5344

BENJAMIN J. CAYETANO
Governor of Hawaii

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. Box 621
Honolulu, Hawaii 96809

DEC -5 1995

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

FILE NO.: OA-2788

MEMORANDUM

TO: Mr. Gary Gill, Director
Office of Environmental Quality Control

FROM: Michael D. Wilson, Chairperson Gilbert D. Coloma-Agaran
Board of Land and Natural Resources

SUBJECT: Document for Publication in the OEQC Bulletin - Final Environmental Assessment for Conservation District Use Application OA-2788 for Demolition of an Old Single Family Residence and Construction of a New Single Family Residence

The above mentioned proposed land use requires an environmental assessment in accordance with Title 11, Chapter 200 of the Environmental Impact Statement Administrative Rules. The Department has determined that a negative declaration is appropriate based upon the final environmental assessment.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 7-0377, if you have any questions.

Enclosure

172

1995-12-23-OA-FEA- Dang single family residence conservation use pen permit

DEC 23 1995

FILE COPY

#OA-2788

CONSERVATION DISTRICT USE APPLICATION

PROPOSED DEMOLITION AND CONSTRUCTION OF A SINGLE FAMILY RESIDENCE FOR MR. CHARLES DANG AT TANTALUS, OAHU.

FINAL APPLICATION

ALWYN TRIGG-SMITH ARCHITECTS
162 OHANA STREET,
KAILUA, HI 96734-2350
(808) 263 4475

Mr. Michael D. Wilson, Chairperson
Office of Conservation & Environmental Affairs
State of Hawaii
Department of Land & Natural Resources
P.O.Box 621
Honolulu, HI 96809

November 22nd 1995

PROPOSED DEMOLITION AND CONSTRUCTION OF A NEW SINGLE FAMILY RESIDENCE FOR MR. CHARLES DANG AT TANTALUS, OAHU

TMK #: 2-5-16: 2 / Lot Area: 40,825sf / Zone: P-1

Dear Mr. Wilson,

I am writing in response to the current review by various agencies of the above project and include a copy of the Draft Environmental Assessment, as previously submitted, for your information - see Attachment A.

I have received a total of 12 letters regarding the above project. These are itemized, in calender order below and I have also attached copies, in the same sequential order - see Attachment B.

Those letters requiring a response are noted with an asterisk * and the response follows the list. Those letters not requiring an answer are noted with an N/C (no comment).

1.	Department of Parks & Recreation	Sept. 25th 1995	N/C
2.	Office of State Planning	Sept. 25th 1995	N/C
3.	State Parks	Sept. 25th 1995	*
4.	Department of Transportation	Sept. 27th 1995	N/C
5.	Sate Historic Preservation Division	Sept. 27th 1995	N/C
6.	Forestry & Wildlife	Sept. 27th 1995	*
7.	DLU	Oct. 2nd 1995	*
8.	Planning Department	Oct. 4th 1995	*
9.	Office of Hawaiian Affairs	Oct. 5th 1995	N/C
10.	Aquatic Resources	Oct. 6th 1995	N/C
11.	Board of Water Supply	Oct. 9th 1995	*
12.	Office of Environmental Quality Control	Nov. 6th 1995	*

RESPONSES

3. **STATE PARKS** **Sept. 25th 1995** *

It is intended that screen planting & exterior natural colors will be sensitively determined to ensure harmony with the natural environment.

6. **FORESTRY & WILDLIFE** **Sept. 27th 1995** *

The form for a fire contIngency plan will be submitted separately.

7. **DLU** **Oct. 2nd 1995** *

Please refer to Attachment C: Paul Weidig's letter, Item # 1, dated Nov.16th 1995 and the Geotechnical Report, dated Oct.31st 1995.

8. **PLANNING DEPARTMENT** **Oct. 4th 1995** *

Please refer to Attachment C: Paul Weidig's letter, item # 2, dated Nov.16th 1995 and the Geotechnical Report, dated Oct.31st 1995.

11. **BOARD OF WATER SUPPLY** **Oct. 9th 1995** *

This department reccommends that the construction plans have the following note:'To be served by a private water system'. Further, these plans will be submitted to the Department of Health for review and approval.

12. **OFFICE OF ENVIRONMENTAL QUALITY CONTOL**

Nov. 6th 1995 *

Please refer to Attachment C: Paul Weidig's letter, Item #3. dated Nov.16th 1995 and the Geotechnical Report, dated Oct.31st 1995.

I also enclose Attachment C, referred to in the above responses. This Attachment includes a copy of a letter from the Soils Engineer responding to the Agency questions together with a copy of the Geotechnical Report for the project.

Copies of 2 letters are enclosed in Attachment D: 1 - Acceptance letter from the DLNR, dated Sept. 15th 1995; 2 - Letter to the DLU, dated November 22nd 1995, confirming that the proposed development is outside the Special Management Area (SMA).

I trust this submittal meets with your approval and I attach 5 copies with this cover letter for your use. Please contact me if you have any questions.

Yours truly,

A. Trigg-Smith, Architect

ATTACHMENT A

DRAFT

ENVIRONMENTAL

ASSESSMENT

ITEM #VI: ENVIRONMENTAL REQUIREMENTS

1. **Identification of applicant or proposing agency**
   Charlie Dang

2. **Identification of approving agency.**
   DLNR

3. **Identification of agencies consulted in making assessment.**
   DLNR, State Register

4. **General desciption of the action's technical, economic, social and environmental characteristics:**
   From a technical perspective, there is no major change in the land use. Currently, there is an existing house on the property that is proposed to be demolished. This will be replaced with another single family dwelling which by the nature of this permit, will comply with new height, area and setback requirements. Under these controlling standards, the new house will become 2-story instead of 4-story. Its location will still be over the existing footprint but its area will spread it a little beyond. Accordingly, some regrading will occur to construct the new dwelling but, other than this, as well as the new house form, there will be no change to the bulk of the lot.

   New jobs will occur due to the demolition and construction of the new house as well as for the site work and landscaping. The neighborhood will remain unchanged as this property is part of a tract where other single family homes exist. However, due to the privacy of the access to the site & the house, there will be no affect on the highways and the locality. The house is hidden from the general public by its location deep into the property. Its only affect will be to its neighbors across the valley but, with the low profile and special architectural thought that has gone into the design of the residence, it will hopefully be perceived as a simple, good-looking house that will blend wonderfully well into the hillside. Further, due to the density of the growth of trees and shrubs on the lot and now the new, lower height of the house, the visibility of the house will be much less than before.

ITEM #VI: ENVIRONMENTAL REQUIREMENTS

5. **Summary description of the affected environment, including suitable and adequate location & site maps:** This project is located in the Tantalus District near Honolulu, on Oahu. This is a mountainous, forested area which receives a high annual rainfall. It is an exceptionally beautiful environment where walking and biking trails exist for recreational use. There are State Parks in the area and access is provided by the winding and scenic Round Top Drive that also provides a connection to the various homes scattered through the area. Please note the attached maps for the location of the property in the area: #1 - The Island Map, #2 - The Area Map (indicating Round Top Drive & various subdivisions), #3 - The Tract Map, #4 - The Subzone Map.

Located in the Schmidt Tract, where there are other single family residences, the property has to collect and store the rainwater for domestic consumption. Like other properties, the collection and recharging of the water supply is manifested by a water catchment basin, located near to the residence and then pumped up into the house. Currently, 10,000 gallons are stored in this 6'-0" diameter container and as the site will be relatively unchanged by the new house location on the site of the old, tie-in to this water supply will be a simple process.

Electrical and telephone supply is already in place servicing the existing residence. As the new dwelling is basically the same as the old with the same bedroom, bathroom, living area count, there need be no major telephone or electrical hookups.

Further, although upgrading needs to occur, a jet aeration aerobic unit and seepage pit already exist on the site.

Therefore, hookup of all these existing utilities into the new dwelling will minorly affect this environment. This therefore enhances the choice of the site for the new residence, as no land need be affected or tunneled, no trees or shrubs need be uprooted for access to the highway or for new locations to be prepared for new catchment basins etc.

Basically, this land will remain unchanged and there will be almost no visible construction to the visitor in the area.

ITEM #VI: ENVIRONMENTAL REQUIREMENTS

6. Identification and summary of major impacts and alternatives considered, if any:

Demolition of the existing structure is required before the new building can be erected but no major impacts are anticipated. The house is currently empty and in poor condition due to non-use. The surrounding landscape is overgrown and in need of trimming and pruning. The driveway and steps require maintenance to return them to a usable condition. The owner wishes to demolish this structure swiftly so that a new, habitable dwelling can be built and the property rejuvenated & enjoyed.

This demolition shall entail a demolition team to dismantle the structure and the use of heavy equipment to haul large & long items off the site. The access to the site is by use of the existing driveway and vehicles can use the existing turn around area for parking and loading.The demolished building materials shall be disposed of off-site at a regulated dump site.

Construction of the new dwelling will require some regrading as the the new structure will be slightly larger than the existing house and the site will require preparation. As the 4 levels of the present dwelling are to be redistributed into 2 levels - a main living level with a new garage level below - there will be about 1,000sf extra to the footprint that will have new construction and site work. Currently, it is estimated that 750 cu. yards of cut will be required, to prepare for the new foundations. This cut will be utilized as fill for the improved driveway and regrading around the lower level of the house. A backhoe to redistribute the soil will be required. No native trees are affected by this construction although two sapling trees growing in the current driveway, will be removed and some tree trimming to the small caliper trees that surround the house will occur. Basically, the land use of the footprint will be maximized and improved, and the grades reutilized as cleverly as possible.

Access to the property will be via the shared driveway, so there will be some minor inconveniences to the other two landowners. However, the adjoining landowners are aware of the plan to construct. It is further proposed to first improve and upgrade the owner's existing driveway and turn around area, so that vehicles, & materials etc., can be parked & stored on site during construction.

ITEM #VI: ENVIRONMENTAL REQUIREMENTS

6. **Identification and summary of major impacts and alternatives considered, if any:.....continued.....**
Generally, normal construction-generated items such as noise, dust and debris etc. will all be controlled, so that there will be as little affect to the neighbors and on the environment as possible.

7. **Proposed mitigation measures, if any:**
Demolition materials shall be removed speedily, to prevent as little affect on the existing fauna and flora as possible.

The new house has been located so that as much of the existing footprint as possible can be utilized. In fact it really is the only location that is usable. This will insure that excavation and ground clearing shall be kept to a minimum.

The hours of construction shall be strictly enforced so that there will be minimum inconvenience from noise and traffic, to both the surrounding properties as well as to the neighborhood in general. Dust barriers shall be constructed to prevent, as much as possible, wind-blown debris from settling onto the surrounding flora and into the adjacent neighborhood. Larger articles of debris shall be contained and cleared frequently to avoid littering the surrounding landscape. Clearing,grubbing and grading will be kept to a minimum and throughout the construction, all possible aspects of interference on the local environment shall be strictly controlled

The overall height of the new house will now be much less than before, due to the new 2-story height rather than 4-story + that presently exists. This will thus position the house more comfortably into the site and settle it more into the trees of the hillside. Overall the slab-like bulk and verticality of the present house will be replaced and improved by a lower, more horizontal dwelling with a much less intrusive form.

The current driveway surface is ragged and needs refinishing. Further, the driveway surface plus the turnaround area in front of the house needs completion as well as the attention to the terrace block retaining walls in this vicinity. This sitework shall be a part of the new construction and this improvement shall help return the property to proper, maintainable condition.

ITEM #VI: ENVIRONMENTAL REQUIREMENTS

7. **Proposed mitigation measures, if any:.....continued.....**
The improved driveway will be contained by a new lava rock wall but will be just as invisible as before due to the surrounding flora. The new rock wall, retaining the stairs to the house, will also blend into the landscape but more importantly, help ensure the safety of passage up to residence. The present wood steps, in comparison, have no handrail and have become extremely slippery due to the lack of use of the property.

8. **Determination:**
This project will not result in any significant impact to the environment.

9. **Findings and reasons supporting determination:**
The new house utilizes, as much as is possible, the footprint of the existing house, as well as reusing the existing driveway and placing the house within existing tree locations.The current height and area standards are also more stringent now than when the original house was built and therefore the design of the new dwelling will now be 2-story, rather than 4 -story (3-story with a basement storage level).

The poorly divided levels of the original house will now be replaced with a low (garage) level plus a main (living) level creating a more horizontal structure as well as one that still maximizes the views. The design of the existing dwelling was a modernist structure, massive in bulk, devoid of overhangs and garageless - features that were not consistent with or respectful of typical, island architecture. The new owner has requested that the new house respect and echo images of Mission and Hawaiian styles of architecture ie. large eaves, pitched roofs, mullioned windows, horizontal siding etc. A moss rock base & a large covered lanai are also incorporated into these plans.

Overall, by positioning the new house on the site of the old, by designing it to be sympathetic to island architecture, by blending its form into the existing landscape and choosing its colors with deference to the surrounding flora, all efforts are being made to be environmentally considerate.

10. **Agencies to be consulted in the preparation of the EIS:**
None

ATTACHMENT B

AGENCY

RESPONSES

12 LETTERS
NUMBERED SEQUENTIALLY

ARTMENT OF PARKS AND RECREATIOI

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

DONA L. HANAIKE
DIRECTOR

ALVIN K.C. AU
DEPUTY DIRECTOR

September 25, 1995

Mr. Michael D. Wilson, Chairperson
Department of Land and Natural Resources
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Conservation District Use Application for Proposed Demolition and Construction of a Single-Family Residence at Tantalus
Honolulu, Oahu, Hawaii
Tax Map Key 2-5-16: 02
File No. OA-2788

We have reviewed the Conservation District Use Application and your department's notice to the applicant for the above-described project and have no comment to offer.

Thank you for the opportunity to review this project.

If you have any questions, please contact Lester Lai of our Advance Planning Branch at 523-4696.

Sincerely,

DONA L. HANAIKE
Director

DLH:ei

1

We Add Quality to Life

OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: P.O. BOX 3540, HONOLULU, HAWAII 96811-3540
STREET ADDRESS: 250 SOUTH HOTEL STREET, 4TH FLOOR
TELEPHONE: (808) 587-2846, 587-2800

BENJAMIN J. CAYETANO, Governor

FAX: Director's Office 587-2848
Planning Division 587-2824

Ref. No. C-1434

September 25, 1995

RECEIVED
'95 OCT 3 AM 9:27
DLNR
OCEA

MEMORANDUM

TO: The Honorable Michael D. Wilson, Chairperson
Board of Land and Natural Resources

FROM: Gregory G.Y. Pai, Ph.D.
Director

SUBJECT: Conservation District Use Application (CDUA) for the
Charles Dang Single Family Residence

We have reviewed the CDUA for the demolition of the old single family residence and the construction of the new single family residence in Tantalus. We do not have any substantive comments to offer regarding this project as the CDUA satisfactorily addresses our program interests.

We appreciate the opportunity to review and comment.

RECEIVED
'95 SEP 29 P12:25
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

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3691

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RECEIVED
DIVISION OF
STATE PARKS
SEP 18 9 48 AM '95

TO:
___ ADMINISTRATOR
___ ASS'T. ADMIN.
___ DEV. BR.
___ PLAN BR.
___ RES. MGT. BR.
___ PROJ. CONTROL
___ SW. REC. PLAN.
___ CLERICAL STAFF
___ ADMIN. ASS'T.
___ INTERP. BR.
FOR:
___ CIRCULATE/POST/STAFF RM
___ COMMENTS & REC.
___ DRAFT REPLY
___ FILE
___ FOLLOW UP
___ INFO.
___ PUTCH (DUE_____)
___ RETURN
___ ZONE COPY TO:_____

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Environmental Affairs
Honolulu, Hawaii

FILE NO.: OA-2788
Acceptance Date: 9/15/95
180-Day Exp. Date: 3/13/96
SUSPENSE DATE: 21 Days

SEP 15 1995

MEMORANDUM

~~TO:~~ From:

Aquatic Resources; Conservation & Resources Enforcement; Forestry & Wildlife; Historic Preservation Division; Land Management; Natural Area Reserves System; State Parks; Water and Land Development; Boating and Ocean Recreation

~~FROM:~~ TO:

Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application

APPLICANT: Charles Dang

FILE NO.: OA-2788

REQUEST: Demolition of Old Single Family Residence and Construction of New Single Family Residence

LOCATION: Tantalus, Oahu

TMK(s): 2-5-16: 02

PUBLIC HEARING: YES____ NO__X__

DOCARE: Please conduct a field inspection on this project.
Should you require additional information, please call Roy Schaefer at 7-0383.

If no response is received by the suspense date, we will assume there are no comments.

Attachment(s)

No comments. New design appears more sensitive, Height previously 4-story. Screen planting and color/material selection should be appropriate conditioned.

RALSTON NAGATA, State Parks Administrator

Date: 9/20/95

RECEIVED
OCEA DLNR
SEP 22 AM 9:47

56.

(3)

2593 S

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

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

IN REPLY REFER TO:

HWY-PS
2.7462

September 27, 1995

RECEIVED
'95 SEP 28 A10:33
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

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

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: CONSERVATION DISTRICT USE APPLICATION OA-2788,
DEMOLISH OLD SINGLE FAMILY RESIDENCE/CONSTRUCT
NEW SINGLE FAMILY RESIDENCE (CHARLES DANG)
TANTALUS; TMK: 2-5-16: 02

The proposed demolition of an existing single family residence and construction of a new single family residence will not impact our State highway facilities.

OCEA
CLERK

'95 SEP 29 PM 12:21

RECEIVED

(4)

Roger Evans, Administrator

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

DEPUTIES

JOHN P. KEPPELER II

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

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 27, 1995

MEMORANDUM

LOG NO: 15526
DOC NO: 9509EJ01

RS

TO: Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

FROM: Don Hibbard, Administrator
Historic Preservation Division

SUBJECT: **Conservation District Use Application: Charles Dang-Demolition of Old Single Family Residence and Construction of New Single Family Residence (File No. OA-2788)**
Honolulu, Kona, O'ahu
TMK: 2-5-16: 002

The CDUA correctly states that there are no known historic sites at the project location and that previous development makes it unlikely that historic sites will be found. Our letter of "no effect" dated August 25, 1995, is included in the CDUA.

EA:jk

RECEIVED
'95 SEP 29 AM 11:14
DLNR
OCEA

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Cor

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Environmental Affairs
Honolulu, Hawaii

FILE NO.: OA-2788
Acceptance Date: 9/15/95
180-Day Exp. Date: 3/13/96
SUSPENSE DATE: 21 Days

SEP 15 1995

MEMORANDUM

TO: Aquatic Resources; Conservation & Resources Enforcement; Forestry & Wildlife; Historic Preservation Division; Land Management; Natural Area Reserves System; State Parks; Water and Land Development; Boating and Ocean Recreation

FROM: Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application

APPLICANT: Charles Dang

FILE NO.: OA-2788

REQUEST: Demolition of Old Single Family Residence and Construction of New Single Family Residence

LOCATION: Tantalus, Oahu

TMK(s): 2-5-16: 02

PUBLIC HEARING: YES____ NO__X__

DOCARE: Please conduct a field inspection on this project.
Should you require additional information, please call Roy Schaefer at 7-0383.

If no response is received by the suspense date, we will assume there are no comments.

Attachment(s)

9/27/95
ENDORSEMENT:

A fire contigency is required of this project prior to any construction.

Paul J Conry
Michael G. Buck, Administrator

cc: Oahu District

(6)
2619

RECEIVED
'95 SEP 27 PM 3:00
DLNR
OCEA

SEP 15 '95 09:39

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

Rec'd
C.E.A.
10/4/95

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

95-06087 (DT)

October 2, 1995

RECEIVED
95 OCT 3 P2:14
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

The Honorable Michael D. Wilson, Director
Department of Land and
Natural Resources
State of Hawaii
Kalanimoku Building
1151 Punchbowl Street, Room 130
Honolulu, Hawaii 96813

Dear Mr. Wilson:

Conservation District Use Application No. OA-2788
4063 Round Top Drive, Tantalus, Oahu
Tax Map Key: 2-5-16: 02

Although the above-described property is not within the Special Management Area (SMA), our department has the following comments regarding the construction of the 3,500-square foot, two-story dwelling:

1. Will a temporary barrier be erected prior to demolition of the existing dwelling to prevent soil runoff? If not, will the adjoining property owners be affected?

2. In order to prevent excessive soil runoff, demolition and construction work should be done during the drier months of May through October.

3. The above-described property is within the P-1 Restricted Preservation District. Permitted uses and structures in the Conservation District are not governed by the City's Land Use Ordinance.

Thank you for the opportunity to comment. Should you have any questions regarding this letter, please call Dana Teramoto of our staff at 523-4648.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:am

9506087.djt

(7)B

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

TH 9/95-1932

October 4, 1995

Honorable Michael D. Wilson, Chairperson
Board of Land and Natural Resources
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Conservation District Use Application (CDUA) OA-2788,
Proposed Demolition and Construction of a Single-family
Residence, Tantalus, Honolulu, Oahu, Hawaii

In response to your letter of September 15, 1995, we have reviewed the subject CDUA and offer the following comments.

The project site is currently designated Preservation on the Primary Urban Center Development Plan Land Use Map. In general, such lands are deemed important to protect natural or scenic resources. Therefore, the continuation and expansion of urban uses should be discouraged.

The draft Environmental Assessment (EA) does not explain how potential construction impacts such as noise and storm water runoff will be controlled. Page 3 of the draft EA indicates that an additional 1,000 square feet will be added to the current structure's footprint. The proposed project will also involve the removal of approximately 750 cubic yards of soil to accommodate new foundations for the new single-family home. Given the property's steep topography and the area's high annual rainfall, the final EA should describe the site's existing soil conditions, drainage conditions, its susceptibility to erosion, and how potential erosion and drainage impacts will be mitigated.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Chief Planning Officer

CDS:js

8 B

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249
PHONE (808) 586-3777
FAX (808) 586-3799

October 5, 1995

Mr. Michael D. Wilson, Chairperson
Board of Land and Natural Resources
1151 Punchbowl Street, Room 130
Honolulu, Hawai'i 96813

Re: CONSERVATION DISTRICT USE APPLICATION OA-2788, Charles Dang, Tantalus, O'ahu, Hawai'i, TMK 2-5-16: 02

Dear Mr. Wilson:

Thank you for the opportunity to review this request. At this we have no comments or concerns regarding this project.

If you have any question or need any additional information, please contact Linda Delaney, Land and Natural Resources Officer or Lynn Lee, EIS Planner at 594-1888.

Sincerely,

Linda M. Colburn
Acting Administrator

RECEIVED
'95 OCT 12 PM 12:40
DLNR
OCEA

cc: Clayton H.W. Hee, Chairperson
Board of Trustees

n/c

mor 10/9

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Environmental Affairs
Honolulu, Hawaii

FILE NO.: OA-2788
Acceptance Date: 9/15/95
180-Day Exp. Date: 3/13/96
SUSPENSE DATE: 21 Days

SEP 15 1995

MEMORANDUM

TO: Aquatic Resources; Conservation & Resources Enforcement; Forestry & Wildlife; Historic Preservation Division; Land Management; Natural Area Reserves System; State Parks; Water and Land Development; Boating and Ocean Recreation

FROM: Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application

APPLICANT: Charles Dang

FILE NO.: OA-2788

REQUEST: Demolition of Old Single Family Residence and Construction of New Single Family Residence

LOCATION: Tantalus, Oahu

TMK(s): 2-5-16: 02

PUBLIC HEARING: YES____ NO_X_

DOCARE: Please conduct a field inspection on this project. Should you require additional information, please call Roy Schaefer at 7-0383.

If no response is received by the suspense date, we will assume there are no comments.

Attachment(s)

DIVISION OF AQUATIC RESOURCES

DIRECTOR		Suspense Date: 10/6/95
COM FISHERIES		First Reply ☐
AQ RES/ENV		Reply Direct ☐
AQ RECRN		Comments ☐
STAFF SVCS		Information ☐
FISH DEV		Chrono Act & File ☐
STATISTICS		Return to:
AFRC		Copies to:
EDUCATION		Remarks:
SECRETARY		
OFFICE SVCS		95-1163
FED AID		
RS	X	

RECEIVED
SEP 18 1995
Div. of Aquatic Resources

No Comments
J. Evans
10-6-95

10

145

1148

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

October 9, 1995

Mr. Michael D. Wilson, Chairperson
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Your Letter of September 15, 1995 on the Conservation District Use Application (CDUA) for the Proposed Demolition and Construction of a Single Family Residence for Mr. Charles Dang, File No. OA-2788, TMK: 2-5-16: 02, Tantalus, Oahu, Hawaii

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

We do not have a water system in the project area. The project site is located above our service limit of 605 feet. Wastewater disposal requires the Department of Health's review and approval.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

FOR: RAYMOND H. SATO
Manager and Chief Engineer

(11)

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) 586-7486

November 6, 1995

Mr. Michael D. Wilson, Chairperson
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson,

Subject: Draft Environmental Assessment for the Dang Residence (CDUA OA-2788)

Thank you for the opportunity to review the subject document. We have the following comment.

1. Construction of this new single family dwelling will require some grading. The slopes in this area are steep and the soils are not very stable. Would any of this grading work affect the stability of Tantalus Drive? If so, what are the mitigation measures to minimize this impact.

If you have any questions, please call Jeyan Thirugnanam at 586-4185. Mahalo.

Sincerely,

Gary Gill
Director

c: Charles Dang

(12) 3207

ATTACHMENT C

SOILS

INFORMATION

1. WEIDIG RESPONSE LETTER

2. WEIDIG GEOTECHNICAL REPORT*

WEIDIG
Geoanalysts

1130 North Nimitz Highway, Suite A152B
Honolulu, Hawai'i 96817
Tel: 1-808-524-5657 Fax: 1-808-524-5658

November 16, 1995

Project No. 95-0011.001

To: Alwyn Trigg-Smith Architects
162 'Ohana Street
Kailua, Hawai'i 96734-2350

Attn: Alwyn Trigg-Smith

Subject: Drainage and Erosion Control
Dang Residence
4063 Roundtop Drive
Honolulu, Hawai'i

References:
1. Letter of October 2, 1995, from Patrick Onishi, Director of Land Utilization, to Michael D. Wilson, Director, Department of Land and Natural Resources
2. Letter of October 4, 1995, from Cheryl D. Soon, Chief Planning Officer, Planning Department, to Michael D. Wilson, Chairperson, Board of Land and Natural Resources.
3. Letter of November 6, 1995, from Gary Gill, Director , Office of Environmental Quality Control, to Michael D. Wilson, Chairperson, Department of Land and Natural Resources.

Dear Mr. Trigg-Smith:

At your request, we have received and reviewed copies of the above-referenced letters and have prepared the following for inclusion with your responses to concerns regarding construction of the Dang residence.

Item 1 - A temporary siltation barrier and interceptor ditch system will be constructed in accordance with the attached Erosion / Drainage Control Plan and Typical Drainage/Erosion Control Details to prevent soil runoff prior to demolition of the existing structure. Strict implementation and maintenance of this plan will allow construction before May.

Item 2 - According to the test borings completed for the geotechnical investigation of the property, the soil profile consists of approximately 4½ feet of clayey silt overlying ash and cinder deposits to a depth exceeding 20 feet. The surface layer is slightly cohesive and therefore somewhat less erodible than the underlying ash and cinder horizon, which is granular. The existing natural and preexisting graded slopes on the property are as steep as 60 percent, with drainage principally directed through densely wooded terrain toward Roundtop Drive, some 90 feet below. The soils are presently protected from erosion by a thick mat of understory and are mechanically reinforced by extensive tree root systems.

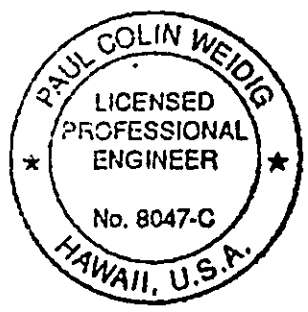
The only part of the property within which the soils will be exposed during construction is limited to the building footprint, immediately adjacent upslope areas, and the proposed driveway improvement zone, extending less than 100 feet away from the house envelope, within a previously graded area. At these locations, the soils will be exposed during demolition, clearing, grading and operations. Drainage and erosion control during construction will be provided by means of the devices shown on the attached Drainage/ Erosion Control Plan and Typical Drainage/Erosion Control Details.

Item 3 - The proposed limits of grading are well away from Tantalus Drive - Roundtop Drive right-of-way. Slope stability analyses completed as part of the geotechnical investigation for the property indicate that the slopes will remain satisfactorily stable with the implementation of the erosion control measures outlined below.

Following construction, permanent erosion control measures will be provided per the recommendations of our geotechnical report of October 31, 1995, In essence, the new construction will create no significantly greater amount of hardscape that would cause additional runoff requiring more stringent drainage provisions than presently exist. Since the drainage and erosion control measures shown on the attached Erosion / Drainage Control Plan and Typical Drainage/Erosion Control Details will be strictly implemented and maintained, demolition and construction should pose no material environmental hazard at any time of year.

If you have any questions regarding the foregoing, or if we may be of further assistance, please do not hesitate to call.

Respectfully submitted,



Paul C. Weidig

Paul C. Weidig, P.E.
Licensed Professional Engineer No. 8,047-C

Attachments: Erosion / Drainage Control Plan
Typical Drainage/Erosion Control Details

Copy: Charles H. Y. Dang, Esq.

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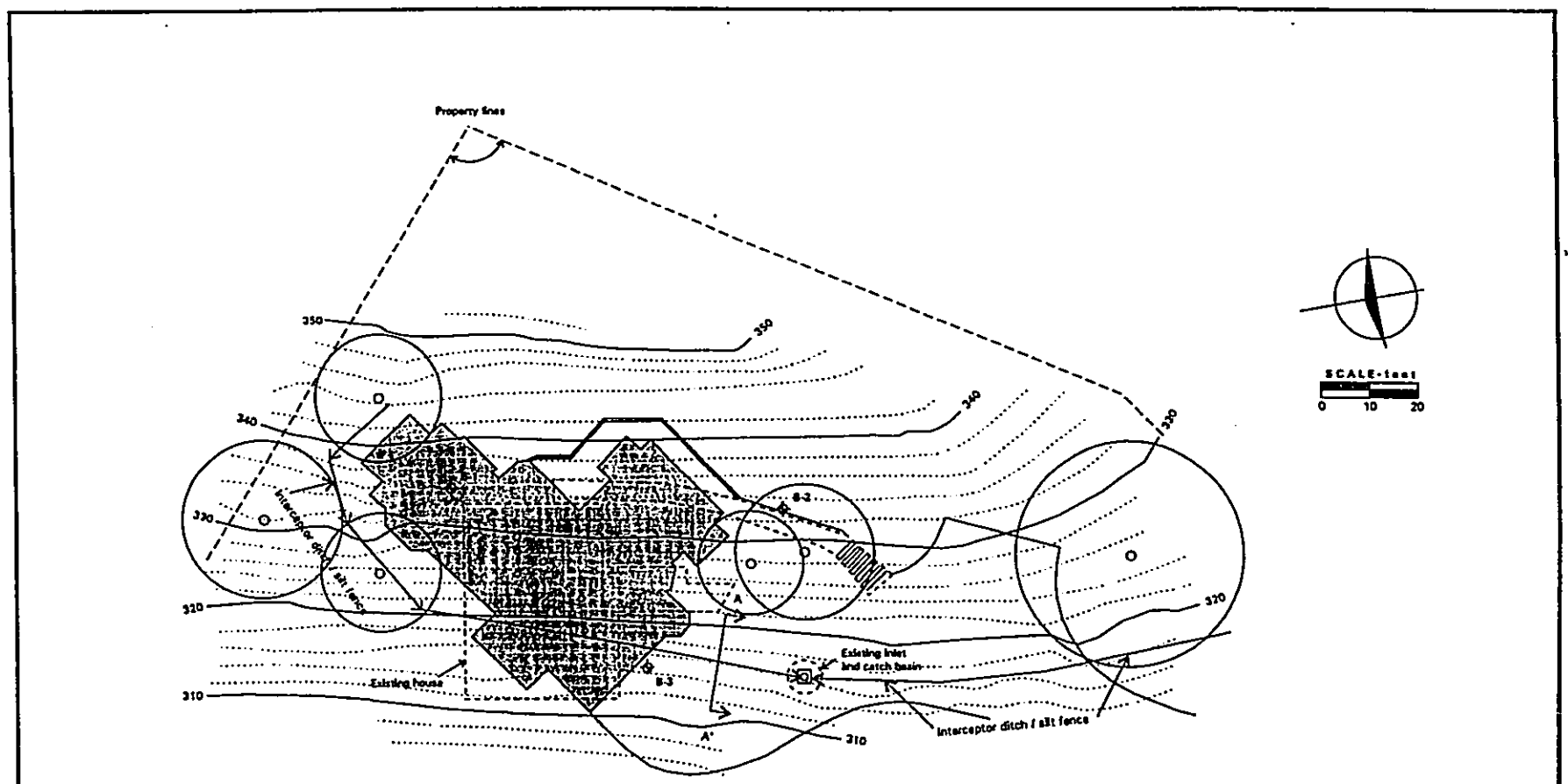
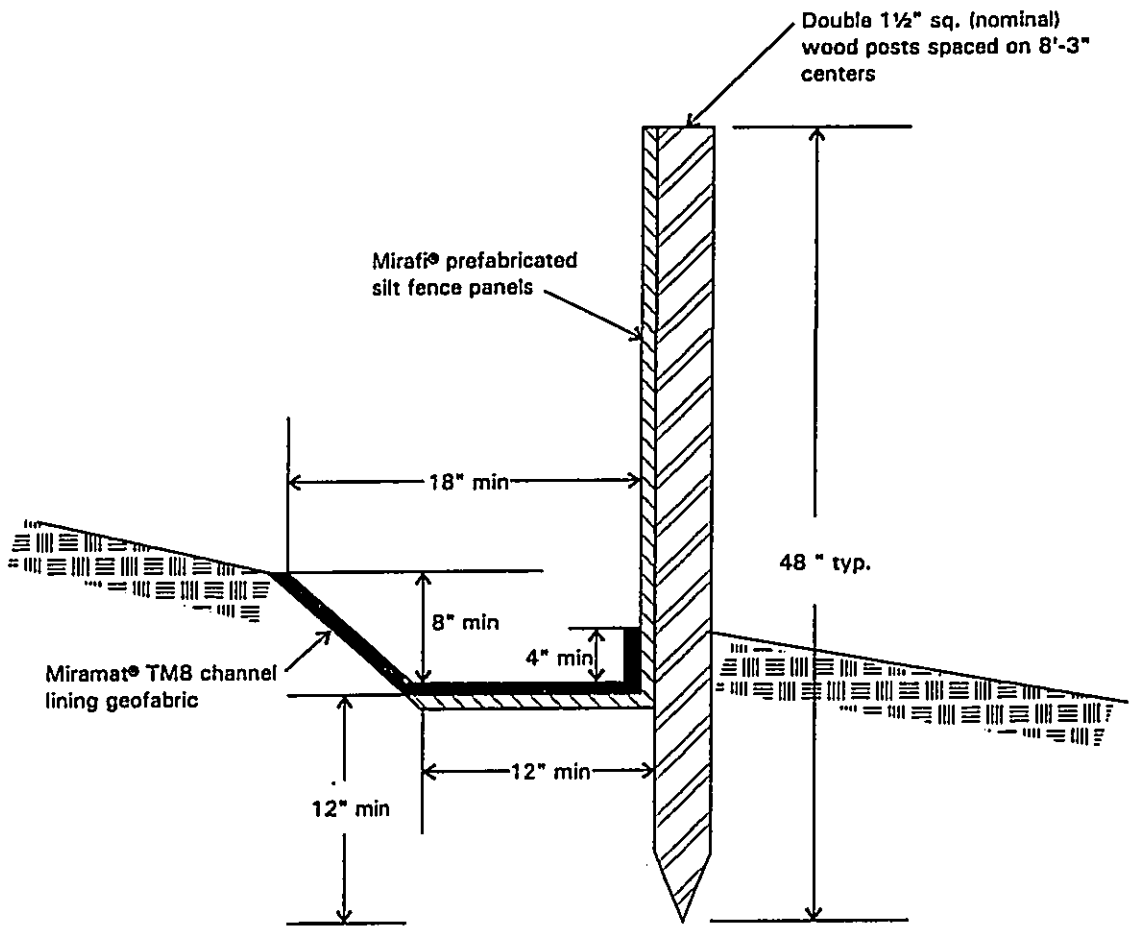


WEIDIG Geoanalysts	Base: Alwyn Trigg-Smith Architects, 1995, *Existing Contour Plan and Existing and Proposed House Plans*, Sheet AS2 (scale: 1/8" = 1'-0"), dated August 28, 1995	DRAINAGE / EROSION CONTROL PLAN	DANG RESIDENCE 4063 Roundtop Drive Honolulu, Hawai'i
			DATE: October, 1995 / PROJECT NO. 95-0011.001

PLATE NO. A2



SECTION A - A'

TYPICAL DRAINAGE / EROSION CONTROL DETAILS

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DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: November, 1995

PROJECT NO. 95-0011.001

GEOTECHNICAL REPORT

DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

Weidig Geoanalysts Project No. 95-0011.001

WEIDIG
Geoanalysts

GEOTECHNICAL REPORT
DANG RESIDENCE
4063 ROUNDTOP DRIVE
HONOLULU, HAWAI`I

Project No: 95-0011.001

Date: October 31, 1995

Prepared for:

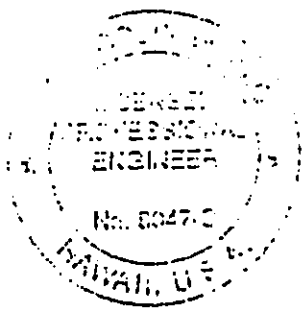
Charles H. Y. Dang
c/o Bickerton Saunders Dang Bouslog
3 Waterfront Plaza, Suite 500
500 Ala Moana
Honolulu, Hawai`i 96813-4920

Prepared by:

Weidig Geoanalysts
1130 North Nimitz Highway, Suite A152B
Honolulu, Hawai`i 96817

Reviewed by:

Paul C. Weidig
Licensed Professional Engineer No. 8,047-C



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Geoanalysts

Soil and Foundation Engineering
Engineering Geology
Environmental Engineering

1130 North Nimitz Highway, Suite C-xxx
Honolulu, Hawai'i 96817
Tel: (808) 524-5657 Fax: (808) 524-5658

A1528

October 31, 1995

Project No. 95-0011.001

To: Charles H. Y. Dang
c/o Bickerton Saunders Dang Bouslog
3 Waterfront Plaza, Suite 500
500 Ala Moana
Honolulu, Hawai'i 96813-4920

Subject: Geotechnical Report
Dang Residence
4063 Roundtop Drive
Honolulu, Hawai'i

Dear Mr. Dang:

Attached is our report of the geotechnical study we conducted for your new residence. The principal conclusions and recommendations are as follow:

- Your property is indicated to be underlain by virtually nonexpansive surface soils that extend to an average depth slightly greater than 4 feet. Beneath the surface soils are deposits of granular volcanic ash and cinders. All of the earth materials are indicated to be stable, but are very susceptible to erosion.

- Your new home and associated structural improvements can be supported upon either conventional spread foundations or drilled, cast-in-place concrete pier foundations. Recommendations for both are contained in the report.

- Because your property is situated in an area that receives comparatively high annual rainfall, collection and disposal of surface runoff as well as interception of subsurface water will be critical to the successful future performance of your home, retaining walls and other improvements. Specific recommendations for the design of both surface and subsurface drains are presented in the report.

If you have any questions regarding this report, please do not hesitate to call. Thank you for this opportunity to be of service.

Respectfully submitted,

Paul C. Weidig

Paul C. Weidig, P.E.
President

PCW:cjn/lr/95-0011.001

TABLE OF CONTENTS

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TABLE OF CONTENTS
(Continued)

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INTRODUCTION

Purpose

A geotechnical investigation has been conducted for the Dang residence, to be constructed on Roundtop Drive, in Honolulu. The purposes of this study have been to gather information on the nature, distribution and characteristics of the subsurface earth materials and ground water conditions at the site, and to prepare specific recommendations for use in project design and construction.

Scope

The scope of this investigation is described in our proposal of October 13, 1995. On October 21, 1995, our field engineer conducted a reconnaissance of the property and mapped the locations of three test borings which were drilled to a maximum depth of about 20½ feet below existing ground surface. Our engineer logged, classified and recovered relatively undisturbed samples of the earth materials drawn from selected vertical intervals in each boring. Ground water level observations in each boring were recorded during drilling and upon completion. The borings were backfilled with the unsampled, excavated earth materials following exploration.

The samples were transported to our office for laboratory testing and further classification. The laboratory testing program comprised determinations of natural moisture content, dry unit weight, plasticity, particle size distribution, and direct shear strength properties.

This report contains our findings regarding site, soil, geologic, and ground water conditions; conclusions pertaining to expansive and corrosive soils, bearing capacity, potential settlement, slope stability and foundation conditions; and recommendations for site preparation and grading, foundations, floor support, retaining walls, drainage and erosion control.

In Appendix A, the location of the project site is shown in relationship to surrounding landmarks and cultural features on Plate No. A1, Vicinity Map. The approximate locations of the test borings are depicted in relationship to the property boundaries, existing topographic relationships, the footprint of the existing home, and the plan view of the proposed residence on Plate No. A2, Site Plan. The Logs of Borings are displayed on Plates No. A3 through A5. A key to the soil symbols and identification criteria used on the logs is presented on Plate No. A6, Unified Soil Classification System. Details related to slopes, retaining walls, foundation drains and surface drains are contained on Plates No. A7 through A10.

The results of the natural moisture content and dry unit weight tests are posted on the Logs of Borings, on which are also indicated the types of other laboratory tests conducted on corresponding samples. The remaining laboratory test data are contained in Appendix B. The results of the plasticity tests are illustrated on Plate No. B1, Atterberg Limits Test Data. The results of the grain size distribution test is illustrated on Plate No. B2, Mechanical Sieve Analysis Test Data. Summaries of the strength tests are presented on Plates No. B3 and B4, Direct Shear Test Data.

References consulted during the course of this investigation are listed in Appendix C.

Project Description

The existing house and appurtenances, described below, are to be demolished and replaced by a two-story, single-family, wood frame dwelling with attached double garage (Trigg-Smith, 1995). The overall plan view of the new residence will measure approximately 55 feet by 70 feet. The new lower living area and garage floor systems principally will consist of concrete slabs on grade. The exterior finishes will be wood siding and the built-up roof system will be double pitched. Additional improvements will include a new driveway apron and a series of retaining walls up to 9 feet high along the driveway and above the main entryway.

Site modifications will include excavations for the garage and retaining walls, the construction of side hill fills, and modifications to the existing natural slopes above the house envelope.

FINDINGS

Site Description

The subject property is an irregularly-shaped parcel encompassing approximately 40,825 square feet situated on the *mauka* side of Roundtop Drive, between Forest Ridge Road and Mānoa Cliff Trail (State of Hawai'i, 1986). The property is accessible via a paved driveway connected to Roundtop Drive at a point 0.5 mile *diamondhead* of its intersection with Forest Ridge Road, as shown on Plate No. A1. Save minor excavation that has been undertaken for the driveway, the surface of the property falls rather uniformly from approximate elevation 366 feet, at the extreme easterly property corner, to about elevation 274 feet, at the southwesterly corner, resulting in an average gradient of nearly 60 percent (Hee, 1973).

The proposed building area is currently occupied by a three-story, detached, wood-frame house with plan dimensions of about 30 feet by 40 feet, excluding a portico leading to the lower-level entry. Each of the floors is of raised wood construction. A wooden stairway rises to the portico deck from the driveway level, and another flight of stairs, composed of concrete beams, leads to a concrete walkway and separate entrance, above the portico level. The home is supported upon isolated columns bearing on concrete foundations, all built on a very steep slope. A catch basin and drainage inlet that collects runoff from the house perimeter is visible immediately *makai* and downslope of the portico. Other subsurface utilities include a nearby septic tank and leach field system.

Most of the property is forested with ferns, Formosa *koa*, *koa haole*, *kukui*, eucalyptus and bamboo. Royal palms and avocado trees stand near the house, which has been unoccupied for some time, allowing bermuda grass, vinca, and sedge to encroach upon the front yard, stairs and walkway.

Geologic Setting

The property lies on the southerly flank of the Ko'olau Range, a series of basaltic lava flows about 2.6 million years old. The lava flows are intersected by sheet dikes composed of dioritic intrusive rocks. In the vicinity of the subject site, the lava flows and intrusive rocks are overlain by ash and cinders deposited during eruptions of nearby Mount Tantalus, last active about 200,000 years ago (Stearns, 1935).

The soil profile beneath the property is indicated to consist of Tantalus silty clay loam and cinders. These soils are indicated to have a high shrinkage potential, but a low expansion potential, and have a moderate corrosion potential with respect to concrete. The percolation rate, an indication of permeability, ranges from about 2 to 6¼ inches per hour. The erosion hazard is considered severe (Foote *et. al.*, 1972).

Earth Materials

The borings revealed surface soils consisting of reddish-brown, soft to very soft, moist to very moist clayey silt (Unified Soil Classification: MH) extending from ground surface to an average depth of about 4¼ feet. They represent the illuviated, or weathered, zone of the soil profile, because they have been derived by in-place weathering of the underlying volcanic debris horizon.

Beneath the veneer of surface soil, the borings encountered dark gray to dusky reddish-brown, loose to semicompact, moist ash and cinders to a depth of approximately 20½ feet, the maximum explored. These volcanic materials have experienced only negligible chemical or mechanical weathering and are, therefore, not true soils. When subjected to standard soil classification tests, however, they collectively resemble poorly-graded sands (SP), as indicated on Plate No. B2, and for the purposes of this report are regarded as soils.

Ground Water

Each test boring was checked for the presence of ground water during drilling and at intervals following completion. No free ground water was observed in any boring.

CONCLUSIONS

Expansive Soils

The results of Atterberg limits tests, appearing on Plate No. B1, indicate that the near-surface soils have low plasticity characteristics (plasticity index = 16.2 percent) but high water retention properties (liquid limit = 89.4 percent). These data indicate that the surface soils can be expected to shrink markedly and irreversibly with reductions in moisture content, a consideration in foundation design.

Bearing Capacity

The results of this investigation indicate that the undisturbed surface soils within 4¼ feet of existing ground surface can sustain directly-applied loads of light magnitude. Direct shear strength tests conducted on undisturbed samples of these soils indicate a residual internal friction angle of about 26½° and a slight, but perceptible, cohesion of about 100 pounds per square foot, as indicated on Plate No. B3. The underlying ash and cinders strata are indicated to be capable of sustaining slightly higher loads. Direct shear tests conducted on undisturbed samples of these materials yielded a residual friction angle approaching 38½°, and no cohesion, as shown on Plate No. B4.

Potential Settlement

Foundation settlement magnitudes can be estimated by the modulus of vertical subgrade reaction , which is fixed for a particular range of loading conditions. Laboratory test data indicate that this modulus is on the order of 38 pounds per cubic inch for the surface soils, and approximately 50 pounds per cubic inch for the underlying zone of ash and cinders. If new foundations are designed in accordance with the recommendations of this report, a maximum total foundation settlement of less than ½ inch may be expected, and a maximum differential settlement of less than ¼ inch may be expected between any two adjacent foundations.

Slope Stability

Two series of limit equilibrium slope stability analyses were conducted, based on the results of laboratory tests and available topographic information. The first analytical series is predicated upon Bishop's Method, in which the potential failure surfaces are rotational and arcuate. The second analytical series is based on Spencer's Method, in which the potential failure surfaces are translational, and are assumed to follow specified boundaries within or between earth material layers.

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A safety factor, defined as the ratio of driving forces to resisting forces, is computed for each trial failure surface. Driving forces consist of soil weight and hydrostatic pressures due to ground water, in addition to earthquake stresses. Resisting forces, acting along the potential failure surfaces, primarily consist of the strength properties of the earth materials. If the sum of the resisting forces is greater than the sum of the driving forces, a safety factor greater than unity results. Conversely, a safety factor less than unity is computed when the sum of the driving forces is greater than that of the resisting forces.

Through the assistance of appropriate computer programs, we completed numerous analytical trials to search for the minimum possible safety factor, given prevailing subsurface conditions and slope geometry. The results of those trials indicate minimum slope stability safety factors of 1.6 against rotational failure and 1.9 against translational failure. Therefore, we have concluded that the site is grossly stable and is suitable for development of the intended improvements, provided that the recommendations of this report are carefully followed.

Foundation Conditions

Our study indicates that the new home and retaining walls can be supported upon either conventional spread foundations based at a relatively shallow depth, or upon drilled, cast-in-place concrete pier foundations designed to acquire bearing in friction. Our investigation also indicates that the proposed concrete slab-on-grade living area and garage floors can be supported upon the existing on-site soils if they are moisture conditioned and recompacted in accordance with the following recommendations.

RECOMMENDATIONS

Site Preparation and Grading

Clearing and Grubbing - Following demolition of the existing house, staircases other structures, all remaining foundations should be dug out and removed from the site. All surface vegetation as well as all unwanted trees and shrubs, including any roots greater than ½ inch in diameter, also should be removed from the site. Abandoned utility lines should be plugged, or dug out and the resulting excavations backfilled in accordance with the following recommendations. If the existing septic tank and leach field system are to be relocated, the abandoned elements should be removed, sealed or otherwise treated in accordance with applicable environmental health ordinances. Excavations and depressions resulting from clearing and grubbing operations should be dug out to firm soil and backfilled with suitable materials in accordance with the following recommendations.

Subgrade Preparation - Exposed surfaces within the proposed building areas -- including walkway and driveway areas -- should be scarified to a depth of 6 inches, brought to at least 3 percent over the optimum moisture content, and compacted to not less than 90 percent relative compaction, in accordance with ASTM Designation D 1557-91. Because of the extensive disruption of the surface soils anticipated to result from demolition, clearing and grubbing operations, this recommendation applies to *both* cut areas *and* those which will receive engineered fill.

Overexcavation - Inability to achieve the stipulated minimum level of compaction should be used as a field criterion to identify areas of loose or disturbed soils that should be overexcavated and replaced with engineered fill, processed, placed and compacted as described below; or, stabilized in accordance with the recommendations of the project geotechnical engineer.

Benching and Keying - Where unretained fills are to be constructed on existing slopes that are inclined at a configuration of 7 horizontal to 1 vertical (7:1) or greater, benches should be cut into the original slope as the filling operations proceed. Each bench should not be wider than 6 feet, and the vertical distance between adjacent benches should not be more than 2 feet. These relationships are illustrated on Plate No. A7.

Where unretained fills are to be constructed on existing slopes that are inclined at a configuration of 5:1 or more, a keyway should be provided in addition to the benches. The keyway should consist of a trench with a level bottom at least 3 feet wide and excavated at least 3 feet below original grade. The side slopes of the keyway should not exceed an inclination of 1:1. These relationships are also illustrated on Plate No. A7.

Subdrainage - If a keyway is required, it should be provided with a subdrain, as depicted on Plate No. A7. The keyway subdrain should consist of a perforated pipe surrounded by drain rock that is wrapped in geotextile fabric. For every lineal foot of subdrain, one cubic foot of drain rock, graded as specified in Table 1, below, should be placed around a 4-inch diameter, perforated PVC collector pipe conforming to Schedule 80 standards. The drain rock envelope should be wrapped with Mirafi® 140N geotextile fabric, or equivalent. The entire assembly should be placed against the backcut of the keyway and sloped to drain by gravity to an appropriate discharge point.

Fill Material - Prior to use, all intended fill materials should be approved by the project geotechnical engineer. On-site soils may be reused as such fill material, if they are processed to remove rubble, rubbish, vegetation, rock fragments exceeding 6 inches in largest dimension, and other unsuitable or perishable substances. All imported soils should have a plasticity index not exceeding 12, when tested in accordance with ASTM Designation D 4318-84, and at least 20 percent of the particles should pass the No 200 sieve, when tested in accordance with ASTM Designation D 422-90.

Table 1 - Drain Rock Gradation	
U. S. Standard Sieve Size	Percent Finer by Weight
3/8"	100
#4	70 -100
#16	35 - 85
#50	10 - 45
#100	0 - 10

Fill Placement and Compaction - All fill material should be placed in horizontal lifts not exceeding 8 inches in loose thickness. Each lift should be brought to at least 3 percent over the optimum moisture content and compacted to not less than 90 percent relative compaction, per ASTM Designation D 1557-91. All earthwork operations should be observed and the soils tested by the project geotechnical engineer or his representative. The further recommendations of this report are contingent upon adherence to this and the previous recommendations.

Finished Slopes - Finished cut and fill slopes should not exceed an inclination of 2:1. All cut and fill slopes should be protected from progressive erosion by planting with environmentally-compatible ground cover or shrubs.

Foundations

Conventional Footings - The proposed home may be supported upon continuous and isolated footings based at a minimum depth of 18 inches in undisturbed soil, recompacted soils, or newly constructed fill, as recommended below. All foundations should have a minimum width of 16 inches. Foundations so established may be designed for maximum allowable soil bearing values of 1,200 pounds per square foot for dead load, 1,800 pounds per square foot for dead plus permanently-applied live ("real") load, or 2,400 pounds per square foot for total load, including the effect of either seismic or wind forces. Half the weight of structural steel and concrete extending below grade should be added to the net loads at ground line to account for the difference in weight between foundations and soil.

Footings constructed on slopes should be stepped as necessary to achieve the recommended minimum foundation depth, but in no case should the effective slope between steps exceed an inclination of 2:1. The lateral clearance between the outermost edge of any foundation and a subjacent slope should be at least 6 feet.

Resistance to horizontal foundation displacement will be provided by passive earth pressures and friction. Passive pressures should be assumed equal to those exerted by a fluid weighing 180 pounds per cubic foot exerted against any appropriate vertical foundation face. Passive pressures should be disregarded within the uppermost 8 inches of foundation embedment, unless the foundation under consideration is protected by an adjoining concrete slab. Frictional resistance acting along the contact between any horizontal foundation base and the supporting soils may be calculated at 0.27 times the net applied "real" load. If passive pressures and friction are combined, the larger component should be reduced by half.

Pier Foundations - As an alternate to conventional strip footings, retaining wall systems may be supported upon drilled, cast-in-place pier foundations designed to acquire bearing in friction. All such foundations should have a minimum diameter of 16 inches and should be based at a minimum depth of 8 feet below lowest adjacent finished grade.

Pier foundations as described above may be designed for maximum allowable frictional side bearing values of 240 pounds per square foot for dead load, 360 pounds per square foot for "real" load, or 480 pounds per square foot for total load, including the effect of either seismic or wind forces. Half the weight of structural steel and concrete extending below grade should be added to the net loads at ground line to account for the difference in weight between foundations and soil.

Resistance to horizontal foundation displacement will be provided by passive earth pressures, which should be assumed equal to those exerted by a fluid weighing 180 pounds per cubic foot exerted against a plane equal in width to 1.6 times the pier diameter. Passive pressures should be disregarded within the uppermost 8 inches of foundation embedment, unless the foundation under consideration is protected by an adjoining concrete slab.

Foundation Drains - Subdrains should be constructed along exterior foundation lines or grade beams below unretained slopes. Each subdrain should consist of a perforated pipe surrounded by drain rock in a trench that is lined with geotextile fabric, as illustrated on Plate No. A8. The trench should be at least 12 inches wide, should extend to top-of footing elevation or a minimum depth of 18 inches (whichever condition applies), and should be lined with geotextile fabric conforming to Mirafi® 140N, or equivalent. The drain rock section should be graded as stipulated in Table 1, should extend to within 8 inches of finished grade, and should be capped with engineered fill, processed, placed and compacted as recommended previously. The collector pipe should be perforated, 4 inches in diameter, and of PVC Schedule 80 composition. It should be positioned along the centerline of the trench, not more than 2 inches above the trench bottom, and should be sloped to drain by gravity to an appropriate outlet.

Foundation Inspection - All foundation excavations should be clean and dry immediately prior to placement of reinforcing steel and concrete, and should be inspected by our geotechnical engineer to determine whether the intended bearing soils have been engaged. The above recommendations are contingent upon adherence to this provision.

Retaining Walls

Earth Pressures - Walls that are capable of deflecting at least 0.1 percent of their height at top-of-wall grade should be designed to resist active lateral earth pressures equivalent to those exerted by a fluid weighing 40 pounds per cubic foot. Unyielding walls incapable of such deflection should be designed to resist at-rest lateral earth pressures equivalent to those exerted by a fluid weighing 55 pounds per cubic foot. These lateral earth pressures do not include additional external influences, such as surcharge pressures. In addition to standard waterproofing, all walls should be fully drained and backfilled in accordance with the following recommendations.

Wall Drainage - Exterior retaining walls may be drained by means of weep holes, while building retaining walls may be drained by means of an aggregate drainage system, or a prefabricated drainage system. Weepholes for exterior retaining walls should be 4 inches in diameter and spaced on 6-foot centers in a single line not more than 8 inches above the lower exterior grade. Behind each weep hole, one cubic foot of drain rock, graded as recommended in Table No. 1, should be wrapped in geotextile fabric conforming to Mirafi® 140N, or equivalent, as shown on Plate No. A9.

If an aggregate drainage system is chosen, it should consist of a perforated collector pipe surrounded and overlain by drain rock, also as shown on Plate No. A9. The collector pipe should be at least 4 inches in diameter, and should conform to PVC Schedule 80 requirements. The spring line should be positioned along, and no more than 8 inches above, the heel of the wall, should be centered within the blanket of drain rock, and should be sloped to drain by gravity to an appropriate discharge point. The drainage blanket itself should be at least 12 inches wide, and should extend to within 1 foot of finished grade behind the wall. The drain rock should be capped with engineered fill, placed processed and compacted as described above. To prevent fine soil particles from penetrating the drain rock section, a geotextile barrier, such as Mirafi® 140N, should be installed between the drain rock section and any exposed soil surfaces. Alternatively, a prefabricated drainage system, such as Miradrain® in combination with a compatible waterproofing agent, such as Miradri® could also be used, pending our review and approval.

Wall Backfill - Wall backfill may consist of on-site or imported soils that are processed as recommended above. Wall backfill should be placed in a zone defined by the rear surface of the wall or aggregate drain (whichever applies); the top elevation of the wall footing, a plane sloping upward at an inclination no steeper than ½:1; and a plane that is 1 foot below finished grade behind the wall. These relationships are shown on Plate No. A9. Wall backfill should be placed in level lifts not exceeding 12 inches in loose thickness, brought to at least 3 percent over the optimum moisture content, and compacted to not less than 90 percent relative density, as stipulated by ASTM Designation D 1557-91.

Interceptor Drains - Exterior retaining walls should be provided with surface interceptor drains, as shown on Plate No. A9. Interceptor drains should be lined with concrete at least 4 inches thick and reinforced with 6" x 6"/WF 1.4 x WF 1.4 welded wire mesh, or higher gauge, positioned at middepth. Each interceptor drain should be at least 18 inches wide and not less than 8 inches deep at the flow line. Collected runoff should be discharged through a down drain to an appropriate disposal point.

Wall Construction - In the absence of shoring, temporary slopes may be cut vertically to a maximum height of 4 feet above the excavation base, but should be sloped back at an inclination no steeper than ¾:1 thereabove. If shoring is provided, the responsibility for its design and installation should be borne by the contractor.

Floor Slabs

Concrete slab-on-grade lower living area and garage floors each should be underlain by a capillary break consisting of a blanket of crushed rock at least 4 inches thick. This material should be graded such that 100 percent will pass a 1-inch sieve, and none will pass a No. 4 sieve, when tested in accordance with ASTM Designation D 422-90.

If greater protection against slab moisture penetration and termite invasion is desired, a 4-inch thick blanket of basaltic termite barrier sand could be installed above the capillary break. In either case, it is suggested that an impervious membrane at least 6 mils thick be installed above the capillary break zone. If only the capillary break section is constructed, placement of a course of damp, clean sand about 2 inches thick over the membrane is suggested to assist in protecting the membrane from punctures during construction, and to enhance curing of the overlying slab concrete.

If the effects of thermal expansion are of concern, construction joints consisting of ruled notches spaced no farther apart than 25 feet on centers in each direction are recommended. In addition, it is suggested that the floor slab be reinforced with welded wire mesh conforming to 6" x 6"/WF1.4 x WF1.4 gauge or higher to control the effects of thermal expansion. All reinforcing should be positioned at slab middepth. To facilitate this, it is suggested that the wire mesh be installed in sheets rather than rolls.

Surface Drainage

Discharge from the building roof as well as runoff from the pavement and exterior flatwork areas should be directed away from the building lines. Runoff onto areas where soils remain exposed should be dispersed to avoid points of concentrated flow and subsequent erosion.

Erosion Control

The soils at this site are particularly sensitive to erosion and must be protected from impinging rainfall, concentrated runoff or other forms of focused discharge. Establishment of rapidly-spreading ground covers or other plant species with root systems that will expand quickly is recommended as soon as construction scheduling will permit. Interim erosion retardant measures, such as erection of silt fences and erosion protection geotextile sheeting are also recommended.

Roof drains should be routed into a closed piping system and discharged onto protected areas or energy dissipators. In general, energy dissipators should consist of a half-basin constructed with concrete and rear side walls at least 4 inches thick, and preferably reinforced with 6" x 6"/WF 1.4 x WF 1.4 welded wire mesh, or higher gauge, positioned at middepth. The bottom slab should consist of a concrete slab at least 4 inches thick, pitched into the slope at an inclination of at least 5:1, and set with 6" x 10" angular cobbles. Suggested details for on-slope energy dissipators are presented on Plate No. A10.

Under no circumstances should surface or roof drains be connected to any subdrains. All surface and subsurface drainage systems must be maintained and inspected on a regular basis.

Supplemental Services

Weidig Geoanalysts should be retained to review the construction plans and specifications to determine whether the recommendations contained in this report are adequately reflected in those documents. The results of our review would be described in writing.

Weidig Geoanalysts also should be retained to inspect the foundation excavations, and to test and observe any earthwork construction.

LIMITATIONS

This report has been prepared for the exclusive use of Mr. Charles H. Y. Dang and his designated agents. The information contained in this report is intended only for the project described. If any part of the project concept is changed, or if subsurface conditions different from those described in this report are discovered during construction, then the information presented herein shall be considered invalid, unless the changes are reviewed, and any supplemental or revised recommendations issued in writing by Weidig Geoanalysts.

Site conditions and cultural features described in the text are those existing at the time of our field reconnaissance and exploration, on October 21, 1995, and may not necessarily be representative of such conditions at other places and times. Similarly, the test borings represent subsurface conditions at the times and locations indicated; it is not warranted that they are representative of such conditions at other locations and times. Boring locations and elevations are referenced to plans provided by the architect and are to be considered approximate only.

Services performed by Weidig Geoanalysts conform to generally accepted practices of other consultants who undertake similar studies at the same time and in the same geographical area as does our firm. No other warranty is expressed or implied.

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APPENDIX A

Field Exploration

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APPENDIX A

Field Exploration

On October 21, 1995, our field engineer conducted a reconnaissance of the site and surrounding vicinity. The location of the project is shown in relationship to surrounding landmarks and cultural features on Plate No. A1, Vicinity Map.

The geotechnical exploration program was also conducted on October 21, 1995, under the supervision of our field engineer, who logged, classified, and recovered relatively undisturbed samples of the earth materials drawn from selected vertical intervals in each of three test borings. The approximate locations of the test borings are shown in relationship to the property boundaries, existing topographic relationships, the footprint of the existing home, and the plan view of the proposed residence on Plate No. A2, Site Plan.

The borings were advanced to a maximum depth of approximately 20½ feet below existing ground surface. At selected vertical intervals in each boring, relatively undisturbed samples of the earth materials were obtained by means of a 3-inch O.D. (2⅜-inch I.D.) "Dames & Moore" sampler containing thin-walled, brass tubes, each 6 inches long. The sampler was advanced by hammer blows produced by a 140-pound hammer freely falling 30 inches, in accordance with ASTM Designation D 1586-84. The number of blows required to drive the sampler a total distance of 18 inches was recorded, and the sum of the hammer blows for the second and third 6-inch increments, or blow count, was recorded for each drive. The blow counts recorded for the "Dames & Moore" sampler are approximately twice those of the corresponding "Standard Penetration" blow counts.

The earth materials were classified by color, texture, consistency, tactile moisture, and other relevant characteristics. The field classifications were recorded on the field boring logs, which were edited for final presentation. Ground water level observations were made during drilling and upon completion of the borings. The borings were backfilled with the unsampled, excavated earth materials following exploration.

The Logs of Borings are depicted on Plates No. A3 through A5. A key to the soils symbols and identification criteria used on the logs is presented on Plate No. A6, Unified Soil Classification System.

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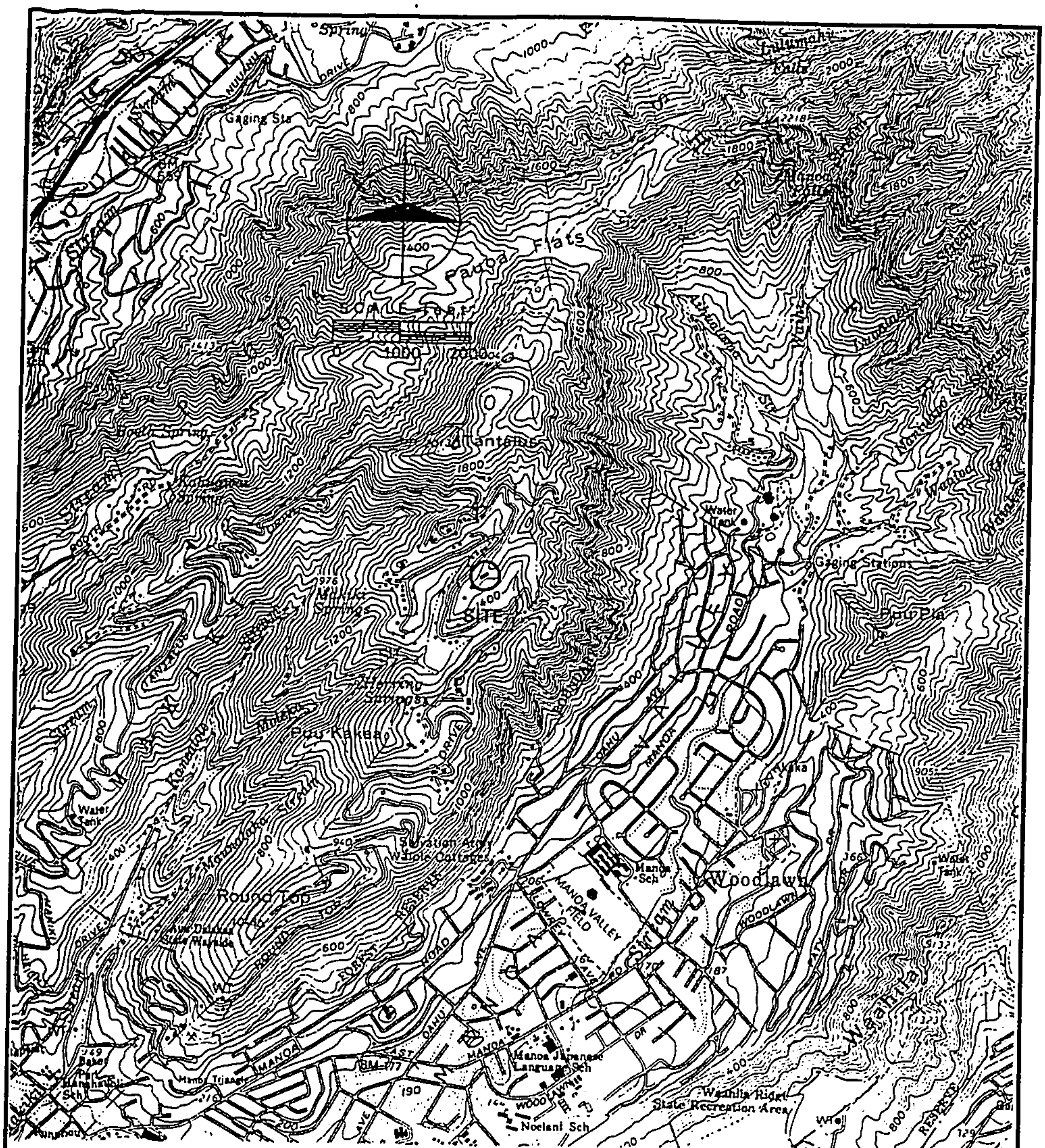
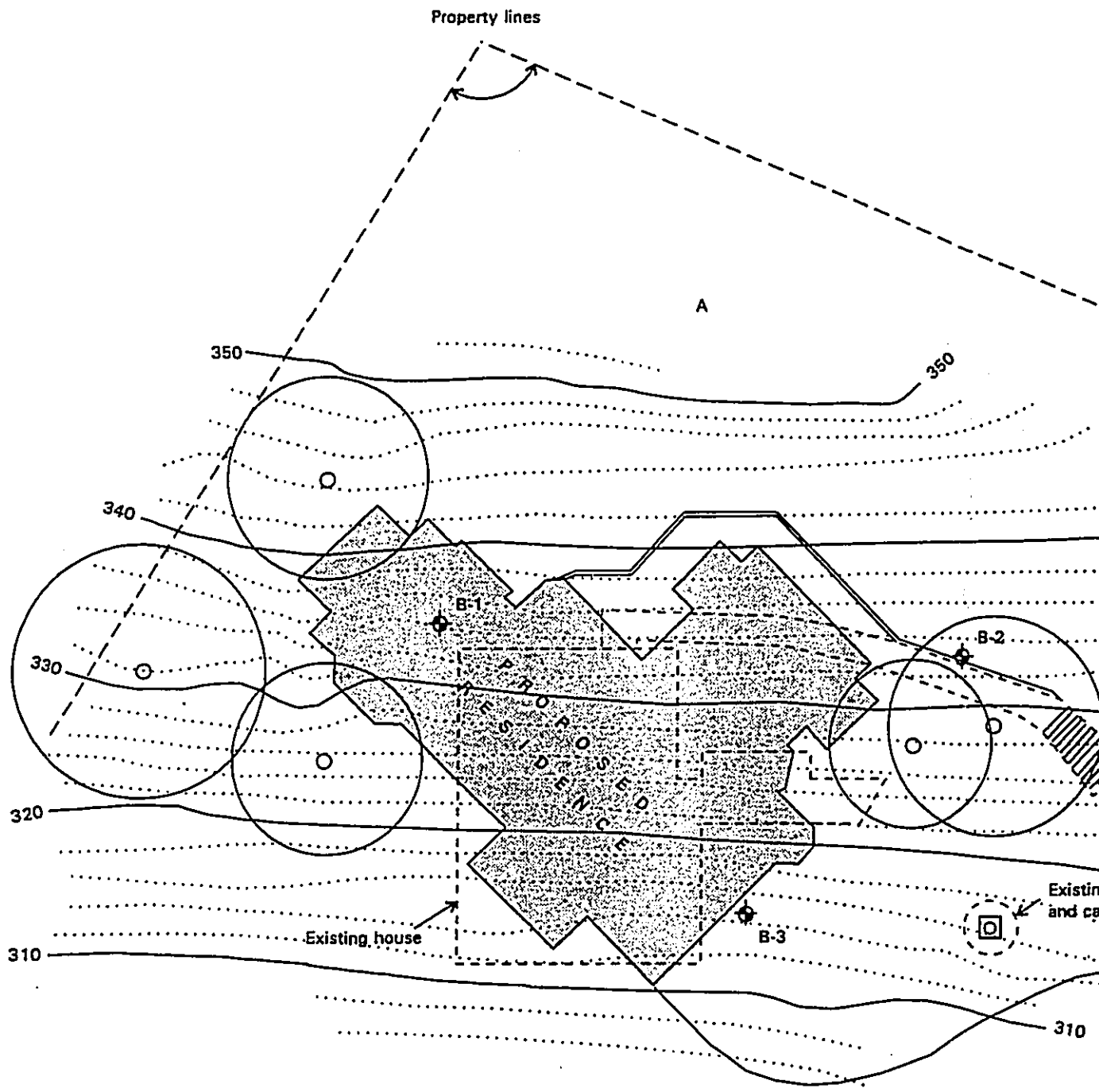


Base: United States Geological Survey, 1983, *Honolulu Quadrangle, O`ahu, Honolulu Co., Island of O`ahu, Hawai`i, 7.5-Minute Series (Topographic)* (scale: 1:24,000)

VICINITY MAP

WEIDIG Geoanalysts	**DANG RESIDENCE** 4063 Roundtop Drive Honolulu, Hawai`i
DATE: October, 1995	PROJECT NO. 95-0011.001

PLATE NO. A1



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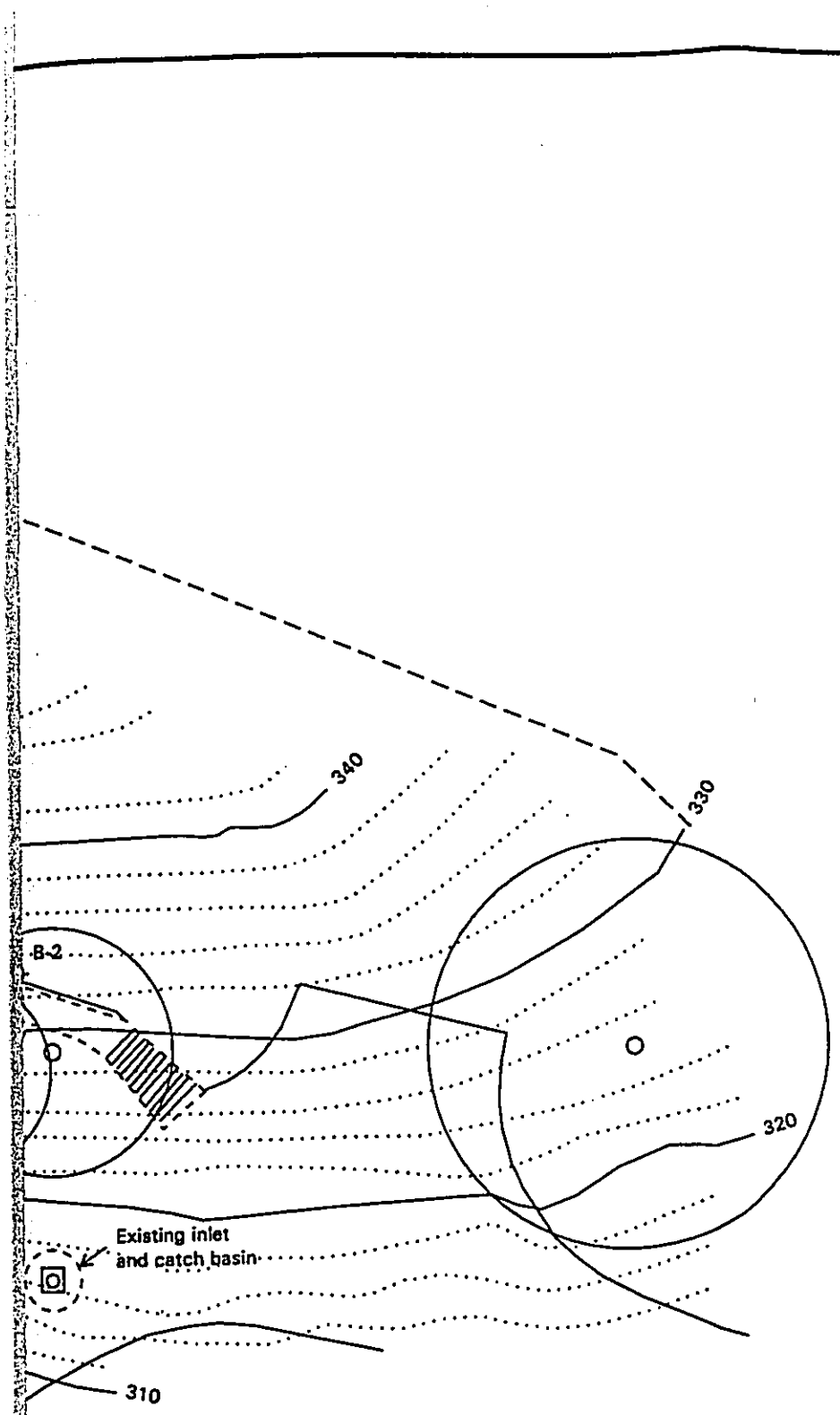
Base: Alwyn Trigg-Smith Architects, 1995, *Existing Contour Plan and Existing and Proposed House Plans*, Sheet AS2 (scale: 1/8" = 1'-0"), dated August 28, 1995



	SITE PLAN	DANG RESIDENCE 4063 Roundtop Drive Honolulu, Hawai`i	
		DATE: October, 1995	PROJECT NO. 95-0011.001

PLATE NO. A2

BORING LOCATION: See Site Plan

BORING ELEVATION: 333.9 ft.

DATE DRILLED: October 21, 1995

DRILLER: Sayavong Bros.

LOGGED BY: P. Weidig

TYPE DRILL RIG: Acker Portable

BORING NO. B-1

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	UNCONFINED STRENGTH (ksf)	PLASTICITY INDEX (%)	BLOW COUNT (Blows per foot)	SAMPLE TYPE AND NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	GEOTECHNICAL DESCRIPTION
AL	44	90.2		16	5	DM-1			MH	CLAYEY SILT, reddish-brown, very moist, soft to very soft
	55	51.7			9	DM-2	5			ASH AND CINDERS, dark gray to dusky reddish-brown, moist, loose, cinders to ±¾" diameter
	63	44.7			11	DM-3				
DS	55	61.3			13	DM-4	10			
	69	47.8			13	DM-5	15			
	70	42.3			17	DM-6				semicompact
	71	41.9			16	DM-7	20			
							25			Bottom of Boring No. B-1 @ 20.5 ft. No free ground water observed.

SAMPLE TYPE

BK - Bulk
CB - Core Barrel
DN - Denison Sampler
DM - Dames & Moore
SP - Standard Penetration
ST - Shelby Tube

OTHER LABORATORY TESTS

AL - Atterberg Limits
CN - Consolidation
DS - Direct Shear Strength
PR - Proctor Compaction
SA - Sieve Analysis
UC - Unconfined Compression

LOG OF BORING

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DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. A3

BORING LOCATION: See Site Plan

BORING ELEVATION: 333.2 ft.

DATE DRILLED: October 21, 1995

DRILLER: Sayavong Bros.

LOGGED BY: P. Weidig

TYPE DRILL RIG: Acker Portable

BORING NO. B-2

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	UNCONFINED STRENGTH (ksf)	PLASTICITY INDEX (%)	BLOW COUNT (Blows per foot)	SAMPLE TYPE AND NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	GEOTECHNICAL DESCRIPTION
									MH	CLAYEY SILT, reddish-brown, very moist, soft to very soft
DS	54	69.3			8	DM-1				
	64	48.4			9	DM-2	5			ASH AND CINDERS, dark gray to dusky reddish-brown, moist, loose, cinders to ±¾" diameter
	66	46.4			10	DM-3				
	66	45.9			13	DM-4	10			
	66	47.5			14	DM-5				
	62	43.3			15	DM-6	15			semicompact
	63	44.4			16	DM-7				
							20			Bottom of Boring No. B-2 @ 20.5 ft. No free ground water observed.
							25			

SAMPLE TYPE

BK - Bulk
CB - Core Barrel
DN - Denison Sampler
DM - Dames & Moore
SP - Standard Penetration
ST - Shelby Tube

OTHER LABORATORY TESTS

AL - Atterberg Limits
CN - Consolidation
DS - Direct Shear Strength
PR - Proctor Compaction
SA - Sieve Analysis
UC - Unconfined Compression

LOG OF BORING

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DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. A4

BORING LOCATION: See Site Plan

BORING ELEVATION: 333.2 ft.

DATE DRILLED: October 21, 1995

DRILLER: Sayavong Bros.

LOGGED BY: P. Weidig

TYPE DRILL RIG: Acker Portable

BORING NO. B-3

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	UNCONFINED STRENGTH (ksf)	PLASTICITY INDEX (%)	BLOW COUNT (Blows per foot)	SAMPLE TYPE AND NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	GEOTECHNICAL DESCRIPTION
	57	49.1			10	DM-1			MH	CLAYEY SILT, reddish-brown, very moist, soft to very soft
	62	57.9			12	DM-2	5			ASH AND CINDERS, dark gray to dusky reddish-brown, moist, loose, basaltic cinders to ±¾" diameter
SA	68	46.9			10	DM-3				
	62	49.1			9	DM-4	10			
	73	51.3			10	DM-5				
	72	53.6			12	DM-6	15			
	73	52.0			13	DM-7	20			semicompact
							25			Bottom of Boring No. B-3 @ 20.5 ft. No free ground water observed.

SAMPLE TYPE

BK - Bulk
CB - Core Barrel
DN - Denison Sampler
DM - Dames & Moore
SP - Standard Penetration
ST - Shelby Tube

OTHER LABORATORY TESTS

AL - Atterberg Limits
CN - Consolidation
DS - Direct Shear Strength
PR - Proctor Compaction
SA - Sieve Analysis
UC - Unconfined Compression

LOG OF BORING

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DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. A5

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			ICON	CODE	
COARSE-GRAINED SOILS More than 50% of material is larger than the No. 200 Sieve	GRAVEL AND GRAVELLY SOILS Less than 50% of coarse fraction passes the No. 4 Sieve	CLEAN GRAVELS Less than 12% of fine fraction passes the No. 200 Sieve		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		SILTY OR CLAYEY GRAVELS At least 12% of fine fraction passes the No. 200 Sieve		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS Less than 50% of coarse fraction passes the No. 4 Sieve	CLEAN SANDS Less than 12% of fine fraction passes the No. 200 Sieve		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SILTY OR CLAYEY SANDS At least 12% of fine fraction passes the No. 200 Sieve		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS More than 50% of material is smaller than the No. 200 Sieve	SILTS AND CLAYS Liquid Limit is less than 50	Plasticity index is above "A" Line		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Plasticity index is below "A" Line		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or slightly plastic clayey silts
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid Limit is greater than 50	Plasticity index is above "A" Line		CH	Inorganic clays of high plasticity
		Plasticity index is below "A" Line		MH	Inorganic silts, micaceous or diatomaceous fine sands or silty soils
				OH	Organic clays of medium to high plasticity, organic silts
				Pt	Peat, humus, marsh soils with high organic content

UNIFIED SOIL CLASSIFICATION SYSTEM

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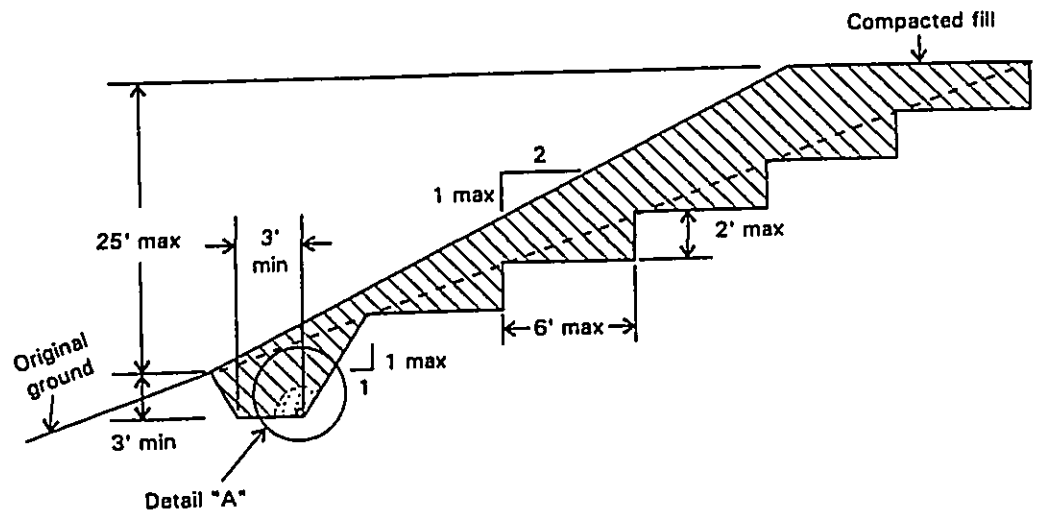
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. A6



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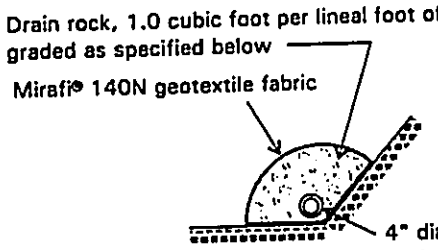

DETAIL " A "

DRAIN ROCK GRADATION (per ASTM Designation D 422-90)	
U. S. Standard Sieve Size	Percent Finer by Weight
3/8"	100
#4	70 - 100
#16	35 - 85
#50	10 - 45
#100	0 - 10

TYPICAL FILL SLOPE DETAILS

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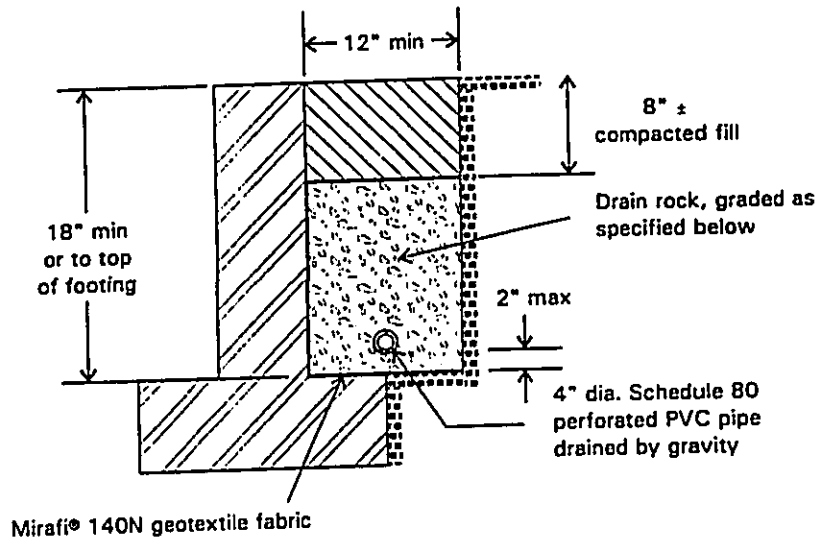
DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. A7



- NOT TO SCALE -

DRAIN ROCK GRADATION (per ASTM Designation D 422-90)	
U. S. Standard Sieve Size	Percent Finer by Weight
3/8"	100
#4	70 - 100
#16	35 - 85
#50	10 - 45
#100	0 - 10

TYPICAL FOUNDATION DRAIN DETAILS

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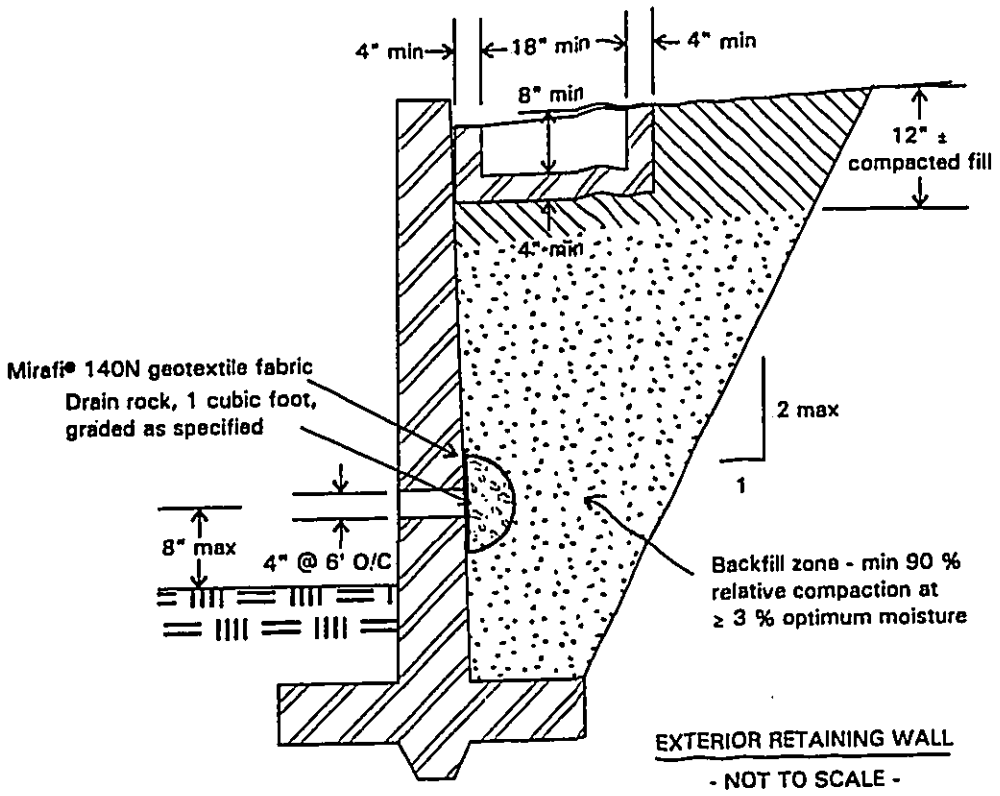
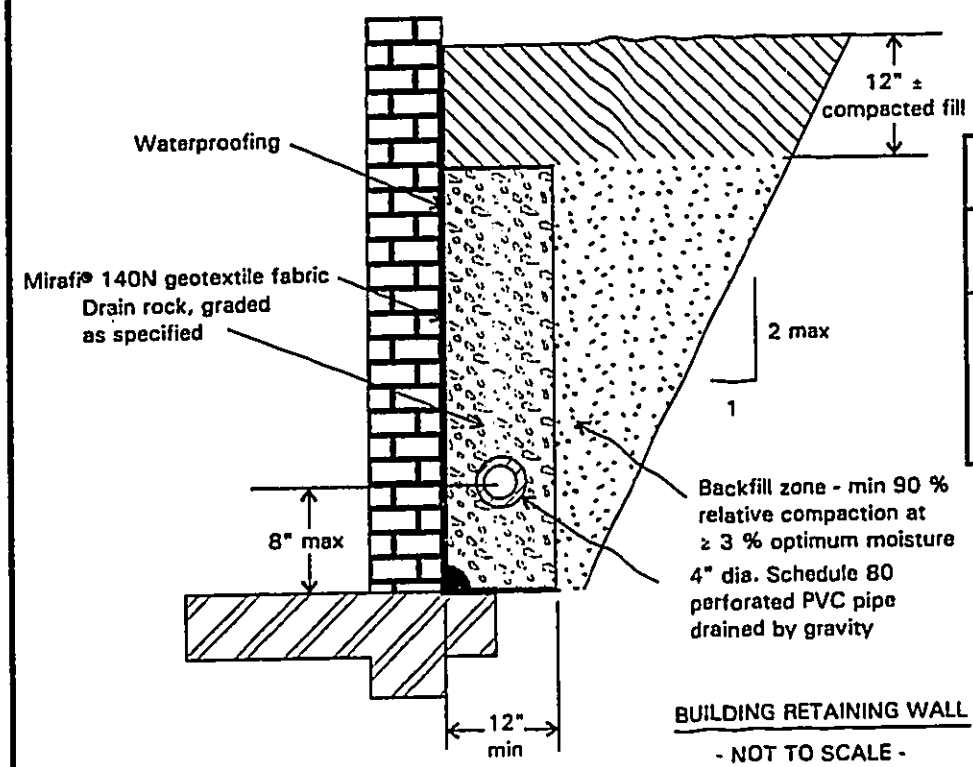
PLATE NO. A8



EXTERIOR RETAINING WALL

- NOT TO SCALE -



BUILDING RETAINING WALL

- NOT TO SCALE -

DRAIN ROCK GRADATION (per ASTM Designation D 422-90)	
U. S. Standard Sieve Size	Percent Finer by Weight
3/8"	100
#4	70 - 100
#16	35 - 85
#50	10 - 45
#100	0 - 10

TYPICAL RETAINING WALL DETAILS

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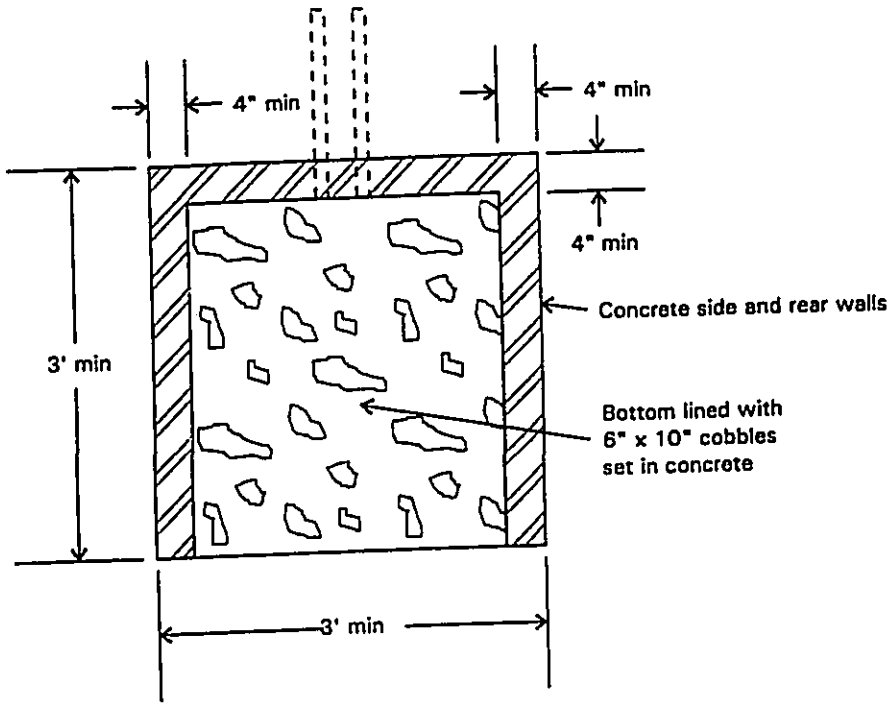
DATE: October, 1995

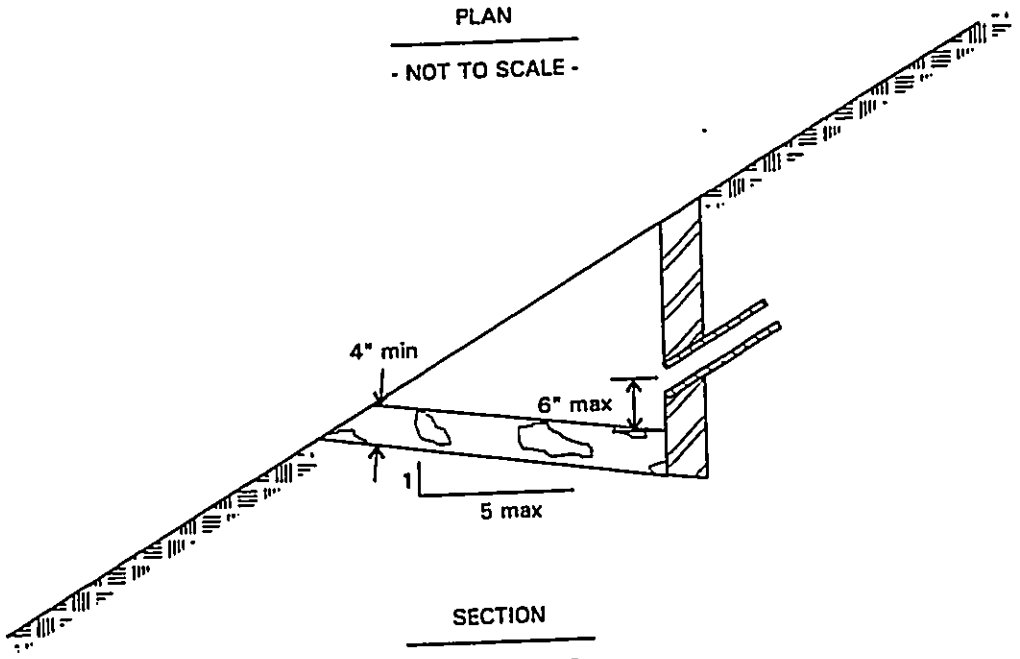
PROJECT NO. 95-0011.001

PLATE NO. A9



PLAN

- NOT TO SCALE -



SECTION

- NOT TO SCALE -

TYPICAL ENERGY DISSIPATOR DETAILS

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PROJECT NO. 95-0011.001

PLATE NO. A10

APPENDIX B

Laboratory Testing

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APPENDIX B

Laboratory Testing

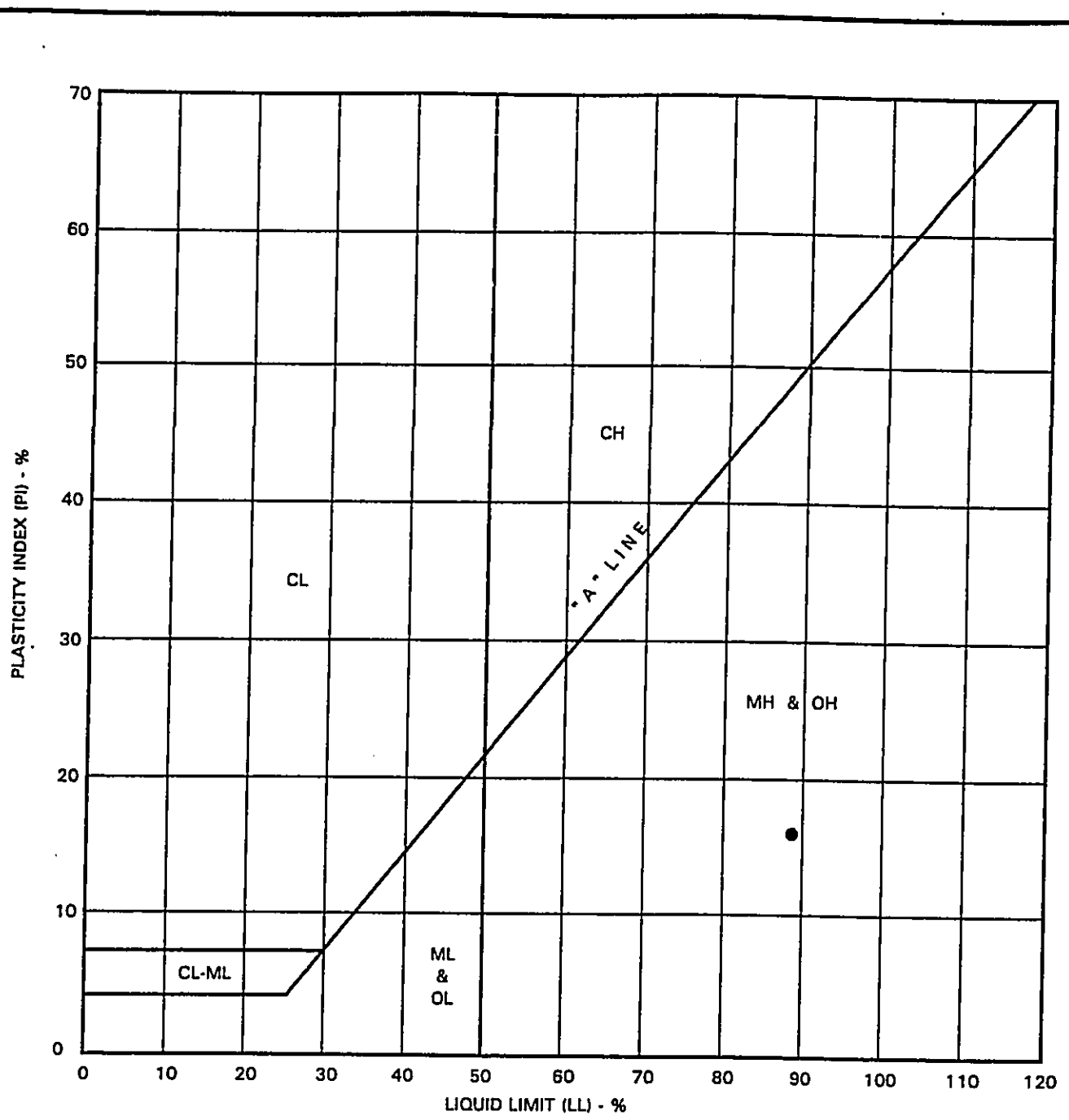
The laboratory testing program included natural moisture content, dry unit weight, plasticity, direct shear strength, and compressibility determinations.

Natural moisture content (ASTM Designation D 4929-89) and dry unit weight tests were conducted on selected samples of the earth materials recovered from each test boring. The results are posted on the Logs of Borings, opposite the depth appropriate to each sample.

Atterberg limits tests (ASTM Designation D 4318-84) were performed on a selected sample of the surface soil to evaluate its plasticity characteristics. The results are depicted on Plate No. B1, Atterberg Limits Test Data.

A particle size distribution test (ASTM Designation 422-90) was completed on a selected sample of the subsurface ash and cinders to assess its granular properties. The results are illustrated on Plate No. B2, Mechanical Sieve Analysis Test Data.

Consolidated, drained direct shear tests (ASTM Designation D 3080-90) were conducted at normal pressures of 1,000, 2,000 and 3,000 pounds per square foot on selected samples of the surface soils as well as the underlying ash and cinders deposits to evaluate their internal strength characteristics. The results are summarized on Plates No. B3 and B4, Direct Shear Test Data.



Point Code	Boring No.	Sample No.	Depth (ft)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Unified Soil Classification
●	B-1	DM-1	1.0	89	73	16	MH

ATTERBERG LIMITS TEST DATA

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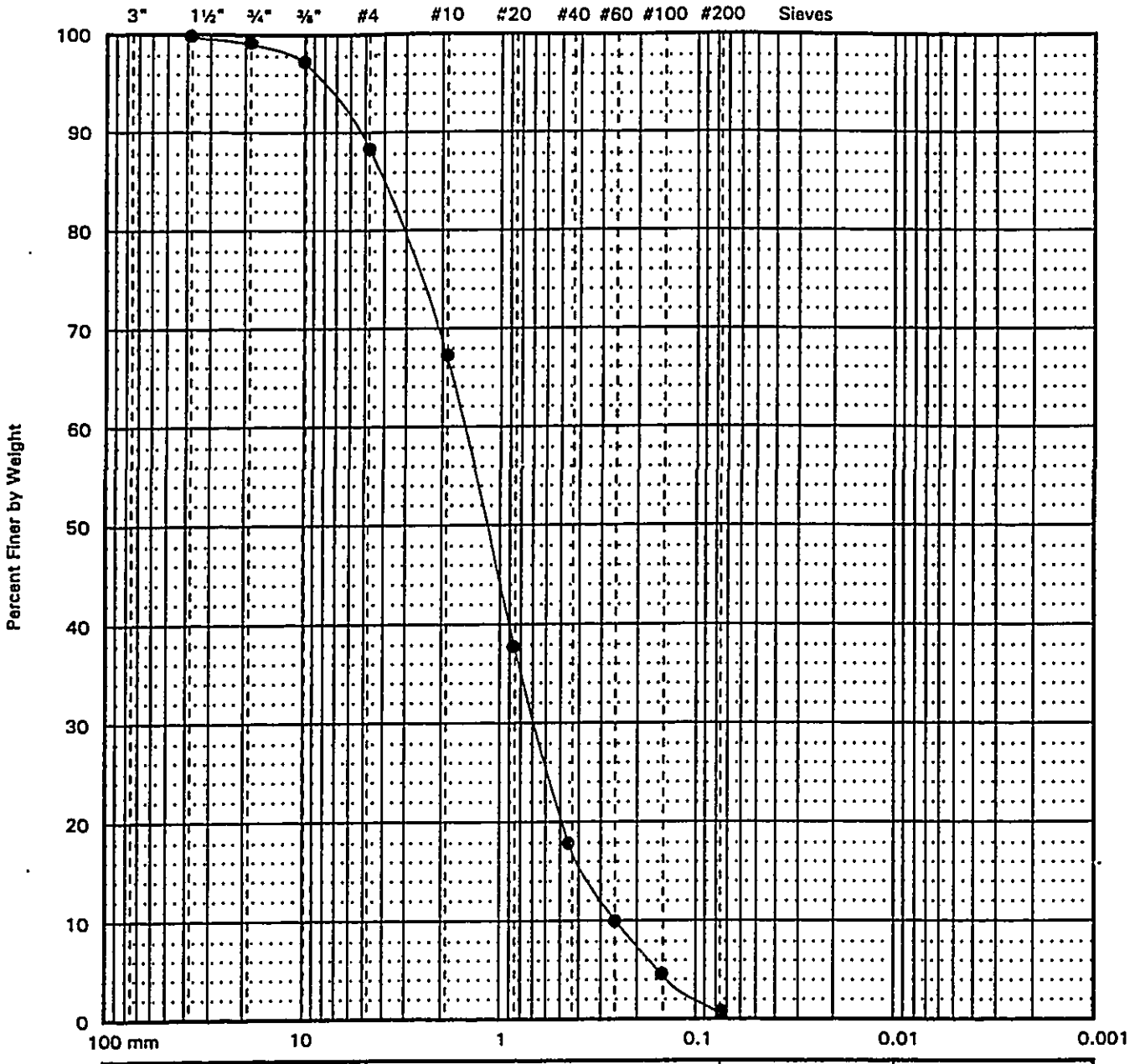
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. B1



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Point Code	Boring No.	Sample No.	Depth (ft)	Dry Unit Weight (pcf)	Moisture Content (%)	Gravel (%)	Sand (%)	Silt / Clay (%)
●	B-3	DM-3	7.0	68	46.9	11.5	88.4	0.1

MECHANICAL SIEVE ANALYSIS TEST DATA

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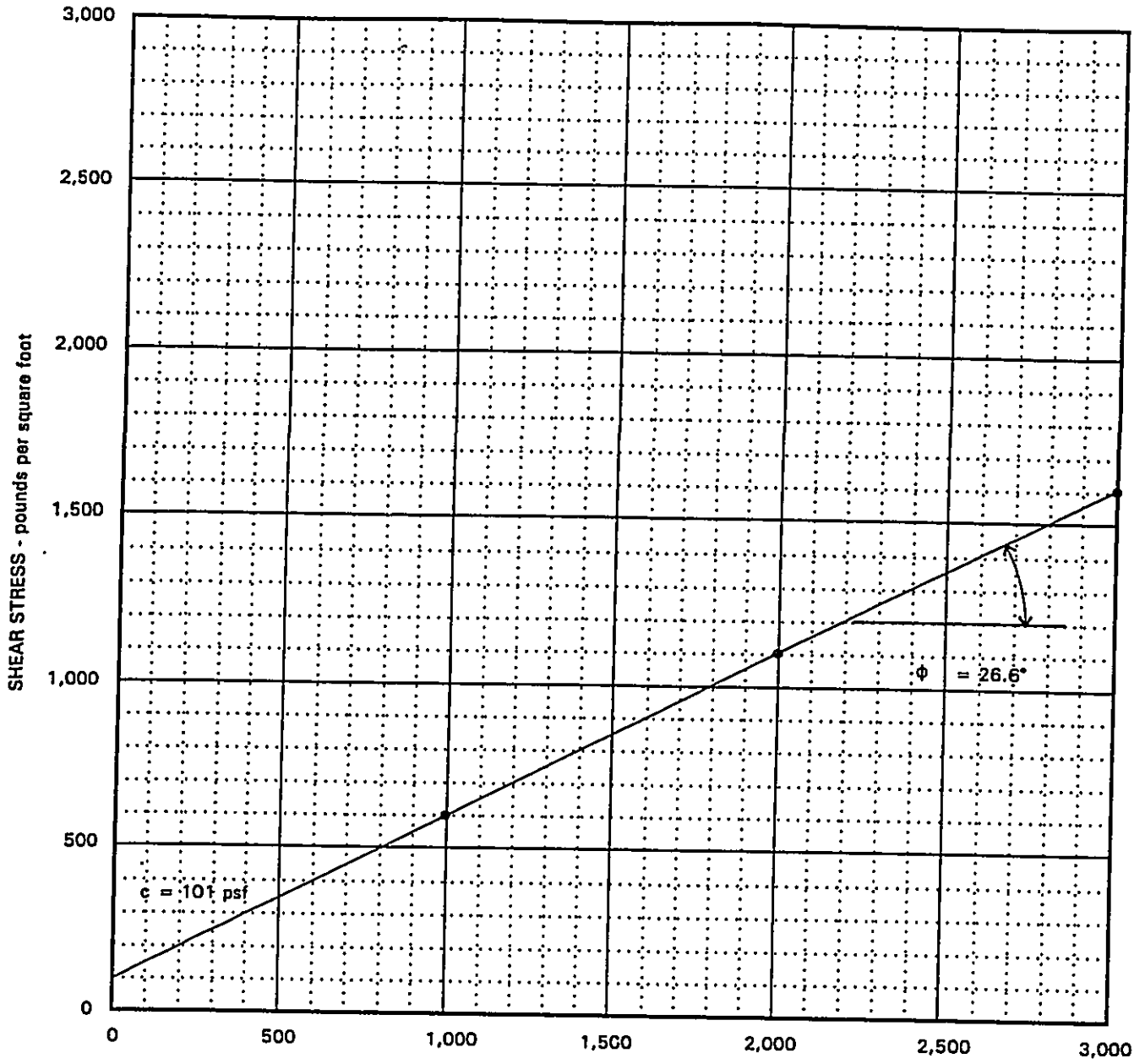
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. B2



Boring No.	Sample No.	Depth (ft)	Dry Unit Weight (pcf)	Moisture Content (%)	Normal Stress (psf)	Shear Stress (psf)
B-2	DM-1	1.0	53	76.8	1,000	601
B-2	DM-1	1.0	56	66.3	2,000	1,102
B-2	DM-1	1.0	55	64.7	3,000	1,603

DIRECT SHEAR TEST DATA

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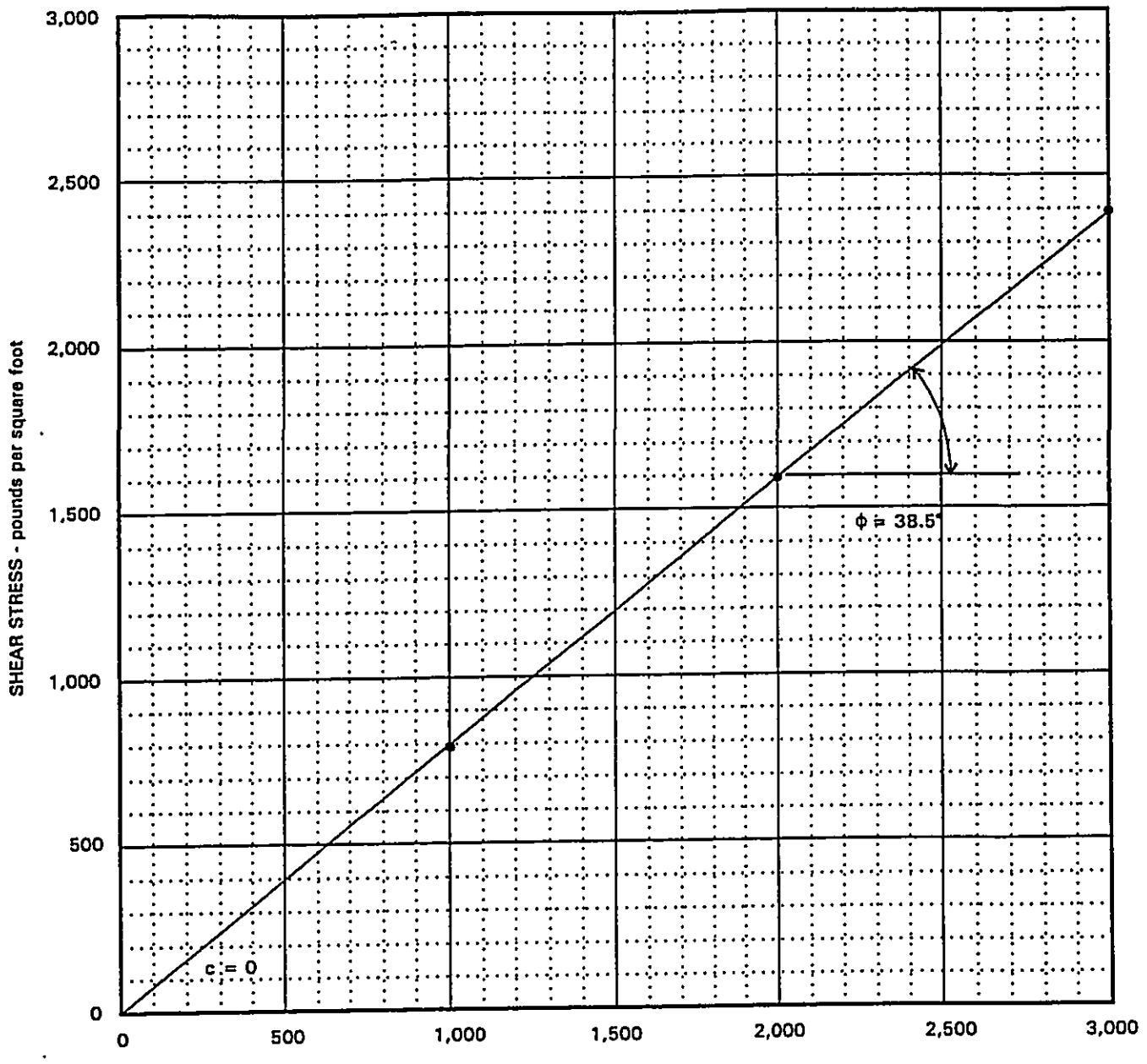
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. B3



Boring No.	Sample No.	Depth (ft)	Dry Unit Weight (pcf)	Moisture Content (%)	Normal Stress (psf)	Shear Stress (psf)
B-3	DM-4	10.0	53	70.3	1,000	795
B-3	DM-4	10.0	54	69.6	2,000	1,591
B-3	DM-4	10.0	61	57.5	3,000	2,386

DIRECT SHEAR TEST DATA

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DANG RESIDENCE
4063 Roundtop Drive
Honolulu, Hawai`i

DATE: October, 1995

PROJECT NO. 95-0011.001

PLATE NO. B4

APPENDIX C

References

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APPENDIX C

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5. William Hee & Associates, Inc., 1973, *Driveway for Mr. & Mrs. Richard Ferguson, Tantalus Heights, Honolulu, Hawai`i, Tax Map Key: 2-5-16-2,* dated March 7, 1973.

6. Stearns, H. T., and Vak vik, K. N., 1935, *Geology and Ground-Water Resources of the Island of O`ahu, Hawai`i,* United States Geological Survey Bulletin 2.

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DISTRIBUTION

Charles H. Y. Dang (1)
c/o Bickerton Saunders Dang Bouslog
3 Waterfront Plaza, Suite 500
500 Ala Moana
Honolulu, Hawai'i 96813-4920

Alwyn Trigg-Smith Architects (2)
162 'Ohana Street
Kailua, Hawai'i 96734-2350

Arman Kitapci, S.E. (1)
P. O. Box 6018
Kamuela, Hawai'i 96743

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ATTACHMENT D

BENJAMIN J. CAYETANO
Governor of Hawaii

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. Box 621
Honolulu, Hawaii 96809

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

REF:OCEA:

FILE NO.: OA-2788
Acceptance Date: 9/15/95
180-Day Exp. Date: 3/13/96

SEP 15 1995

Mr. Charles Dang
2171 Atherton Road
Honolulu, Hawaii 96822

Dear Mr. Dang:

NOTICE OF ACCEPTANCE AND ENVIRONMENTAL DETERMINATION
Conservation District Use Application No. OA-2788

This acknowledges the receipt and acceptance for processing your application for a Departmental Permit as outlined by Section 13-5-22 of Chapter 13-5, Hawaii Administrative Rules.

According to your information, you propose to demolish an existing residence, approximately 3,200sf in area, that was constructed in 1973 under CDUP OA-127. The owner wishes to construct a new residence on approximately the same footprint as the old residence. The new residence will be slightly bigger - at 3,500sf, maximizing the current area standards.

After reviewing the application, we find that:

1. The proposed use is an identified use within the Resource subzone of the Conservation District according to Administrative Rules, Title 13, Chapter 5;

2. No public hearing pursuant to Section 183C, Hawaii Session Laws (HRS), will be required; and

3. In conformance with Title 11, Chapter 200, of the Hawaii Administrative Rules, and Act 241, SLH 1992, a negative declaration is anticipated based on the draft environmental assessment for the proposed action.

As the applicant, please be advised that it will be your responsibility to comply with the provisions of Section 205A-29(b), Hawaii Revised Statutes, relating to Interim Coastal Zone Management (Special Management Area) requirements.

Negative action as required by law, on your application by the Board of Land and Natural Resources can be expected should you fail to obtain from the County thirty (30) days prior to the 180-day expiration date, as noted on the first page of this notice, one of the following:

1. A determination that the proposed development is outside the Special Management Area (SMA);

2. A determination that the proposed development is exempt from the provisions of the county ordinance and/or regulation specific to Section 205A-29(b), HRS; or

3. A Special Management Area (SMA) permit for the proposed development.

Pending action on your application by the Department in the near future, your cooperation and early response to the matters presented herein will be appreciated. Should you have any questions, feel free to contact Roy Schaefer of our Office of Conservation and Environmental Affairs staff at 587-0377.

Very truly yours,

Gilbert S. Coloma-Agaran
for MICHAEL D. WILSON

Attachment (receipt)

cc: Oahu Board Member
Alwyn Trigg-Smith
C&C of Honolulu:
Planning Dept.
Dept. of Land Utilization
Dept. of Public Works
Dept. of Parks & Recreation
Board of Water Supply
DOH/OSP/OHA/DOT

ALWYN TRIGG-SMITH ARCHITECTS
162 OHANA STREET,
KAILUA, HI 96734-2350
(808) 263 4475

Mr. Patrick Onishi
Director of Land Utilization
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

November 22nd 1995

PROPOSED DEMOLITION AND CONSTRUCTION OF A NEW SINGLE FAMILY RESIDENCE FOR MR. CHARLES DANG AT TANTALUS, OAHU

CDUA # OA - 2788

TMK #: 2-5-16: 2 / Lot Area: 40,825sf / Zone: P-1

Dear Mr. Onishi,

I am writing to confirm, that in discussion with Carla Lagat of the DLU, on September 26th, the above proposed development is outside the Special Management Area (SMA).

I trust this information meets with your approval. Please contact me if you have any questions.

Yours truly,

A. Trigg-Smith, Architect