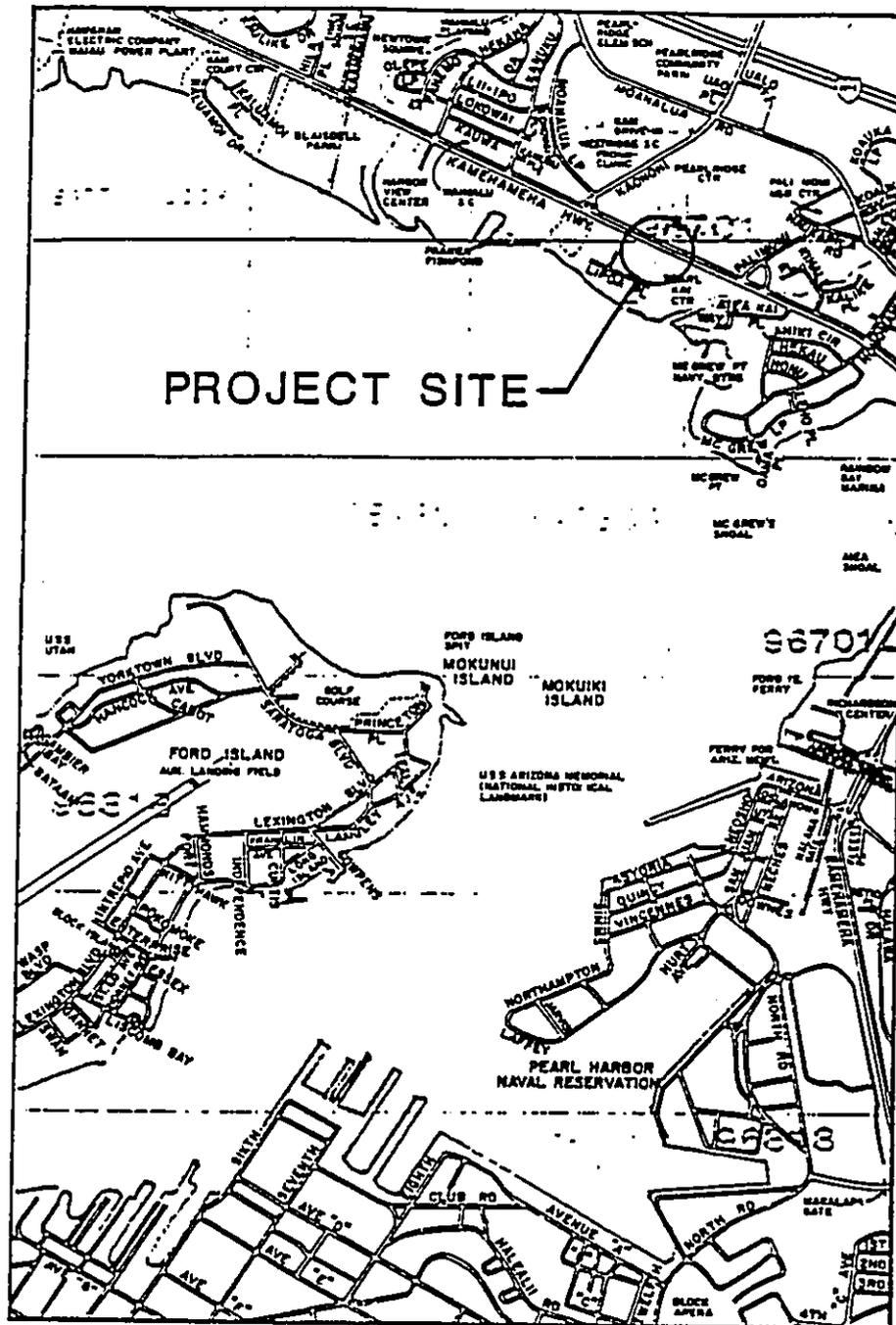


BORING/SAMPLE : 83 DEPTH (ft) : 2'
 DESCRIPTION : Mottled Brown Silty Clay
 STRENGTH INTERCEPT (C) : .668 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 10.9 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	31.8	89.1	.891	.56	.73	.71
□	31.8	89.1	.891	1.12	.95	.93
△	31.8	89.1	.891	2.24	1.08	1.07

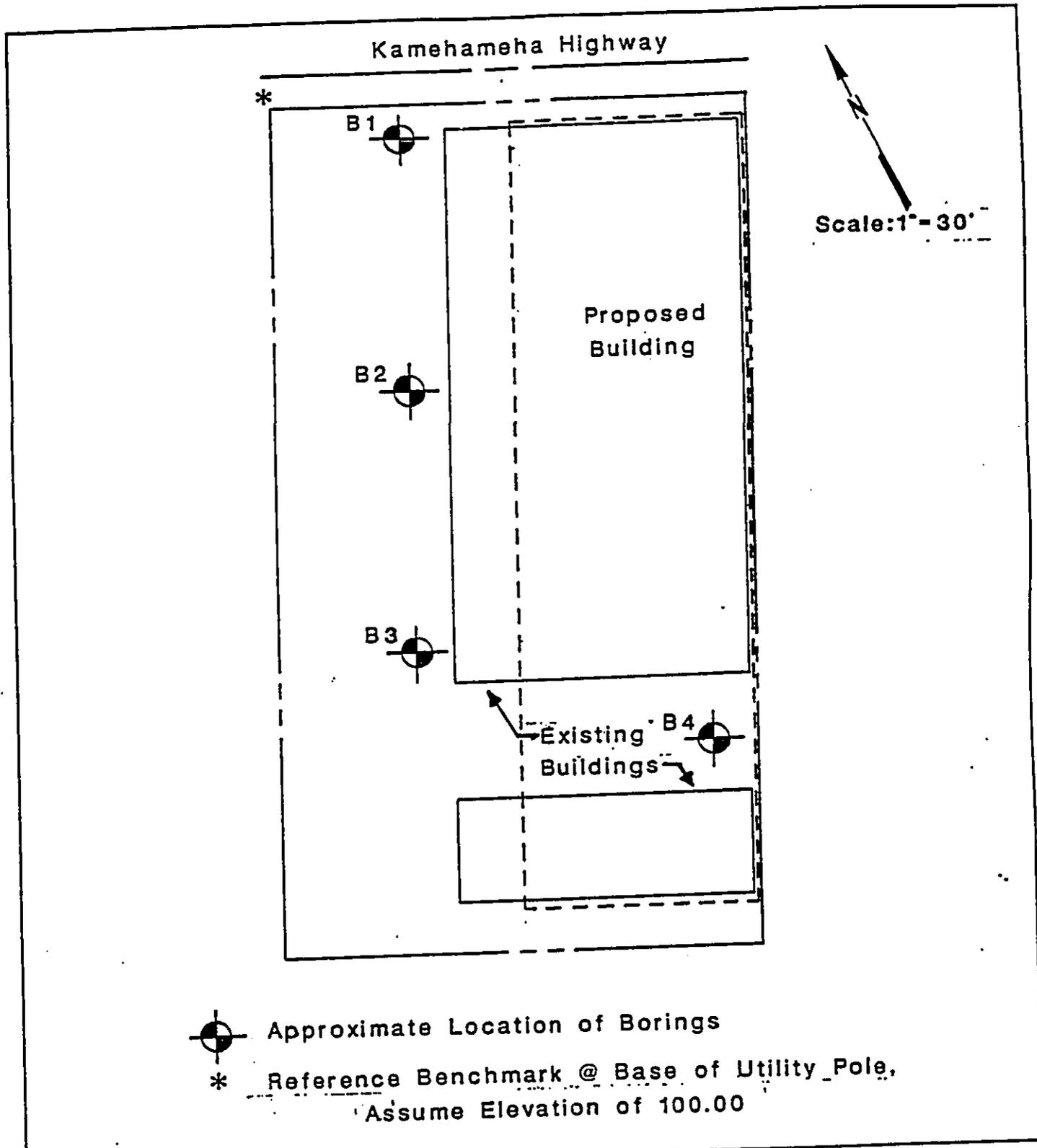
Remark : Date: 8/23/89

W.O. 89-1847	Firestone, Kam Hwy, Aiea
Ernest K. Hirata & Associates, Inc.	DIRECT SHEAR TEST Plate C2



Reference: Bryan's Sectional Maps

W.O. 89-1847	Firestone, Kam Hwy, Aiea
ERNEST K. HIRATA & ASSOCIATES, INC.	<p style="text-align: center;">LOCATION MAP</p> <p style="text-align: right;">Plate 1</p>



W.O. 89-1847	Firestone, Kam Hwy, Aiea
ERNEST K. HIRATA & ASSOCIATES, INC.	<p style="text-align: center;">SITE PLAN</p> <p style="text-align: right;">Plate 2</p>