

**Reclaimed Water Storage and Pumping Facility
Mason Farm Wastewater Treatment Facility
Orange Water and Sewer Authority**

Response to Planning Department Head Review Notes Packet

STATEMENT OF JUSTIFICATION

OWASA is requesting one (1) modification to the Land Use Management Ordinance (LUMO). The existing Mason Farm Wastewater Treatment Facility site is currently in excess of the capped impervious and floor areas required within the Resource Conservation District in section 3.6.3-3; any additional construction will therefore require modification to the current Special Use Permit. Floor Area and Impervious Surface, Section 3.6.3-3 of the LUMO provides dimensional regulations for development in the Resource Conservation District (RCD). The entire Mason Farm WWTP is within the RCD and past development has already surpassed these regulations. The construction of the project would continue to exceed the maximum allowable floor area ratio and impervious surface restrictions provided for within this section of the LUMO.

In order to grant a Special Use Permit (SUP) or modification of the SUP the Town Council must make the required four (4) findings contained in Section 4.5 of the Town of Chapel Hill Land Use Management Ordinance (LMO). Factually supported statements of justification for the purpose and use of this project are supplied following each of the required findings listed below:

Finding #1

That the use or development is located, designed, and proposed to be operated so as to maintain or promote the public health, safety, and general welfare.

- The proposed reclaimed water (RCW) storage and pumping facility at OWASA's Mason Farm Road Wastewater Treatment Facility (WWTP) will supply cooling tower demands at chiller facilities on the UNC Campus. The project promotes the general welfare of the

community by reducing the wastewater treatment plant effluent discharge into Morgan Creek, as well as reducing the demand for drinking water from OWASA's water treatment plant. There is also an economic impact to be considered as this project will lower costs of cooling on the UNC campus.

The RCW can be thought of as recycling of wastewater, with all the benefits of recycling, and should be encouraged to alleviate some of the burden of wastewater treatment effluent on streams and rivers. Because the drinking water demands are reduced, reclaimed water use is also a form of water conservation.

The reclaimed water will be high quality effluent from the Mason Farm WWTP that has been adequately and reliably treated for the approved uses. The initial project phase will serve industrial water demands to UNC; however, the facilities are being designed with flexibility to allow other approved water demands to be accommodated by the reclaimed water system in the future. Examples of other types of potential demands include irrigation, toilet and urinal flushing, and bulk fill for landscaping, dust control, and street cleaning further benefiting the general welfare of the community.

Finding #2

That the use or development complies with all required regulations and standards of this chapter 4 of the LMO, including all applicable provisions of Article 3, 4, and 5 and the applicable specific standards contained in Section 6, and with all other applicable regulations.

- The construction of this project does comply with all required regulations and standards of Chapter 4 of the LUMO. There is only one proposed modification to the LUMO requested, as the site is currently in excess of the capped impervious and floor areas required within the Resource Conservation District in section 3.6.3-3, therefore any additional construction will require SUP Modification.
- the OWASA Mason Farm Treatment Plant is located in the Resource Conservation District because of the gravity-flow requirements of wastewater treatment plants, and

- the OWASA Mason Farm Treatment Plant existed prior to the Town's Resource Conservation District regulations; and
- the OWASA Mason Farm Treatment Plant is an existing use, which is permitted in the Industrial Zoning District; and
- the OWASA Mason Farm Treatment Plant existed prior to establishment of the July 1, 1993 North Carolina Watershed Protection District Statute

Finding #3

That the use or development is located, designed, and proposed to be operated so as to maintain or enhance the value of contiguous property, or that the use or development is a public necessity.

- OWASA is a service facility that is a public necessity; and
- Proposed use of this project aligns with all existing uses of the property, as the site currently houses the Mason Farm Wastewater Treatment Facility. Additionally, there will be no affect on the average daily traffic loads due to this project once online as stated in the included Traffic Impact Study exemption. Therefore, the value of the contiguous properties will not be impacted. This project is in complete conformance with the intended use of the property, and is environmentally beneficial.

Finding #4

That the use or development conforms with the general plans for the physical development of the Town as embodied in this chapter and in the Comprehensive Plan.

- As OWASA Mason Farm Treatment Plant is an existing use it is within all general plans for the physical development for the Town of Chapel Hill; and

- As demands for drinking water increase, it will become essential to find alternate supplies of water where potable water is not needed; and
- In effect, reclaimed water use is also a way to reduce drinking water supply needs to the overall community, reducing the community's risk of running out of drinking water during droughts and other water supply emergencies. Without reclaimed water use and conservation, it would likely become necessary to obtain an additional water source such as Jordan Lake, as well as expand the Jones Ferry Water Treatment Plant. The costs for such projects would be substantial.

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Land Development Permit Application Packet

APPLICATION NARRATIVE

Project Description

The proposed project consists of a reclaimed water (RCW) storage and pumping facility with associated piping at OWASA's Mason Farm Road Wastewater Treatment Facility (WWTP). Initially, the RCW system will supply cooling tower demands at chiller facilities on the UNC Campus; however, the facilities are being designed with flexibility to allow other approved water demands to be accommodated by the reclaimed water system in the future. The reclaimed water will be high quality effluent from the Mason Farm WWTP that has been adequately and reliably treated for the approved uses.

The project benefits the community by reducing the wastewater treatment plant effluent discharge into Morgan Creek, as well as reducing the demand for potable water at OWASA's water treatment plant. It is desirable that as additional reclaimed water demands are identified and determined to be feasible to supply with reclaimed water, the proposed storage and pumping facilities will be available for that beneficial use.

The initial phase of the project consists of a single rectangular concrete structure, extending above grade approximately 20 feet. A small masonry building matching the architectural details of the existing facilities will be located on top of the concrete structure. The building will house chemical feed, instrumentation and control equipment. The single structure will serve as the storage tank and pump station for the facility. Facility layouts included in the preliminary engineering document for the facility are arranged to facilitate expansion of this structure in the future should it be determined that the additional storage is necessary for the function of the reclaimed water system.

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Existing Site Conditions

The majority of the land within the property of OWASA's Mason Farm WWTP site is developed and improved as part of previous and ongoing approved development at the site. Much of the area on the site contains process units and structures required for treatment of the wastewater collected within the OWASA service area. There is limited unimproved area on the site, most of which will remain as such after construction of the project.

Adjacent Areas

The Mason Farm WWTP site is surrounded by Morgan Creek and Morgan Creek Bypass Channel. The adjacent property beyond the streams are mostly institutional UNC properties. Finley Golf Course, North Carolina Botanical Garden, and a research center. No adverse storm water affects are anticipated as a result of the development associated with this project.

Noise Level

The sound pressure levels that the reuse facility will produce will vary depending on which equipment manufacturers are selected by the Contractor. OWASA is therefore pursuing sound attenuating enclosures for the RCW pump motors. The Contractor will be required by the Drawings and Specifications, as part of the project and prior to placing the same in service, to provide sound attenuated enclosures to bring the sound pressure level within the maximum limits set by the Town of Chapel Hill. Regardless of which equipment manufacturers are selected, the sound pressure level will be within the limits published in the Noise Control Code for the Town of Chapel Hill. The Contractor will be required by the Drawings and Specifications to submit the results of a sound pressure level study, conducted by a firm with experience in such studies.

Critical Areas

The majority of the disturbed area will have a low to moderate erosion hazard. The areas that will be particularly susceptible to erosion are the stormwater diversion channels and the area immediately downstream of the stormwater pipe outlet. Stormwater diversion channels will be lined with riprap or soil stabilization matting as shown on the contract drawings and riprap outlet protection pads will be placed at stormwater pipe outlets.

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Control measures including silt fence, rock check dams, temporary sediment traps and temporary and/or permanent seeding have been provided to limit sediment transport during construction. After completion of the project, this area will be stabilized by permanent vegetation, as specified in the Specification Section 02910 – Final Grading and Landscaping, Section 8. The proposed vegetation will prevent long-term erosion after project completion.

Proposed Modification of Regulations

OWASA is requesting modification to the following five sections of the Land Use Management Ordinance:

1. Floor Area and Impervious Surface, Section 3.6.3-3: dimensional regulations in the Resource Conservation District, to exceed maximum allowable floor area ratio and impervious surface restrictions; and
2. Resource Conservation District Grading Activities, Section 3.6.3(g)(9): standards for development in the Resource Conservation District, to exceed the thresholds for increasing the velocity of flow and/or rise in stream elevation (this modification request may be withdrawn pending results of forthcoming calculations from OWASA); and
3. Stormwater Quality, Volume and Rate, Section 5.4.6(a-c): standards for the treatment of stormwater (a) quality, (b) volume, and (c) rate, to exceed the post-development performance criteria; and
4. Landscape Bufferyards, Section 5.6.6-1: landscape buffer requirements along the boundary of a site, to waive 20-foot landscape buffer requirements along those parts of property lines that have hardened protective berms and other similarly hardened areas which cannot be vegetated.

Items 1 - 3 are further explored in the Stormwater Impact Statement (Section 6). Item 4 above is discussed in the Landscape Protection Plan (Section 5).