Stephen K. Yamashiro
Mayor

Donna Fay K. Kiyosaki
Chief Engineer

Jiro A. Sumada
Deputy Chief Engineer

RECEIVED
'96 APR -8 A11 :47
OFC. OF ENVIRONMENTAL QUALITY CONTROL

County of Hawaii

DEPARTMENT OF PUBLIC WORKS
25 Aupuni Street, Room 202 • Hilo, Hawaii 96720-4252
(808) 961-8321 • Fax (808) 969-7138

April 1, 1996

MR GARY GILL DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
STATE OF HAWAII
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU HI 96813

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT
North Kona Flood Control Plan
County of Hawaii/Gamrex, Inc.
Holualoa & Horseshoe Bend Drainageways
Holualoa, North Kona, Hawaii
Reference: COZ Ordinance No. 91-96/93-26
TMK: 7-6-21: 16-19
7-6-24: 25 & 77

The Department of Public Works, County of Hawaii, has reviewed the comments received during the 30 day public comment period which began on February 8, 1996, as noticed in the Environmental Notice. The Department of Public Works has determined that the subject project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the next issue of the OEQC Bulletin.

Enclosed herewith is a completed OEQC Bulletin Publication Form and four (4) copies of the final environmental assessment. Thank you for your assistance during the draft EA phase. Your staff was extremely helpful and very efficient.

Please contact Mr. Gregg Kashiwa, Project Planners Hawaii, at (808) 329-9724 or by FAX at (808) 326-2789 with any questions or additional information. Thank you for your kind attention to this request.

DONNA FAY K. KIYOSAKI, P.E.
Chief Engineer

GK/CKY:st

Attachments

cc: ENG-KON
Project Planners Hawaii

1998-04-23-HI-FEA- Holualoa and Horseshoe Bend Drainage Way Improvement

FINAL ENVIRONMENTAL ASSESSMENT

FOR A PORTION OF THE HOLUALOA AND HORSESHOE BEND DRAINAGE WAY IMPROVEMENT PROJECT

PREPARED FOR: Department of Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

PREPARED BY: Gregg R. Kashiwa
Project Planners Hawaii
76-117 Kamehamalu Street
Kailua-Kona, Hawaii 96740

Phone: (808) 329-9724
FAX: (808) 326-2789

DATED: March 22, 1996

FINAL ENVIRONMENTAL ASSESSMENT

APPLICANT:	Department of Public Works County of Hawaii 25 Aupuni Street Hilo, Hawaii 96820
LANDOWNERS:	County of Hawaii John D. and Janet U. Quinn Melvyn Perez Gamrex, Inc.
LOCATION:	Holualoa, North Kona, Hawaii, beginning at the abandoned railroad right-of-way which lies at approximately the 800 foot elevation point, and running makai under both Queen Kaahumanu and Kuakini Highways down to the existing Kupuna Street bridge.
REQUEST:	Development of a portion of the drainage improvements set forth in the NORTH KONA FLOOD CONTROL PLAN by the Department of Public Works, and approved by the Federal Emergency Management Agency (FEMA), U.S. Government, in a Conditional Letter of Map Revision (CLOMR), dated March 24, 1995, to Mayor Stephen Yamashiro of the County of Hawaii.
TAX MAP KEYS:	Portions Of: 7-6-21:16 - 19 7-6-24:25 & 77 Third Division
APPROVING AGENCY:	Department of Public Works County of Hawaii
CONTACT PERSON:	Gregg Kashiwa Project Planners Hawaii 76-117 Kamehamalu Street Kailua-Kona, Hawaii 96740 Phone: (808) 329-9724 FAX: (808) 326-2789

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I. PROPOSED ACTION:

The applicant, Department of Public Works, County of Hawaii, whose principal place of business and post office address is 25 Aupuni Street, Hilo, Hawaii, 96720, proposes to construct a portion of the drainage improvements set forth in the North Kona Flood Control Plan. These improvements include concrete lined drainage channels, interceptor (collection) channels and fencing along the channel sides.

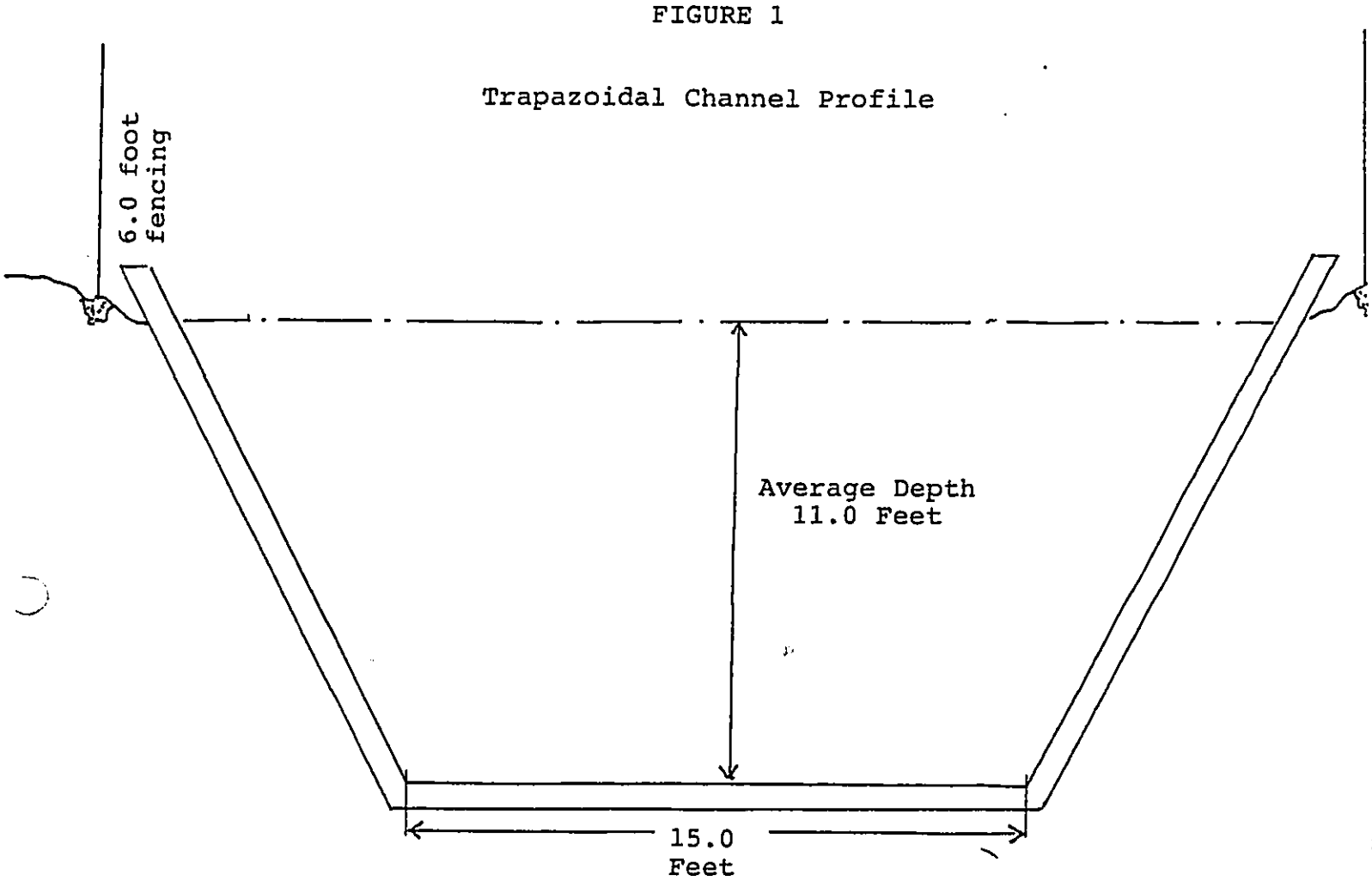
A. The proposed drainage improvements are a portion of the flood control system described and master planned in the North Kona Flood Control Plan. Improvements will start at a point approximately 1,700 feet mauka of Queen Kaahumanu Highway along the abandoned railroad right-of-way which lies at approximately the 800 foot elevation point.

1. An interceptor and collection channel will be built along the old railroad right-of-way continuously beginning at a point approximately 370 feet North of the Horseshoe Bend stream channel to a point approximately 440 feet South of the Holualoa stream channel. This channel will collect sheet flow waters from lands mauka of the proposed improvements, and direct the water into the two channels hereinafter described.

2. Two concrete lined channels will be tied into the interceptor channel. The Northern most channel will collect flood waters from the Horseshoe Bend stream and the Southern channel will collect flood waters from the Holualoa stream. These two channels will be approximately 400 in length and will join at a point approximately 1,300 feet mauka of Queen Kaahumanu Highway. Both channels will have a minimum bottom width of 15 feet, 1H:2V side slopes and an average depth of 11 feet. They are trapazoidal in shape. See Figure 1. Chain link fencing six feet in height will be erected on both sides of the channel.

FIGURE 1

Trapazoidal Channel Profile

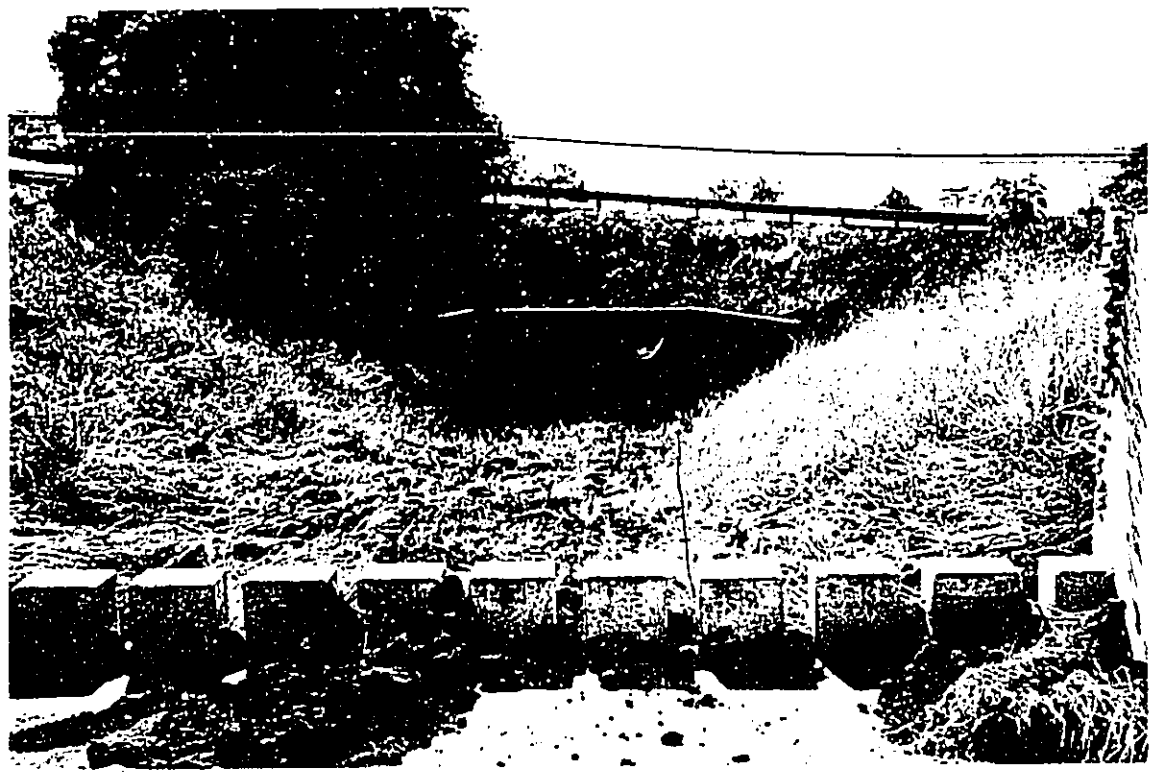


Scale: ¼ inch = 1 foot

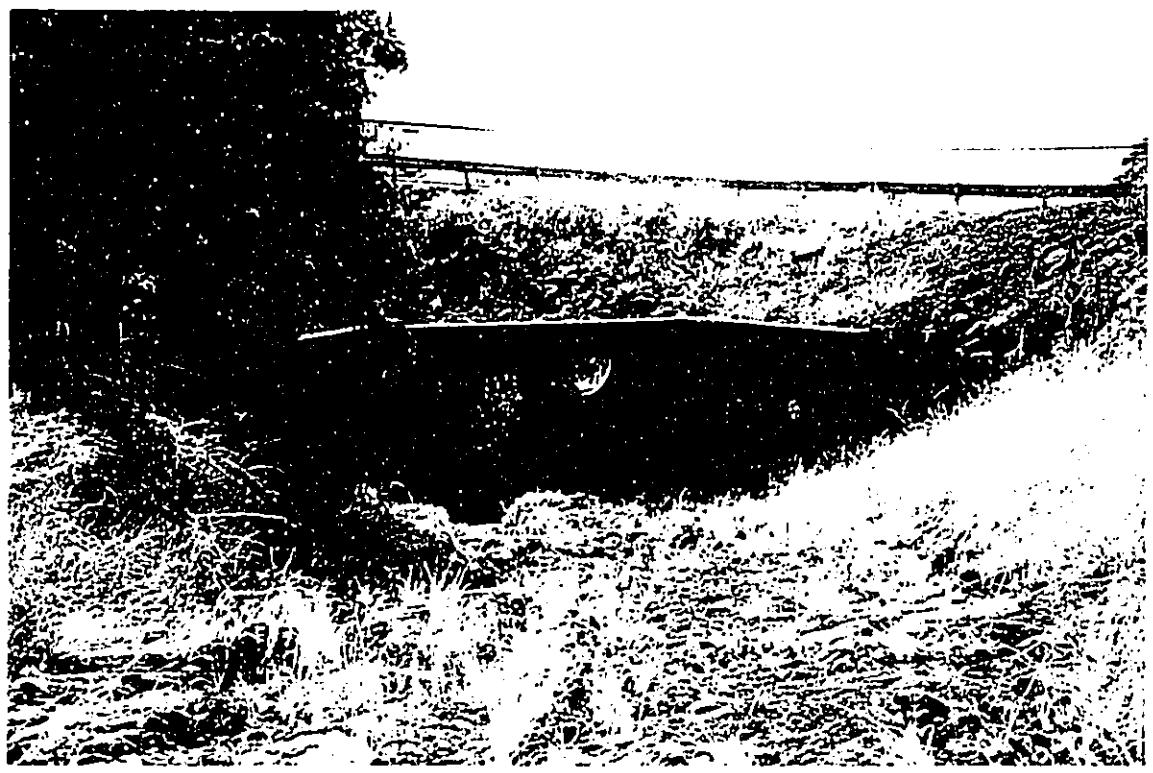
B. The confluence of the Horseshoe Bend and Holualoa stream as mentioned before will take place approximately 1,300 feet mauka of Queen Kaahumanu Highway. This confluence point will replace the existing point which is presently located below Queen Kaahumanu and Kuakini Highways. The existing situation is a "makeshift" combination of earthen berms and unlined channels which has failed many times in the past causing extensive flooding within the Kalani Makai and Alii Kai subdivisions which lie immediately makai of the existing confluence point. This "Y" shaped confluence will bring the subject streams together above the highway(s), and a single channel will bring the combined flows 1,300 feet to the head wall at the existing double structural plate pipe (SPP) culvert under Queen Kaahumanu Highway. The channel will will be identical in size and shape as that in Figure 1.

C. There are two double (SPP) culverts under both Queen Kaahumanu and Kuakini Highways near their junction point. Each pipe within the culverts is nine (9) feet in diameter. Pictures of the culverts and surrounding areas are shown in Figures 2, 3 and 4. It should be noted that the pictures were taken shortly after the Holualoa stream ran. Some flooding occurred within the Kilohana and Komahana Kai subdivisions. No extensive property damage was reported.

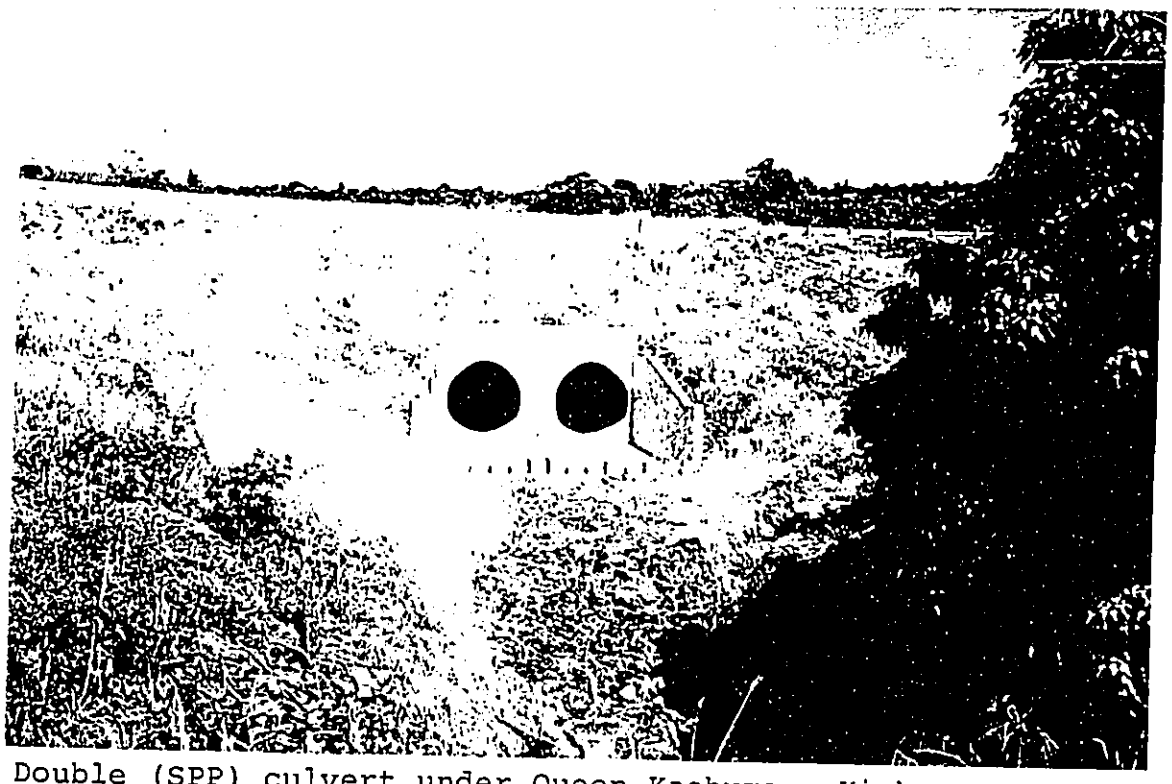
D. A single concrete lined channel will be constructed from the culvert under Kuakini Highway makai approximately 1,200 feet to the headwall of the Kupuna Street bridge, a twelve (12) foot by twenty-five (25) foot arch culvert under Kupuna Street. The channel will be concrete lined with vertical walls, a bottom width of 16 feet and an average depth of 11 feet. See Figure 5. Six foot high chain link fencing will be erected on both sides.



Picture of double (SPP) culvert under Kuakini Highway taken from inside double (SPP) culvert under Queen Kaahumanu Highway.



Close up view of double (SPP) culvert under Kuakini Highway. Note the debris and grass from recent flood waters.



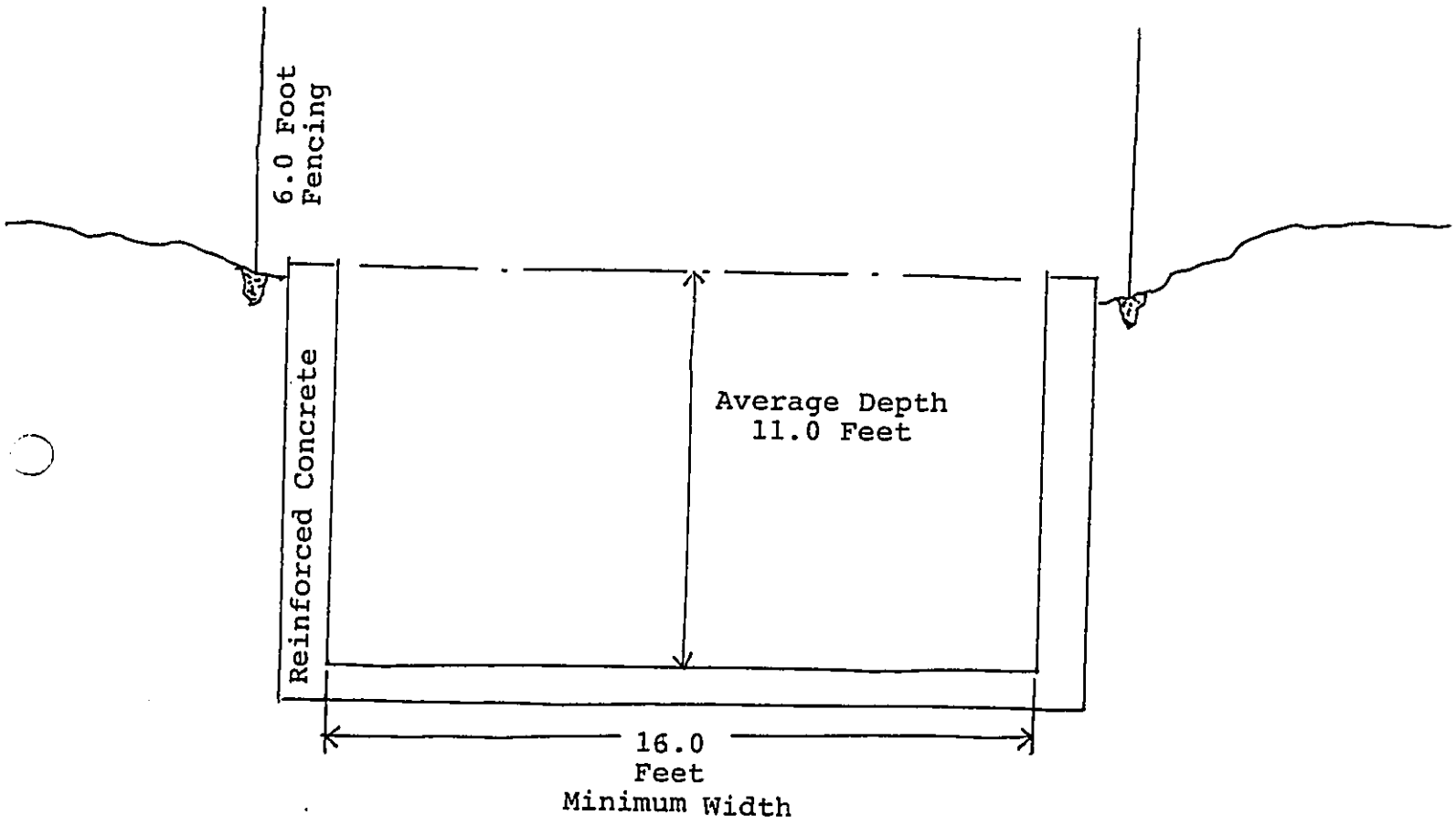
Double (SPP) culvert under Queen Kaahumanu Highway taken from makai side just above Kuakini Highway culvert. Note scouring of floodway from recent flood waters (9/95).

Proposed channel path taken from Kuakini Highway culvert looking makai to Kupuna Street bridge. Homes in background are located within the Kalani Makai and Alii Kai subdivisions.

Floodplain taken at approximately midpoint between Queen Kaahumanu Highway and the old railroad right-of-way. This area is mauka of both highways and near the proposed point where the proposed confluence of the Holualoa and Horseshoe Bends streams will occur. The view is looking mauka towards the railroad right-of-way.

FIGURE 5

Vertical Channel Profile



Scale: ¼ inch = 1 foot

E. All proposed improvements described above are shown on Exhibits A1, A2 and A3, entitled "Post Improvements Topographical Map Exhibits For Holualoa and Horseshoe Bend Drainage Ways" prepared by the Keith Companies.

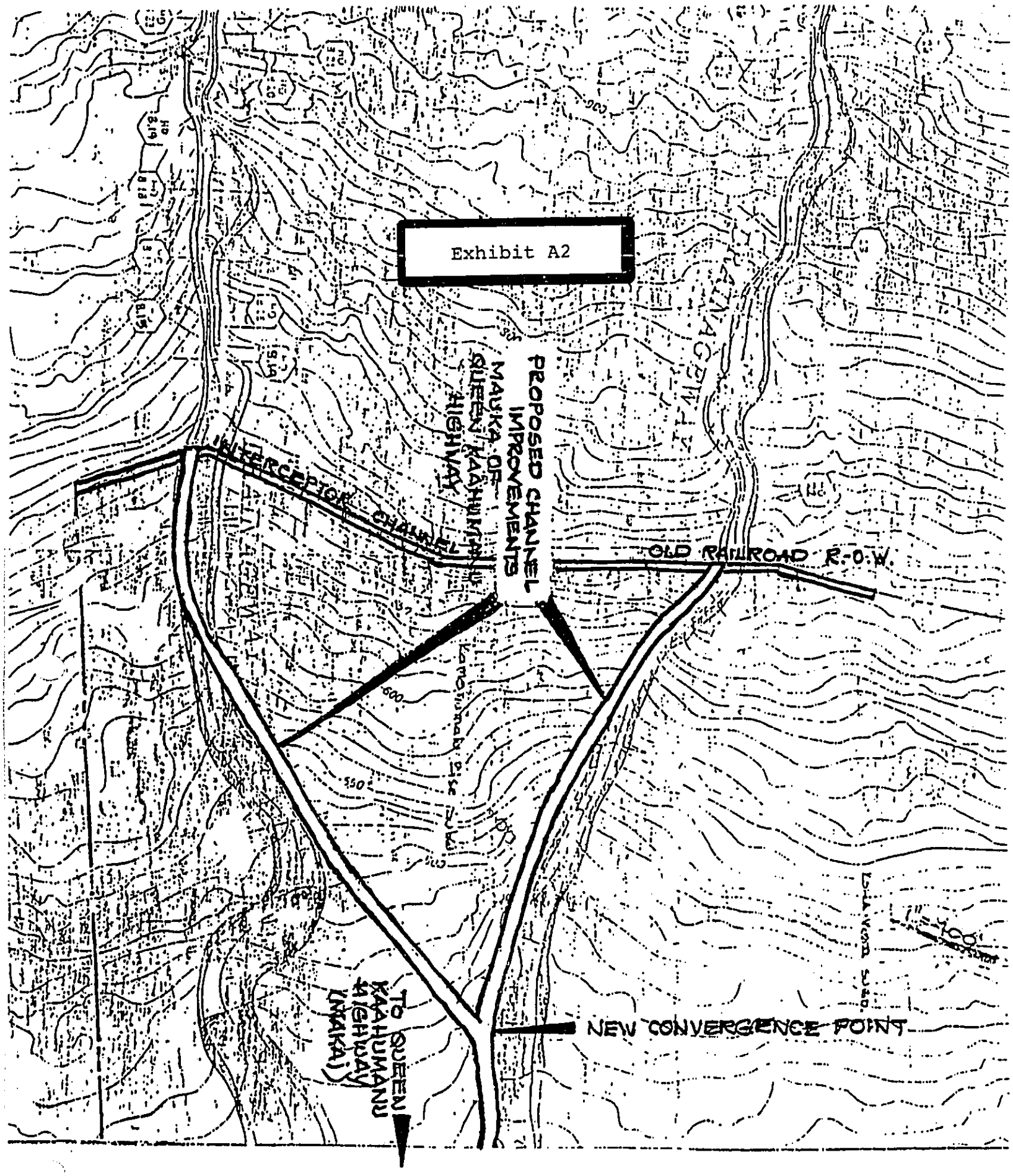
F. Because portions of the proposed drainageway improvements will be constructed on lands owned by the County of Hawaii, an environmental assessment is required by Chapter 343, HRS, Relating To Environmental Impact Statements.

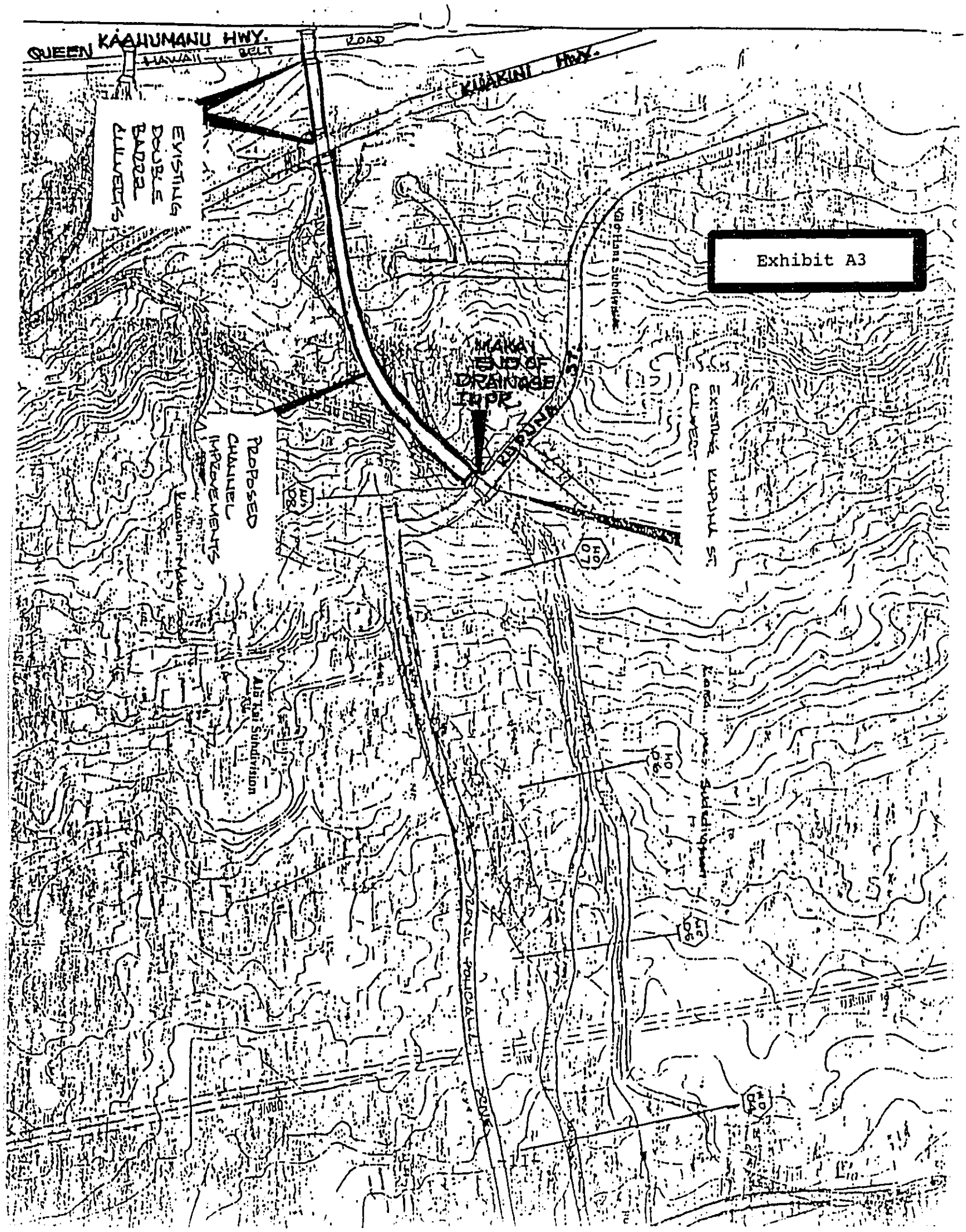
Exhibit A1

POST IMPROVEMENTS
TOPOGRAPHICAL MAP
EXHIBITS
FOR HOLUALOA AND
HORSESHOE BEND DRAINAGE
WAYS

U.S.G.S. ORTHO PHOTOGRAPHY 1977
CONTOUR DATA DERIVED FROM
R.M. TOWILL CORP. HONOLULU
1"=400'
NORTH KONA FLOOD PLAIN MANAGEMENT
STUDY

Exhibit A2


PROPOSED CHANNEL IMPROVEMENTS
MAUKA OF QUEEN KAAHUMANU HIGHWAY
INTERCEPTOR CHANNEL
OLD RAILROAD R-O-W
NEW CONVERGENCE POINT
To QUEEN KAAHUMANU HIGHWAY (MAKAI)


QUEEN KAAHUMANU HWY.
HAWAII BELT ROAD
KIHAKINI HWY.
EXISTING DOUBLE BARREL CULVERTS
PROPOSED CHANNEL IMPROVEMENTS
MAKAI END OF DRAINAGE IMPR.
EXISTING KUIHAU ST. CULVERT
Exhibit A3

II. DESCRIPTION OF HISTORICAL, TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL CHARACTERISTICS:

A. HISTORICAL AND BACKGROUND INFORMATION: The Holualoa and Horseshoe Bend stream systems are among several floodplains that periodically inundate portions of North Kona. These systems run only during times of heavy rainfall on the upper slopes of Mount Hualalai. When soils high on the mountainside become saturated, flash flood waters are released. The flood waters sheet flow down the mountain to the sea. In ancient times the two subject systems flowed on separate courses to the ocean. All of these stream systems only run during flash flooding and are dry most of the time. This information is supplied by and in the North Kona Flood Control Plan prepared for the Department of Public Works, County of Hawaii by Shimabukuro.

Civilization has brought changes to the stream courses. The Horseshoe Bend stream system is the Northern most of the two systems. It gets its name from the "Horseshoe Bend" in Hualalai Road near the point where it crosses. The Holualoa stream crosses Mamalahoa Highway near the Holualoa School and is often called by Holualoa School stream. It lies to the South of the Horseshoe Bend stream. Both systems lie within Holualoa, North Kona, Hawaii. After crossing Mamalahoa Highway and Hualalai Road both streams flow on separate courses down to and under Queen Kaahumanu Highway. The points where they cross under Queen Kaahumanu Highway is near its juncture with Kuakini Highway near the Kona Outdoor Circle facility, Kilohana subdivision and mauka of the Kalani Makai, Kuakini Makai and Alii Kai subdivisions.

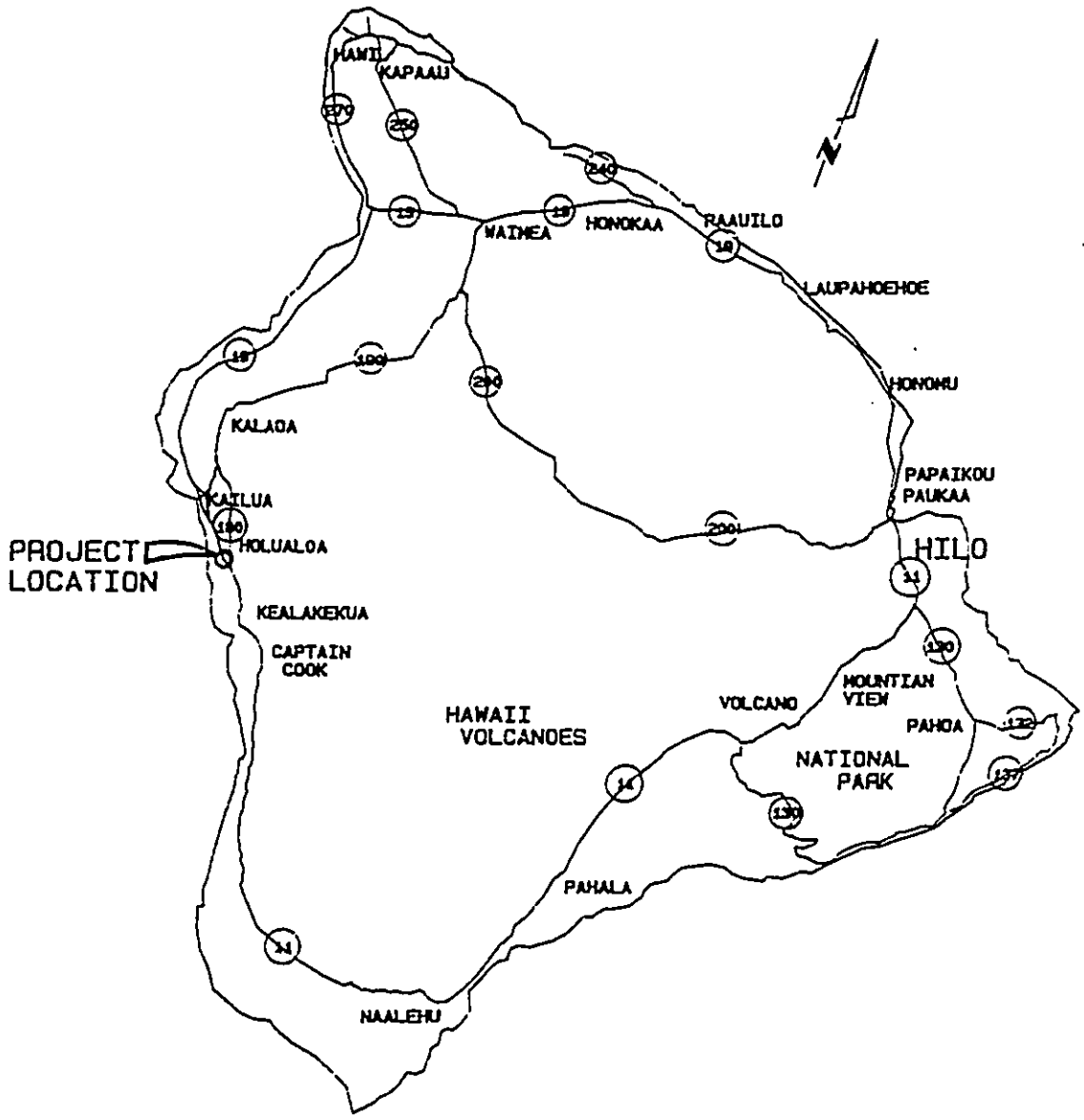
The Holualoa stream passes under both Queen Kaahumanu and Kuakini Highways via double barrel (SPP) culverts before described. After passing under Kuakini Highway, the water reverts back to

back to a sheet flow along unimproved ground until it enters the improved channel section beginning at the Kupuna Street bridge.

The existent improved channel segment begins at the Kupuna Street culvert and runs makai diagonally to a point marking the boundaries of the Alii Kai and Kamani Trees subdivisions. It then runs directly makai to a large ponding and sedimentation basin. The basin is designed to catch flood waters and debris. When water levels reach maximum capacity it overflows via a spillway. From the basin, the water then resumes its natural sheet flow accross Alii Drive to the ocean. The existing channels are partially C.R.M. lined and partially concrete lined.

The Horseshoe Bend stream takes a more tortured course once it passes under Queen Kaahumanu Highway via a five (5) cell (SPP) culvert. Waters then run down to and along the abandonded Keauhou Middle Road (a.k.a. Walua Road) to a low point (in a Northwesterly direction) where it runs off the road down into a low vacant lot. The water ponds there. Once water levels rise enough, it flows over Kuakini Highway at a point near the South side of Kuakini Makai subdivision. There is no culvert under Kuakini Highway for the Horseshoe Bend stream. An earthen berm/ditch system diverts the water around the South side Kuakini Makai subdivision. The waters flow in a diagonal direction until it comes in contact with another earthen berm/ditch system along the mauka boundary of the Kalani Makai subdivision. This diversion brings the water to the Holualoa stream waters where the existing confluence of both streams presently takes place. The convergence point is just mauka of the Kupuna Street bridge.

The earthen divergence system above Kalani Makai subdivision has failed in the past causing flooding in Kalani Makai and the Southern portion of the Alii Kai subdivision which lies directly makai. Exhibits B1 and B2 show the project location.



VICINITY MAP

N.T.S.

Exhibit B1

Exhibit B2

Proposed Project Site

Exhibits C1, C2 and C3 are the Flood Insurance Rate Maps (FIRM) produced by the Federal Emergency Management Agency (FEMA) for the proposed drainage improvement area. They show the existing stream courses as described within this section. The Flood Hazard Area Maps For Holualoa and Horseshoe Bend Drainage Ways are shown on Exhibits D1, D2 and D3.

The diversion system described earlier for the Horseshoe Bend stream brings its water together with the Holualoa stream flow. This existing confluence point is unstable, unimproved and hazardous to all surrounding subdivisions. As mentioned earlier, the proposed convergence point lies mauka of Queen Kaahumanu and Kuakini Highways. The converged waters will flow under both highways in a single concrete lined channel. Once under the highway, the water will flow via a concrete lined channel to the existing channel system at the Kupuna Street bridge. The present convergence point will be eliminated and with it the ever present threat of flooding.

Past flooding has caused a great deal of damage in the Kilohana, Komohana Kai, Kalani Makai and Alii Kai subdivisions. Fortunately there has been no loss of life. Flash floods have occurred suddenly and without warning. It is common for flooding to occur under bright, sunny conditions within the mentioned subdivisions. Under heavy flood conditions, uncontrolled waters in the area are potentially life threatening.

In the mid 1960's the Department of Public Works (DPW) developed the North Kona Flood Control Plan for the Holualoa and Horseshoe Bend drainage ways. Aside from lined channelization, the major change to the existing drainage ways was the new confluence point mentioned herein. The joining of the Holualoa and Horseshoe Bend drainage ways above Queen Kaahumanu and Kuakini Highways would eliminate the patchwork system in place today. The proposed drainage improvements implement this important relocation. All improvements proposed

FLOOD INSURANCE RATE MAP

FOR

HOLUALOA AND HORSESHOE

BEND DRAINAGE WAYS

FIRM COMMUNITY - PANEL NUMBERS: 0926E and 0927D

June 2, 1995

FEMA 1"=500'

Exhibit C1

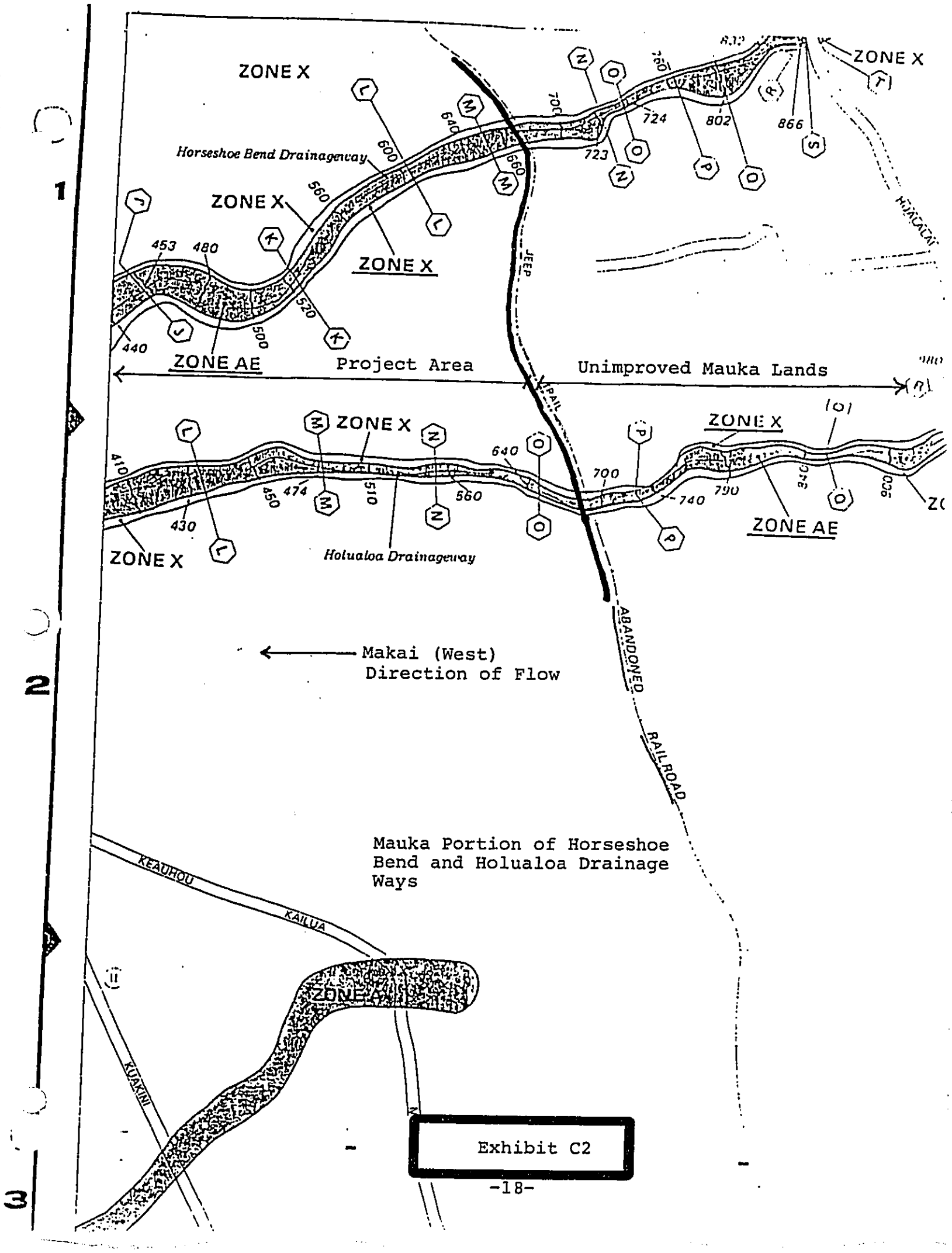

ZONE X
Horseshoe Bend Drainageway
ZONE X
ZONE X
ZONE AE
Project Area
Unimproved Mauka Lands
ZONE X
ZONE X
ZONE AE
Holualoa Drainageway
ZONE X
ZONE X
ZONE AE
JEEP
TRAIL
ABANDONED
RAILROAD
MAMALAHOA
Makai (West)
Direction of Flow
Mauka Portion of Horseshoe
Bend and Holualoa Drainage
Ways
KEAUHOU
KAILUA
KUAKINI
ZONE AE
1
2
3

Exhibit C2

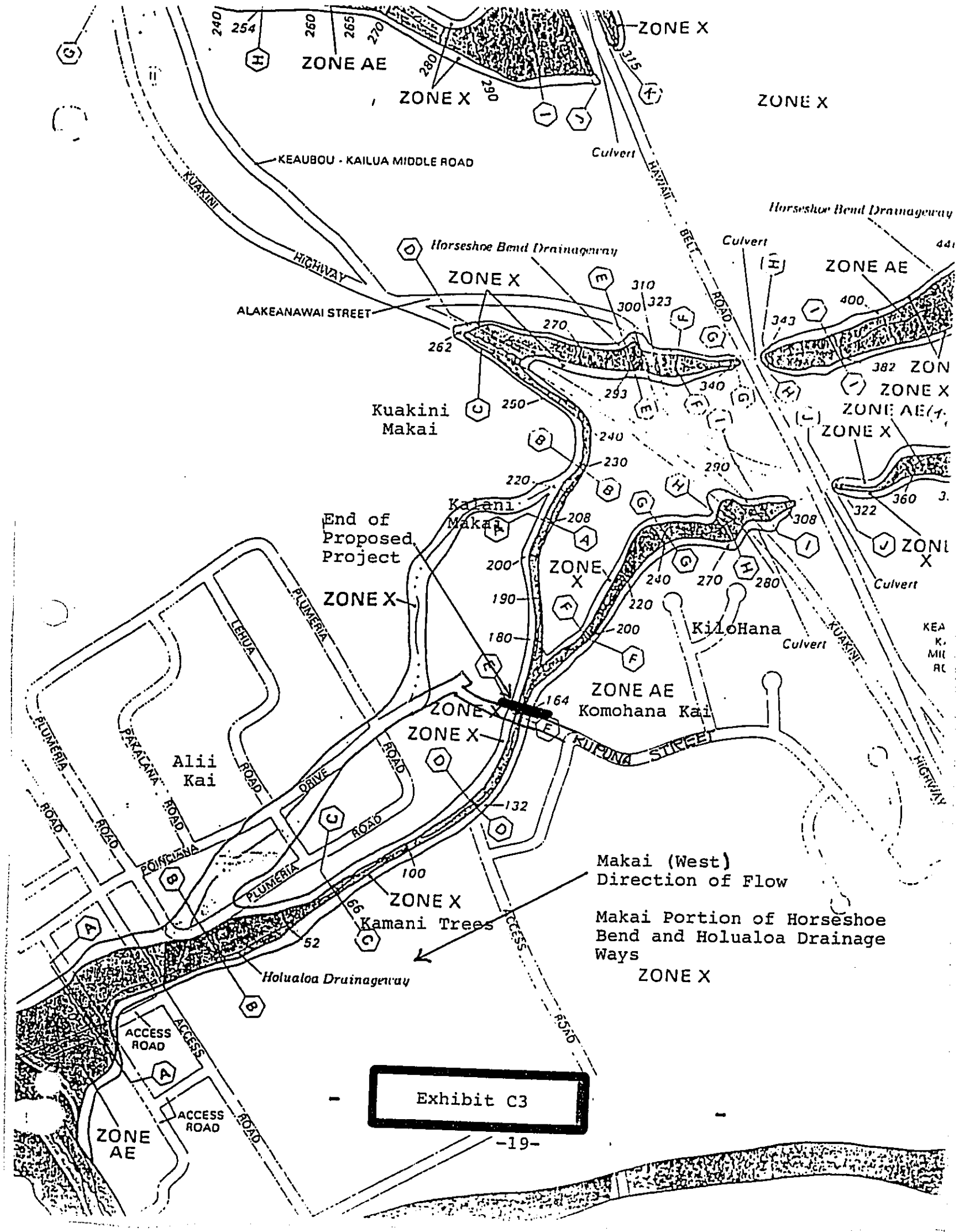

ZONE X
ZONE AE
ZONE X
ZONE X
KEAUBOU - KAILUA MIDDLE ROAD
Culvert
KUAKINI HIGHWAY
BELT ROAD
Horseshoe Bend Drainageway
Horseshoe Bend Drainageway
Culvert
ZONE AE
ZONE X
ALAKEANAWAI STREET
ZONE X
Kuakini Makai
ZONE X
ZONE AE
ZONE X
Kalani Makai
End of Proposed Project
ZONE X
ZONE X
Culvert
ZONE X
KiloHana
Culvert
KUAKINI
PLUMERIA
LEHUA
ZONE AE
Komohana Kai
ZONE X
ZONE X
KUPUNA STREET
Alii Kai
ROAD
DRIVE
ROAD
PAKALANA ROAD
ROAD
ROAD
PLUMERIA
PLUMERIA
ZONE X
Kamani Trees
Holualoa Drainageway
Makai (West) Direction of Flow
Makai Portion of Horseshoe Bend and Holualoa Drainage Ways
ZONE X
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ZONE AE
ACCESS ROAD
HIGHWAY

Exhibit C3

FLOOD HAZARD AREA MAPS
FOR
HOLUALOA AND HORSESHOE
BEND DRAINAGE WAYS

U.S.G.S. ORTHO PHOTOGRAPHY 1977
CONTOUR DATA DERIVED FROM
R.M. TOWILL CORP. HONOLULU
1"=400'
NORTH KONA FLOOD PLAIN MANAGEMENT
STUDY

Exhibit D1

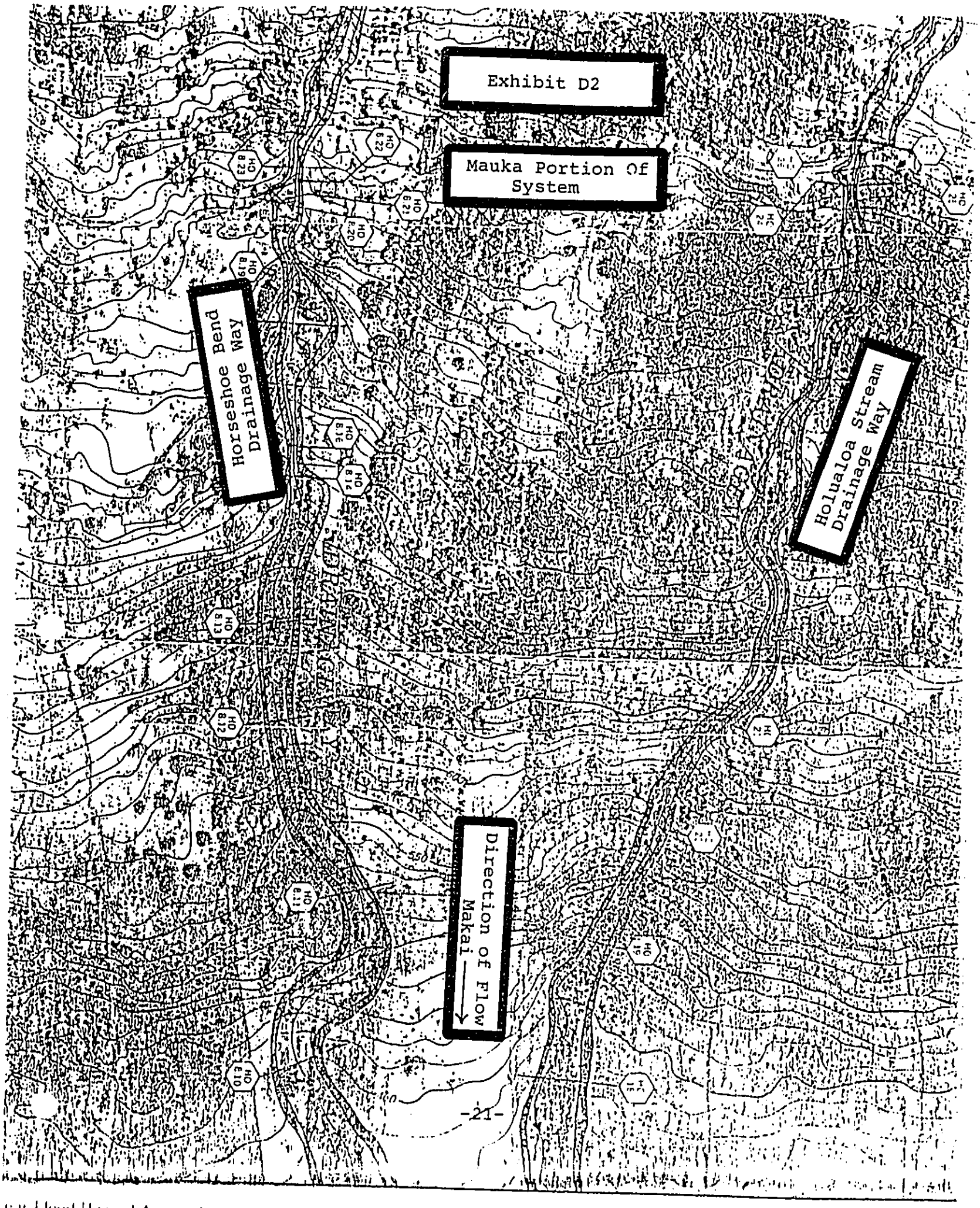
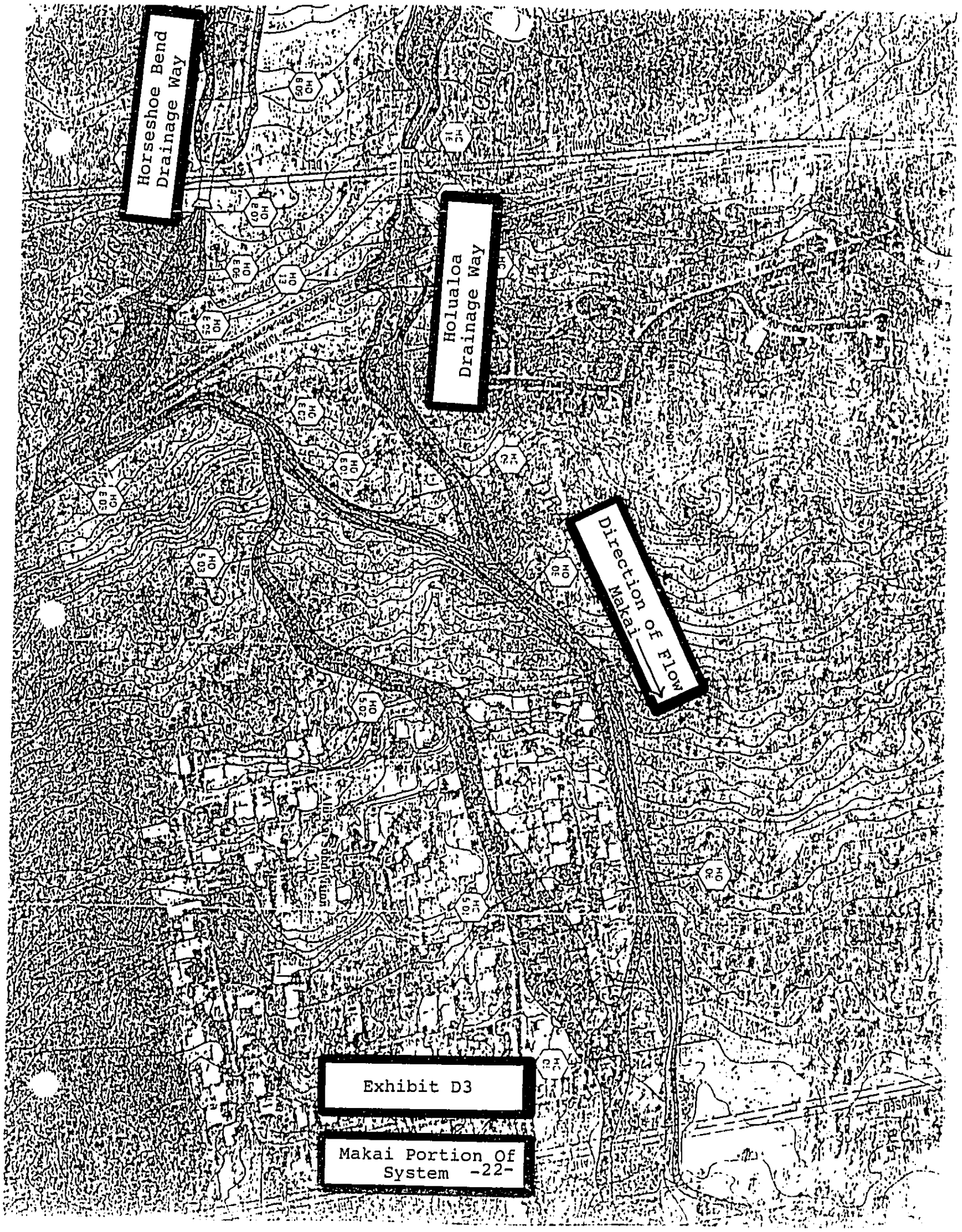


Exhibit D2
Mauka Portion Of System
Horseshoe Bend Drainage Way
Holualoa Stream Drainage Way
Direction of Flow
Makai


Horseshoe Bend
Drainage Way
Holualoa
Drainage Way
Direction of Flow
Makai
Exhibit D3
Makai Portion Of
System -22-

within this environmental assessment follow the guidelines within the North Kona Flood Control Plan.

Gamrex, Inc. purchased the property mauka of Queen Kaahumanu Highway in 1976. Preliminary planning and engineering for flood control commenced in 1980. In 1983 both DPW and Gamrex, Inc. worked with the Department of Transportation (DOT), State of Hawaii, to increase the culvert capacities under the new Queen Kaahumanu Highway extension. These redesigned culverts exist today, and can accept the combined flows of the Holualoa and Horseshoe Bend drainage ways.

In 1984, Gamrex obtained incremental zoning of its lands from the County of Hawaii. A condition of rezoning called for Gamrex to build the drainage improvements set forth in the North Kona Flood Control Plan within its lands mauka of the highway. Portions of these drainage improvements will be constructed on Gamrex owned lands and portions on lands owned by the County of Hawaii. Exhibit E is a tax map showing the lands owned by Gamrex mauka of Queen Kaahumanu Highway. In 1985, Gamrex obtained preliminary approval from DPW for the drainage improvements mauka of Queen Kaahumanu Highway. Preliminary approval was conditioned on drainage improvements being constructed between Kuakini Highway and the Kupuna Street bridge on lands not owned by Gamrex prior to Gamrex building anything above the highway(s).

In talking with the land owners of the lot below Kuakini Highway, Gamrex found that their construction plans were indefinate and unknown. In 1987, Gamrex purchased the subject parcel of land makai of highway as shown on Exhibit F which is a tax map of the area. Engineering was started in 1988 on the required drainage improvements. Preliminary approval for the makai drainage improvements was granted by DPW in 1989. Preliminary approval was conditioned on plan approval by FEMA together with obtaining a Conditional Letter of Map Revision (CLOMR) which would revise the existing FIRM upon

Exhibit E
Tax Map Keys: 7-6-21:16 - 19
Third Division
Lands Located Mauka of Queen
Kaahumanu Highway.

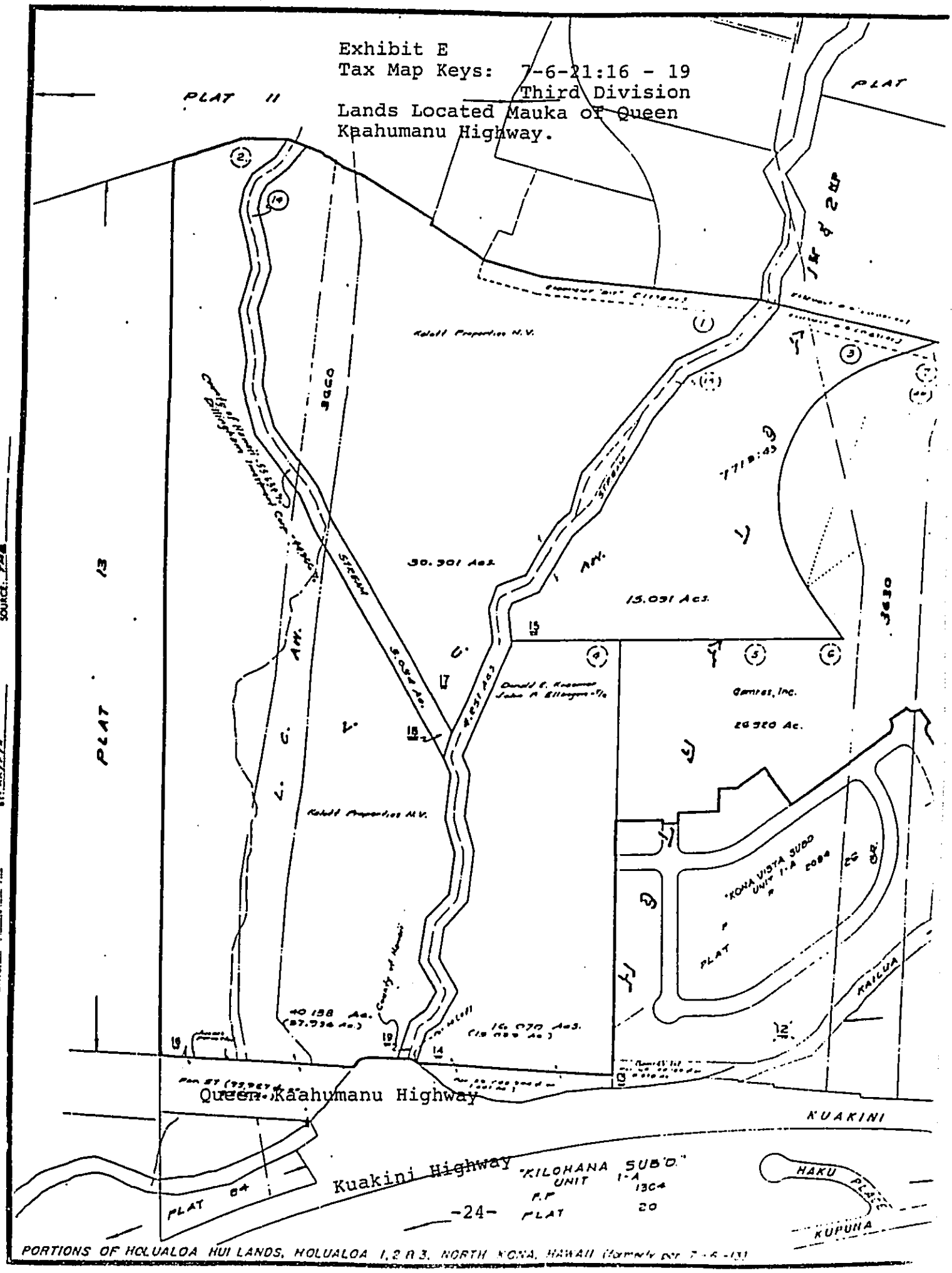
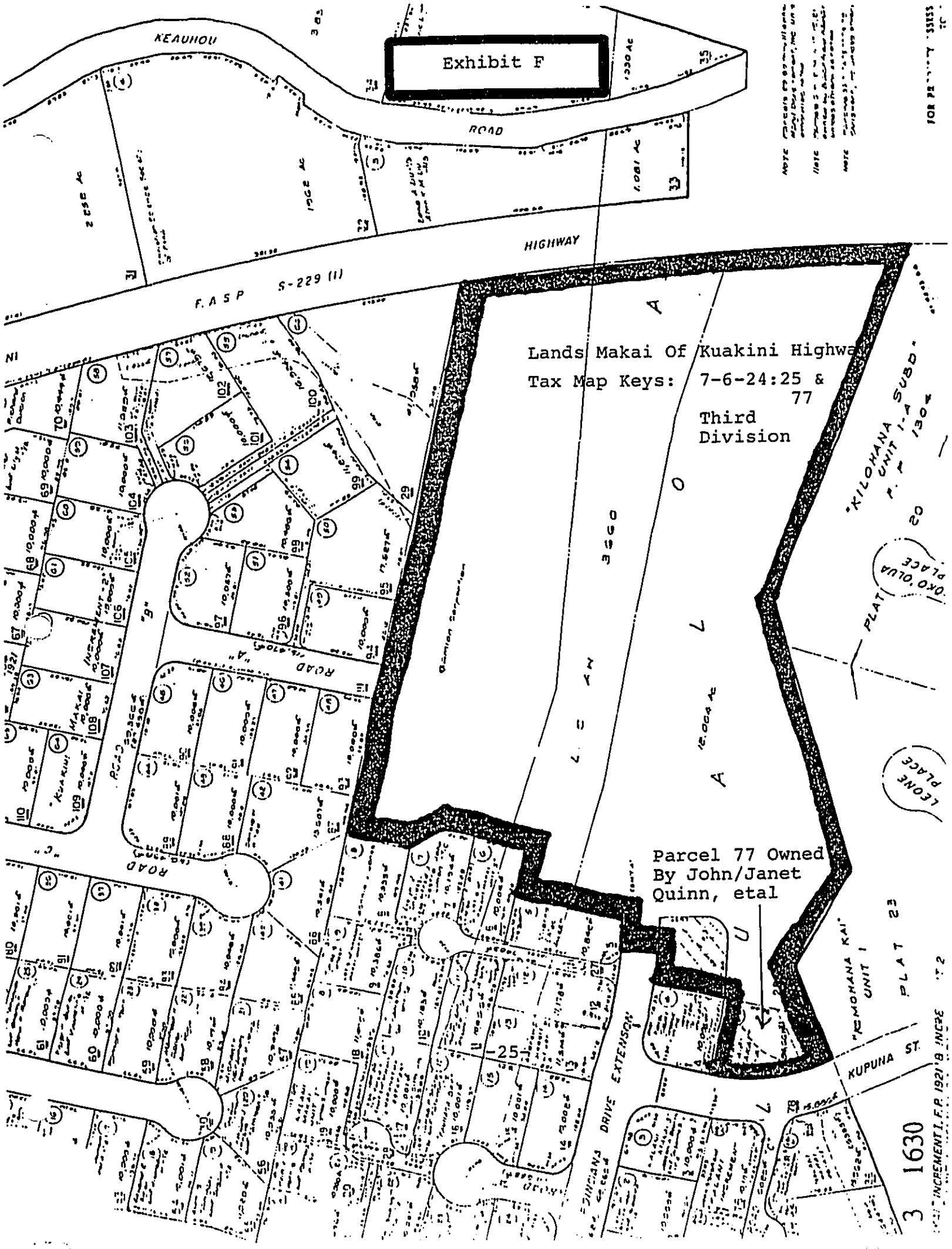


Exhibit F


KEAUHOU
ROAD
HIGHWAY
F.A.S.P. S-229 (1)
Lands Makai Of Kuakini Highway
Tax Map Keys: 7-6-24:25 & 77
Third Division
Parcel 77 Owned By John/Janet Quinn, etal
-25-
DRIVE EXTENSION
KUPUNA ST.
"KILOHANA SUBD. UNIT 1-A"
"KILOHANA KAI" UNIT 1
PLAT 23
3 1630

upon completion of the proposed improvements. Applications for the CLOMR were prepared by Gamrex and its consultants on behalf of the County of Hawaii which were duly filed in 1989. The CLOMR was issued by FEMA to the County of Hawaii on March 24, 1995, as evidenced by Exhibit G. It has taken the County and Gamrex over 15 years to bring this proposed drainage project to this stage of approval.

When the proposed improvements are complete, FEMA will then issue a Letter of Map Revision (LOMR) which amends the FIRM reducing the flood plains described herein into the confines of the lined drainage channels. Reference is made back to Exhibit A which shows the revised FIRM.

In August of 1995, an informational meeting was held. Over 110 written notices were mailed out to land owners in Kilohana, Komohana Kai, Kalani Makai, Kuakini Makai and Alii Kai subdivisions affected by flooding. A copy of the notice and invitation is attached as Exhibit H. The meeting was duly held on August 24, 1995, at 7:00 P.M., at the Kona Vistas recreation center. The meeting agenda is attached as Exhibit I and the minutes of the meeting as Exhibit J.

It should also be noted that the improvements below Kuakini Highway will be constructed on lands owned by Gamrex, owner of parcel 7-6-24: 25, and over easements in favor of the County of Hawaii over and accross parcel 7-6-24: 77, owned by John D. and Janet U. Quinn and Melvyn Perez. A copy of that tax map is attached as Exhibit F. All construction and approval costs will be borne by Gamrex, Inc., and upon completion, the entire drainage system will be dedicated to the County of Hawaii.

Federal Emergency Management Agency

Washington, D.C. 20

MAR 24 1995

Exhibit G
(CLOMR)

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 95-09-145R
(Formerly Case No. 93-09-616R)

The Honorable Stephen K. Yamashiro
Mayor, County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720-4252

Community: Hawaii County, Hawaii
Community No.: 155166

104

Dear Mayor Yamashiro:

This is in response to a letter dated December 2, 1994, from Mr. Galen M. Kuba, Acting Division Chief, Engineering Division, County of Hawaii, Department of Public Works, to the Federal Emergency Management Agency (FEMA) regarding the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Hawaii County, Hawaii. Mr. Kuba requested that FEMA evaluate the effects that a proposed channelization project along Holualoa and Horseshoe Bend Drainageways from approximately 3,000 feet upstream of Hawaii Belt Road to an existing culvert at Kupuna Street would have on the effective FIRM and FIS report.

All data required by FEMA to evaluate this request were submitted by Mr. Kuba with his December 2 letter. Mr. Kuba certified that the project is a flood-control project that is sponsored by a Federal, State, or local government, is for public benefit, and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas that were in existence prior to commencement of the flood-control project. Therefore, in accordance with Section 72.5 of the National Flood Insurance Program (NFIP) regulations, the fees associated with our review of this Conditional Letter of Map Revision (CLOMR) have been waived.

We have reviewed the data submitted and the flood data used to prepare the effective FIRM for Hawaii County, Hawaii. We believe that if the proposed project is constructed as shown on the plans entitled "North Kona Flood Control Channel," prepared by The Keith Companies, dated June 7, 1993, and "Kamehamula Rise North Kona Flood Control Project," prepared by Imata & Associates Inc., a revision to the FIRM would be warranted.

The existing Holualoa and Horseshoe Bend Drainageways flow generally parallel from Hualalai Road under Hawaii Belt Road before converging just upstream of Kupuna Street. As part of the proposed flood control project and channel realignment, an interceptor channel will be constructed to divert upstream flows into the proposed channels. The interceptor channel will be continuous between the drainageways and will extend approximately 370 feet north of the Horseshoe Bend Drainageway and approximately 440 feet south of the Holualoa Drainageway. The grass-lined interceptor channel will have a 5-foot bottom width, 1 horizontal to 1 vertical (1H:1V) side slopes, and a varying depth.

The Horseshoe Bend Drainageway will be channelized and realigned beginning at a jeep trail approximately 1,250 feet downstream of Hualalai Road and will connect to a proposed 8-foot by 8-foot reinforced concrete box (RCB) culvert under a proposed road approximately 1,880 feet upstream of Hawaii Belt Road. The Holualoa Drainageway will be channelized and realigned beginning at an abandoned railroad approximately 1,700 feet downstream of Hualalai Road and will connect to a proposed

CORRECTION

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

Federal Emergency Management Agency

Washington, D.C. 20

Exhibit G
(CLOMR)

MAR 24 1995

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 95-09-145R
(Formerly Case No. 93-09-616R)

The Honorable Stephen K. Yamashiro
Mayor, County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720-4252

Community: Hawaii County, Hawaii
Community No.: 155166

104

Dear Mayor Yamashiro:

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The existing Holualoa and Horseshoe Bend Drainageways flow generally parallel from Hualalai Road under Hawaii Belt Road before converging just upstream of Kupuna Street. As part of the proposed flood control project and channel realignment, an interceptor channel will be constructed to divert upstream flows into the proposed channels. The interceptor channel will be continuous between the drainageways and will extend approximately 370 feet north of the Horseshoe Bend Drainageway and approximately 440 feet south of the Holualoa Drainageway. The grass-lined interceptor channel will have a 5-foot bottom width, 1 horizontal to 1 vertical (1H:1V) side slopes, and a varying depth.

The Horseshoe Bend Drainageway will be channelized and realigned beginning at a jeep trail approximately 1,250 feet downstream of Hualalai Road and will connect to a proposed 8-foot by 8-foot reinforced concrete box (RCB) culvert under a proposed road approximately 1,850 feet upstream of Hawaii Belt Road. The Holualoa Drainageway will be channelized and realigned beginning at an abandoned railroad approximately 1,700 feet downstream of Hualalai Road and will connect to a proposed

8-foot by 8-foot RCB culvert under a proposed road approximately 1,700 feet upstream of Hawaii Belt Road. The two channels will converge at approximately 1,300 feet upstream of Hawaii Belt Road. The combined channel will connect to an existing double structural plate pipe (SPP) culvert (two barrels each with a 9-foot diameter) under Hawaii Belt Road, and 250 feet downstream the channel will connect to another existing double SPP culvert of the same dimensions under Kuakini Highway. The channelization will continue approximately 1,200 feet downstream of Kuakini Highway to the upstream end of an existing 12-foot by 25-foot arch culvert under Kupuna Street.

The flood control channels will be trapezoidal and concrete-lined with a minimum 15 foot bottom width, 1H:2V side slopes, and an average depth of 11 feet for the reach upstream of Kuakini Highway. For the reach downstream of Kuakini Highway, the channel will be concrete lined with vertical walls, a bottom width of 16 feet, and an average depth of 11 feet. The channel invert slope varies from 2 percent just upstream of Kupuna Street, to 18 percent just downstream of Kuakini Highway, to 24 percent just downstream of the interceptor channel along the channelized reach of the Holualoa Drainageway.

The reaches of the Holualoa and Horseshoe Bend Drainageways affected by this request are located on FIRM Panels 0926 D, dated May 16, 1994, and 0927 C, dated September 16, 1988, and are currently designated on the FIRM as Special Flood Hazard Areas (SFHAs) Zone AE, defined as areas inundated by a flood having a 1-percent probability of being equaled or exceeded in any given year (base-flood) with base (100-year) flood elevations (BFEs) determined. Because all 100 year flows will be contained in the proposed flood control channels, BFEs will not be shown along the revised reach of the Holualoa and Horseshoe Bend Drainageways from the upstream limit of the channelization to the downstream limit at Kupuna Street. The SFHA will decrease by a maximum of approximately 100 feet along the upstream reach of the Holualoa and Horseshoe Bend Drainageways. An area of detailed flooding along the existing alignment of the Horseshoe Bend Drainageway, currently shown on FIRM Panel 0926 D, will be removed because of the realignment of the flood control channel that will contain all 100-year flows currently affecting this area.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIS report and FIRM.

- Detailed application and certification forms, which were used in processing this request, must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Revision Requester and Community Official Form," and Form 2, entitled "Certification by Registered Professional Engineer and/or Land Surveyor," must be included. (Copies of these forms are enclosed.)

- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms (copies of which are enclosed) or annotated copies of the previously submitted forms showing the revised information.

  Form 4, entitled "Riverine Hydraulic Analysis Form"

  Form 5, entitled "Riverine/Coastal Mapping Form"

  Form 6, entitled "Channelization Form"

  Form 7, entitled "Bridge/Culvert Form"

3

Please note that with Form 4, hydraulic analyses, for as-built conditions, of the 10-, 50-, 100-, and 500-year floods must be submitted, and with Form 5, a topographic work map showing the revised 100- and 500 year floodplain boundaries must be submitted.

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Certification that all fill placed in the currently effective 100-year floodplain and below the proposed BFE is compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test method issued by the American Society for Testing and Materials (ASTM Standard D-698) or an acceptable equivalent method for all areas to be removed from the 100-year floodplain

- An officially adopted maintenance and operation plan for the North Kona Flood Control Channel. This plan, which may be in the form of a written statement from the community Chief Executive Officer, an ordinance, or other legislation, must describe the nature of the maintenance activities, the frequency with which they will be performed, and the title of the local community official who will be responsible for ensuring that the maintenance activities are accomplished.

- Calculations or certification that the flood control channel has been designed to withstand 100-year flood velocities up to 50 feet per second (as per the submitted HEC-2 hydraulic analysis), and that the high velocities will not have adverse effects on the existing channel and culvert at the downstream limit of the project

- Supporting data to show that any hydraulic jumps that may occur at transitions in the channel (for example, at abrupt changes in channel invert slopes, at changes in the cross sectional geometry of the channel, at culverts, etc.) will be contained in the channel

- Hydraulic analyses, for as-built conditions, of all culverts or hydraulic structures (including the interceptor channel) along the proposed flood control channel

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM and FIS report. If the project results in mappable changes in the BFEs, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a proposed channel-modification and culvert project. Paragraph 60.3(b)(7) of the NFIP regulations requires that communities "assure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained." This provision is incorporated into your community's existing floodplain management regulations. Consequently, your community must agree to accept responsibility for the maintenance of the modified channel before allowing its construction.

This response to Mr. Kuba's request is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all proposed floodplain development, including this request, and for assuring that the necessary permits required by Federal or State law have been received. State and community officials, based on knowledge of local conditions and in the interest of human safety, may set higher standards for construction or may limit development in floodplain areas. If the State of Hawaii or your community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by contacting the Director, Mitigation Division of FEMA in San Francisco, California, at (415) 923-7177. If you have any technical questions regarding this CLOMR, please contact Mr. John Magnotti of our staff in Washington, DC, either by telephone at (202) 646-3932 or by facsimile at (202) 646-4596.

Sincerely,

Michael K. Buckley, P.E., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: Mr. Galen M. Kuba
Acting Division Chief
Engineering Division
County of Hawaii
Department of Public Works

Mr. Ed Yoshida
Engineering Division
County of Hawaii
Department of Public Works

Mr. Kelvin H. Trewartha, P.E
President
KHT Consulting International

Gamrex, Inc.
Kona Vistas Subdivision
76-117 Kamehamalu St.
Kailua-Kona, HI 96740

August 17, 1995

Dear Homeowner(s),

You are invited to an informational meeting regarding proposed drainage improvements to the Horseshoe Bend and Holualoa Streams. These improvements will start at the Kupuna Street Bridge, and extend mauka up to the old railroad right-of-way. The project is a joint effort between the County of Hawaii, and Gamrex, Inc.

The meeting will be held at the Kona Vistas Recreation Center, on August 24, 1995, at 7:00 PM. The Recreation Center is located mauka of Kuakini Highway on the corner of Lako and Pualani Streets. Take the first right off Lako onto Pualani, then the first right into the parking lot, or park along Pualani Street if lot is full.

A brief project orientation will be held, and a question and answer period will follow. Hope to see you there.

Sincerely,

Gregg R. Kashiwa

Exhibit H

Notification/Invitation
Letter To Informational
Meeting

Drainage Improvements

08/24/95
7:00 PM
Kona Vistas Recreation Center

Meeting Sponsored by:

Gamrex, Inc.

76-117 Kamehamalu St., Kailua-Kona, HI 96740

Phone: 329-9724 Fax: 326-2789

Moderator:

Gregg Kashiwa

President

Project Planners Hawaii

Purpose of Meeting: To Describe proposed drainage improvements to landowners in and around Alii Kai, Kalani Makai, Kuakini Makai, and Kilohana Subdivisions, affected by periodic flooding.

Agenda

1. Project Orientation	Gregg Kashiwa	7:00-
2. Questions and Answers	Homeowners	
3. Summary	Gregg Kashiwa	

Additional Information

Special notes: Please note that this meeting preceeds, and will become part of the record for, a draft Environmental Assessment, and Special Management Area Use Permit, required in the governmental approval process.

Exhibit I

Meeting Agenda

MINUTES
On the Proposed Drainage Improvements
to the Holualoa and Horseshoe Drainageways
INFORMATIONAL MEETING

Kona Vista Recreational Center
August 24, 1995
7:00 p.m.

~

PRESENTER:

Gregg Kashiwa
Project Planners Hawaii

RESPECTFULLY SUBMITTED BY:
Ann C. Peterson
October 11, 1995

Exhibit J

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B. QUESTION and ANSWER PERIOD 5

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INTRODUCTION

In discussions regarding proposed improvements to the Holualoa and Horseshoe Bend Stream drainageways, held between the Department of Public Works, County of Hawaii and Gamrex, Inc., it was decided that an informational meeting for landowners affected by periodic flooding within the existing floodplain should be held.

This meeting, not required by any regulations, was not held to solicit support for the project, but to give landowners an overview of the proposed improvements, which would be built on County-owned and Gamrex-owned land and funded in total by Gamrex as a condition of the land's rezoning.

Homeowners in the subdivisions adjacent to the proposed improvements were notified by letter dated August 17, 1995 of the informational meeting regarding the project to be held August 24, 1995, 7:00 p.m., at Kona Vistas subdivision recreational center located on Lako Street, Kailua-Kona, Hawaii (Appendix 1). Those invited to attend included (110) residents in the following neighborhoods:

- ❑ Kuakini Makai
- ❑ Kalani Makai
- ❑ Ali`i Kai
- ❑ Kilohana

Eighteen landowners, some of them representing their homeowners' association, responded either through attendance of the meeting (n = 12), by telephone (n = 5), or by fax (n = 1) (Exhibits B, C.1., C.2.). The response represented 18 percent of landowners notified. In addition to the twelve landowners, those persons listed in Exhibit D were also in attendance at the meeting.

The following minutes of the meeting of August 24, 1995, serves as a record of the information presented to the residents, and the inquiries of, and responses to, the residents of the areas adjacent to proposed project.

MINUTES OF THE MEETING

PRESENTATION

The meeting was called to order at 7:00 p.m. by Greg Kashiwa, President, Project Planners Hawaii.

The County maps, supplied by Mr. Royden Yamasato, Planning Department, County of Hawaii, of the flood plain area were reviewed. Presently, streams running from the mountains take their natural course to the ocean, but occasionally, especially during rainy periods, where the two drainageways come together, Horseshoe Bend and Holualoa Streams flood.

☛ HISTORY OF HOLUALOA AND HORSESHOE BEND STREAMS

Historically, concern over the existing condition began in 1974, when the North Kona Flood Control Plan was developed by the Department of Public Works, County of Hawaii. The 1974 plan proposed improvements to the floodplain converging the drainageways above Queen Kaahumanu Highway and Kuakini Highway to avoid flooding.

In 1976, Gamrex acquired the flood hazard area above Queen Kaahumanu Highway near the Kuakini junction.

In 1981, the Department of Public Work, County of Hawaii and Gamrex, Inc. began preliminary flood control engineering.

In 1983, Gamrex worked with the Department of Transportation to increase the capacity of Holualoa stream culvert under the Queen Kaahumanu Highway extension to accommodate the the planned combined flow of both streams.

In 1985, flood control plans for the land mauka of Queen Kaahumanu Highway (called the Imata Plans') were given preliminary approval by the Department of Public Works, County of Hawaii. Essential components to the success of this flood plan included:

- ❑ convergence of the two streams mauka (upper-side) of Queen Kaahumanu Highway.
- ❑ single system under the highways and to existing improvement.
- ❑ construction both above and below of Kuakini Highway.

In 1987, Gamrex purchased a 12 acre parcel of land lying below Kuakini Highway, necessary in eventuating the project.

In 1989, the Department of Public Works, County of Hawaii gave preliminary approval for drainage plans, developed by the Keith Companies, on the lands below Queen Kaahumanu Highway. With this preliminary approval in place, the County of Hawaii and Gamrex applied for a Conditional Letter of Map Revision (CLOMR) to the Federal Emergency Management Agency (FEMA).

In 1995, FEMA granted the CLOMR (Exhibit E.2.). Federal Emergency Management Agency (FEMA) endorsed the project with specific guidelines, stating that "when shown that the project has been completed, FEMA will initiate a revision to the FIRM [Flood Insurance Rate Map] and FIS [Flood Insurance Study] report."

The steps yet remaining before the project can be initiated include approvals on the following:

- ❑ Environmental Assessment
- ❑ Special Management Area Use Permit (S.M.A. Use Permit) below Kuakini Highway
- ❑ Grading and Building Permits

☛ PROPOSED IMPROVEMENTS

The landowners were then asked to review in their handouts maps of the existing drainageways, as well as the existing Flood Insurance Rate Map (FIRM) and a map of the proposed improvements showing how the drainageways courses would be changed (Exhibits E.1., E.3., and E.4.).

As seen in the proposed improvements, the project call for building concrete channels 15 to 22 feet wide and averaging 11 feet in depth. A chain-link fence will be erected along its entire length. There will be service roads along the channels. All improvement costs will be borne by Gamrex, Inc.

Attention was then drawn to the post improvements FIRM map (Exhibit E.5.). With the channels in place, much of the land within the subdivisions is reclaimed from floodplain status.

☛ POTENTIAL DISADVANTAGES/BENEFITS

Potential **DISADVANTAGES** regarding the project include the short-term intrinsic aspects of construction, such as:

- ❑ Noise
- ❑ Dust (which would be kept to a minimum with water)
- ❑ Vibration

as well as the longer term:

- ❑ Visibility of the reinforced drainage ditch
- ❑ Land within the drainage improvements will be taken out of its natural state and dedicated permanently to drainage usage.

The **BENEFITS** are apparent:

- ❑ Flood control improvements would be implemented above Kupuna Street to Old R.R. r.o.w.
- ❑ FIRM maps would be revised, eliminating many existing flood plains.
- ❑ Present flood danger(s) will be eliminated with the confluence of both streams mauka of Queen Kaahumanu and Kuakini Highways

Martin Mohan, Mikilana Street: Are there plans for the 12 acres of land acquired mauka of Kaahumanu Highway? This land is valuable, usable; it is zoned for family use.

The present zoning is RM5 (Resident-Multiple-Dwelling). There are no exact plans yet.

Josephine Keliipio, Kealakekua: Was this land donated to the Hawaii Preparatory Academy? (re: Twelve acres makai of Kuakini Highway)

No, only a northern parcel of five acres.

Martin Mohan, Mikilana Street: Does the county have any plans for this area?

No, no that I know of, but the County is in full support of the drainage improvement..

Stan Suderow, U`uku Place: [Rhetorical] While some might say that it's is not a thing of beauty, this new drainage system is important to build, and I support it. Further, as President of the Kilohana Homeowners Association, Thank you for starting this communication.

With no more questions, the meeting was adjourned.

SUMMARY

Discussion identifying solutions to the existing floodplain's topography began in 1974. Through several reviews and revisions, a County-approved plan has recently been given FEMA's conditional support with promise to initiate a new FIRM and FIS report when the construction is complete, as evidenced by the CLOMR.

The projects calls for the Holualoa and Horseshoe drainageways to converge on the upper side of Queen Kaahumanu Highway. The channel will be excavated and be concrete lined 15 to 20 feet wide, and 11 feet deep. A chain link fence will be erected along both side of the channel(s) along its entire length.

The advantages of the project out-weigh the disadvantages (most of them short-term), and full support was given to the project from those attending as well as the homeowners' associations being represented.

EXHIBIT A

~

Notification Letter

Kona Vistas Subdivision
Site Sales Office
76-117 Kaoehaomalu Street
Kailua-Kona, HI 96740
(808) 329-9724 Fax (808) 326-2789

August 17, 1995

Dear Homeowner(s),

You are invited to an informational meeting regarding proposed drainage improvements to the Horseshoe Bend and Holualoa Streams. These improvements will start at the Kupuna Street Bridge, and extend mauka up to the old railroad right-of-way. The project is a joint effort between the County of Hawaii, and Gamrex, Inc.

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A brief project orientation will be held, and a question and answer period will follow. Hope to see you there.

Sincerely,

Gregg R. Kashiwa

PS. If you have any questions, or are unable to attend, please phone or fax our office:
(808)329-9724 phone (808)326-2789 fax

GAMREX, INC., 1188 Bishop Street, Suite 903, Honolulu, Hawaii 96813-3303, (808) 521-[illegible]

EXHIBIT B
~
Telephone/Fax Responses

-NONE-

EXHIBIT C. 1.

~

Signature Sheets

See Exhibit C. 2.

EXHIBIT C. 2.

~

Sign-in Sheets Transcript

SIGN-IN SHEET ROSTER

Mary Ashcraft
76-6252 Koho Olua Way
St.
Kailua-Kona, HI

R.N. Ashcraft
76-6252 Koho Olua Way
Kailua-Kona, HI

George Broderson
73-1157 Ahulani St.
Kailua-Kona, HI

Stan Bunch
72-248A Olomea Pl.
Kailua-Kona, HI

Bud Hollowell
76-228 Oma
Kailua-Kona, HI

Josephine Keliipio
P.O. Box 368
Kealakekua, HI

Hazel Klinger
76-6207 Leone Pl.
Kailua-Kona, HI

Richard Lumang
(address n/a)
Kailua-Kona, HI

Harry Miller
76-6307 Haku Pl.
Kailua-Kona, HI

Martin Mohan
76-6223A Mikilana

Kailua-Kona, HI

Mel Perez
76-228 Royal Poinciana
Kailua-Kona, HI

Stan Suderow
76-6273 U`uku P.
Kailua-Kona, HI

EXHIBIT D
~
Presenter/Panel/
Recorder Roster

PRESENTER/PANEL/RECORDER ROSTER

Gregg Kashiwa, Presenter
President
Project Planners Hawaii

Craig Willis
Vice-President
Gamrex, Inc.

Royden Yamasato
Planning Department, Kona Office
County of Hawaii

Dirk Van Deusen
Project Sales Manager
Gamrex, Inc.

Gae Callaway
Administrative Assistant
Gamrex, Inc.

Kelvin Trewartha
Consulting Engineer
The Keith Companies

Ann Peterson
Recorder

EXHIBIT E. 1.

~

Tax Map

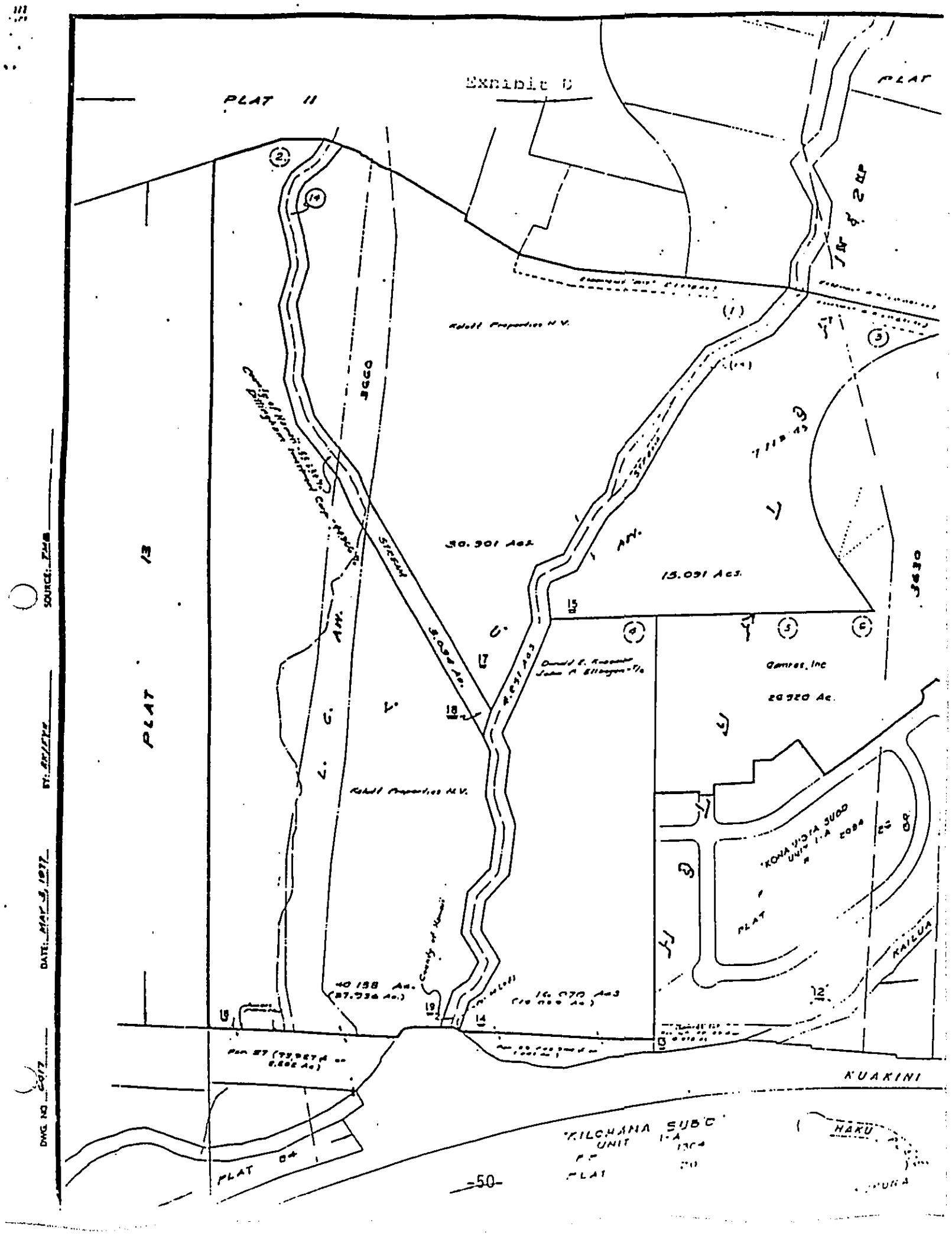
Exhibit B
PLAT 11
PLAT
13
PLAT
JAGGO
STREAM
30.901 Acs
15.091 Acs.
Gamres, Inc
20.320 Ac.
KONA VISTA SUBD
UNIT 1-A
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KAILUA
NUAKINI
KILOHANA SUBD
UNIT 1-A
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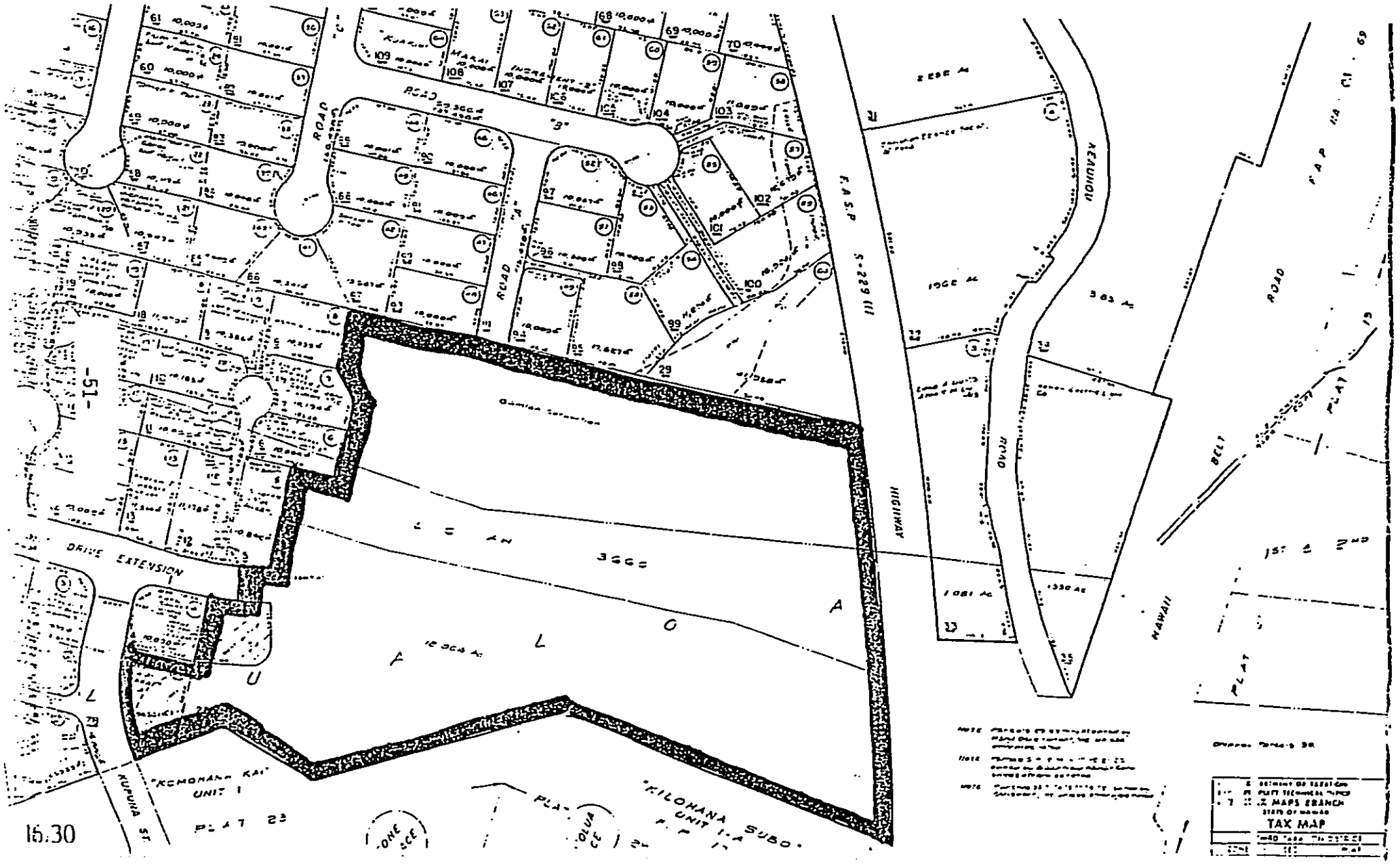
SOURCE:
DATE: MAY 3 1977
DWG NO 2017
BY: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"B"
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"KILOHANA SUBD." UNIT 1-A
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OLUA SCE
KEAUHOU
HIGHWAY
OLUA
BELT
ROAD
PLAT
HAWAII
1ST & 2ND
TAX MAP
16:30
-51-

EXHIBIT E. 2.

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Conditional Letter of Map Revision (CLOMR)

See Exhibit G Herein

EXHIBIT E. 3.

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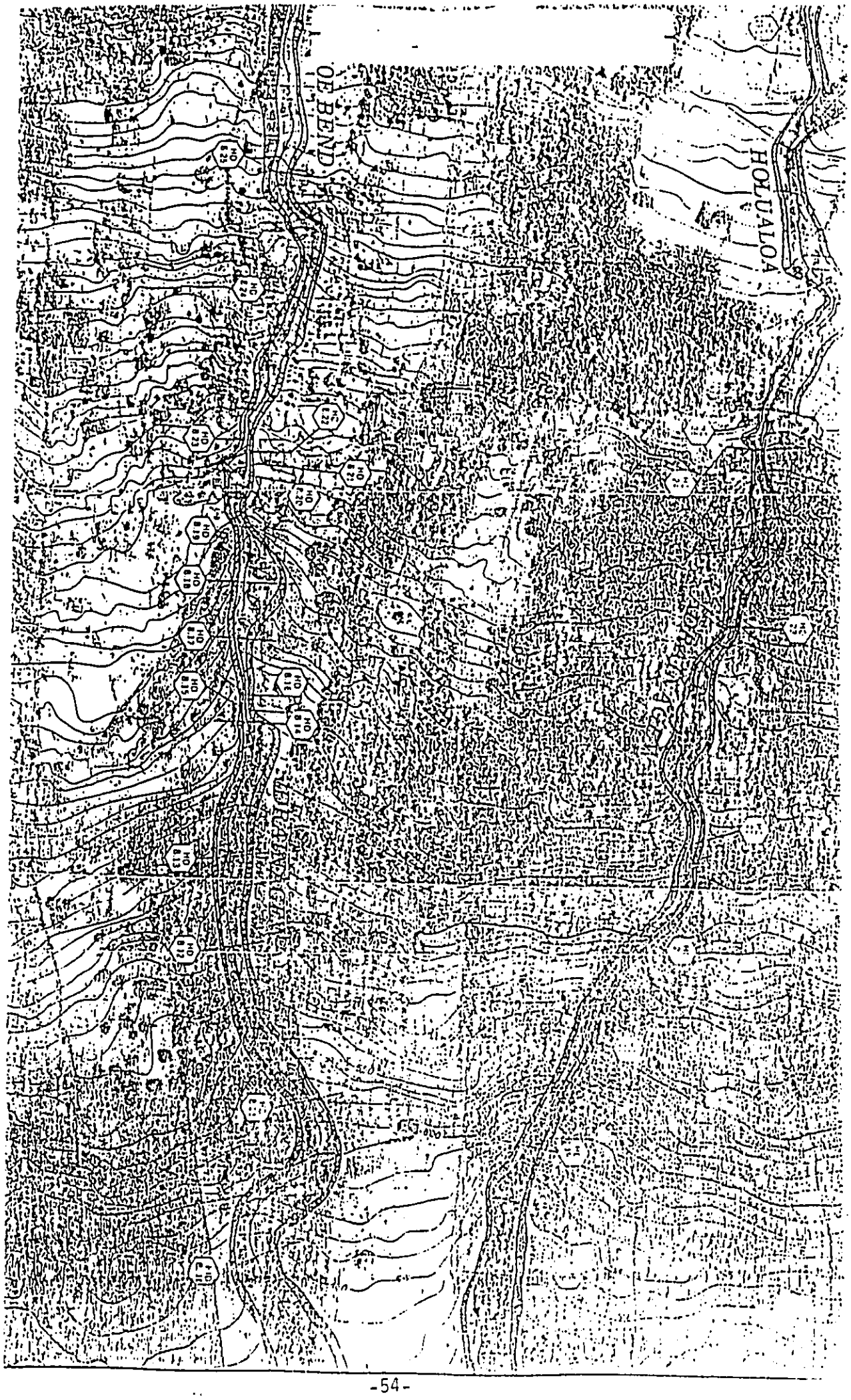
Flood Hazard Map


OE BEND
HOLUALOA

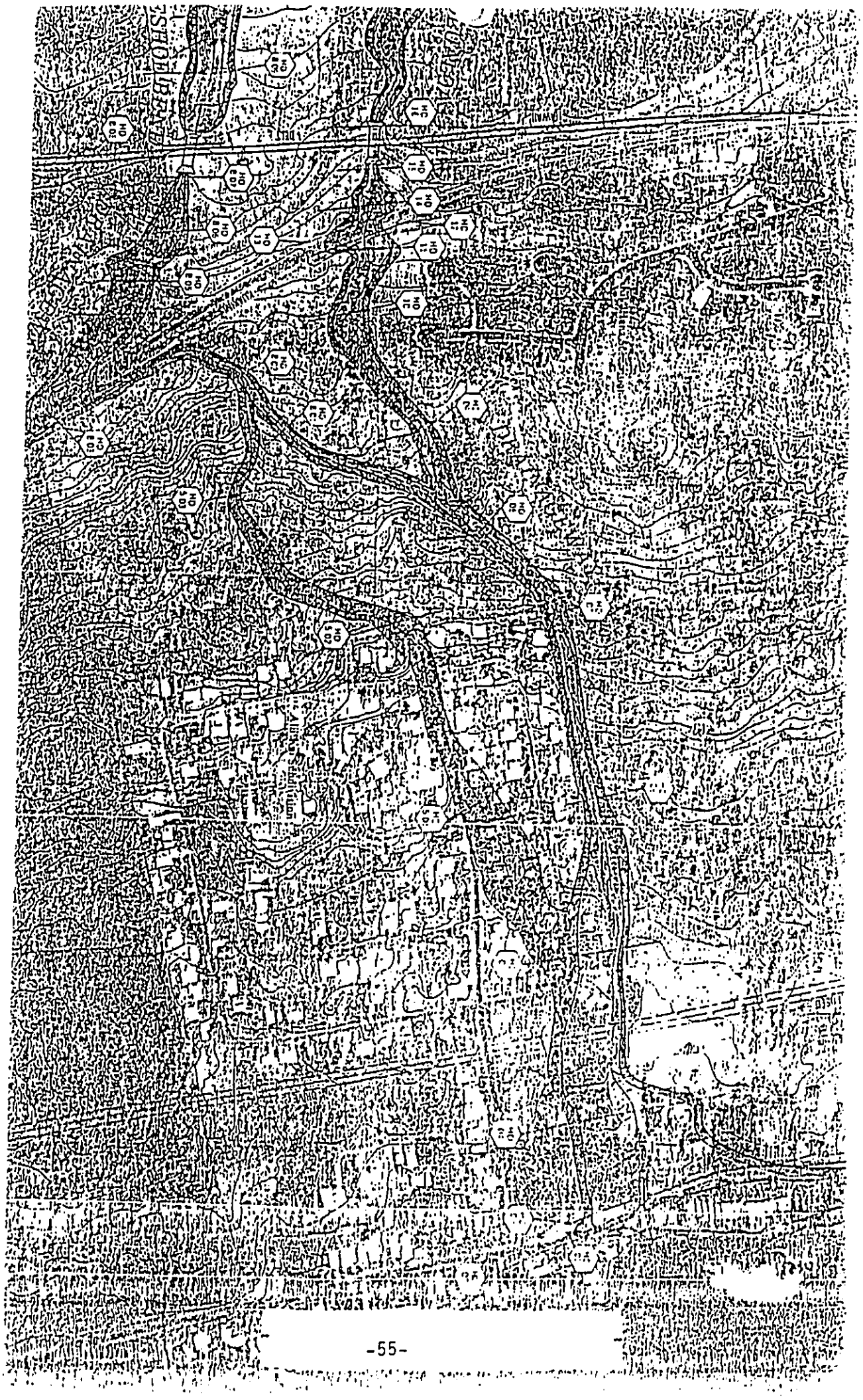

STOBEAN

EXHIBIT E. 4.

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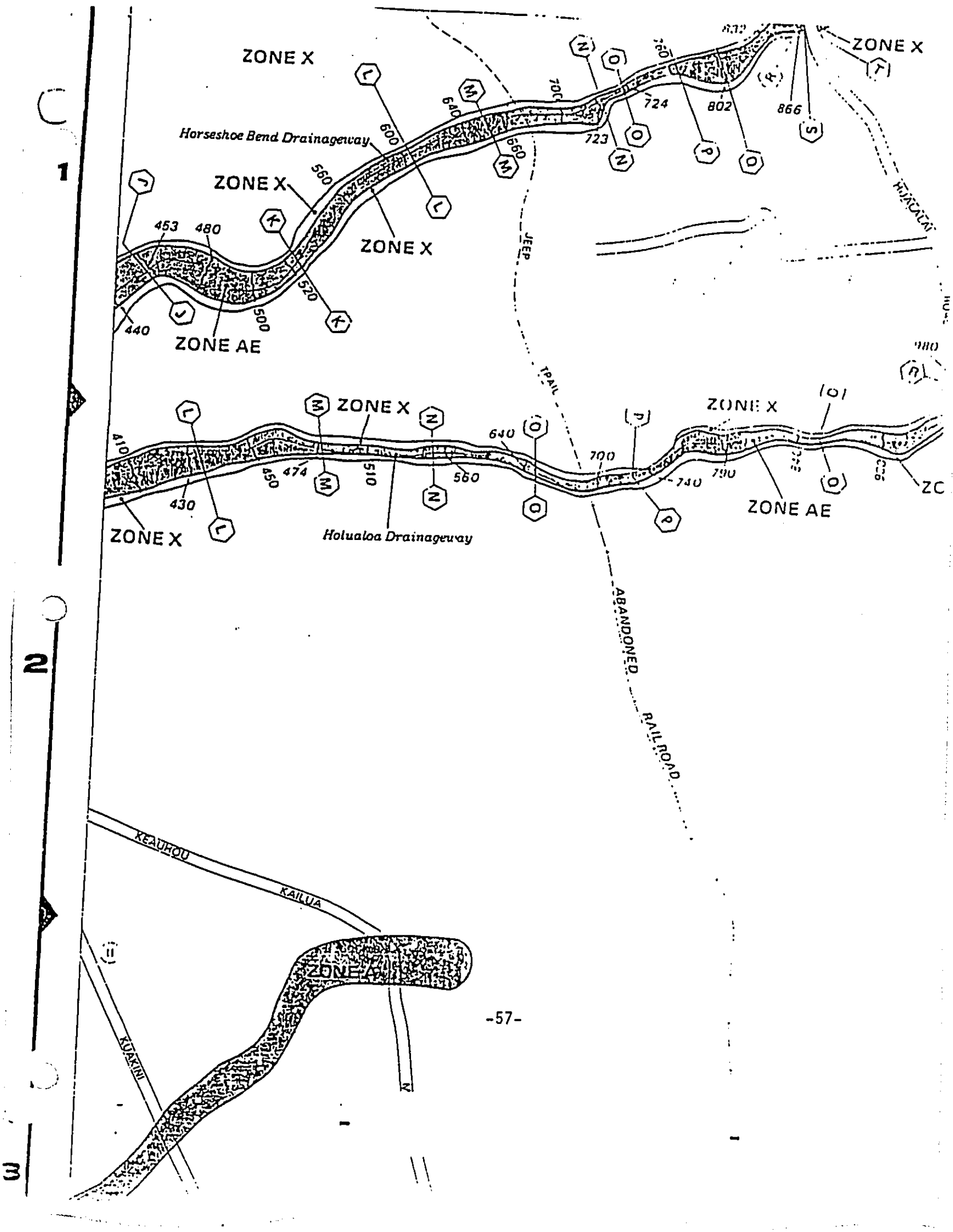
Flood Insurance Rate Map (FIRM)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Horseshoe Bend Drainageway
ZONE X
ZONE X
ZONE AE
ZONE X
ZONE X
Holualoa Drainageway
ZONE X
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KAILUA
KUAKINI
ABANDONED RAILROAD
JEEP TRAIL
HUIHUIKAI
1
2
3

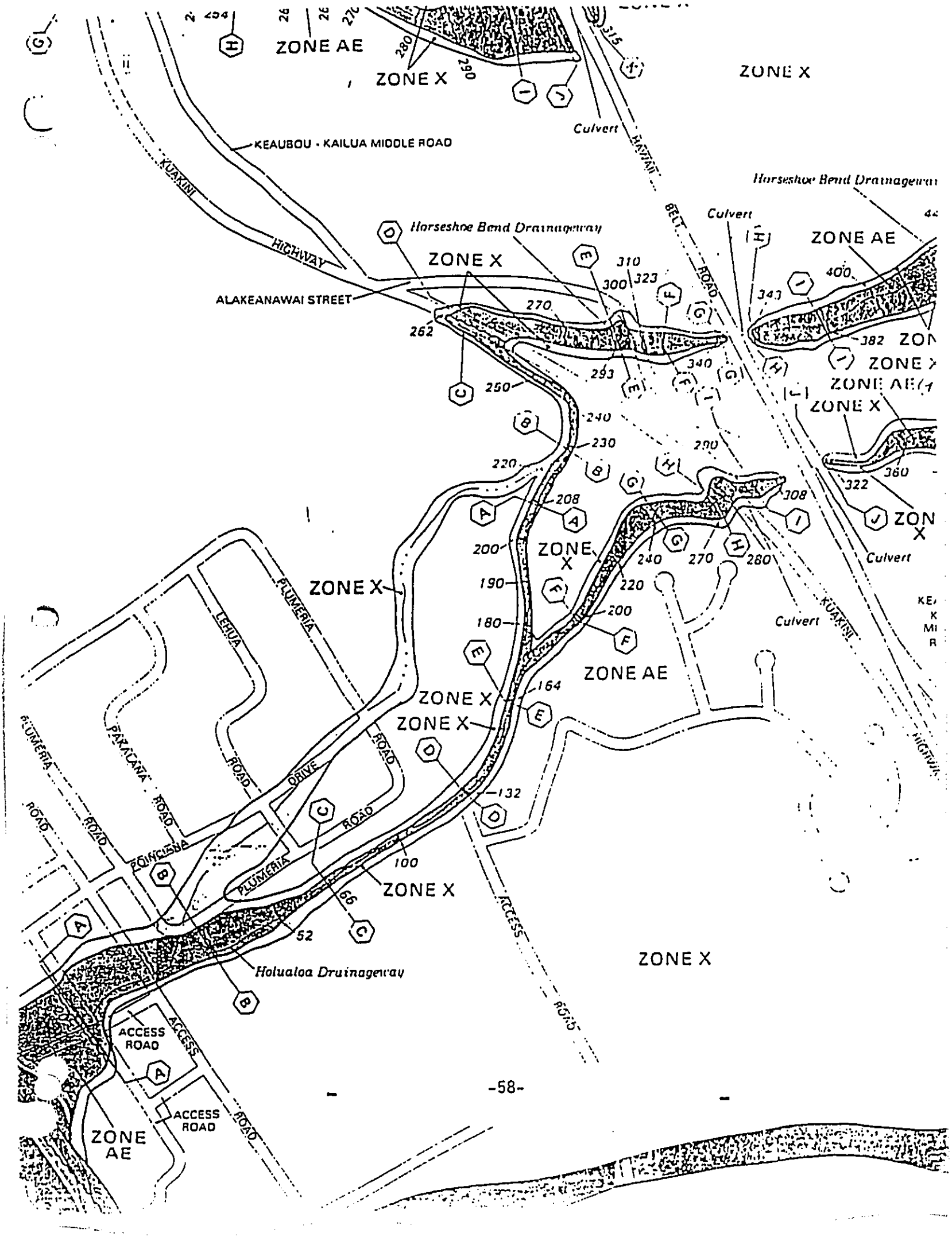
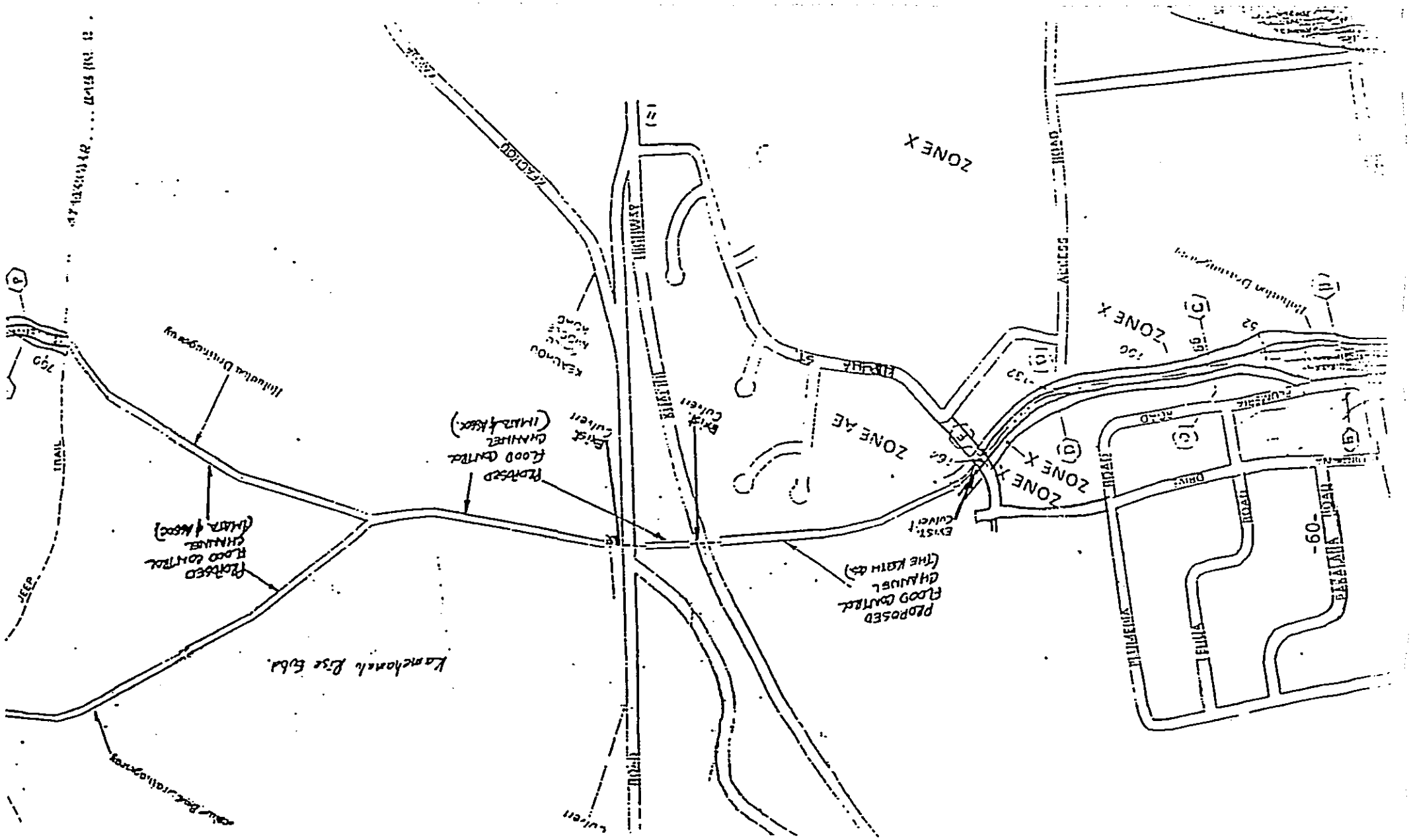
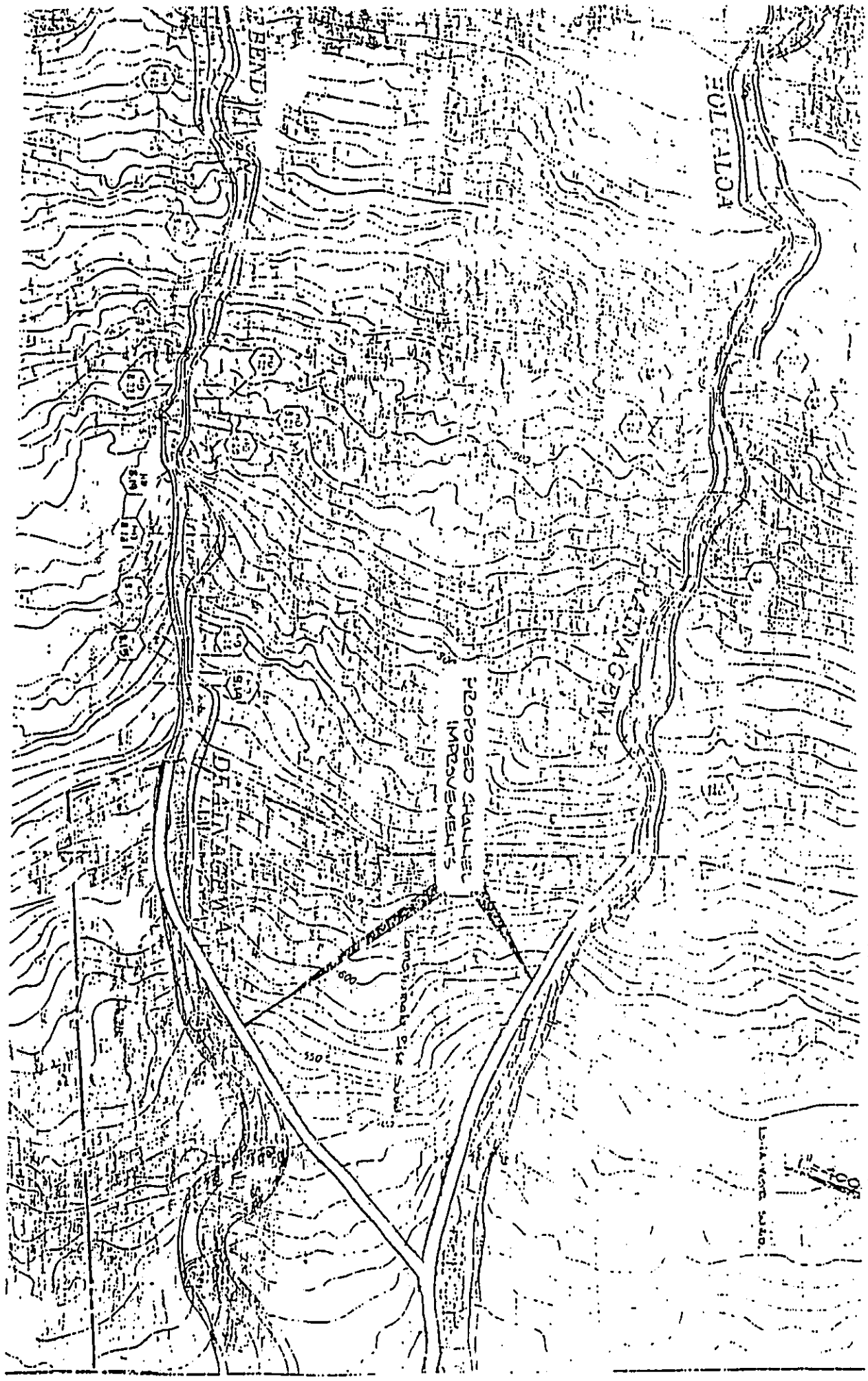

ZONE AE
ZONE X
ZONE X
Culvert
KEAUBOU - KAILUA MIDDLE ROAD
KUAKINI
HIGHWAY
Horseshoe Bend Drainageway
Horseshoe Bend Drainageway
Culvert
ZONE AE
ZONE X
ALAKEANAWAI STREET
262
270
300
310
323
343
400
382
293
340
250
240
230
220
290
208
200
190
180
308
240
270
280
220
200
360
322
ZONE X
ZONE AE
ZONE X
ZONE X
ZONE X
ZONE AE
ZONE X
ZONE X
164
132
100
66
52
Culvert
Culvert
KUAKINI
HIGHWAY
BELT ROAD
PLUMERIA
LEHUA
PAKALANA ROAD
ROAD
DRIVE
ROAD
ROAD
POINCIANA
PLUMERIA
ROAD
ROAD
ACCESS ROAD
ZONE X
Holualoa Drainageway
ACCESS ROAD
ACCESS
ACCESS ROAD
ROAD
ZONE AE
ZONE X
A
B
C
D
E
F
G
H
I
J

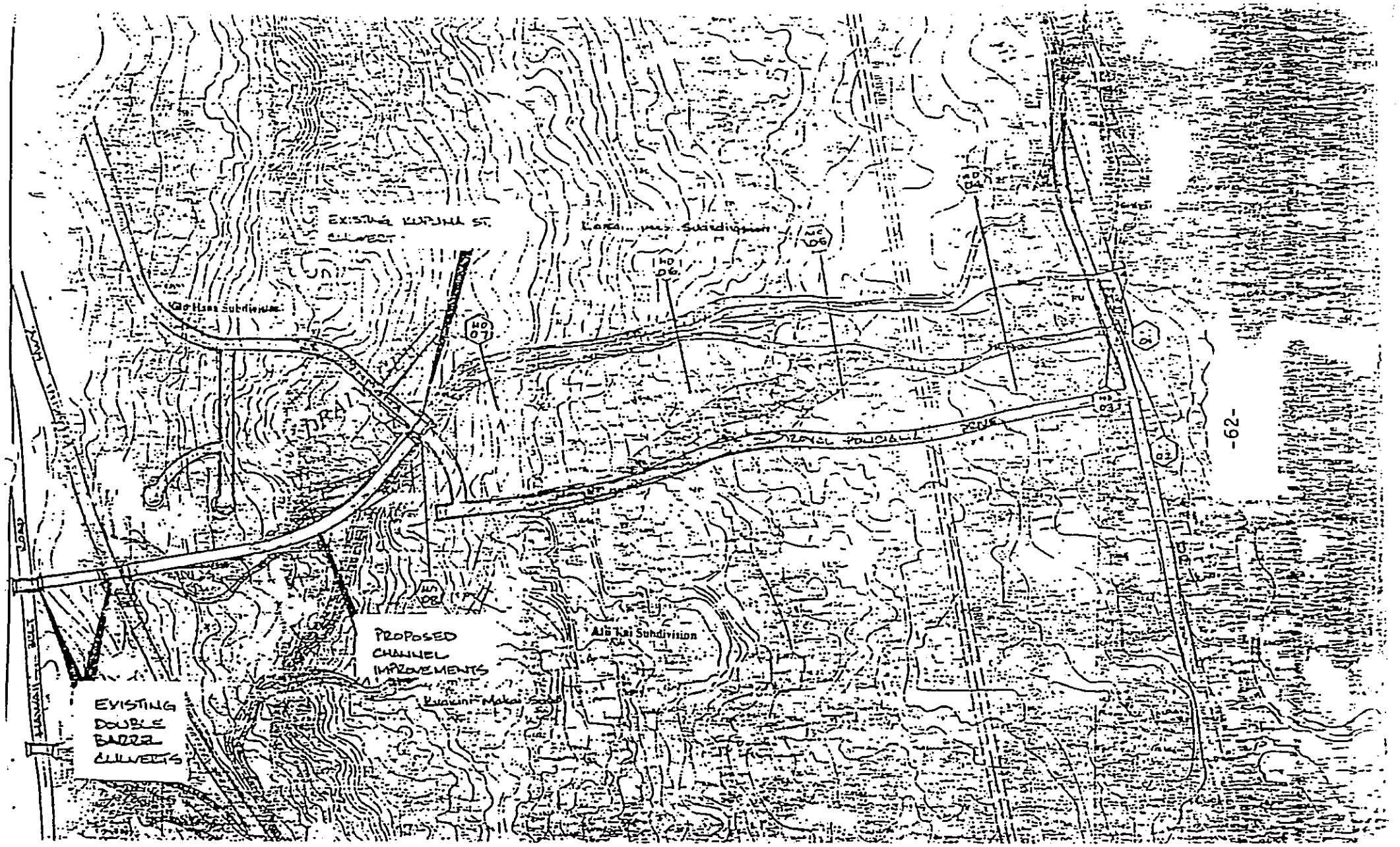
EXHIBIT E. 5.

~

Post Improvement Topographical Map Exhibits


Kamehameha Rise Subd.
PROPOSED FLOOD CONTROL CHANNEL (IMATA & ASSOC.)
PROPOSED FLOOD CONTROL CHANNEL (IMATA & ASSOC.)
PROPOSED FLOOD CONTROL CHANNEL (THE KEITH CO)
Exist. Culvert
Exist. Culvert
EXIST. Culvert
Culvert
Hiluaka Drainageway
Hiluaka Drainageway
Bat Drainageway
KEALIHOU ROAD
JEEP TRAIL
ROAD
HIGHWAY
ACCESS ROAD
ZONE AE
ZONE X
ZONE X
ZONE X
ZONE X
ZONE X
MILIMENA ROAD
DRIVE
ROAD
PLUMERIA ROAD
PARAIANA ROAD
ST.
(P)
(B)
(C)
(D)
(E)
(5)
750
164
132
100
66
52
(1)


BEND
FOOTHILL
PROPOSED CHANNEL IMPROVEMENTS
DRAINAGEWAY
LONGMONT 10 K
LEVEE


EXISTING KUPUNA ST.
CULVERT
Kaiholena Subdivision
Wailuaa Subdivision
PROPOSED
CHANNEL
IMPROVEMENTS
EXISTING
DOUBLE
BARREL
CULVERTS
Ala Kai Subdivision
Kuawini Makai Subdivision
HWY
ROAD
DRAI
HD 07
HD 06
HD 05
HD 04
HD 03
HD 02
HD 01

B. TECHNICAL CHARACTERISTICS: Engineering and design of the proposed drainage improvements mauka of Queen Kaahumanu Highway was done by Imata & Associates, Inc. on plans entitled, "Kamehamalu Rise North Kona Flood Control Project". These plans include the interceptor and collection system at the top of the system along the abandoned railroad right-of-way as well as the new confluence of Holualoa and Horseshoe Bend drainage ways mauka of the highway.

Engineering and design of the drainage improvements makai of Kuakini Highway was done by the Keith Cos. on plans entitled, "North Kona Flood Control Channel". Following the guidelines of the North Kona Flood Control Plan, both the Imata and Keith plans have been reviewed and received preliminary approval from DPW and FEMA. The improvements have been designed to collect and carry 100 year flood waters safely to the existing improvements at the Kupuna Street bridge. If approved, this portion of the proposed drainage improvements will be the largest section of the North Kona Flood Control Plan built to date.

Engineering, hydrological studies and comparisons for the proposed improvements are contained in the FEMA application. Three different agencies estimated maximum flow rates for the subject system. They include the U.S. Soil Conservation Service (SCS), the State Department of Transportation (DOT) and the Department of Public Works (DPW). The County (DPW) 100 year flow rate estimate was the highest of the three. Given a 100 year storm flow in both the Holualoa and Horseshoe drainage ways, the combined confluence at the Kupuna Street bridge would be 3,400 c.f.s. Due to the large volume of data contained in the FEMA application (being almost six inches thick), all of the technical and engineering information is not included in this assessment. Copies of the application are on file at the Kona Vistas sales office located at

76-117 Kamehamalu Street, Kailua-Kona. Directions can be given by calling (808) 329-9724. They are available for review by any interested party.

C. ECONOMIC BENEFITS: The proposed project will provide short and long term benefits to the community. Short term benefits include creation of construction jobs together with related indirect support services for construction. Estimated construction costs are:

1.	Channelization above Kuakini:	$3,500,000
2.	" below " :	2,000,000
	Total estimated construction:	$5,500,000

Long term economic benefits are certainly present but more difficult to quantify. Home owners that presently lie within Zones AE and X areas on the FIRM pay flood insurance premiums. These rates have been rising substantially since Hurricane Iniki. Many companies have stopped offering flood insurance. Most of the home owners before mentioned within the Kilohana, Komohana Kai, Kalani Makai, Kuakini Makai and Alii Kai subdivisions will be free of flood insurance requirements. These savings to over 115 home owners is substantial. Liability to State funded insurance programs will decrease. Property values will increase with resultant increases in real property tax bases. No adverse economic effects are likely to occur as a result of this proposed project.

D. SOCIAL CHARACTERISTICS: The proposed project will not effect the social fabric of the community. Social impacts such as crime, ethnic relations and the like are not usually generated by drainage projects. Temporary social impacts would occur during construction such as detours, dust and noise. These discomforts associated with construction are temporary. When all approvals are obtained, construction will commence in the area between the Kupuna Street bridge and Kuakini Highway. The drainage system will be built from the bottom (makai end) to the top (mauka end).

The initial stage of construction on the proposed improvements below Kuakini Highway will impact the most home owners. The area is the most populated within the total project. This phase of construction is expected to take 10 to 12 months to complete. Mitigative measures to construction impacts will be discussed later herein. Upon completion of construction, no adverse social impacts will be caused by the proposed project.

E. ENVIRONMENTAL CHARACTERISTICS:

1. FLORA AND FAUNA: The entire project site lies within a flood plain. Periodic flooding scours and erodes the land. The entire drainage way was walked by Gregg Kashiwa of Project Planners Hawaii on August 15, 1995. First the abandoned rail road right-of-way was covered. This area is relatively flat as it was used as a rail road. Stone retaining walls were used in areas to support the bed. It is overgrown with noxious weeds and trees. The drainage ways were then walked (both the Holualoa and Horseshoe Bend streams) to their proposed confluence point. The single channel way was then walked down to and under Queen Kaahumanu and Kuakini Highways and down again to the Kupuna Street bridge.

Flora included coffee, none' shrubs, ilima, young christmas berry trees, clover, pili grass, elephant grass, fountain grass, lantana, fire weed, polka vine, ice plant, papaya, kukui nut trees, kiawe trees, monkey pod trees, mango trees, orchid trees, morning glory, and a large variety of noxious exotic weeds.

Insects seen included common house flies, horse flies, monarch butterflies, blue dragon flies, honey bees, carpenter bees, yellow jacket wasps, millipede (carcasses), carpenter ants, common red ants, golden garden spiders, a praying mantis, German roaches, mud wasps, grass hoppers, army worm larvae, Japanese beetles and thousands of gnats.

Birds seen in the area included yellow finches, lace neck doves, turtle doves, mynah birds, cardinals, English sparrows, Japanese quail, a green parrot, a hen pheasant, and a female turkey.

Animals seen were mongoose, field mice, and a Siamese cat.

Aside from the thousands of millipede carcasses seen were an abundance of African snail shells. No rare or endangered flora or fauna were seen in the drainage way.

2. HISTORICAL AND ARCHAEOLOGICAL SITES: Any historic or archaeological sites within the drainage ways have been destroyed or swept away by flood waters. No features were seen. It should be noted that a complete archaeological survey was preformed on the property by Cultural Surveys Hawaii in 1981 and archaeological clearance has been granted by the State Historic Preservation Office. During construction the possibility of unearthing ancient Hawaiian burials and artifacts exists. If any are found during the course of construction, proper procedures will be followed as required by law. The proposed project poses no known threat to any archaeological features or historic sites.

3. SCENIC IMPACTS: The only above ground portion of the proposed drainage improvements will be a continuous chain link fence, six feet in height, along both sides of the channel(s). The open channel(s) and fencing will be visable from points around it as well as from the air. Nothing can be done to hide a drainage system. The proposed project will have an impact on scenic resources.

4. NOISE AND AIR QUALITY: Temporary noise and dust will be generated during construction. Appropriate dust control measures will be taken during construction as mandated by the Department of Health, State of Hawaii. Noise generated during construction will only be from the hours of 7:30 A.M. to 4:00 P.M. on the weekdays. Noise and dust generated by

construction will cease upon its completion. During periodic maintenance of the completed channels by maintenance crews some noise may be generated. This noise level should not be very high and not last very long. Noise also will be generated from water running through the channels(s). This should occur infrequently. Temporary construction generated noise and dust aside, the proposed drainage improvements will have little or no impact on noise and air quality.

5. WATER QUALITY: Flood waters from the Holua-loa and Horseshoe Bend drainage ways sheet flow down the slopes of Mount Hualalai. It carries with it sediment and debris collected along its path to the sea. No erosion, debris or sediment is generated within lined channels. All adverse elements to water quality are collected along unlined portions of the drain-age ways. Sheet flow areas are broad and provide large areas for collection. They are shown in Exhibits C2, C3, D2 and D3. A concrete lined channel system eliminates erosion of soil and rocks, uprooting of vegetation and destruction of animal and insect habitats.

The proposed drainage improvements call for approximately 4,000 feet of concrete lined channels which represents about 20% of the total drainage way. It should have a corresponding reduction in the amount of sediment and debris introduced into the flood waters. This in turn will have a positive effect on water quality. The proposed project will not have an adverse effect on water quality.

III. SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENTS:

A. The proposed drainage project has no known impact on indigenous native endangered plant, insect or animal life. While the Holualoa and Horseshoe Bend drainage ways are called "streams", they are dry most of the time. Reference is made to the pictures in Figures 2, 3 and 4. The project area looks more like a pasture (which it was in prior times) than a stream. No aquatic or marine life is present within the entire project area.

B. There are no known archaeological features or historic sites presnt within the project area. No negative or adverse impacts are foreseen to archaeological and historic resources.

C. Present natural settings will be put into drainage usage. The drainage improvements will be visable from surrounding lands and from the air. Although the majority of the improvements will be below ground level, the porposed drainage channels will have an impact on scenic resources. These impacts must be weighed with the community benefits derived from the flood control system.

D. Temporary noise and dust generated from construction will have an adverse effect. Dust control measures will minimize dust. Noise can't be controlled. Work will be permitted on week days during the hours of 7:30 A.M. to 4:00 P.M. Once construction is completed, these inconveniences will cease. Noise and air quality will be temporarily affected by the proposed project.

E. Water quality will heightened by the proposed project. Over 4,000 feet of unimproved sheet flow drainage way will be converted into a concentrated area of concrete lined channels which represents approximately 20% of the total drainage system. The lined channels will prevent any erosion and scarification which adds to adverse water quality in the form or sediment and debris. The proposed project will have a positive impact on water quality.

IV. IDENTIFICATION AND SUMMARY OF MAJOR IMPACTS, ALTERNATIVES CONSIDERED, IF ANY, AND MITIGATIVE MEASURES PROPOSED:

A. Noise and air quality will be adversely impacted during construction of the proposed improvements. Unfortunately there are no alternatives available to avoid these impacts. Mitigative dust control measures will be implemented during construction as outlined herein. Compliance to all measures and hours of construction as set forth herein will be made a part of the construction contract.

It should also be noted that construction will commence in the area between the Kupuna Street bridge and Kuakini Highway. This area is where all the residences are. It represents 33 1/3% (one third) of the total project area. Once construction moves mauka of Queen Kaahumanu Highway, the surrounding lands are vacant. It is estimated that the constuction period for the improvements below Kuakini Highway will be 10 to 12 months. Thereafter, the temporary construction generated noise and dust will move above the highways and have little or no impact on the subdivisions below.

An informational meeting regarding the proposed drainage project was held for home owners within the subdivisions affected by flooding and noise/ dust generated by construction. It should be noted that all residents present felt that the project together with the construction would be worth any temporary annoyances it produced.

B. Lands used in the channelization of the proposed drainage way will be permanently taken out the natural land inventory and placed in drainage channel inventory. While most of the improvements will be below ground level, the drainage improvements will be visable. It will have a negative effect on scenic vistas. Since open channels are required, little can be done to mitigate scenic impacts. Design criteria are primarily based on function. This negative scenic impact is characteristic of all lined drainage systems.

C. The improved, lined channel system will have a positive impact on water quality. Approximately 20% of the present erodable area within the Holualoa and Horseshoe Bend drainage ways will lined by the proposed project. Water quality will be improved.

D. The major benefit to the community of the proposed project is not environmental, but rather socio-economic in nature. It will remove the threat of flooding to over 110 home owners and their families. It will provide construction job opportunities to the community. By amending the FIRM, it will save homeowners considerable monies in flood insurance premiums. It will stop flood damage repairs and government funded loans for replacements. It will provide a growing real property tax base for the County. More important than anything discussed herein that is adverse or benefical to the environment or the community is the fact that the proposed project may save one human life in the future.

V. DETERMINATION:

An environmental impact statement is not needed since no major adverse environmental impacts will be generated from this proposed drainage project. Furthermore, the impacts identified are either temporary, minor in nature or unmitigatable. Based on the foregoing assessment, it has been determined that a negative declaration will be filed.

VI. FINDINGS AND REASONS SUPPORTING DETERMINATION:

A. The proposed drainage project is a part of a planned drainage improvement program that has been reviewed by the Federal, State and County governments; it does not involve an irrevocable commitment to loss or destruction of any significant natural or cultural resource;

B. The proposed project will not curtail the range of beneficial uses of the environment;

C. The proposed project will not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS, any revisions thereof, amendments thereto, court decisions or executive orders;

D. The proposed project will positively affect the economic and social welfare of the community, the County of Hawaii, the State of Hawaii and the U. S. Government;

E. The proposed project will not substantially affect public health;

F. The proposed project will not involve secondary impacts to the community and County such as increased population growth, increased infrastructural requirements, public facility growth or crime rate changes;

G. The proposed project will not involve a substantial degradation of environmental quality;

H. The proposed project will not have a cumulative effect on the environment. It will enable continued drainage improvement in the future to be connected to its mauka portion in keeping with the North Kona Flood Control Plan;

I. The proposed project will not affect any rare, threatened or endangered species of flora or fauna, nor will it substantially affect its habitat;

J. The proposed project will not affect any known archaeological features or historic sites;

K. The proposed project will not affect any marine or aquatic life known to exist in the subject drainage ways;

L. The proposed project will not permanently or detrimentally affect air quality or ambient noise levels;

M. The proposed project will improve water quality;

N. A portion of the proposed project located makai of Kuakini Highway lies within a Special Management Area (SMA). This will require its review within the SMA rules and regulations. The proposed project is not considered detrimental to the SMA, and will be reviewed under a separate process, inclusive of public hearings, at a later point in time;

For the reasons abovestated, the proposed project will not generate any significant adverse environmental effects, and is in compliance with the context of Chapter 343, HRS, and Section 11-200-12 of the State Administrative Rules.

VII. LIST OF PERMITS AND APPROVALS REQUIRED:

A. Improvements Mauka of Kuakini Highway:

1. Grading Permit
2. Permit For Construction Within a State Right-Of-Way
3. NPDES Permit(s)

B. Improvements Makai of Kuakini Highway:

1. Special Management Area (SMA) Use Permit
2. Grading Permit
3. NPDES Permit(s)

C. FEMA Requirements:

1. Letter of Map Revision (LOMR)
2. Amendment of FIRM

D. County Acceptance: Drainage Way Dedication

VIII. COMMENTS FROM REVIEW AGENCIES AND CONCERNED PUBLIC PARTIES, AND RESPONSES TO THOSE COMMENTS BY THE APPLICANT:

A. Summary Of The Comments:

The Office of Environmental Quality Control (OEQC) published the availablity for review and comment on the subject draft environmental assessment in the February 8, 1996, Environmental Notice. During the following thirty (30) day public comment period which ended on March 11, 1996, four (4) comments and/or requests were received relating to the subject DEA by the Department of Public Works, County of Hawaii and/or Project Planners Hawaii.

Two written comments were received by the Department of Public Works. They were as follows:

1. A letter from Mr. Gary Gill, Director, Office of Environmental Quality Control, Department of Health, State of Hawaii, dated February 22, 1996, articulating concerns on three issues in the DEA. This letter was superceded by another letter dated February 23, 1996, that articulated two additional concerns thereby making the concerned issues five (5) in number.

2. A letter from Matthew G. Jewell, Esquire, with Ashford & Wriston, Kailua-Kona Office, attorney for Mr. Robert Densham, dated February 21, 1996, expressing concerns articulated at a meeting with Mr. Tom Pack, Engineering Division, Department of Public Works, Kailua-Kona Office.

One telephonic request for information was received and one verbal request for information was received by Project Planners Hawaii. These requests were as follows:

1. A telephonic request was received from Pat Tummons, 187-C Hokulani Street, Hilo, Hawaii, 96720, on February 26, 1996, for a copy of the DEA. She was called back on February 27, 1996, to confirm her needs.

2. A verbal request was made to Gregg Kashiwa, Project Planners Hawaii, at a meeting regarding the DEA at the office of OEQC by John T. Harrison, Environmental Coordinator, Environmental Center, University of Hawaii at Manoa, Honolulu, Hawaii, on March 1, 1996, for copies of the pictures taken of the down gradient improvements existent within the Kalani Makai, Kamani Trees and Alii Kai subdivisions. The proposed drainage improvements will join the existent improvements at its makai (West) end.

B. Log of Comments:

A log of telephone calls, verbal requests and written comments was kept and a copy of which is attached hereto and made a part of the Final Environmental Assessment.

C. Responses To Requests And Comments:

The written comments to the DEA are attached hereto and made a part of the Final Environmental Assessment (FEA). After each written comment is the written response together with attached maps and pictures. The written comments from OEQC and Matthew G. Jewell, Esquire, together with the responses thereto are made a part hereof.

The verbal and telephonic requests for copies and additional information are noted on the "Log For Comments" attached hereto. The written responses to them are also attached and made a part of the FEA.

LOG FOR COMMENTS
Draft Environmental Assessment
Department of Public Works
County of Hawaii

Re: Proposed Drainage Improvements
Holualoa and Horseshoe Bend Streams
Holualoa, North Kona, Hawaii
Tax Map Keys: 7-6-21:16-19
7-6-24:25&77
Third Division

NOTE: Publication date 2/8/96

	Date	Party Calling or Commenting	Phone No.	Disposition
1.	2/26/96	OEQC received comment letter to DPW dtd. 2/22/96	Jes 586-4185	picked up copy of letter for disposition (see notes No. 1)
2.	2/26/96	Pat Timmons	934-0115	request for copy of draft E.A.
3.	2/27/96	Letter from Matt Tawell (ROBERT DENSHAM)	329-7706	calls to Matt Tawell 2/27/96
4.	3/1/96	Request from John Harrison, (see card) UH Environ. Center for, maps: pictures of existing improvements		mailed maps & pictures out on Mar. 2, 1996
5.				
6.				
7.				
8.				
9.				
10.				

FAX. TO DPW →

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

Picked up @ OEQC
2/26/96 G.K.

FILE COPY

(5 comments)
Respond to this
letter 2/26/96.

February 23, 1996

The Honorable Donna Fay Kiyosaki, P.E.
Chief Engineer
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720

Dear Ms. Kiyosaki:

On February 22, 1996, we sent a comment letter to you on a draft environmental assessment (DEA) for the North Kona Flood Control Plan, County of Hawaii, Gamrex Inc., Holualoa & Horshoe Bend Drainageways, Holualoa, North Kona, Hawaii. That comment letter articulated our concerns on three issues, namely: 1) water quality and alternatives to channelization; 2) visual impacts; and 3) irrevocable committment to loss or destruction of a natural resource.

On that same day, we also identified two other areas of concern not articulated in the original letter. We therefore appended in a revised February 22, 1996, letter, our concerns on: 4) impacts on downstream properties; and, 5) indirect effects. Please find enclosed a copy of the revised letter for your response and inclusion in the final environmental assessment.

Please disregard the first letter and respond only to the letter with all 5 issues articulated. We are sorry for any confusion on this matter.

If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, toll-free at 1-800-468-4644, extension 64185.

Sincerely,

GARY GILL
Director

Enclosure: Revised February 22, 1996, letter

c: Mr. Greg Kashiwa, Project Planners Hawaii (w/enclosure)

2/26/96
NEXT MEETING: FRIDAY, MAR 1, 1996
9:00 A.M.
OEQC.

CC TO: Gamrex
Casey
KHT
Tomita
LES: SEGUNDO

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

FILE COPY
(revised 1+.)

February 22, 1996

The Honorable Donna Fay Kiyosaki, P.E.
Chief Engineer
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720

Dear Ms. Kiyosaki:

Thank you for your January 22, 1996, letter submitting a draft environmental assessment (DEA) for the North Kona Flood Control Plan, County of Hawaii, Gamrex Inc., Holualoa & Horseshoe Bend Drainageways, Holualoa, North Kona, Hawaii, Reference: COZ Ordinance No. 91-96, TMK: 7-6-21:16-19; 7-6-24:25 and 77. The Office of Environmental Quality Control published notice of availability of this DEA in the February 8, 1996, edition of the Environmental Notice. We submit for your response (required by Section 343-5(b), Hawaii Revised Statutes) the following comments on the DEA.

1. **WATER QUALITY AND ALTERNATIVES TO CHANNELIZATION.** Page 14 of the DEA notes that flood waters received by the Holualoa and Horshoe bend streams arise from sheet flow from water-saturated soils on the slopes of Mount Hualalai. We understand that these sheet flows carry sediment and debris collected along its down-gradient path. While the DEA states that no erosion, debris, or sediment is generated within lined channels, we believe that these channels become the conduits through which sediment and debris from the up-gradient sheet flows become dispersed. Please discuss in the final environmental assessment: the origin and fate of polluted runoff and the environmental effects of induced faster flows due to channelization; and the environmental effects of increased temperature of runoff water due to lack of overhanging shade, the shallow depth of water and the thermal conductivity of cement; and the effects of impervious concrete linings in channels on ground-water recharge in the area. Please also discuss possible alternatives to channelization.

2. **VISUAL IMPACTS.** Page 13 of the DEA states that the project will have an impact on scenic resources and that "nothing can be done to hide the drainage system." Please discuss visually non-obtrusive alternatives to channelization, or appropriate measures to mitigate visual impact.

3. **IRREVOCABLE COMMITTMENT TO LOSS OR DESTRUCTION OF A NATURAL RESOURCE.** Once built, the proposed drainage project is irrevocable and would entail the loss and destruction of the stream bed, a natural resource. Section 11-200-12, Hawaii Administrative Rules, states that in most instances "...an action shall be determined to have a significant effect on the environment if it ... [i]nvolves an irrevocable commitment to loss or destruction of any natural or cultural resource." Considering all phases of the drainage project, its expected consequences, cumulative, short-term and long-term impacts, please reassess the significance of the project as to whether a full EIS should be done. If after such assessment you determine the proposed action has significant effects requiring the preparation of an EIS, you should submit an EIS preparation notice of determination along with four copies of the supporting final environmental assessment.

4. **IMPACTS ON DOWNSTREAM PROPERTIES.** Please describe in the final environmental assessment the impacts of the proposed project on downstream properties. Also, please include topographic maps to facilitate in reading waterflow pathways.

5. **INDIRECT EFFECTS.** Please discuss in the final environmental assessment whether the drainage improvement will encourage further urbanization in the region. Please also discuss whether the proposed project will encourage further channelization in areas down-gradient of the project.

Please include this letter and your response to it in the final environmental assessment for this project. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, toll-free at 1-800-468-4644, extension 64185. Thank you for the opportunity to comment.

Sincerely,

GARY GILL
Director

c: Mr. Greg Kashiwa, Project Planners Hawaii

PROJECT PLANNERS HAWAII
76-117 Kamehamalu Street
Kailua-Kona, Hawaii 96740

March 7, 1996

Mr. Gary Gill
Director
Office Of Environmental Quality Control
State of Hawaii
220 South King Street
Fourth Floor
Honolulu, Hawaii 96813

Re: Response To Comments
Draft Environmental Assessment
Proposed Improvements For A Portion Of
Holualoa And Horseshoe Bend Drainageways
Holualoa, North Kona, Hawaii

Dear Mr. Gill:

Thank you for the opportunity to meet with your discussion group on March 1, 1996. Both Gordon Imata of Imata & Associates, Inc. and myself appreciate the time spent on the subject drainage project. I hope we were able to shed more light on your concerns. We did not have much time to prepare for the meeting and brought as much as we could on short notice.

Attached and a part of this letter are the responses to your comments to Donna Fay Kiyosaki, Chief Engineer, Department of Public Works, County of Hawaii, dated February 22, 1996. These responses will be made a part of the final environmental assessment in their entirety. Thank you once again, and please contact me should you or your group need more information on the drainage project.

Sincerely,

Gregg Kashiwa
President

SUBJECT:	Response(s) to comments from Mr. Gary Gill, Director, Office of Environmental Quality Control, State of Hawaii, 220 South King Street, Fourth Floor, Honolulu, Hawaii, 96813, dated February 22, 1996, relating to proposed drainage improvements to the Holualoa and Horseshoe Bend drainageways, being a portion of the North Kona Flood Control Plan, located in Holualoa, North Kona, Hawaii.
DATE:	March 7, 1996
PREPARED FOR:	Donna Fay Kiyosaki Chief Engineer County of Hawaii Department of Public Works 25 Aupuni Street Hilo, Hawaii 96720
PREPARED BY:	Gregg R. Kashiwa President Project Planners Hawaii 76-117 Kamehamalu Street Kailua-Kona, Hawaii 96740 Phone: (808) 329-9724 FAX: (808) 326-2789
TAX MAP KEYS:	Portions Of: 7-6-21:16 - 19 7-6-24:25 & 77 Third Division

RESPONSE(S) TO COMMENTS

1. WATER QUALITY AND ALTERNATIVES TO CHANNELIZATION.

"Please discuss in the final environmental assessment: the origin and fate of polluted runoff and the environmental effects of the induced faster flows due to channelization; and the environmental effects of increased temperature of runoff water due to the lack of overhanging shade, the shallow depth of water and the thermal conductivity of cement; and the ground water recharge in the area. Please also discuss possible alternatives to channelization."

A. ORIGIN AND FATE OF POLLUTED RUNOFF.

Flood waters originate high on the slopes of Mount Hualalai within watershed areas. After prolonged periods of rainfall, the watershed reaches a saturation point. When full recharge is reached the surplus or unchargable water is suddenly released. This water flash floods down the mountain on several courses. The water flows to the Pacific Ocean along the Kona coastline. The Holualoa and Horseshoe Bend drainageways are identified as two of these courses.

B. INDUCED FASTER FLOWS DUE TO CHANNELIZATION.

Flood waters entering a concrete lined channel will flow at a faster rate. Engineering estimates show that maximun estimated velocity of water within the proposed system will reach 51 feet per second or approximately 37 M.P.H. This velocity will occur only in the steepest portions of the channel. When waters reach the existing drainage improvements located makai of the Kupuna Street culvert they run into a large ponding and desiltation basin prior to being released onto unimproved lands. This basin will serve as reduction and transitional area for the flood waters. It also will collect large rocks, boulders, junk and heavy debris. The chain link fence along the outlet or weir serves as a debris collector. The natural contour of the land also serves as a regulator once the waters are released

from the existing desiltation basin. Gradients makai of the basin are much flatter. This area is unimproved and as the water moves through it flow rates are much less than areas above the desiltation basin. This is graphically shown on the FIRM as evidenced by the large area within the flood plain in and around Alii Drive.

C. INCREASED TEMPERATURE OF RUNOFF WATER DUE TO CONCRETE LINED CHANNELS.

Warming of flood waters occurs naturally as it makes its way to the ocean over natural lands. Much of the natural flood plain is exposed, black, basaltic rock which retains as much heat as concrete. At 100 year storm capacities, an estimated 3,500 cubic feet per second (CFS) of water will be contained and running in the channels at speeds up to 37 M.P.H. Most of this water which may reach a depth of up to eight or nine feet within the channel will not be in contact with the lining. This larger volume of water within a much smaller surface volume of the channel verses a sheet flow over natural terrain will not have a significant temperature difference and will not have an adverse effect on water temperature(s).

D. GROUND WATER RECHARGE.

As mentioned earlier herein, ground water recharging takes place ideally at elevations over 1,500 feet above sea level. Flash flood waters are released after saturation occurs within the Hualualai water shed. The highest elevation of the proposed drainage improvements occurs at the 800± foot elevation point. Recharging of flood water does occur over unimproved, fractured basaltic rock. This recharged water enters the aquifer (between 800 feet and sea level) within brackish or mixed water areas. Waters not recharged within the proposed channelization due to lined conditions will not have an adverse effect of ground water supplies.

E. ALTERNATIVES TO CHANNELIZATION.

The existing situation of unimproved drainageways is an alternative to channelization. This condition however, is a hazard to public welfare, property and safety. An alternative to an lined channel is an unlined channel within natural rock. While this alternative is present, the practical engineering concerns over rule this alternative. The unlined channels when cut often expose cinder pockets, lava tubes and voids which make for irregular and erodable channels. There are no safe, low maintenance aternatives to lined channels.

2. VISUAL IMPACTS.

"Please discuss visually non-obtrusive alternatives to channelization, or approriate measures to mitigate visual impact."

A. NON-OBTRUSIVE ALTERNATIVES TO CHANNELIZATION.

A non-obtrusive alternative that would hide the channel would be a covered channel. There are several reasons why it is not proposed. There presently is a covered channel which runs from the intersection of Hualalai Road and Kuakini Highway underground through the heart of Kailua Village. It delivers flood waters near the Hale Halawai community complex into the ocean. It is a haven for the homeless, drug users, juvenile crime and recently a murder. By nature, its hidden length invites illegal usage. It also does not allow flood water that did not enter its inlet to re-enter down gradient. During design and review, the proposed drainage improvements were designed for open channelization. Water that escapes the drainageway can flow back in. Covered channels are also very expensive to construct. While nonobtrusive alternatives were considered, the proposed system best serves its intended use without creating an atmosphere for social misuse.

3. IRREVOCABLE COMMITMENT TO LOSS OR DESTRUCTION OF A NATURAL RESOURCE.

"Once built the proposed drainage project is irrevocable and would entail the loss and destruction of the stream bed, a natural resource."

A. The proposed drainage improvements will be constructed on a "flood plain" and not on a stream bed. These flood plains are shown in Exhibits C1, C2 and C3 of the environmental assessment which are the Flood Insurance Rate Maps (FIRM) for the Holualoa and Horseshoe Bend Drainageways, being FIRM Community Panel Numbers: 0926E and 0927D, dated June 2, 1995, produced by the Federal Emergency Management Agency (FEMA). These flood plains may not run for a decade or more, and may run several times a year. Flooding within these drainageways is periodic but irregular When flash flooding occurs, water runs violently for several hours and stops as suddenly as it started. No aquatic life exists in the flood plains since it dry most of the time. It does not contain well defined stream beds since continuous flows of water are not present. The flood plains as defined on the FIRM reflect observations of the known limits of flood waters which do not take an exact course down gradient. Each flow may take a slightly different course due to natural or man-made impediments. A fallen tree may cause waters to flow in a different direction. There have been cases where a land owner not familiar with the North Kona flood plains with no bad intentions, regrades a portion of the flood plain. This man-made redirection causes deviations in the flow. As a part of the overall permitting process, Dr. Kathleen Dadey of the U.S. Army Corps of Engineers visited the site on February 21, 1996. She will make a formal decision on wetlands in the near future, but preliminarily believes that there are no wetlands within the proposed project site.

The lands within the proposed project area are defined as Zones "X" and "AE" on the FIRM. No improvements can be made on them as regulated by Department of Public Works, County of Hawaii.

No rare or endangered flora or fauna were observed. No archaeological features or historic sites are present on site. There are no stream beds on site. The applicant feels that an environmental impact statement is not required as the proposed drainage improvements will be constructed on lands with little or no economic or environmental value. The proposed, improved usage of the lands within the channels are identical to the present periodical natural usage. There are other factors important in evaluation of the commitment of natural land resources to improved use. They are public safety in potential loss of human life, and community benefits in the form of property damage and savings derived from relief from expensive flood insurance premiums. The irrevocable commitment of flood plains lands for use as lined flood control channels does not constitute a loss or destruction of a natural resource.

4. IMPACTS ON DOWNSTREAM PROPERTIES.

"Please describe in the final environmental assessment the impacts of the proposed project on downstream properties. Also, please include topographic maps to facilitate in reading downstream waterflow pathways."

A. IMPACTS OF THE PROPOSED PROJECT ON DOWNSTREAM PROPERTIES.

As mentioned and described on Page 4 of the draft environmental assessment, the proposed drainage improvements will end at the inlet of the culvert under Kupuna Street. This existing twelve (12) foot by twenty-five (25) foot arch culvert marks the beginning of the existent downstream improvements. The Kupuna Street culvert empties into the Kalani Makai subdivision improved channel section which runs diagonally to the North boundary of the Kamani Trees subdivision. The Kalani Makai channel is constructed with C.R.M. walls along its entire mauka side. The makai channel walls are natural cut rock, C.R.A. patchwork and a covering of gunnite. The bottom is natural rock.

The next channel section joining the Kalani Makai channel is the Kamani Trees subdivision channel which then takes the water directly makai via a lined concrete channel to a desiltation basin located at the bottom, Northwest, corner of the subdivision. It is located on approximately 23,000 sq. ft. of land and marks the end of the existing improvements down-gradient of the Kupuna Street culvert. Attached hereto are pictures of the subject existing improvements that were taken on February 29, 1996. Further descriptions of the improvements are with the pictures. Also attached are tax maps showing the locations of of the same.

The Kamani Trees channel was constructed after the Kalani Makai channel and separates Kamani Trees subdivision from the older Alii Kai Subdivision to the North. It is approximately five (5) years old. The channel is fully lined (reinforced concrete). As mentioned, it empties into the desiltation basin which was designed as part of the Kamani Trees system. The basin is approximately twenty (20) feet deep at its lowest point and is located in the Northwest corner of the subdivision at its far makai end. The floor of the basin is natural rock and the walls consist of a combination of natural rock and C.R.M. walls. A service road leads down into the basin from its South side. The same road also services the channel itself. Equipment can be driven on the channel floor via this access to both the Kamani Trees and Kalani Makai channels.

The basin has a broad outlet along its makai face which is built lower than the other walls of the basin. This outlet (weir) provides an outlet for trapped waters to exit the basin and revert back to its normal sheet flow. The lands makai of the basin (between the basin and the ocean) have no Drainage improvements. Once water flow

flows through the outlet, a slower natural sheet flow takes place. The topography of the lands between the basin and the ocean has much less gradient than the lands above the basin. Flows before improvements such as the channels and the desiltation basin naturally slowed in this area.

Flood waters exiting the basin are also filtered by a chain link fence located in the weir. Vegetation and floating debris are caught in it. On February 29, 1996, when the pictures were taken of the existing improvements, debris was noted on the lower part of the fencing on the weir. The lowest portion of the inlet channel is also much lower than the base of the weir. Accelerated waters within the existing channels and the proposed channels will be slowed upon hitting the basin waters. Since lands located immediately makai of the basin remain vacant, there is room to design and implement an enlargement of the existing desiltation basin without disturbance of any improved property. The vacant, unimproved lands below the basin extend down to the improved areas of Alii Drive (on both the mauka and makai sides). Within the vacant lands lies the proposed Alii Highway alignment. The highway will in the future have to deal with the flood waters.

B. TOPOGRAPHIC MAPS.

Post improvement topographical maps are included in the draft environmental assessment as Exhibits A1, A2 and A3. Full sized maps are available and are quite bulky. Should they be needed, copies can be furnished to the Office of Environmental Quality Control. It should be noted that all existing topographical features have been thoroughly examined by both the County of Hawaii and FEMA in design and review phases of the Conditional Letter of Map Revision (CLOMR).

5. INDIRECT EFFECTS.

"Please discuss in the final environmental assessment whether the drainage improvement will encourage further urbanization in the region. Please also discuss whether the proposed project will encourage further channelization in areas down-gradient of the project."

A. FURTHER URBANIZATION IN THE REGION.

The proposed drainage improvements lie within an area of existing and planned urban usage. In North Kona within the area bounded by Palani Road (North), the old railway right-of-way at approximately the 750 to 800 foot elevation mark (East), Keauhou (South) and the ocean (West) is planned for urban usage by both the Land Use Commission, State of Hawaii and the Planning Department, County of Hawaii. The project site lies about midway between the North and South boundaries. The lands down-gradient of the proposed project are a mixture of single family and multi family residential housing. The existing down gradient drainage improvements have been developer generated.

The lands owned by Gamrex, Inc. are zoned for single and multifamily usage within the surrounding area of the proposed drainage improvements. It is classified Urban by the Land Use Commission (LUC) and Rs 7.5 and RM 5 by the Planning Department, County of Hawaii. The lands between Kuakini Highway and Kupuna Street culvert (T.M.K. 7-6-24:25 & 77) additionally lie within a Special Management Area (SMA) and will require a SMA Use Permit prior to construction.

The proposed drainage improvements are required of Gamrex, Inc. as conditions to its Land Use Boundary Amendment (Land Use Commission Docket No. A83-549) and Change of Zone Ordinance No. 84-23 (REZ 470), as amended by the County of Hawaii.

Conditions of approval require Gamrex to first construct the proposed drainage improvements and upon completion obtain a Letter of Map Revision (LOMR) from FEMA. Once all "as built" surveys and maps have been approved by FEMA and upon issuance of a LOMR, the entire drainageway will be dedicated to the County of Hawaii. This process will take many years to complete, and presently no concrete development plans exist for all the zoned lands within the project area. Basic infrastructural plans have not been designed and no conceptual development plans have been made.

B. DISCUSS WHETHER THE PROPOSED PROJECT WILL ENCOURAGE FURTHER CHANNELIZATION IN AREAS DOWN-GRADIENT OF THE PROJECT.

As mentioned earlier, the proposed system will connect to existing improvements down-gradient. It will provide an improved channel system from the upper reaches of the master planned urban area to the desiltation basin within the Kamani Trees subdivision. The unimproved flood plain between the desiltation basin and the ocean will be further improved in the future as set forth in the North Kona Flood Control Plan.

Improvements will be triggered by the construction of Alii Highway and ensuing urban development of vacant lands on both sides of the proposed highway. Once this link is constructed with public and private funds, the drainage system will be in place within the urban core.

The interceptor system will collect flood waters from rural and agricultural lands up-gradient of project. While the North Kona Flood Control Plan calls for channelization throughout the entire system, it is uncertain whether funds or private development will occur within agricaultrual lands mauka of the present urban boundaries.

The responses to the comments from OEQC have been made subsequent to a meeting with its discussion group on March 1, 1996. Should there be a need for further clarification or additional information, please contact Gregg Kashiwa, Project Planners Hawaii, at (808) 329-9724 in Kona, or FAX at (808) 326-2789. Your comments are appreciated and your concerns reflect genuine appreciation for the environment and the effects of the proposed project. Thank you for the apportunity to meet with your group on March 1, 1996.

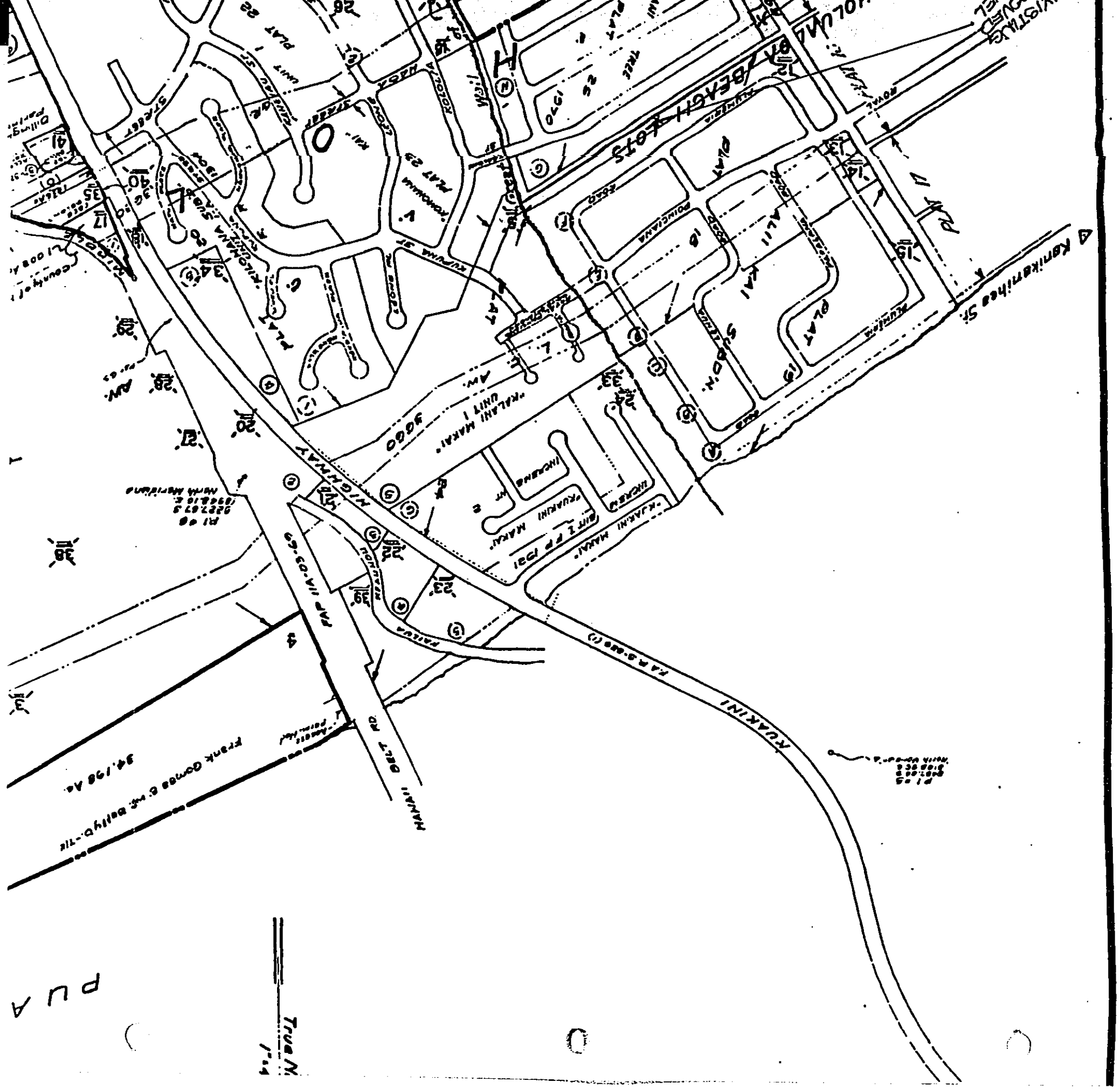
Respectfully submitted,

Project Planners Hawaii

By _____
its president

For Donna Fay Kiyosaki
Chief Engineer
County of Hawaii
Department of Public Works
25 Aupuni Street
Hilo, Hawaii 96720

cc: DPW
Planning Dept.
Imata & Assoc.
KHT Consulting
Gamrex


PUA
True N
HAWAII BELT RD.
FAP 11A-03-69
HIGHWAY
KUAKINI
F.A.S. 012 (1)
Frank Gomes & Wm. Bailey D-714
34.198 Ac.
R1 46
North Meridians
PLAT
KILOHANA SUBD.
UNIT 1
KANEYAU ST.
UNIT 1
PLAT 22
KAI
O
LEONG PL.
LEONG
KOLOLIA
POMOHALU
PLAT 23
KUPUNA ST.
KUAKINI
PAILUA
KEAUHOU
KALANI MAKAI
UNIT 1
KUAKINI HAWAII
UNIT I
MAKAI
PLAT 18
KAI
ALII
PLAT
PLAT 17
BEACH LOTS
PLAT
PLAT 25
Konikaumihee St.
MIROLE
Dillingham
3
38
29
28
27
20
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23
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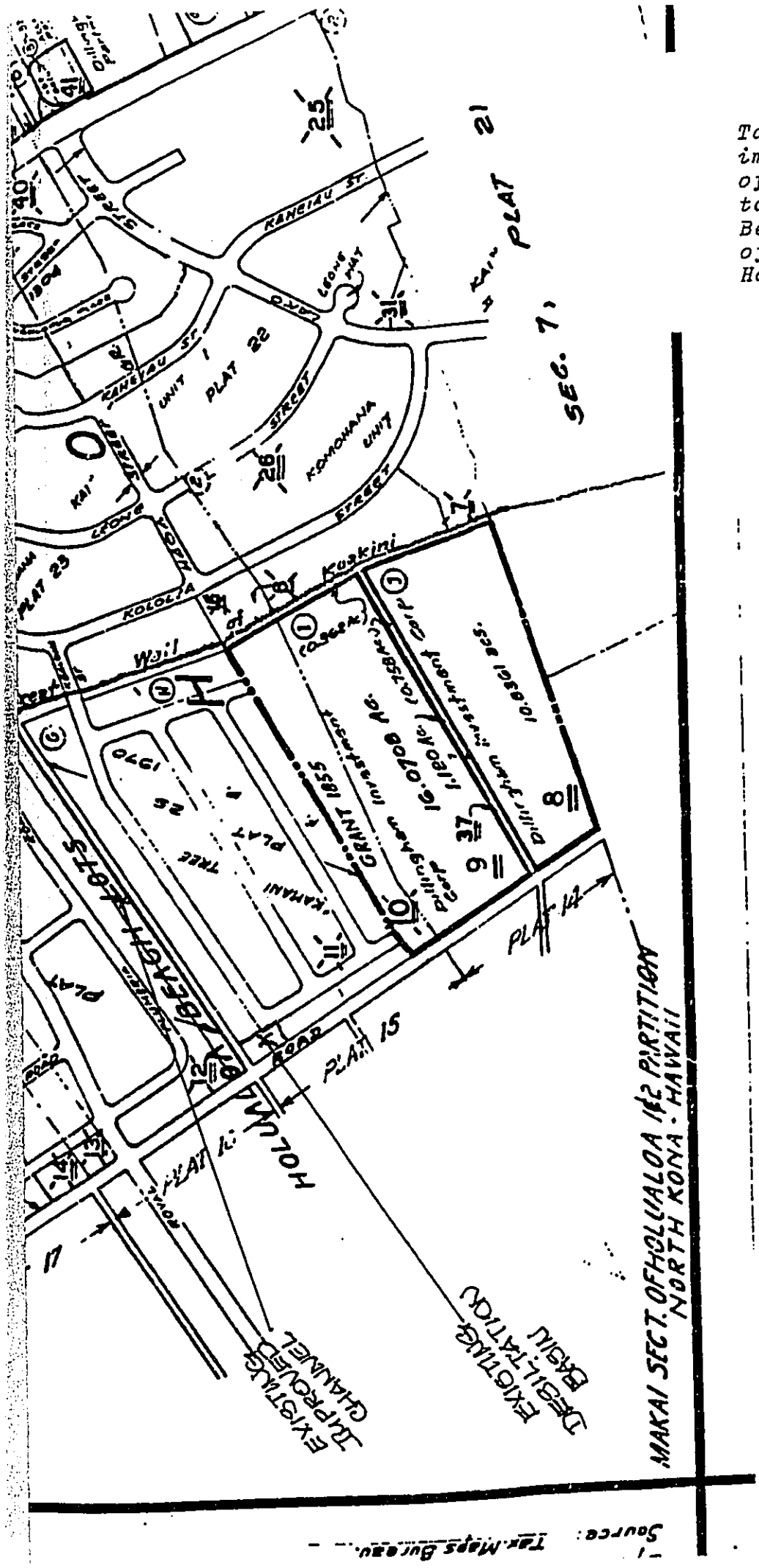
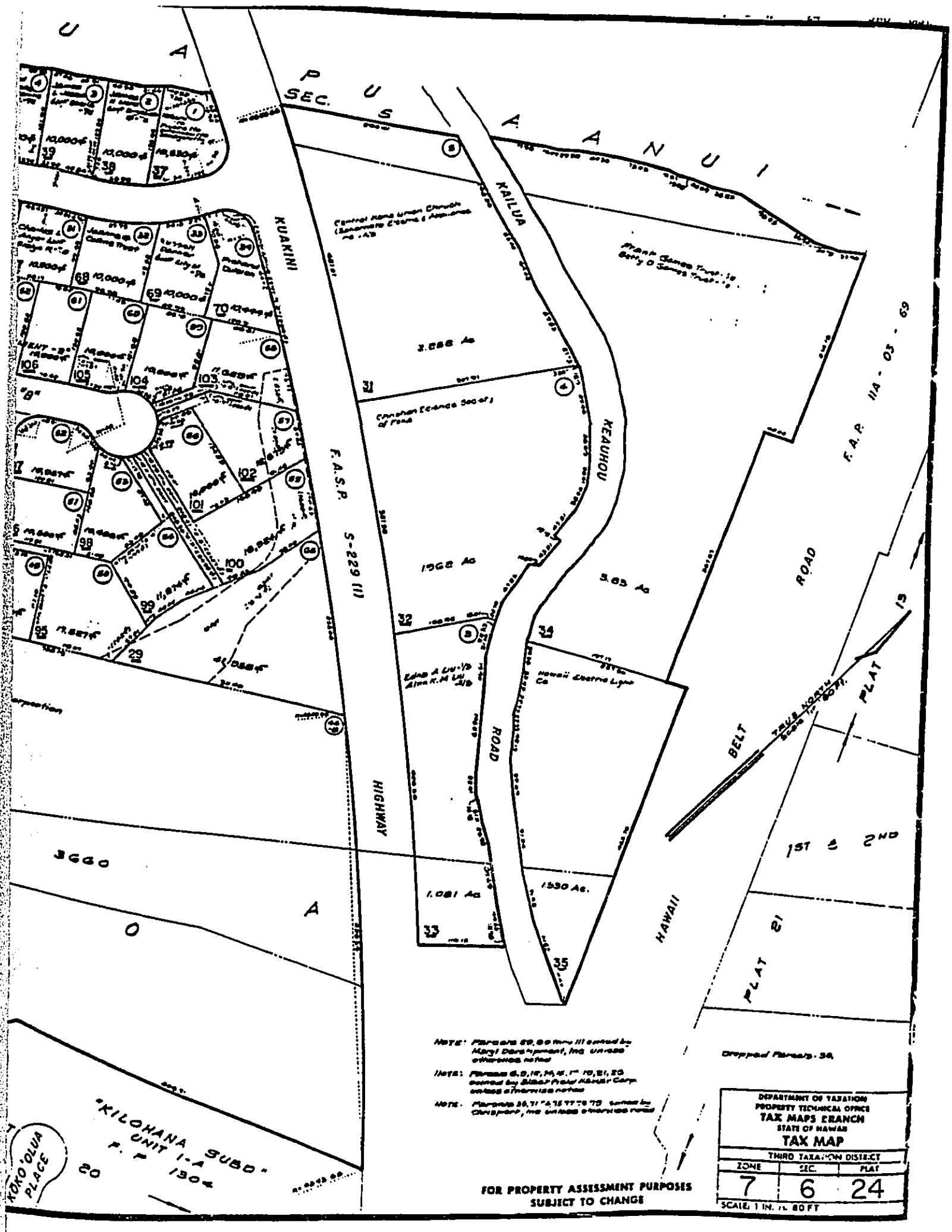
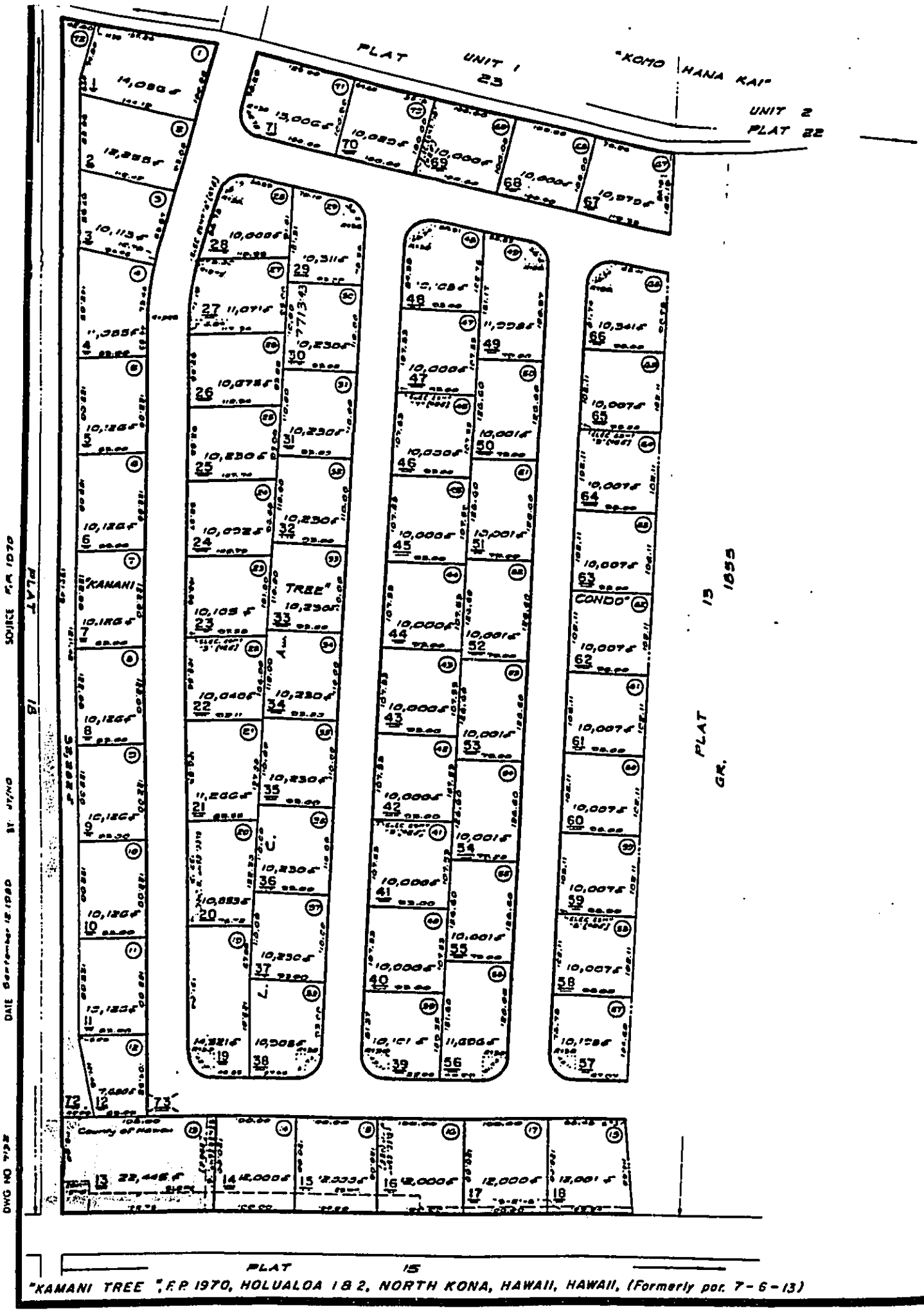


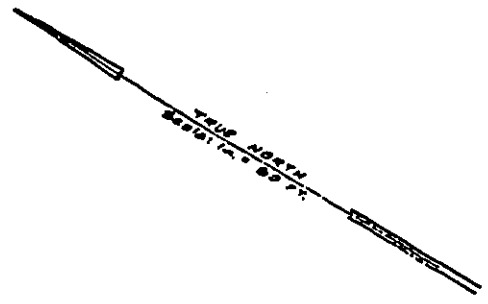
Tax Maps showing existing improvements downstream of proposed channelization to the Holualoa and Horseshoe Bend streams. Department of Public Works, County of Hawaii.


ROAD "A"
ROAD "B"
ROAD "C"
KUAKINI
MAKAI
ROAD
ROYAL POINCIANA DRIVE EXTENSION
ROYAL POINCIANA DRIVE
PLUMERIA
KUPUNA ST.
KOKO 'OLUA PLACE
LEONE PLACE
"KOHANA KAI" UNIT 1-A
PLAT 20
"KOHANA KAI" UNIT 1
PLAT 25
"KUAKINI MAKAI" INCREMENT 2
"KALANI MAKAI" UNIT 1, HOLUALOA, NORTH KONA, HAWAII (Formerly por. 7-6-13)
PLAT 3
PLAT 7
PLAT 13
PLAT 15
3 1630
3660
4.C.4M.
SUBD.
KAI
KALII
DWG NO 6668
DATE June 20, 1983
BY PMNB
SOURCE TMB


KUAKINI
HIGHWAY
F.A.S.P. S-229 (1)
KAILUA
KEAUHOU
ROAD
HAWAII
BELT
F.A.P. 11A - 03 - 69
PLAT 13
PLAT 21
1ST & 2ND
3600
A
O
2.058 Ac
1.068 Ac
1.081 Ac
1.530 Ac.
3.03 Ac
KOKO'OLUA PLACE
"KILOHANA SUBD." UNIT 1-A F. P. 190
20
FOR PROPERTY ASSESSMENT PURPOSES SUBJECT TO CHANGE
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
THIRD TAXATION DISTRICT
ZONE 7 SEC. 6 PLAT 24
SCALE 1 IN. = 80 FT



"KAMANI TREE", F.P. 1970, HOLUALOA 1 & 2, NORTH KONA, HAWAII, HAWAII, (Formerly por. 7-6-13)



DROPPED PARCELS: 78,

3 1631

NOTE: PARCELS 16 thru 18, 69 thru 85, 89 thru 91 "KAMAHI TREE - PHASE II"

NOTE: PARCELS 1 thru 4, 19 thru 68 78 & 79 "KAMAHI TREE - PHASE I"

NOTE: All lots owned by LPS Hawaii Inc. unless otherwise noted.

FOR PROPERTY ASSESSMENT PURPOSES SUBJECT TO CHANGE

DEPARTMENT OF FINANCE
PROPERTY ASSESSMENT DIVISION
TAX MAPS SECTION
STATE OF HAWAII

TAX MAP

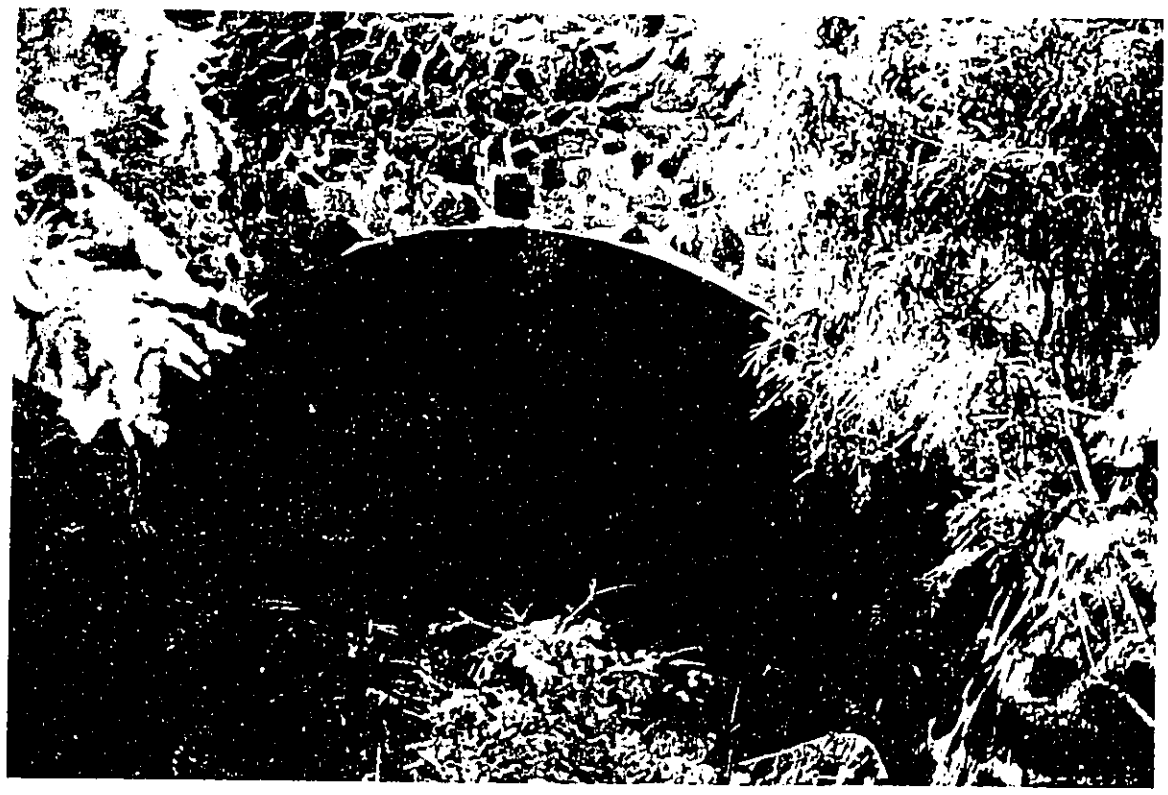
COUNTY OF HAWAII

ZONE	SEC	PLAT
7	6	25

SCALE 1 IN = 80 FT.

DOCUMENT CAPTURED AS RECEIVED

Views of culvert inlet (mauka side) under Kupuna Street. The transitional area before the inlet has been excavated and improved to assure waters flow through. Overgrowth exists on banks and floor of the area. Pictures taken on February 29, 1996.



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View of the outlet of the culvert under Kupuna Street. The Kupuna Street culvert marks both the end of the proposed drainage improvements and the start of the existing drainage improvements. Beginning at the makai headwall of the culvert, the Kalani Makai subdivision drainage improvements run diagonally to the North boundary of the Kamani Trees subdvision. This section of channel is older and runs a short distance before connecting with the newer Kamani Trees subdivision improvements. The channel wall on the mauka side of the channel is C.R.M. along its entire length. The makai walls are natural rock with some C.R.M. patchwork and gunnite. The channel floor is natural rock.

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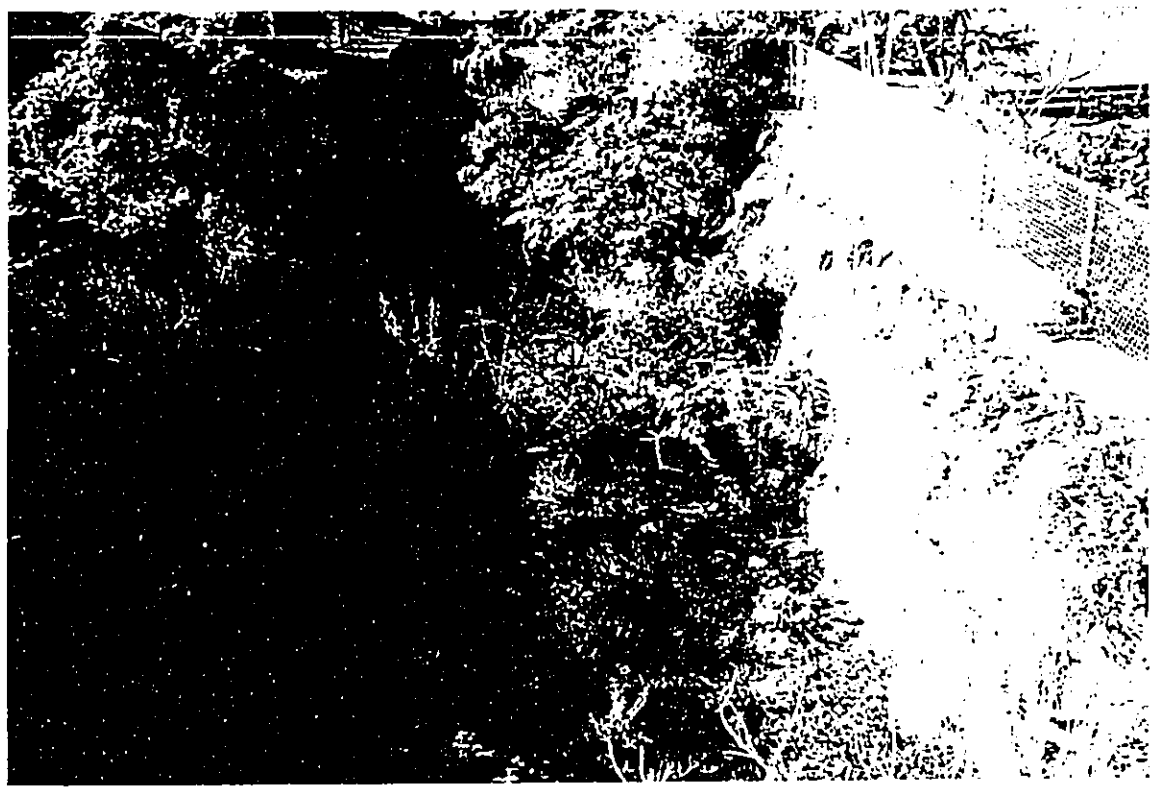

Views of the Kalani Makai subdivision channel. Note all the vegetation growing on the natural floor of the channel. This is an ongoing maintenance problem and adds debris to the flow.

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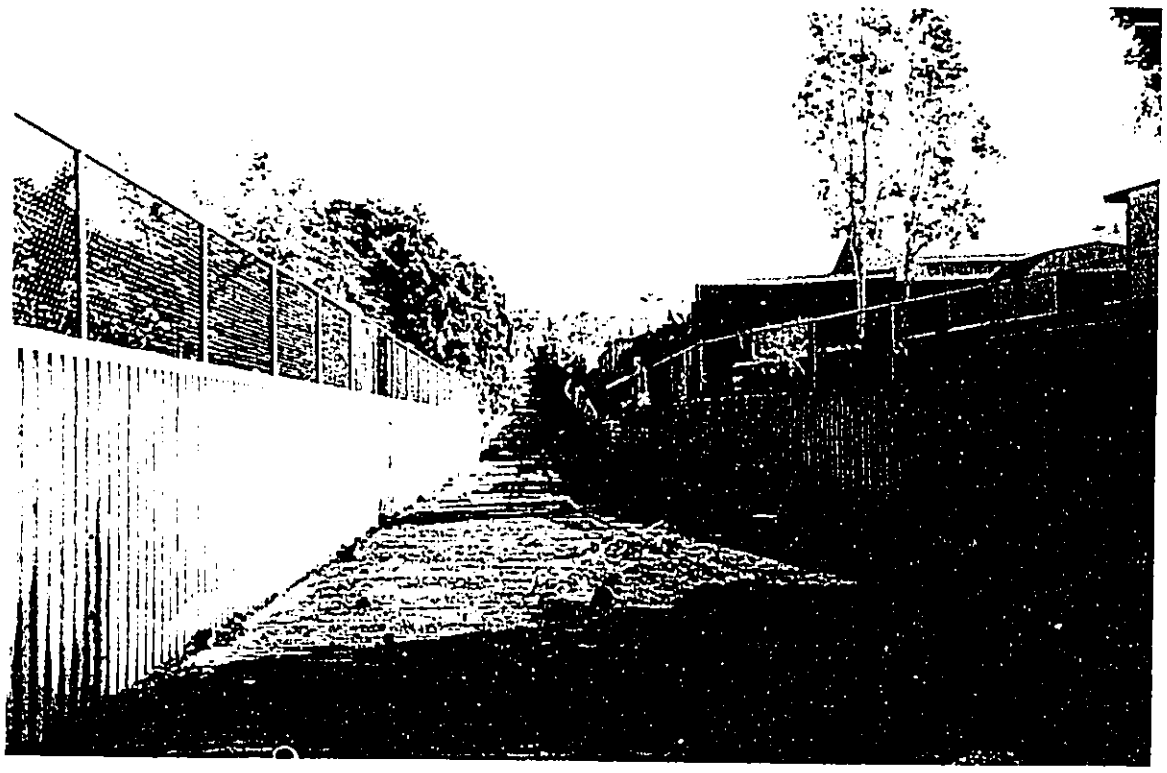

Views of the Kamani Trees subdivision concrete lined channel. The lower picture was taken near the inlet to the desiltation basin located at the makai corner boundary of the subdivision.

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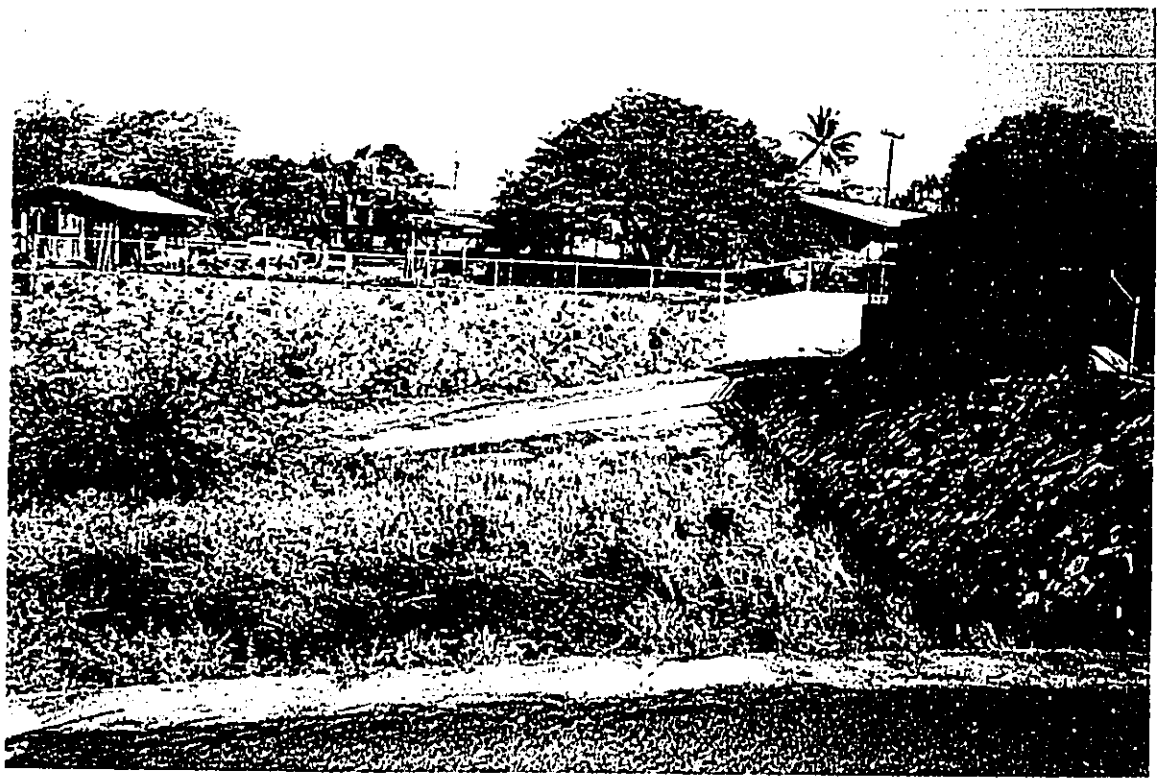

Views of the desiltation basin at the end of the Kamani Trees subdivision channel. Top picture was taken from the service road leading down into the basin. Bottom picture shows channel inlet into basin.

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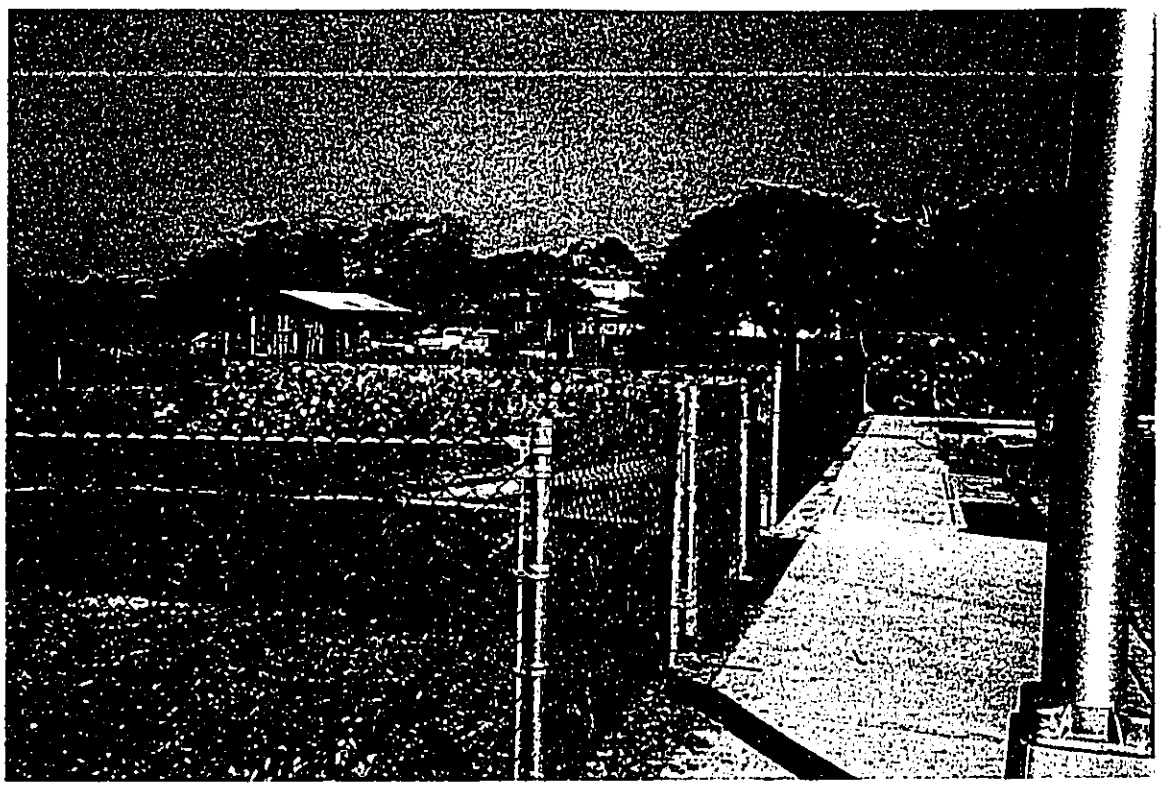

The desiltation basin shown here from the street in Kamani Trees subdivision is approximately 20 feet deep at its lowest point. It is accessed via a paved service road which leads down into the basin and also accesses the channel. The floor of the basin in natural basaltic rock. The basin ends the existent improvements. Waters leave the basin via an outlet or weir which is built into the makai wall and resume natural sheet flows down to and across Alii Drive. After crossing Alii Drive the waters flow into the ocean. A chain link fence surrounding the basin also stretches across the outlet and acts as a debris collection system. Heavy debris such as as rocks, junk, logs and boulders are trapped in the basin. No immediate improvements down-gradient of the basin are planned by the County of Hawaii.

'Get tough' tactics catch graffiti artists in Kona by surprise

The use of search warrants against suspects has caught the eye of the Honolulu Police Department

By Helen Altonn
Star-Bulletin

Kona police are busting graffiti taggers with search warrants, using them to search identified taggers' homes and cars.

And they're nailing them, not only for illegal artistry, but for more serious crimes uncovered in the searches.

Honolulu police are so impressed with Kona's results they're "playing catch-up," said Harry Auld, captain of HPD's Criminal Intelligence Unit.

"All the crime-reduction unit guys are scrambling to see who can make the first search warrant based on what they've done in Kona," Auld said. "The first one to get it is going to get a prize."

Sgt. Brad Ballesteros, detective with the Kona police juvenile section, said police began identifying taggers and getting warrants in November 1994.

"When you deal with these kids, you get kind of angry at them because kids' attitudes are really bad these days. When you get on the street, if you have no reason to arrest them, they'll get in your face ...They've got no respect for police."

That may be changing since Kona police cracked down on taggers in a flood runoff channel called "Tunnels."

Four 17-year-olds were arrested, put on probation, required to make $800 restitution, and do community service.

"They got away pretty easy," Ballesteros said, noting damage at the Tunnels was about $10,000.

But one youth was recently arrested again and may get a tougher sentence because now he's 18.

Elaborate, large murals had been sprayed at the Tunnels and such graffiti gradually spread to buildings, cars and roadways, he said. Police identified two leaders and got warrants to search their homes.

"It was amazing," Ballesteros said.

Police found empty Polaroid cartridges and altered paint nozzles at the Tunnels, he said.

"When we got to the houses, they had disposable cameras and pictures of themselves taken at different stages of graffiti. We went to court and they didn't even contest it."

Guns also were found in one house, the detective said.

In January, Kona police worked with state Department of Land and Natural Resources officers to catch taggers at the old Kona Airport, he said.

"Workers during the day were cleaning up graffiti, and as soon as they'd clean it up, they'd go back and find the same graffiti."

Taggers left messages such as, "Keep on scrubbing, you stupid whatever," Ballesteros said.

He said frustrated DLNR officers staked out the area for several days and finally saw someone climb a guardrail and spray paint his moniker, "oops," on a sign. The same name had been sprayed all over town, he said.

"We tied it in."

Police identified the main players in the airport case and got search warrants on two houses and a car, he said.

"The rest came in and we talked to them. They admitted they were involved in graffiti but didn't paint down there."

All taggers in that group were adults, 18 to 20, and included three of those arrested at age 17 in the Tunnels case, Ballesteros said.

"They don't learn," he said. "They think it's a status symbol."

But when police hit them for stolen credit cards and felony offenses, he added, "It gives them a message they're not going to get away with it."

An 18-year-old was arrested from the airport taggers based on findings in his car, and others were routed to the prosecutor's office, Ballesteros said.

Stolen credit cards were found in the car, along with about 50 cans of spray paint in the car's tire well. Also in the car was what looked like eyeglasses, with no lenses, he said.

"It was kinda cute. On the sides, it had little flashlights, like headlights, that go on and off automatically. They use these to paint in the dark so their hands are free. It looks real goofy but it does the job."

Honolulu police learned only recently about their colleagues' use of search warrants to halt graffiti in Kona, Auld said.

"It's real creative on their part and it's got the support of the prosecutor, and so have we."

But it's not as simple as looking at a wall and recognizing a tag, which a rival gang member could forge, Auld added. There must be justifiable cause for a search warrant, he said.

> *"All the crime-reduction unit guys are scrambling to see who can make the first search warrant based on what they've done in Kona."*
>
> **Harry Auld**
> *HPD Criminal Intelligence Unit*

Honolulu Star Bulletin, March 21, 1996

The "Tunnels" in Kailua-Kona is the covered drainage/flood control channel that runs underground through the heart of Kailua Village, and is the same channel described in the response(s) to OEQC comments by Project Planners Hawaii on March 7, 1996. It is a constant source of problems to the Kona police force.

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Matthew G. Jewell

OF COUNSEL
Clinton R. Ashford*

*A Law Corporation

February 21, 1996

Mr. Tom Pack, Engineer
County of Hawaii
Department of Public Works
Engineering Division
75-5706 Kuakini Highway, Suite 108
Kailua-Kona, Hawaii 96740

Re: Holualoa and Horseshoe Bend Drainage Way Improvement Project
Tax Map Keys (3) 7-6-024: 025 & 77 and (3) 7-6-021: 016-019

Dear Tom:

As you may know, this firm represents Robert L. Densham, the owner of Tax Map Key (3) 7-6-011-034, which abuts a portion of the above-referenced drainage project on the mauka side. As you may also be aware, our client has retained Leo Fleming to review portions of the plans pertaining to the drainage project, as our client is concerned about how such drainage project will impact his property.

By way of public comment to the DEA First Notice, this will simply confirm that Leo Fleming has expressed a number of concerns to you which we understand you intend to address with the developer and consultant. We ask that you please notify us in the event of the submission of any revised plans or other action being taken regarding this project.

Should you have any questions or comments concerning this matter, do not hesitate to contact me at the Kailua-Kona address or telephone number below.

Sincerely yours,

ASHFORD & WRISTON

MATTHEW G. JEWELL

MGJ:jj

cc: Robert L. Densham
Project Planners Hawaii, Attention: Gregg Kashiwa
Office of Environmental Quality Control
Leo Fleming

HONOLULU OFFICE
Mailing Address:
Post Office Box 131
Street Address:
Alii Place, Suite 1400
1099 Alakea Street
Telephone:
(808) 539-0400
Facsimile

KAPOLEI OFFICE
Kapolei Bldg., Suite 310
1001 Kamokila Blvd
Telephone:
(808) 539-0400
Facsimile:

KAILUA-KONA OFFICE
Kuakini Tower, Suite 208
75-5722 Kuakini Hwy.
Telephone:
(808) 329-7706
Facsimile

2/27/96 RE: ROBERT DENSHA

Notes of conversation with Matt Jewell et al

Re: Letter to Tom Pack, D.P.W.

Holualoa: Horseshoe Bend Drainageway Impr.

2/21/96 (Copy received 2/27/96)

329-7706

1. Called 2/27/96 @ 2:10 P.M. - Matt on vacation for 2 to 3 weeks. Left message for another attorney to call.

2. Called Tom Pack, D.P.W., Kona Division 329-3193 2:15 P.M. - Left message for Tom

2a - Tom Pack returned call @ 3:00 P.M. Didn't have letter yet. Said he would get back to me after he gets FAX of Cashford/Austin letter.

2b. FAXed letter to Tom Pack 3:00 P.M.

2c. Called Leo Fleming 329-2141 Densham concerned about

1. What happens to water after it leaves his property?
2. View planes in future.

Asked Leo to show us view plane prospectives for consideration (s). Leo will get back to us.

PROJECT PLANNERS HAWAII
5375 Kalanianaole Highway
Honolulu, Hawaii 96821

March 4, 1996

Matthew G. Jewell, Esquire
Ashford & Wriston
Kailua-Kona Office
75-5722 Kuakini Highway
Kuakini Tower, Suite 208
Kailua-Kona, Hawaii 96740

Re: Response To Comments
Draft Environmental Assessment
Mr. Tom Pack
Department of Public Works
County of Hawaii
Holualoa and Horseshoe Bend Drainageways
Holualoa, North Kona, Hawaii

Dear Matt:

I am responding to your letter of February 21, 1996, to Mr. Tom Pack of the Department of Public Works (DPW), County of Hawaii, relating the the draft environmental assessment (DEA) for the proposed improvements to the Holualoa and Horseshoe Bend drainageways as noticed in the O.E.Q.C. Environmental Notice dated February 8, 1996.

Upon receipt of a copy of your comment(s) on February 27, 1996, I called Tom Pack at the DPW, Kona Office. It was difficult to determine through its contents what your client's concerns were in order to prepare a response. I enclose a copy of your letter herewith. Tom did not have a clear recollection of the conversation with you, Mr. Leo Fleming, engineer for Mr. Robert Densham, and Mr. Densham. He asked me to call you directly which was done on the same day. Your office informed me that you would be out of town for the next two to three weeks on personal matters. They later called and asked that I contact Mr.

Leo Fleming who is the civil engineer for Mr. Robert Densham, owner of Tax Map Key: 7-6-11:34, Third Division. I called Leo on the same day, February 27, 1996, regarding your letter. Leo related Mr. Densham's concerns to me which were not clearly expressed in your letter. They fell into two (2) basic catagories and are:

1. AS TO THE DRAINAGE IMPROVEMENTS AND DEA:

   A. He is concerned that the the proposed drainage improvements inclusive of the interceptor channel and the main Horseshoe Bend channel do not encroach onto his property.

   B. He is concerned that flood waters within both proposed channels abovementioned do not back-up onto his property.

2. VIEW PLANES FROM HIS PROPOSED HOME:

   Mr. Densham in the future is going to build a new home on his property. He is concerned that future development on Gamrex's lands below his home will intrude into his view plane.

Responses to these comments (as best determined from other sources) are as follows:

1. Encroachment: Mr. Densham's property lies near the Northeast corner of Gamrex's property above the abandoned railroad right-of-way mauka of Queen Kaahumanu Highway. Their common boundary lies where flood waters from the Horseshoe Bend drainageway pass from Densham's property onto Gamrex lands. The drainageway through Mr. Densham's property is unimproved. Proposed improvements include aligning the main Horseshoe Bend channel with the present natural flood plain within Mr. Dehsham's land and constructing an interceptor channel (North/South) along the abandoned railroad right-of-way to collect flood waters that may not come down normal ways. Both these channels will be constructed on

lands owned by the County of Hawaii and Gamrex, Inc. No portion of either channel will be built on Mr. Densham's land.

2. Flood Water Back-up: The channels are designed so that water collected within them do not back-up into Mr. Densham's property.

3. View Planes: The County of Hawaii and Gamrex have no way of knowing where Mr. Densham intends to construct his new home, and whether in fact, views from his new residence will be impacted by future development on lands makai of it. This concern is not covered within the scope of the DEA. The proposed drainage system will not intrude into Mr. Densham's view plane from his proposed new home.

4. Review Of Revised Plans: Should any revision to the proposed drainage plans within the area of Mr. Densham's property (T.M.K. 7-6-11:34) be made, Mr. Leo Fleming or any other designee for Mr. Densham will be contact for plan review.

Under the present circumstances, I hope these responses adequately answer your questions and concerns. Should these responses not cover your concerns, please contact me at (808) 329-9724 or by FAX at (808) 326-2789. Every effort will be made to answer and respond to concerns not covered herein.

Sincerely,

Project Planners Hawaii

By _____
its President

For: Donna Fay Kiyosaki, PE
Chief Engineer
County of Hawaii
Department of Public Works
25 Aupuni Street
Hilo, Hawaii 96720

2/27/96 - Cs to No. 2. on log for comments

Timmons, Pat as an individual
187-C Hokulani Street
Hilo, Hawaii 96720

1) Requested a copy of E.A. be mailed to her.
2) Told her we will print additional copies (we presently are out of extra copies) and a copy would be mailed to her next week. She said that, that would be fine with her.

PROJECT PLANNERS HAWAII
5375 Kalanianaole Highway
Honolulu, Hawaii 96821

March 5, 1996

Pat Tummons
107-C Hokulani Street
Hilo, Hawaii 96720

Re: Request For Copy Of
Draft Environmental Assessment
Propposed Drainage Improvements
Holualoa And Horseshoe Bend Drainageways
Holualoa, North Kona, Hawaii

Dear Ms. Tummons:

Pursuant to our telephone conversation on February 27, 1996, and to your request, please find enclosed a copy of the draft environmental assessment for proposed improvements to the Holualoa and Horseshoe Bend drainage ways, located and being in Holualoa, North Kona, Hawaii. The same was published in the OEQC's Environmental Notice, dated February 8, 1996. I am sorry for not getting this to you sooner, but extra copies were not available and this copy was made for you this week after obtaining the original.

Should you have any questions, please feel free to contact me in Kona at (808) 329-9724 or by FAX at (808) 326-2789.

Sincerely,

Gregg Kashiwa

PROJECT PLANNERS HAWAII
5375 Kalanianaole Highway
Honolulu, Hawaii 96821

March 2, 1996

Mr. John T. Harrison, PhD
Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Crawford Hall 317
2550 Campus Road
Honolulu, Hawaii 96822

Re: Pictures of Existing Drainage Improvements
Holualoa and Horseshoe Bend Drainageway
Holualoa, North Kona, Hawaii

Dear Dr. Harrison:

I enclose color copies of the photographs taken of the existing improvements located within the Kalani Makai and Kamani Trees/Alii Kai subdivisions that were presented at the meeting at OEQC on March 1, 1996. A more detailed response to the OEQC comments are forthcoming and should you want a copy please contact me. I also enclose the tax maps that were also circulated for your review and records. The proposed drainage system will connect to these existing improvements.

The drainage capacity calculations on the existing improvements have already been made as a part of the CLOMR by FEMA and the existing system can hold the projected flows. It is the opinion of FEMA and DPW that flows down-gradient of the desiltation basin will be much the same as the natural flows after leaving the desiltation basin in volume and velocity. Should you require any more information, please contact me in Kona at (808) 329-9724 and FAX at (808) 326-2789. Mahalo.

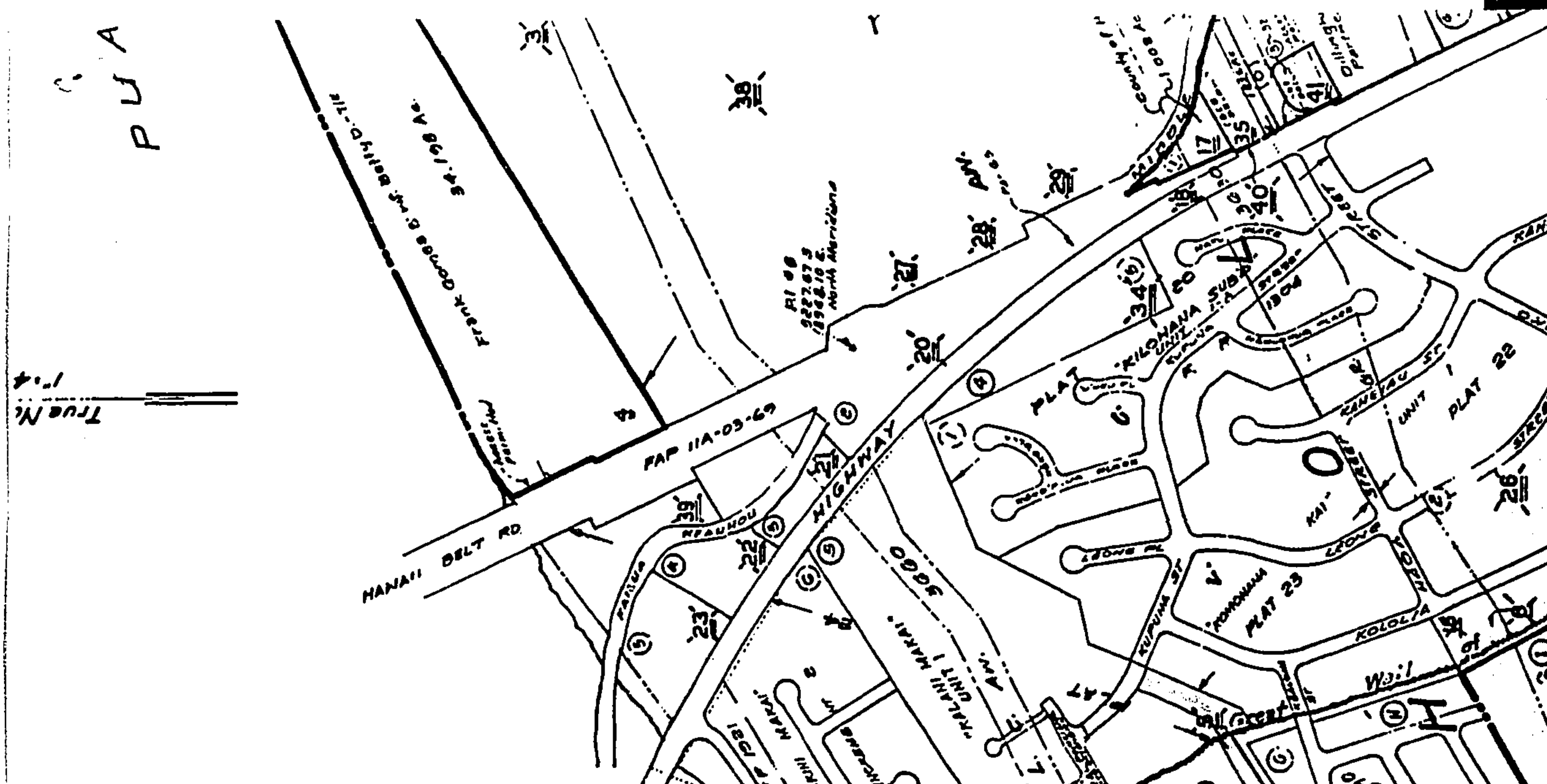
Sincerely,

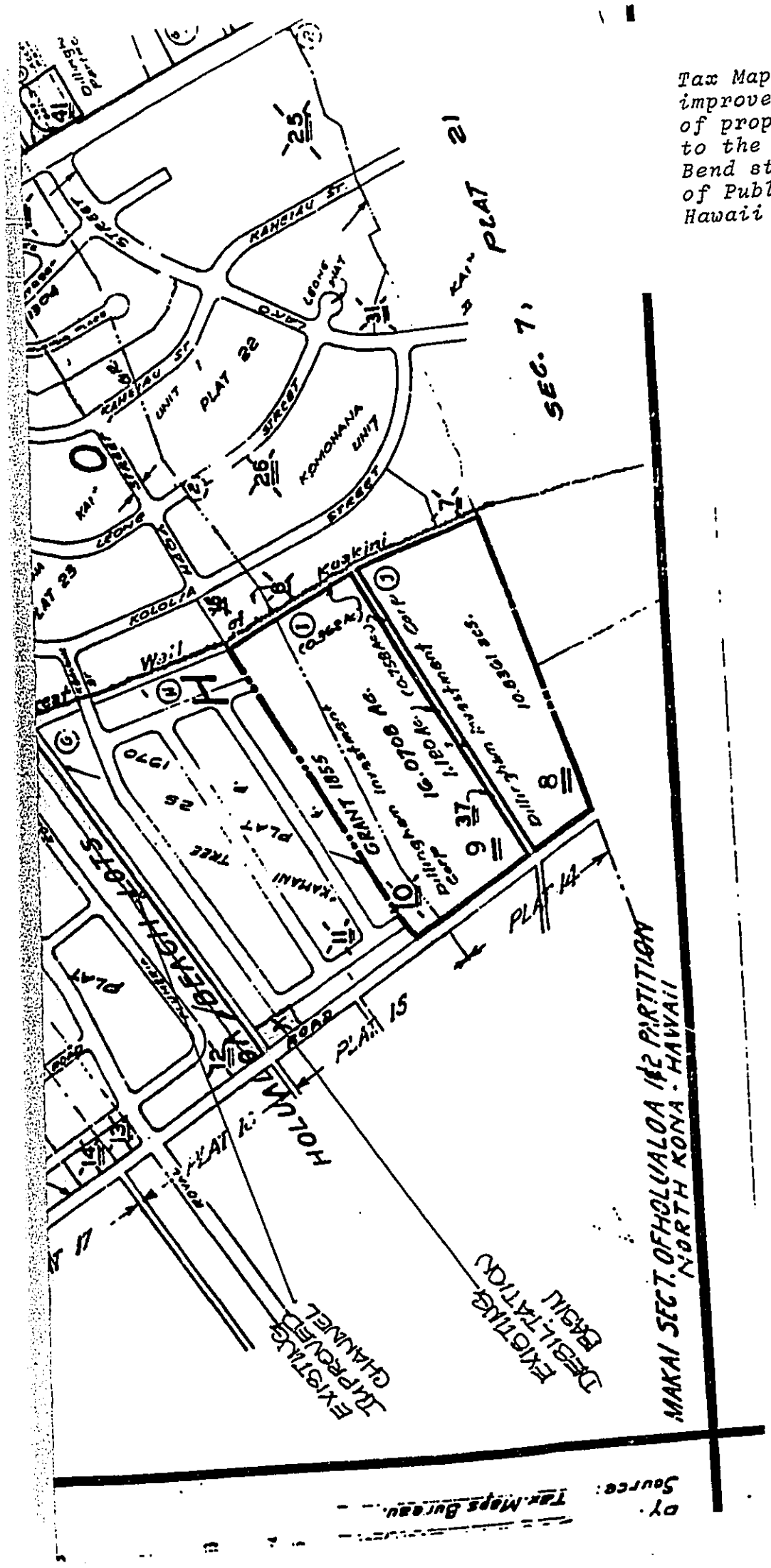
Gregg Kashiwa

cc: DPW
OEQC
GAMREX

If there is a need for any additional information and/or clarification on any subjects covered within this Final Environmental Assessment, please contact:

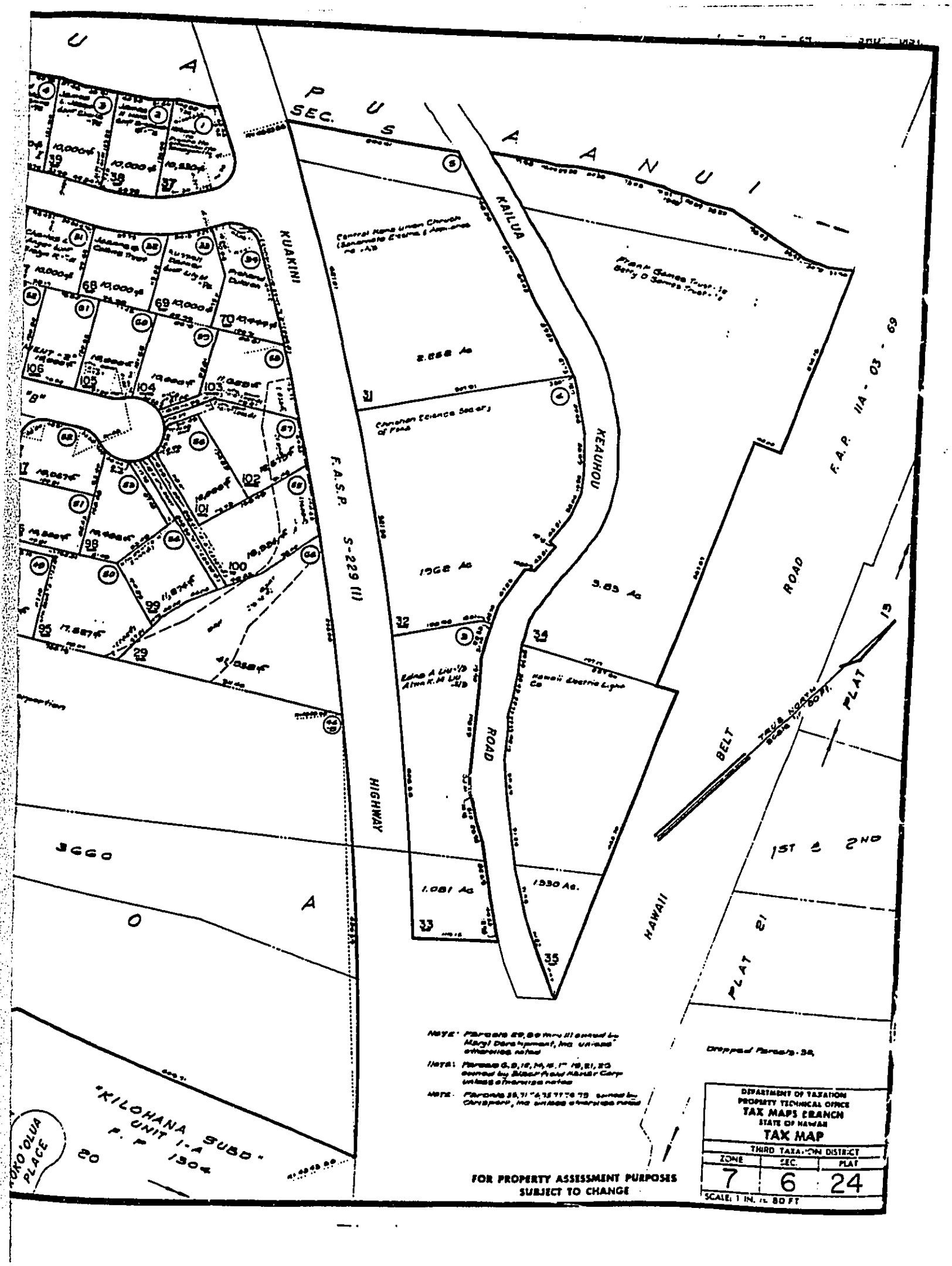
CONTACT PERSON:	Gregg Kashiwa Project Planners Hawaii
KONA PHONE:	(808) 329-9724
KONA FAX:	(808) 326-2789
MAILING ADDRESS:	Project Planners Hawaii 76-117 Kamehamalu Street Kailua-Kona, Hawaii 96740

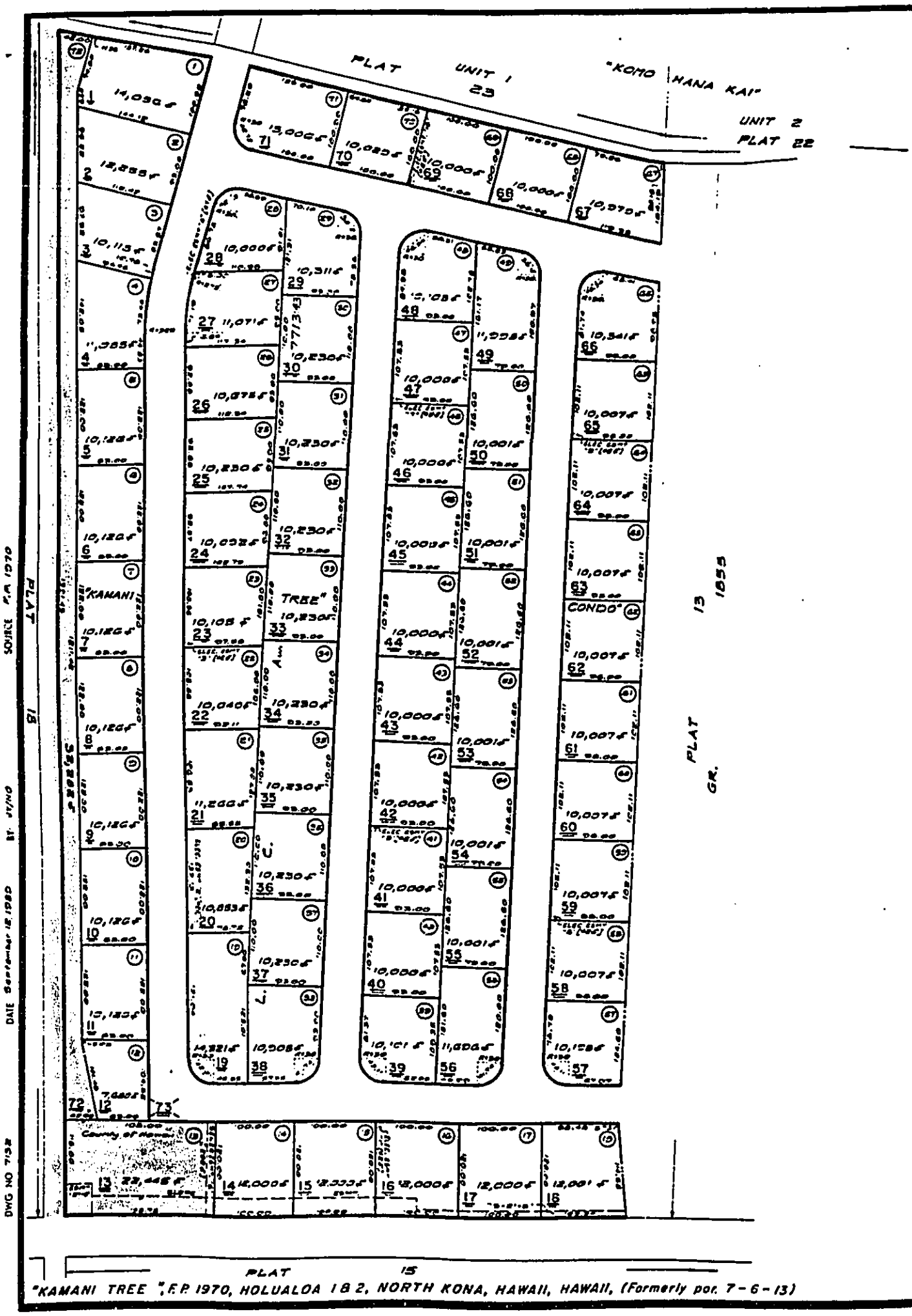

P U A
True N.
HAWAII BELT RD.
FAP 11A-03-69
34.198 Ac.
HIGHWAY
KUAKINI
F.A.P. S-0800(1)
PLAT
KILOHANA SUBD.
UNIT 1
PLAT 22
PLAT 23
KAI O
KANEIAU ST.
KUPUNA ST.
LEONG PL.
KOLOLIA
ALII KAI SUBD'N.
PLAT 19
PLAT 18
PLAT 17
PLAT
BEACH LOTS
HOLUALOA
EXISTING
PROPOSED
TUNNEL
Kanikaniihea St.
39
38
29
28
27
20
21
22
23
24
33
34
35
40
41
12
13
14
15

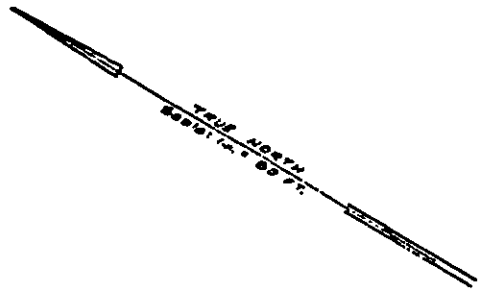


Tax Maps showing existing improvements downstream of proposed channelization to the Holualoa and Horseshoe Bend streams. Department of Public Works, County of Hawaii


ROAD "A"
ROAD "B"
ROAD "C"
ROAD "D"
KUAKINI
MAKAI
ROYAL POINCIANA DRIVE EXTENSION
ROYAL POINCIANA DRIVE
PLUMERIA
KUPUNA ST.
L. C. AW. 3660
"KOMOHANA KAI" UNIT 1-A SUBD. P. P. 1904
KOHO'OLUA PLACE
LEONE PLACE
"KOMOHANA KAI" UNIT 1 SUBD.
PLAT 25
PLAT 20
PLAT 19
3 1630
"KUAKINI MAKAI" INCREMENT 1, F.P. 1921; & INCREMENT 2
"KALANI MAKAI" UNIT 1, HOLUALOA, NORTH KONA, HAWAII, HAWAII (Formerly por. 7-6-13)


U A
P U S A A N U I
SEC.
KUAKINI
KAILUA
KEAUHOU
F.A.S.P. S-229 (1)
HIGHWAY
ROAD
F.A.P. IIA - 03 - 69
BELT
PLAT
1ST & 2ND
PLAT 21
HAWAII
"KILOHANA SUBD. UNIT 1-A F.P. 190"
KOKO'OLUA PLACE
2.658 Ac
1.968 Ac
3.83 Ac
1.081 Ac
1.930 Ac.
Hawaii Electric Light Co
Central Hong Kwan Church
Carnation Company
Dropped Parcels 34,
NOTE: Parcels 29, 30 thru 33 owned by Magi Development, Inc. Unless otherwise noted
NOTE: Parcels 6, 9, 16, 19, 21, 25 owned by Sisco Real Estate Corp unless otherwise noted
NOTE: Parcels 28, 31 & 35 thru 38 owned by Campbell, Inc. unless otherwise noted
FOR PROPERTY ASSESSMENT PURPOSES SUBJECT TO CHANGE
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
THIRD TAXATION DISTRICT
ZONE 7 SEC. 6 PLAT 24
SCALE 1 IN. = 80 FT


PLAT UNIT 1 23
"KOMO MANA KAI"
UNIT 2
PLAT 22
"KAMANI TREE"
PLAT 13
PLAT 15
PLAT GR.
SOURCE F.M. 1970
DATE September 12 1980
DWG NO 7132
"KAMANI TREE", F.P. 1970, HOLUALOA 1 B 2, NORTH KONA, HAWAII, HAWAII, (Formerly por. 7-6-13)



3 1631

NOTE: Parcels 18 thru 19, 22 thru 23, 39 thru 71 "KAMANI TRCE - PHASE II"

NOTE: Parcels 1 thru 4, 19 thru 20, 72 & 73 "KAMANI TRCE - PHASE I"

NOTE: All lots owned by LPS Hawaii, Inc. unless otherwise noted.

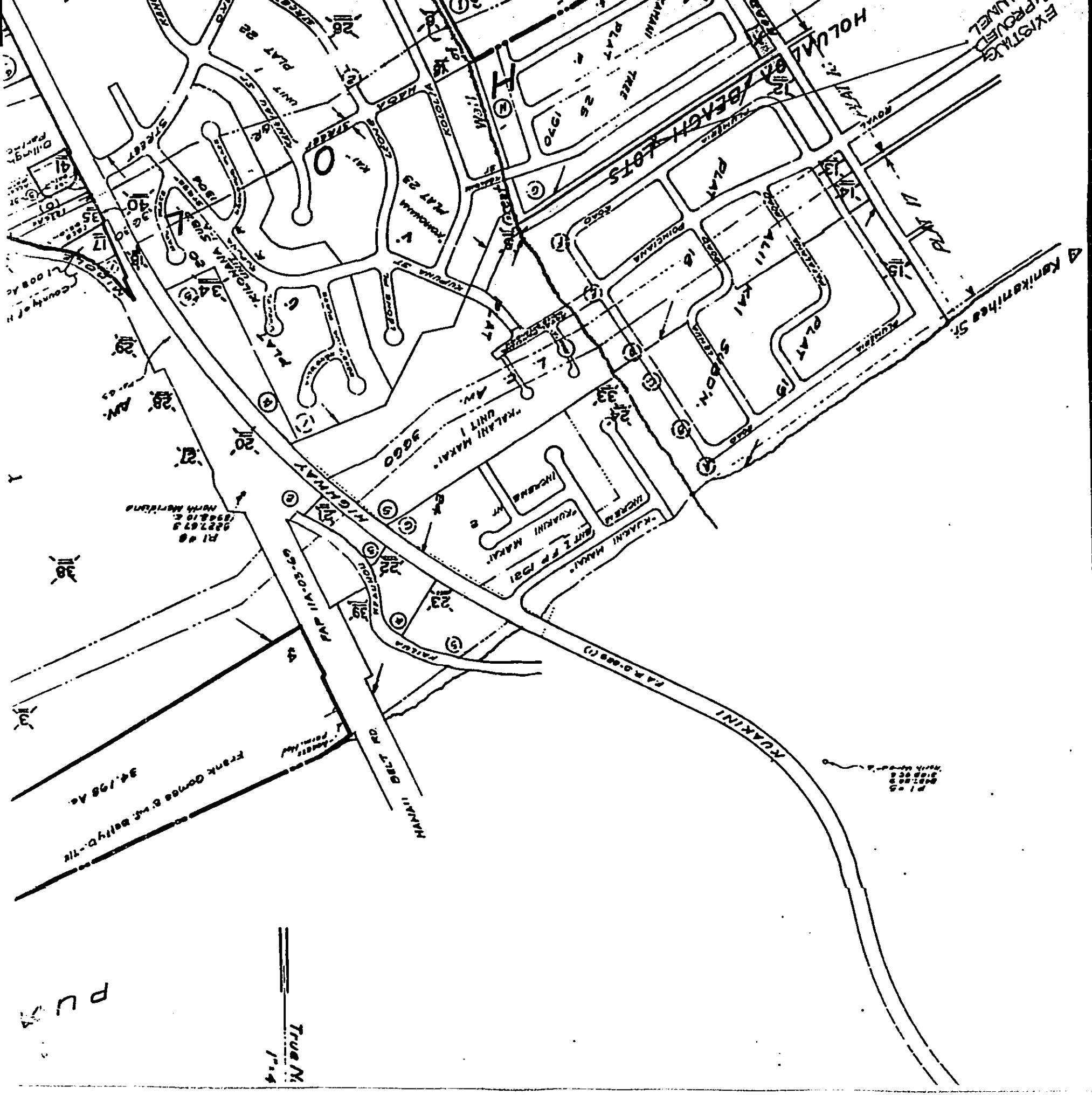
FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE

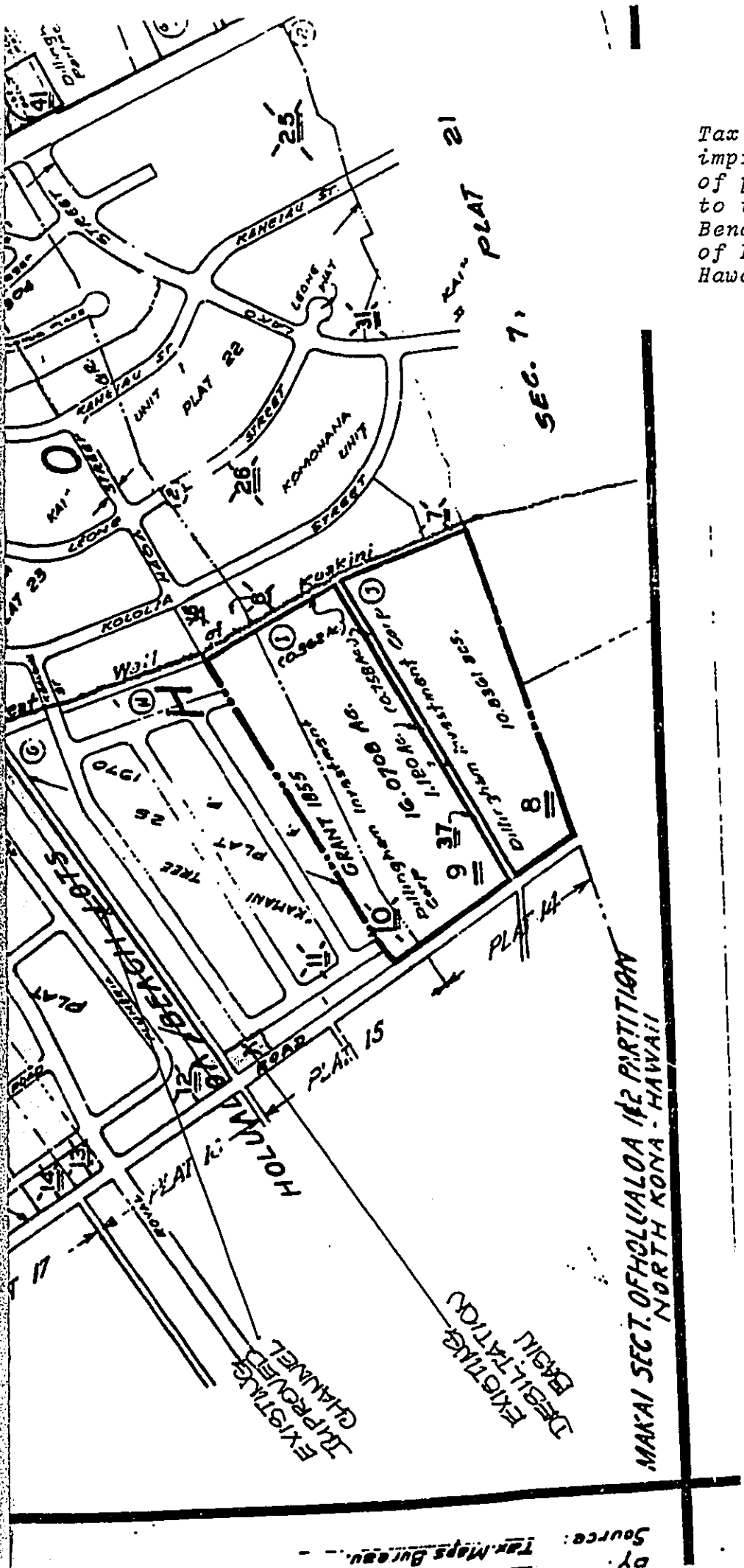
DEPARTMENT OF FINANCE
PROPERTY ASSESSMENT DIVISION
TAX MAPS SECTION
STATE OF HAWAII
TAX MAP

COUNTY OF HAWAII

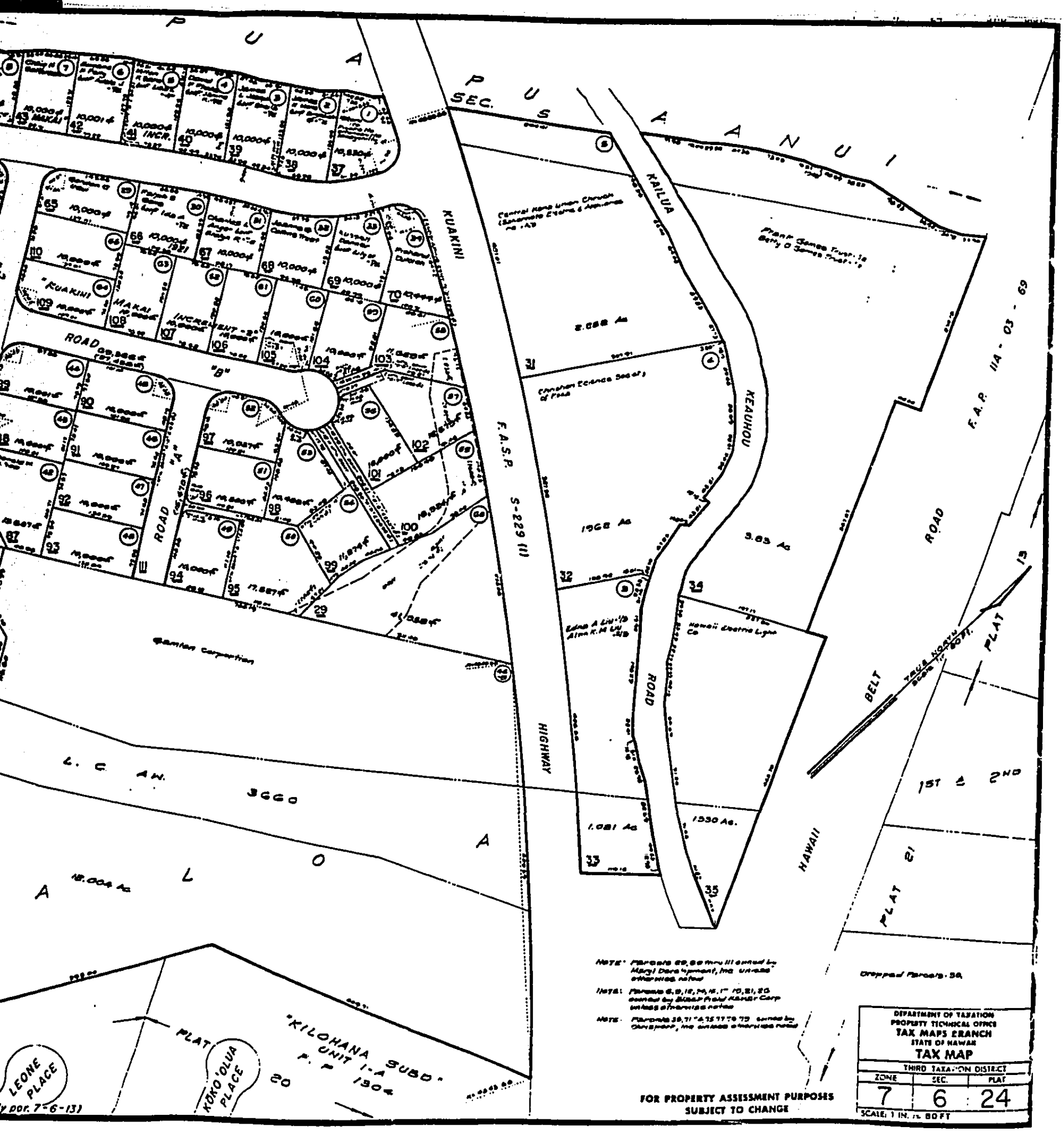
ZONE	SEC	PLAT
7	6	25

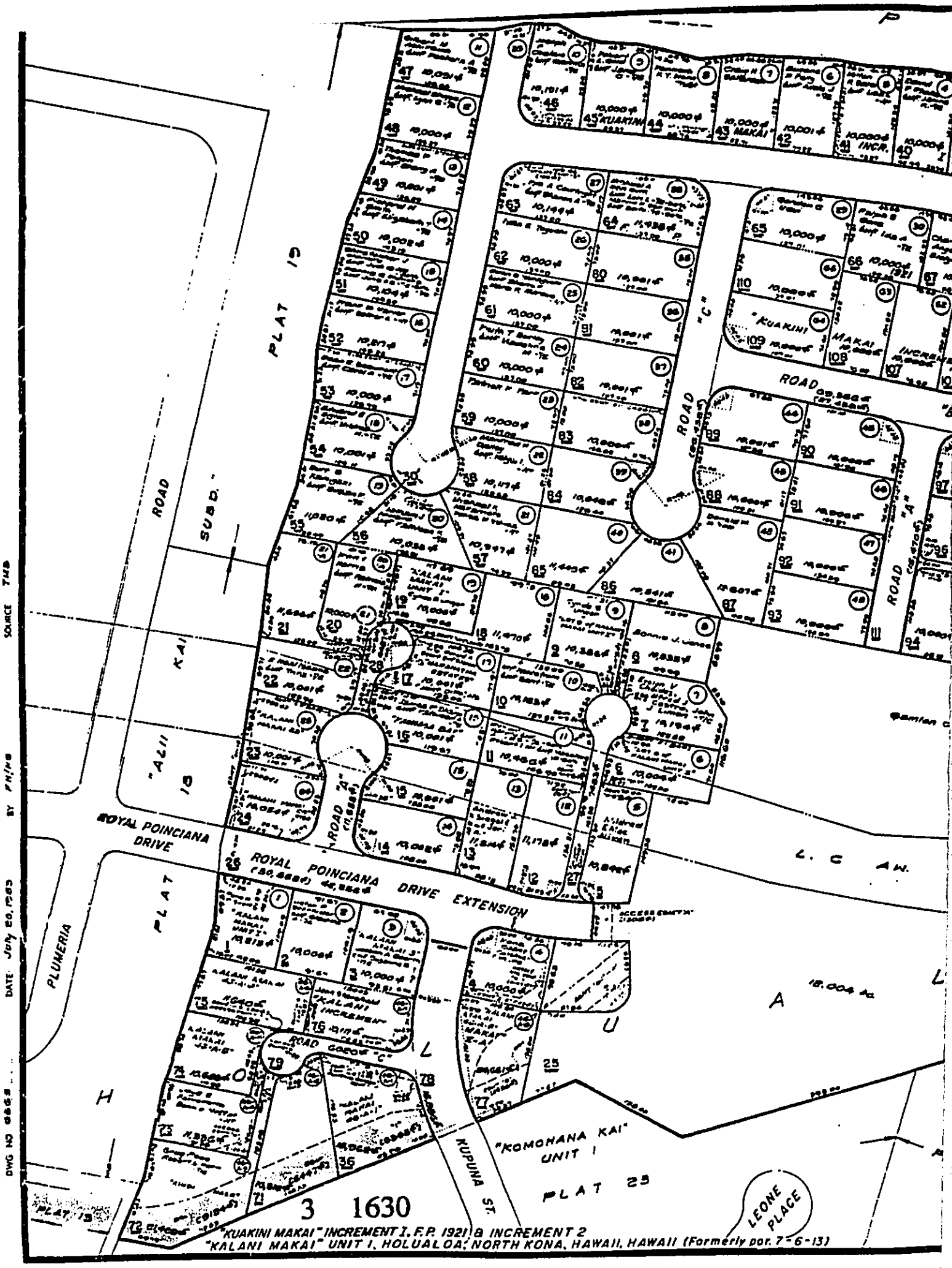
SCALE 1 IN = 80 FT.


HOLOMUA
KAMEHAMEHA HIGHWAY
KUAKINI
HANAPEPE
KAMOKUNA
KAMOKUNA PLAT 23
KAMOKUNA PLAT 22
KAMOKUNA PLAT 21
KAMOKUNA PLAT 20
KAMOKUNA PLAT 19
KAMOKUNA PLAT 18
KAMOKUNA PLAT 17
KAMOKUNA PLAT 16
KAMOKUNA PLAT 15
KAMOKUNA PLAT 14
KAMOKUNA PLAT 13
KAMOKUNA PLAT 12
KAMOKUNA PLAT 11
KAMOKUNA PLAT



Tax Maps showing existing improvements downstream of proposed channelization to the Holualoa and Horseshoe Bend streams. Department of Public Works, County of Hawaii.

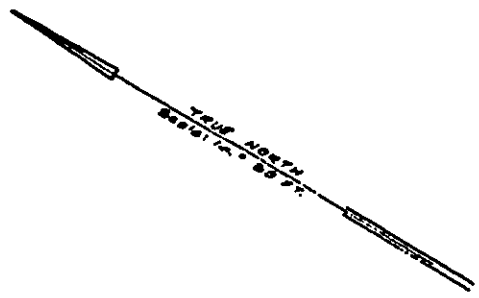

PUAANUI
SEC.
KUAKINI
KAILUA
KEAUHOU
F.A.S.P. S-229 III
F.A.P. IIA - 03 - 69
ROAD
"KUAKINI MAKAI INCREMENT - B"
ROAD "B"
ROAD "A"
Kamion Corporation
L. C. A'N. 3660
A L O A
18.004 Ac
1.081 Ac
1.530 Ac.
1968 Ac
2.688 Ac
3.83 Ac
HIGHWAY
ROAD
HAWAII BELT
1ST & 2ND
PLAT 21
PLAT
"KILOHANA SUBD. UNIT 1-A" F.P. 130
LEONE PLACE
KŌKO'OLUA PLACE
20
Central Kona Union Church
Hawaii Electric Light Co
Edna A Liu-Yb Alma K.H Liu
Frank Gomes Trust, Ltd Betty O Gomes Trust, Ltd
Campbell Estate Dec of Trust
Dropped Parcels - 38
NOTE: Parcels 69, 86 thru 111 owned by Macy Development, Inc unless otherwise noted
NOTE: Parcels 6, 9, 15, 14, 16, 17 10, 21, 25 owned by Bishop Trust Realty Corp unless otherwise noted
NOTE: Parcels 38, 71 74, 75 77 78 79 owned by Developer, Inc unless otherwise noted
FOR PROPERTY ASSESSMENT PURPOSES SUBJECT TO CHANGE
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
THIRD TAXATION DISTRICT
ZONE 7 | SEC. 6 | PLAT 24
SCALE: 1 IN. = 80 FT


PLAT 19
ROAD
SUBD.
KAI
"ALII
18
ROAD "C"
ROAD "A"
ROAD
"KUAKINI
MAKAI
INCR.
ROYAL POINCIANA DRIVE
ROYAL POINCIANA DRIVE EXTENSION
PLUMERIA
PLAT
L. C AW.
18.004 Ac
ROAD GOOSE "C"
"KOMOHANA KAI"
UNIT 1
KUPUNA ST.
PLAT 25
LEONE PLACE
3 1630
"KUAKINI MAKAI" INCREMENT I, F.P. 1921 & INCREMENT 2
"KALANI MAKAI" UNIT I, HOLUALOA, NORTH KONA, HAWAII, HAWAII (Formerly por. 7-6-13)
SOURCE TMB
DATE July 20, 1983
DWG NO 6668
BY PHIPPS

NA KAI-

UNIT 2

PLAT 22



GR.

1955

Note: Parcels 18 thru 18, 80 thru 83, 39 thru 71 "KAMANI TREE - PHASE I"

Note: Parcels 1 thru 6, 10 thru 88 72 & 73 "KAMANI TREE - PHASE I"

Note: All lots owned by UPS Hawaii, Inc. unless otherwise noted.

DROPPED PARCELS: 73,

3 1631

FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE

DEPARTMENT OF FINANCE
PROPERTY ASSESSMENT DIVISION
TAX MAPS SECTION
STATE OF HAWAII

TAX MAP

COUNTY OF HAWAII

ZONE	SEC	PLAT
7	6	25

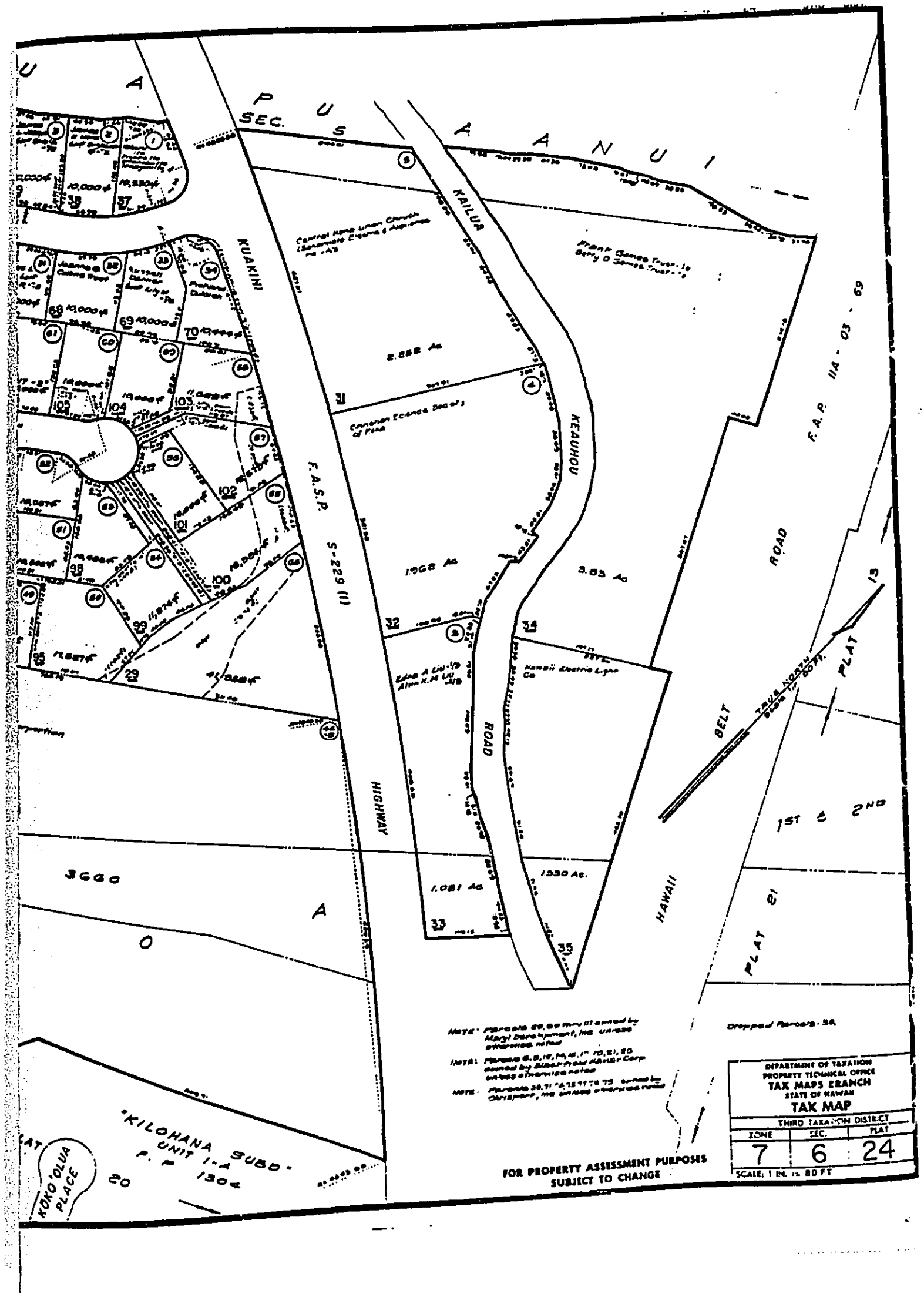
SCALE 1 IN = 80 FT.

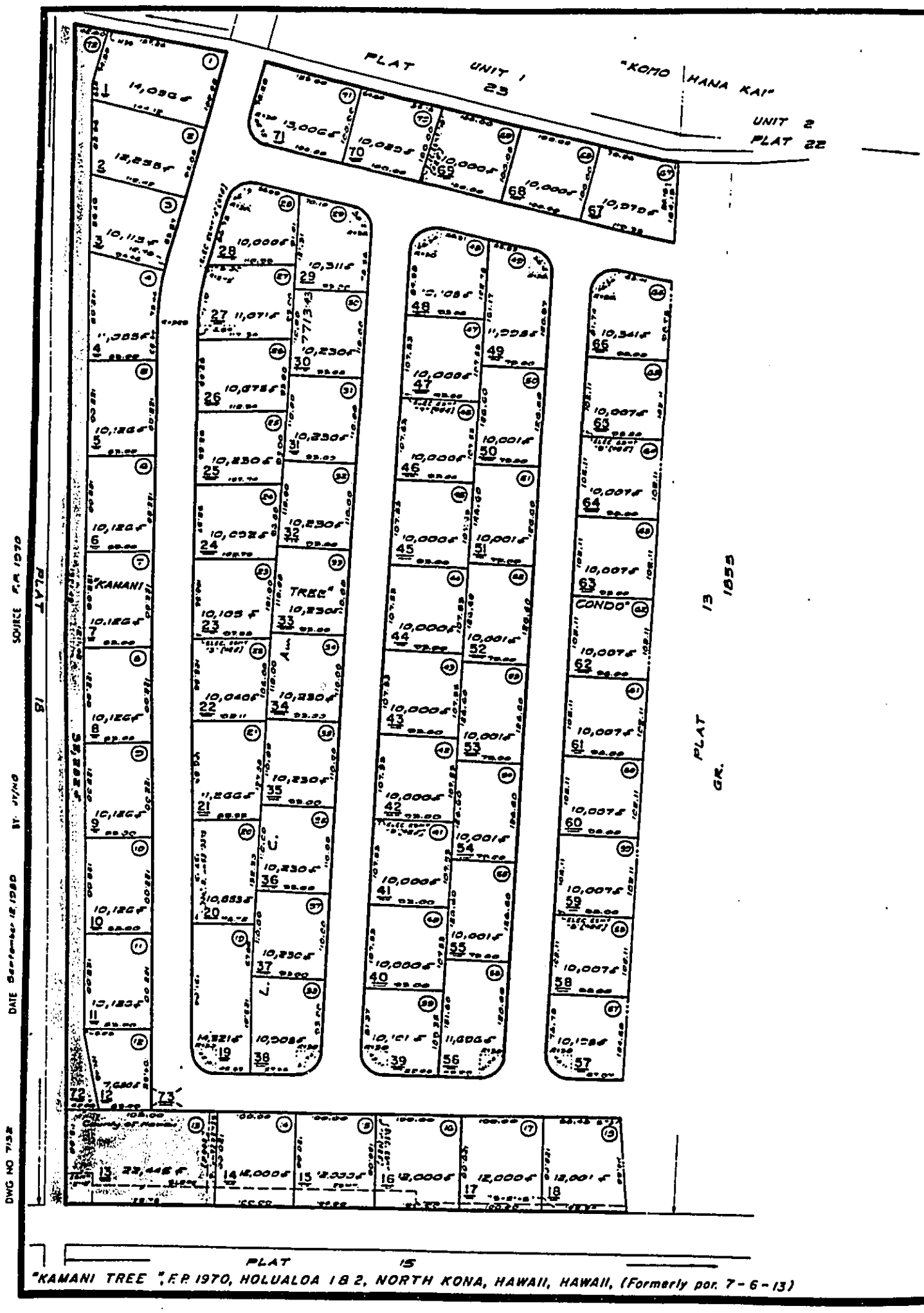
or. 7-6-13)

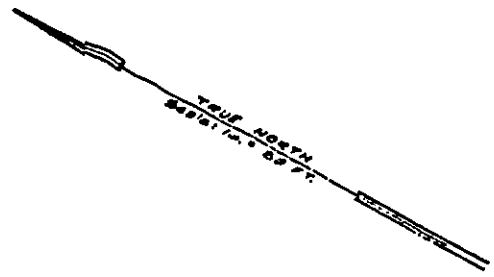
CORRECTION

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


ROAD
SUBD.
PLAT 19
KAI
"ALII
18
ROAD "C"
ROAD "B"
ROAD "A"
"KUAKINI
MAKAI
INCR.
"KUAKINI MAKAI" INCREMENT I, F.P. 1921 & INCREMENT 2
"KALANI MAKAI" UNIT I, HOLUALOA, NORTH KONA, HAWAII, HAWAII (Formerly por. 7-6-13)
ROYAL POINCIANA DRIVE
ROYAL POINCIANA DRIVE EXTENSION
PLUMERIA
PLAT
ROAD "D"
"KALANI INCREMENT"
"KALANI MAKAI"
"KOMOHANA KAI"
UNIT I
PLAT 25
KUPUNA ST.
LEONE PLACE
KOKO 'OLUA PLACE
"KILOHANA SUB
UNIT I-A
F. P. 1304
L. C AW. 3660
18.004 Ac
3 1630
DATE: July 20, 1983
BY: FH/PB
DWG NO 8668


U A
P U S A A N U I
SEC.
KUAKINI
KAILUA
KEAUHOU
F.A.S.P. S-229 (1)
HIGHWAY
ROAD
F. A. P. IIA - 03 - 69
ROAD
BELT
HAWAII
1ST & 2ND
PLAT 21
PLAT 13
2.658 Ac
1.062 Ac
3.85 Ac
1.081 Ac
1.530 Ac.
3600
A
O
"KILOHANA SUBD." UNIT 1-A F. P. 130
KOKO'OLUA PLACE
20
Hawaii Electric Light Co
Dropped Parcels 38,
DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
THIRD TAXATION DISTRICT
ZONE 7 SEC. 6 PLAT 24
SCALE: 1 IN. = 80 FT
FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE


PLAT 23
UNIT 1
"KOMO HANA KAI"
UNIT 2
PLAT 22
"KAMANI TREE"
CONDO"
PLAT 15
"KAMANI TREE", F.P. 1970, HOLUALOA 1 & 2, NORTH KONA, HAWAII, HAWAII, (Formerly por. 7-6-13)



DROPPED PARCELS - 78,

3 1631

NOTE: Parcels 15 thru 18, 20 thru 33, 35 thru 71 "KAMANI TREE - PHASE X"

NOTE: Parcels 1 thru 4, 19 thru 34 78 & 79 "KAMANI TREE - PHASE X"

NOTE: All lots owned by UPS Hawaii Inc. unless otherwise noted.

FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE

DEPARTMENT OF FINANCE
PROPERTY ASSESSMENT DIVISION
TAX MAPS SECTION
STATE OF HAWAII

TAX MAP

COUNTY OF HAWAII

ZONE	SEC	PLAT
7	6	25

SCALE 1 IN = 80 FT.