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November 4, 2020

Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Kathy K. Sokugawa, Acting Director

Subject: Recommendations for Special Management Area (SMA) Use Permit (Major) to Replace Hanohano Hale's Existing Wastewater Treatment System (2020/SMA-19 [ZS]), 53-549 Kamehameha Highway, Hauula, Oahu, Hawaii.

Dear Ms. Sokugawa,

This letter is to request your consideration for revising the Department of Planning and Permitting's (DPP's) recommendations, specifically Condition A, relating to the Hanohano Hale wastewater treatment system SMA Use Permit (letter to Honolulu City Council dated August 20, 2020 [2020/SMA-19 (ZS)]). The Department's recommendations were subsequently included in the City Council Resolution 20-226. Condition A is as follows:

> *Construction must be in general conformity with the Project, as described in the DPP findings and recommendation, referenced above, and as depicted in Exhibits A through F, enclosed hereto and incorporated herein by reference. The exception is that the Project must be an underground wastewater treatment system, instead of an aboveground system. Structural components must still be capable of resisting pressure from standing and flowing water, as well as the effects of buoyancy due to flooding. Any change in the size or nature of the Project that has a significant effect on coastal resources addressed in ROH Chapter 25, HRS Chapter 205A, or any combination thereof, will require a new application. Any change that does not have a significant effect on coastal resources will be considered a minor modification and is therefore permitted under this resolution, upon review and approval by the Director of the DPP.*

Although the SMA Use Permit Application submitted to the DPP proposed an aboveground wastewater treatment system, the DPP recommended an underground wastewater system. The underground system was recommended by DPP to maintain the existing view opening along the coastline. The current Proposed Committee Draft of Resolution 20-226 includes the requirement that the Applicant submit to the DPP for review and approval revised Project plans showing an underground wastewater system.

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Testimony Opposing Underground System

A completely underground system installed adjacent to the shoreline is problematic due to the following reasons:

1. Greater susceptibility to flooding (higher possibility of spillage/leakage during flooding). The system will be under the Base Flood Elevation (BFE) if the plant is below ground and will restrict access to the treatment system.
2. Provides opportunity for risk of leakage directly to the groundwater if submerged into the water table. There will also be risk of increased water intrusion as well. Groundwater was discovered between 3ft to 4ft below surface depending on the tide.

   Any spillage occurring from the treatment tank (Aquarius Technologies Nebula System) will range from 300 milligrams per liter (mg/L) to 30 mg/L Biochemical Oxygen Demand (BOD) and 300 mg/L to 30 mg/L Total Suspended Solids (TSS). Since the wastewater is in process of its main treatment within this tank the water quality will vary. Also, the water spilling from the treatment tank (Aquarius Technologies Nebula System) will not have gone through the UV disinfection that usually follows after the treatment tank (Aquarius Technologies Nebula System).

   Spillage occurring from the injection wells will be treated effluent which will be equal or less than 30mg/L.
3. Extremely difficult construction (e.g., 15ft depth excavation, shoring, dewatering, need for concrete basin or additional anti-buoyancy). The additional construction effort will substantially increase the cost, which is estimated by Alexander and Pacific, Inc. (license number CT-35330) to very likely exceed $250,000, with a chance to cost up to $1,000,000 just for the excavation activity. Excavation for the underground system will require dewatering activities and shoring by the Contractor and there are a limited number of Contractors in Hawaii that are able to perform this activity.
4. Increased difficulty of operation and maintenance (confined entry and difficult to reach certain equipment).
5. Waterproofing will degrade over time, requiring re-excavation and re-waterproofing.

During prior communications, the DPP noted there are other properties along the North Shore that have installed underground wastewater treatment systems. However, based on communication with licensed operators of these systems, several of those that are installed near the shoreline are affected by groundwater intrusion into their wastewater system, as well as saltwater intrusion. Below are some of the problems that are occurring generally throughout underground wastewater systems along the coastline:

- Intrusion of groundwater/saltwater at piping penetrations and piping joints.
- Intrusion of groundwater/saltwater into the underground tanks directly via cracks (concrete and metal tanks). The problem is exacerbated during king tide events.

Intrusion of groundwater/seawater into the wastewater system overloads the wastewater treatment system that may cause accelerated wear and tear on the tank, piping, pumps and blowers. Energy demand is increased due to the additional hydraulic loading, which requires the pumps to run longer. Additional problems occur as well downstream during disposal, the

injection wells become overloaded by quantity of flow from additional water (groundwater that has intruded into the system). Routine repair of these underground tanks and piping are very difficult due to the shallow groundwater as compared to aboveground systems.

Properties are not planning as exuberantly as they should for sea level rise and record high tides. A subsurface system won't accommodate for the sea level rise projections and high tides. Hanohano Hale is already dealing with shoreline erosion and water has reached the building during high tides. A shoreline protection engineer is working to protect the beach and building at Hanohano Hale.

The National Oceanic and Atmospheric Administration (NOAA) Hawaii Storm Surge Inundation model predicts flooding of less than 3 feet above ground in the southern parking lot of Hanohano Hale during a Category 1 hurricane, and flooding of greater than 3 feet above ground across the entire property during a Category 2 hurricane.

The Koolauloa Neighborhood Board was also contacted for comments and preliminary response from the Board Chair noted that the Board does not support an in-ground system.

Testimony Advocating Aboveground System

Although the underground system was recommended by DPP to maintain the existing view opening along the coastline, the environmental benefits of the proposed aboveground system far outweigh the aesthetic impacts. Overall, the goal of the project is to do the best thing for the environment. To maintain the visual and aesthetic appeal of the rural area, a 6ft high screening wall (freestanding concrete masonry unit [CMU] or concrete rock masonry [CRM] wall) or fence (wood, metallic or composite) will be constructed abutting the property line (see photo below). Additional foliage (e.g., naupaka) can be planted along the exterior of the wall or fence for beautification and to further screen the wastewater treatment system from public view. As an alternative to a wall or fence, a screen of greenery can be used to conceal the system, to include planting 12 feet palms and other native Hawaiian plants along the portion of the property where the aboveground wastewater treatment system will be located. This option would generally block the view of the system, while still providing some open view planes to the ocean. The Hanohano Hale Association of Apartment Owners (AOAO) is willing to confer with DPP to choose the best option for screening the system.

The positive aspects of an aboveground system include:

1. Resilient against flooding and future sea level rise.
2. Since top of tank will be taller than the BFE there will be minimized risk of spillage and/or flood intrusion into the treatment system.
3. Ease of maintenance and immediate identification of leaks.
4. Construction ease and affordability by removing the requirement for deep excavation of the wastewater treatment system.

It is reasonable that DPP does not want to set a precedent of endorsing installation of aboveground wastewater treatment systems at other properties along the Windward coastline that may impact aesthetics/view openings. However, Hanohano Hale is a unique situation due to size of the property and the narrow building footprint aligned perpendicular to the ocean,

along with several other site-specific constraints, including a stream to the south, privately-owned parking surrounding building, swimming pool, greywater system leach field, propane tank, and aboveground emergency generator. Other properties are not likely to have the same limitations for siting an aboveground system.

Honolulu City Councilwoman Heidi Tsuneyoshi (District #2) is a proponent of the aboveground system for the Hanohano Hale property, due to flooding issues and potential negative environmental impacts from an underground system, as discussed above.

Evaluation of Alternate Location

DPP proposed an alternate location for the aboveground system in front of the west end of the building, where the view to the ocean is already obstructed by the building. This location currently contains an electrical transformer, emergency generator, and trash enclosure (see photo below). The ingress/egress driveways are on both sides of this area.

This location is not feasible due to the following reasons:

1. Temporary restriction of access path during construction of the wastewater treatment system and regular maintenance of the system.
2. Odor risk is increased to residents (closer to building) during maintenance and normal operations.
3. Relocation or demolition of existing emergency generator.
4. Relocation of existing transformer.
5. Removal/relocation of several existing trees.
6. Rerouting of Fire Department Connection lines that supply the fire suppression system.

7. Rerouting of existing conduit lines in that area.
8. Rerouting of existing 3" water line, risk of cross contamination.
9. Relocation of trash enclosures and portable toilet.

Alternative Option – Partial Bury

An alternative option is to partially bury the treatment system up to 4ft below grade. This option will reduce visibility for aesthetics, will preserve resiliency against flooding (minimize spillage), and will be easier to operate and maintain than a completely underground system. The proposed wall/fence/greenery will screen most of the wastewater treatment system. A partially buried system will still require substantial excavation and additional construction effort, with an increase in overall cost.

If you have questions or require additional information, please contact me at 808-261-0740 (office) or 808-542-4939 (cellular), or by email at sdavis@esciencei.com.

Mahalo,

Stephanie Davis
Project Manager
Environmental Science International, Inc.

Cc:
Heidi Tsuneyoshi, Councilmember, District 2
Ron Menor, Zoning, Planning, and Housing Committee Chair
Zack Stoddard, DPP