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LETTER OF TRANSMITTAL

W.O. 15-5915

April 15, 2016

TO: Mr. Vincent Shigekuni
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

SUBJECT: Stadium Bowl-O-Drome
820 Isenberg Street
Honolulu, Hawaii
TMK: 2-7-008: 018 & 020

WE ARE TRANSMITTING THE FOLLOWING:

COPIES	DATE	DESCRIPTION
1	04/15/16	Preliminary Geotechnical Engineering Study

__X__ For your information and use
_____ As requested
_____ For review
_____ Other

Con C. Truong, P.E.

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Mr. Vincent Shigekuni
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Re: Preliminary Geotechnical Engineering Study
Stadium Bowl-O-Dome Site
820 Isenberg Street
Honolulu, Hawaii
TMK: 2-7-008: 018 and 020

This letter report presents the results of our preliminary geotechnical engineering study performed for the above referenced site. We understand that a mixed-use residential and commercial building is being considered for development of the site and may consist of a high-rise structure.

Our findings and opinions are based on a review of available in-house information pertinent to the site and our past experience in the project area, as well as information provided by your office. This study was conducted in general conformance with the scope of services presented in our proposal dated January 19, 2016, and included the following:

- A visual reconnaissance of the site to observe existing conditions which may affect the project. The general location of the project site is shown on the enclosed Location Map, Plate A.
- A review of available in-house soils information pertinent to the site and the proposed project.
- Preparation of a letter report presenting the expected subsurface soil conditions, and our opinions regarding geotechnical issues which may impact development of the property.

Site Description

The site is located on the west side of Isenberg Street, south of its intersection with King Street in the Moiliili area of Honolulu. The site is currently occupied by the former Stadium Bowl-O-Drome

building, located on the eastern portion of the site, with the remainder of the parcel covered with asphaltic concrete (AC) pavement. The AC paved area located in the western portion of the site is presently occupied by a towing company. The site is bordered on the north by Old Stadium Park and on the south by a high-rise apartment building.

The surface soil conditions could not be visually observed because the entire site is either occupied by the existing building or covered with AC pavement.

Review of Available In-House Soils Information

Soil Survey - The Soil Survey, prepared by the Soil Conservation Service, identifies the soil type in the project area as Ewa silty clay loam, moderately shallow, 0 to 2 percent slopes (EmA), of the Ewa Series. A Soils Survey Map is shown on Plate B.

Ewa silty clay loam soils were developed in alluvium derived from basic igneous rock. In a representative profile, the surface layer is dark reddish brown, silty clay loam, about 18 to 42 inches thick. The substratum is coral limestone, sand, or gravelly alluvium. The Soil Survey also describes the soil as having a moderate shrink-swell potential.

The Soil Survey identifies the soil type in the areas south of the site as Fill Land (FL). Fill Land primarily consists of material dredged from the ocean or hauled from nearby areas that was spread over low-lying areas along the coastal flats, coral sand, coral limestone, or areas shallow to bedrock.

Previous Projects - Previous soils investigations were performed by our firm for the Old Stadium Park located to the north and west of the subject parcel, and for other projects located to the northwest and northeast. Borings drilled for these investigations generally encountered coral at relatively shallow depths, ranging from near ground surface to about 4 feet. The coral was in a dense to medium hard condition and extended to the maximum depths of the borings which ranged from about 4.5 to 21 feet deep. Our past experience indicates that the coral layer usually will transition

to a silty coralline gravel at deeper depths. Overlying the coral were generally brown, mottled brown, to reddish brown clayey silt and silty clay in a medium stiff to stiff condition.

Our firm also performed soils investigations for several projects located south of the subject parcel, in areas described by the Soil Survey as Fill Land located south of Date Street. Borings drilled for these investigations encountered coral at relatively deeper depths ranging from about 13 to 19 feet below existing ground, extending to depths of about 40 to 42 feet. Underlying the coral layer was medium stiff to stiff silty clay. Overlying the coral and below the surface fill soil were highly compressible soils consisting of loose to medium dense gray silty sand and soft gray to dark gray sandy silt.

Moiliili Karst - Moiliili Karst consists of a network of underground caves/dissolution caverns within the coral formation underlying the Moiliili area of Honolulu. The dissolution caverns were reportedly as high as 10 feet in some areas. The center of this network of underground caves/dissolution caverns is near the intersection of the University Avenue and King Street. Based on published information, the approximate extent of the Moiliili Karst is shown on Plate A.

Findings and Opinions

Based on a review of available in-house soils information, and our past experience in the project area, it is our opinion that, from a geotechnical viewpoint, the site can generally be developed as planned. The following are geotechnical issues regarding the site.

- Our review of previous geotechnical investigation performed by our firm near the project area confirms that the surface soils are similar to that described in the Soil Survey.
- Based on the known location of the Moiliili Karst. The project site appears to be outside the limits of the Moiliili Karst.
- Based on our exploratory borings performed for the Honolulu Stadium State Park adjacent to the site and a property along Makahiki Way, coral can be expected underlying the site at relatively shallow depths. While coral was encountered in our previous studies at relatively shallow depths on the north and west sides of the site, the coral layer was generally

encountered at depths of about 13 to 19 feet in areas immediately south of Date Street. As a result, it should be noted that the coral layer underlying the site may slope downward in a southerly direction.

- If coral is at shallow depths as anticipated, conventional shallow foundations bearing directly on the dense to medium hard coral may be used for support of structure with light to moderate structural loads. However, if the proposed development consists of a high rise structure with heavy column and wall loads, deep foundations such as auger cast piles or drilled shafts may be required.

- Due to the potential for voids in the coral stratum, a probing and grouting program will be required prior to construction of shallow foundations.

- It is our opinion that excavations into the surface soils can be accomplished using conventional excavating equipment. However, we expect that excavations into the dense to medium hard coral will require hydraulic equipment.

- Due to its moderate expansion potential, we expect that onsite soils will not be acceptable for re-use as structural fill.

- Ground elevations at the project site range from approximately +7 to +10. As a result, groundwater is not expected to impact the proposed development, assuming that the proposed structure will not have basement levels. Basements will require dewatering during construction and waterproofing for the basement walls and floor slabs.

- A more detailed geotechnical investigation is recommended. The investigation should include exploratory test borings, soil sampling, laboratory testing, and analyses of the field and laboratory data, to confirm the assumed subsurface soil conditions at the site, and to provide geotechnical recommendations for the design of foundations, concrete slabs-on-grade, pavement, and site grading.

- If the results of the geotechnical investigation determines that the site is underlain by soft and compressible soils over the dense to medium hard coral, deep foundations, such as auger cast piles or drilled shafts, will most likely be required for support of the proposed structure.

Limitations

This letter report was prepared specifically for PBR Hawaii and Associates, Inc. and their sub-consultants for the preparation of an Environmental Impact Statement (EIS) for the redevelopment of the former Bowl-O-Drome site located at 820 Isenberg Street in Honolulu, Hawaii. The opinions presented in this letter report are for planning purposes only, and are not intended for use in design or in developing cost estimates by a contractor.

Our opinions are based upon a visual reconnaissance of the project site, review of the Soil Survey, available in-house soils information, the preliminary project information made available, and our experience and engineering judgement. The conclusions are professional opinions which we have strived to develop in a manner consistent with that level of care, skill, and competence ordinarily exercised by members of the profession in good standing, currently practicing under similar conditions. No warranty is made regarding the services performed under this agreement, either express or implied. We appreciate this opportunity to be of service.

Should you have any questions concerning this study, please feel free to call on us.

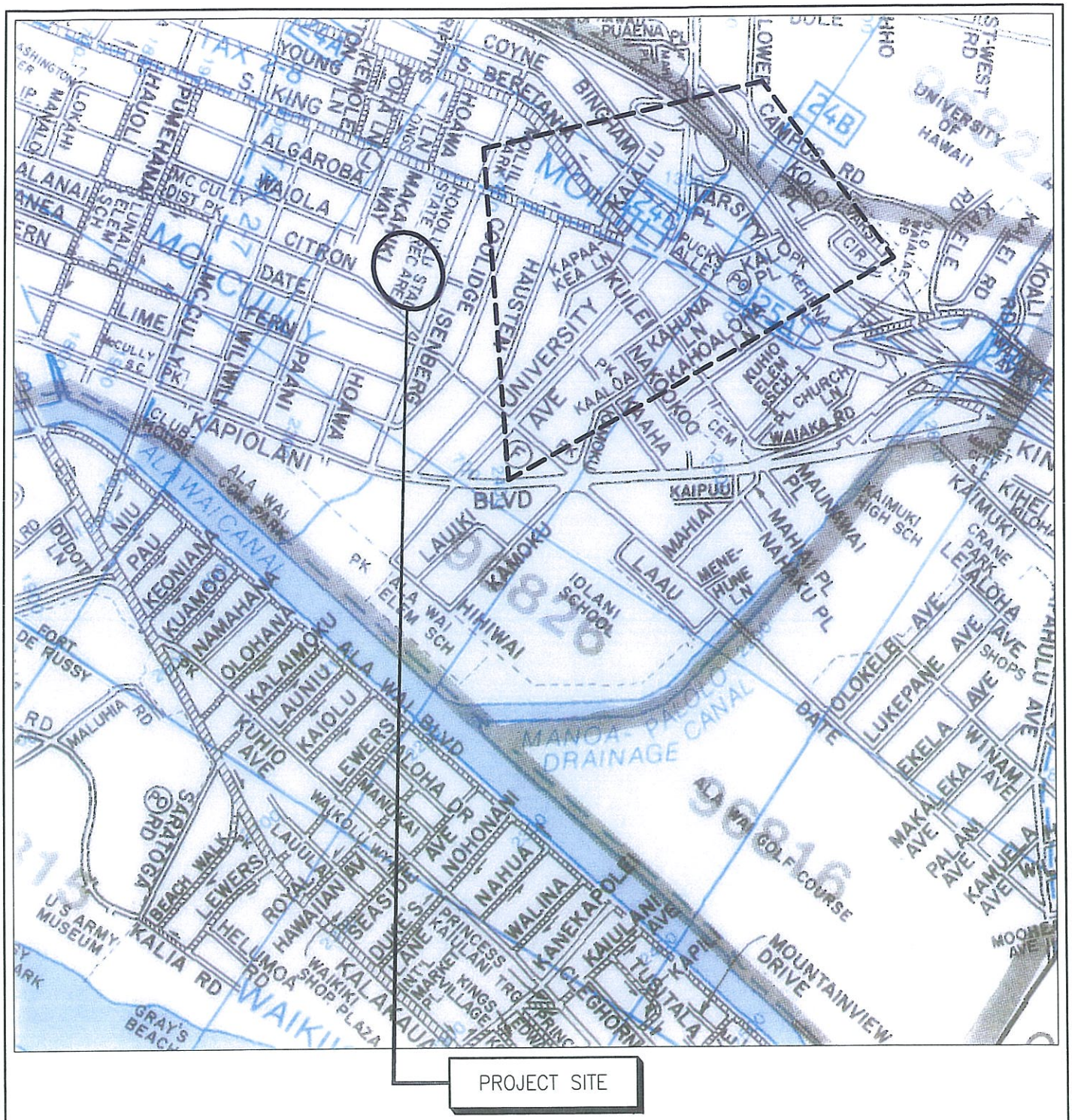
Respectfully submitted,

HIRATA & ASSOCIATES, INC.

Con C. Truong, P.E.

This work was prepared by
me or under my supervision
Expiration Date of License:
April 30, 2018

Enc: Location Map . . . . . Plate A
Soils Survey Map . . . . . Plate B



Approximate location of Moiliili Karst
History and Status of the Moiliili Karst, William R. Haliday.

Reference: Bryan's Sectional Maps, 2008 Edition
(Copyright J.R. Clere, used with permission)

Stadium Bowl-O-Drome Site

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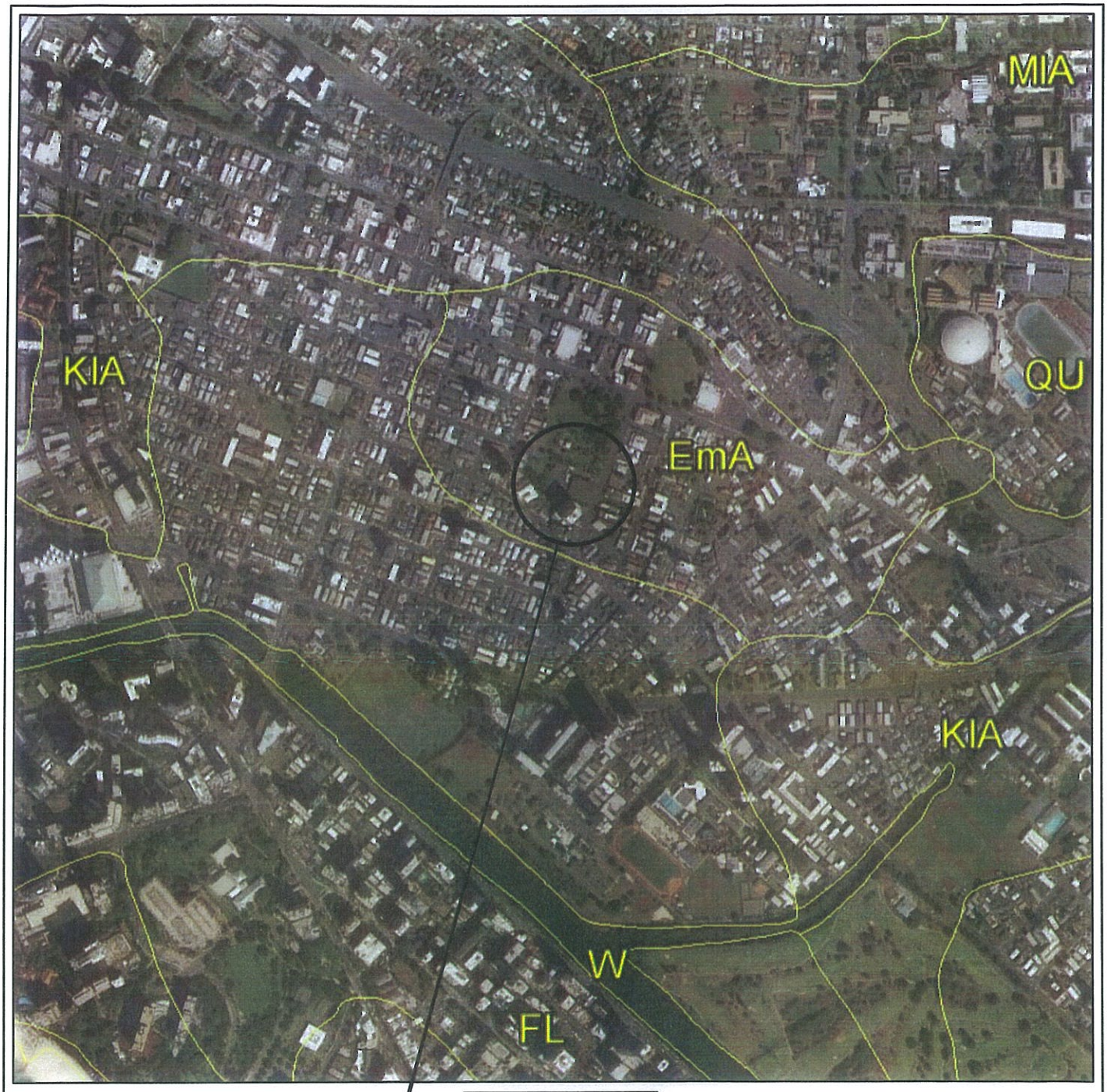
LOCATION MAP

Plate A



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SOIL SURVEY MAP

Plate B