

MICHAEL P. VICTORINO
Mayor

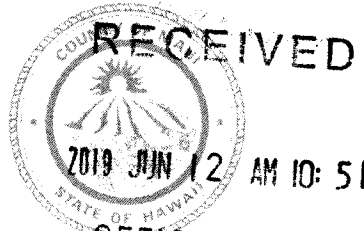
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COUNTY COUNCIL
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
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WAILUKU, MAUI, HAWAII 96793


June 10, 2019

Honorable Michael P. Victorino
Mayor, County of Maui
200 South High Street
Wailuku, HI 96793

For Transmittal to:

Honorable Tamara Paltin, Chair
Planning and Sustainable Land Use Committee
200 South High Street
Wailuku, HI 96793

APPROVED FOR TRANSMITTAL


Acting Mayor
6/10/19
Date

Dear Chair Paltin:

SUBJECT: WAIKAPU COUNTRY TOWN PROJECT (PSLU-30)

This is in response to your May 30, 2019 request regarding the proposed privately owned and operated wastewater treatment facility for the subject project. Below are comments developed by the staff in our Wastewater Reclamation Division and the Department of Environmental Management:

Positive aspects:

1. The covers and plants over the aeration basins give the facility a more aesthetically pleasing "green" appearance that would improve public perception of the wastewater facility. The plants also add a small amount of nutrient removal as they increase the biological organism population.
2. The design of the existing facilities in other locations had most of the odor-prone areas contained in buildings or had the basins covered to reduce/eliminate odors. (This is not specific to this process, but would be recommended to be included in the design for any technology selected.)
3. The aeration basins have a smaller footprint than a traditional activated sludge aeration basin.
4. There is no return activated sludge (RAS) pumping required reducing some of the internal pumping and therefore reducing some of the power cost.
5. The facility would likely have lower air requirements due to operating with low mixed liquor and total suspended solids.

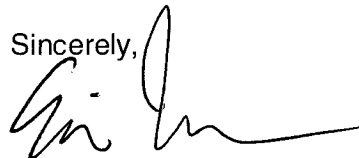
6. Plants used at the facility are locally sourced and not imported or proprietary.
7. The facility seems as though it is able to handle shock loads well without significantly upsetting the plant biology.
8. A private treatment facility of this size that can use all of its recycled water within the development is noteworthy.

Concerns:

1. This type of facility grew out of the necessity of fitting more treatment capacity into an existing space due to being surrounded by development. It allowed the treatment facility to grow vertically instead of outward. Architectural design is an important consideration.
2. It was noted that the effluent quality for the proposed system is expected to be similar or slightly poorer than existing treatment facilities operated by the County of Maui.
3. The nutrient and solids removal is equivalent to traditional activated sludge, but it is not clear if the process is as flexible as would be needed to accommodate more stringent regulatory requirements for treated effluent disposal, including possible NPDES permits, increased nutrient removal, or other future requirements.
4. While there are a few dozen treatment facilities using this process across the world, there are not any operating in the United States and only one in Canada. This could pose problems in obtaining spare parts, operational assistance and support. There are some equipment that will be proprietary.
5. Since all other processes are similar to our other plants (headworks, grit removal, secondary clarifier, filters, UV disinfection, solids handling) are similar to a traditional activated sludge facility, the plants and media cartridges would add to the maintenance workload, causing a net increase in the current maintenance workload.
6. The facility does not eliminate any of the processes used in traditional activated sludge facilities. In fact, to meet water quality standards, an additional flocculation basin is also needed for the addition of chemical coagulants which results in added operational cost.
7. The treatment facility design relies on extensive automation (DO sensors/SCADA system etc.) which over time if not properly maintained could result in system failures.
8. The footprint is reduced due to deeper tanks and added media (plastic and living plants) within the basin. To conduct maintenance on the air diffusers at the bottom of the basin or to remove settled grit from the basin (which must be completed periodically as standard maintenance) the cartridges must be removed. This will require a crane since the cartridges are about 16 feet tall. Additionally, a system will need to be designed and used to keep the root zone of the plants moist in order to keep them alive during maintenance activities.

9. Plant growth will be rigorous and will require operators to spend much more time trimming and replacing plants than at typical facilities. This may require positions that specialize in plant/garden maintenance. There also will be a need to frequently haul green waste offsite, requiring additional equipment and personnel.
10. Plants may die out which will require replacement, thus a source of replacement plants would be needed. At this scale, a plant nursery could be established on site or sourced from a local nursery. A larger facility would require additional land and manpower to grow and have plants available. It was noted that the plants would take months to grow and establish a root system that is acceptable for treatment.
11. If there is a die-off of the plants, it is unclear if permit conditions could be met with the media alone. Since the plants will take over a month to re-establish their roots, the facility may then be producing off-spec water for over a month after a plant upset.
12. If there is significant groundwater or seawater inflow or infiltration into the wastewater collection system, the plants could be affected by salinity. Salt tolerant plants may be needed.
13. It is presumed that the developer (and eventually the Home Owners Association) will contract out the operation of the facility. Lack of competition could result in higher operating costs.
14. The approximate capital costs would be roughly the same as other treatment facilities that produce cleaner water.
15. It was uncertain if these facilities are designed to accommodate peak wet weather flows when large storm events occur.

In general, this type of facility is designed for smaller developments where space is limited, the treatment facility is right next to the housing, and the public walk past it every day. Thank you for the opportunity to provide you with information on this matter. Should you have any questions or concerns, please feel free to transmit them to the Department of Environmental Management via transmittal through the Office of the Mayor.

Sincerely,


ERIC A. NAKAGAWA, Director
Department of Environmental Management