PALISADES GOLF COURSE SUBDIVISION
SOIL RECONNAISSANCE REPORT

MANANA-UKA AND WAIKAKA, EWA, OAHU, HAWAII
TAX MAP KEY: 9-6-04: 10 AND 9-7-25: 13

FOR REFERENCE
not to be taken from this room

To:

PARK ENGINEERING, INC.

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

AUGUST 24, 1973

MUNICIPAL REFERENCE RECORDS CENTER
City & County • Honolulu
City Hall Annex, 510 S. King Street
Honolulu, Hawaii 96813
August 24, 1973

PARK ENGINEERING, INC.
1149 Bethel Street, Room 710
Honolulu, Hawaii 96813

Gentlemen:

Subject: Palisades Golf Course Subdivision
Soil Reconnaissance Report
Manana-Uka and Waiawa, Ewa, Oahu, Hawaii
Tax Map Key: 9-6-04: 10 and 9-7-25: 13

In accordance with your request, a reconnaissance of soil conditions was made for residential development studies at the proposed site of the Palisades Golf Course Subdivision at Manana-Uka and Waiawa, Ewa, Oahu, Hawaii.

The reconnaissance consisted of a review of selected soil and geologic maps, visual observations at the site and random sampling of surface soils.

The soil reconnaissance does not include the sloping areas on the northern and southern sides of the proposed site.

FIELD OBSERVATIONS

The proposed site is located on the south side of Waimano Valley at the foot of the ridge below Waimano Home Road. Komo Mai Drive is located uphill or south and east of the site.

The site generally slopes down towards Waimano Stream at about 5 to 10% gradients. Slopes of about 20 to 30% or steeper were noted along the southerly boundary. Next to Waimano Stream, steeper slopes form the bank of the stream.

The area is mostly grassed. The site was formerly part of a golf course and driving range area. A clubhouse and A.C. paved parking lot are located at the southeast corner of the lot.
An access road crosses the eastern portion of the site and terminates at the City and County of Honolulu sewage treatment plant which is located across Waimano Stream from the site.

Some loose stockpiles of soil and decomposed rock were noted along the north and northwest boundaries of the site.

GEOLOGIC AND SOIL DESCRIPTIONS BY OTHERS

From a review of geologic literature and the U. S. Soil Conservation Service maps of the area, the soils may be generally described as older alluvium formed by the weathering of alluvial fan and talus deposits.

Stearns, "Geologic and Topographic Map, Island of Oahu, USGS 1938":

Consolidated noncalcareous deposits, older alluvium.


p. 63 & 64: The soils are classified as Kawaihapai stony clay loam or sandy loam (CL and SM soils).

The average rainfall at the proposed site may vary from 30 to 40 inches annually.

DISCUSSION AND RECOMMENDATIONS

The present plan is to develop the flatter central portion of the site for a residential subdivision. An access roadway is proposed from Komo Mai Drive into the site.

In our opinion, selected areas of the site can be improved for residential development. The following discussion and guidelines should be considered for development studies:

1. Drainage of runoff from the southerly slopes should be carefully considered. Buildings should be avoided in the paths of drainageways, if practicable.
2. Construction of retaining walls on slopes generally should be avoided. A buttress fill or revetment should be considered along the north and west boundaries of the site.

3. Fills should be kept as low as practicable, particularly along the top of bank next to Waimano Stream.

4. Depending on the site grading and location of building on a lot, slab-on-ground or post-and-beam type construction may be considered. Post-and-beam type construction would be preferable on the lots next to Waimano Stream.

5. Buildings should generally be placed about 15 ft away from the top of slope and preferably 20 ft from the top of slope next to Waimano Stream.

6. Good surface drainage away from the foundation of structures should be considered.

7. The bottom of utility trenches should be daylighted and graded to shed water along the low side of the site. The backfill and drainage of utility trenches should be carefully designed. Flexible connections should be used.

8. Although not noticed during the field reconnaissance, unforeseen conditions such as soft spots, clayey soils (adobe) or seepage water may exist. Planning should be kept flexible as adjustments may have to be made in these areas.

ADDITIONAL SOIL EXPLORATIONS

More detailed soil explorations should be made at a later date when more definitive plans are prepared.
The grading plans should be reviewed and revised to suit soil conditions to minimize future foundation problems.

Attached are a location sketch, laboratory test results, and limitations.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Ezra Koike
## TABLE I - SUMMARY OF LABORATORY TEST RESULTS

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<th>SAMPLE NO.</th>
<th>DEPTH BELOW SURFACE</th>
<th>DESCRIPTION</th>
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<td>BROWN, SILTY CLAY W/ SAND</td>
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<tr>
<th>GRAIN-SIZE ANALYSIS (% Passing)</th>
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<th>&quot;B&quot; SURFACE</th>
<th>&quot;C&quot; SURFACE</th>
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<td>Air Dried or Natural</td>
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<th>EXPANSION AND CBR TESTS</th>
<th>Surcharge-51 P.S.F.</th>
<th>Molding Moisture, %</th>
<th>Molding Dry Density, P.C.F.</th>
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<th>MOISTURE-DENSITY RELATIONS OF SOILS</th>
<th>AASHO T-180-57 Method</th>
<th>Dry to Wet or Wet to Dry</th>
<th>Max. Dry Density (P.C.F.)</th>
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Date 8-24-73 By J.S.
PLASTICITY CHART

PROJECT:PALISADES GOLF COURSE SUBDIVISION
LOCATION: MANANA-UKA & WAIAWA, EWA, OAHU, HAWAII

CL = ML
ML

CH

ML

CL

"A" LINE

MH & OH

CL - ML

LIQUID LIMIT

PLASTICITY INDEX

DATE 8-24-73  BY J.S.

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

8-872
LIMITATIONS

If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes, plan changes, or construction operations at or adjacent to the site, it is recommended that this report be reviewed to determine the applicability of the recommendations considering the time lapse and the changed conditions.

Our professional services were performed, findings obtained and recommendations prepared in accordance with generally accepted engineering practices. This warranty is in lieu of all other warranties expressed or implied.