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CAPE COD
COMMISSION

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Via Electronic Mail

November 3, 2020

To: Truro Zoning Board of Appeals
c/o Barbara Carboni, Esq., Interim Town Planner

Re: *Cape Cod Commission Staff Supplemental Comments*
“Cloverleaf” 40B/ Comprehensive Permit Application, 22 Highland Road, Truro
Community Housing Resource, Inc./ Ted Malone

cc: Kevin Grunwald, Truro CCC representative
Harold Mitchell, CCC Chair
Elizabeth Taylor, Chair, CCC Committee on Planning and Regulation

The Cape Cod Commission has prepared these comments as a supplement to its previous letter on the above referenced project submitted in December 2019. Pursuant to Section 13(j) of the Cape Cod Commission Act, the Cape Cod Commission (herein, “Commission” or “CCC”) is considered a “Local Board” for purposes of MGL Ch. 40B, ss. 20-23. Accordingly, the Commission provides, through its staff and in its capacity as a Local Board, these additional review comments to the Zoning Board of Appeals based on updated project plans related to the project’s wastewater disposal.

In its original comments, Commission staff suggested that potential impacts to downgradient drinking water resources could be mitigated by extending public water to downgradient properties, or by providing improved treatment to the project’s wastewater. The applicant has since modified the project plans to provide additional wastewater treatment utilizing a BioMicrobics HSMBR 9.0-N treatment system, designed to meet an effluent limit of 10 mg/L Total Nitrogen. The following changes to the proposed wastewater disposal system are reflected in the updated calculations.

- Design wastewater flow has been reduced from the original 7700 gallons per day (gpd) based on 70 bedrooms at 110 gpd per bedroom, to 7501 gpd on the basis of 68 bedrooms and 279 square feet of office space included in Unit 21.
- Assumed wastewater effluent concentration has been reduced from the 35 mg/L associated with the original proposed Title 5 compliant septic system, to 10 mg/L associated with the proposed BioMicrobics HSMBR 9.0-N treatment system.

The following criteria have been assumed constant for the purposes of these comments and underlying calculations.

- Site coverage proportions for natural areas, roof area, and impervious surfaces
- Stormwater control measures and treatment volumes

A sitewide nitrogen loading calculation, detailed in Cape Cod Commission Water Resources Technical Bulletin, is a mass-balance based concentration and not a direct measure of nitrogen in drinking water supplies. The project's revised sitewide nitrogen loading using the updated design flow of 7501 gpd and effluent nitrogen concentration of 10 mg/L is expected to be 5.56 mg/L, which slightly exceeds the Regional Policy Plan objective of 5 mg/L sitewide nitrogen loading but represents a significant improvement from the approximately 19 mg/L expected for the originally proposed and similarly sized Title 5 septic system.

Truro Board of Health regulations limit wastewater flow from septic systems to a maximum of 440 gpd/acre, but in doing so do not consider the nitrogen concentration of that wastewater. For purposes of comparison, using the same sitewide nitrogen loading methodology and with otherwise identical site conditions, a septic system discharging 1874 gpd (the maximum flow allowable for the subject parcel under local regulation) at the typical assumed 35 mg/L effluent total nitrogen for Title 5 systems would result in a sitewide nitrogen loading of 8.09 mg/L. Although the described Title 5 system would meet the Board of Health flow limitation, and would contribute approximately 15% less nitrogen mass than the proposed BioMicrobics system, its lower flow and higher effluent nitrogen concentration would result in a higher site-wide nitrogen loading than the system currently being proposed.

During peer review of the project plans, the Horsley Witten Group suggested that any Board of Health Waiver granted for the project should be conditioned on requirements for monitoring of effluent and groundwater at the property boundary, and development of a contingency plan that documents the nature and timing of response actions in the event that the system fails to meet agreed upon performance standards. Commission staff support both of these requirements and further suggest that the contingency plan should contain sufficient detail to both satisfy the Board of Health for purposes of granting a waiver, and also meet any applicable MassDEP requirements related to the BioMicrobics system piloting approval.

The applicant has additionally proposed to enter into an Operation & Maintenance Agreement with a certified wastewater treatment plant operator to oversee treatment system operations. Commission staff support this agreement as it mirrors the Regional Policy Plan approach for operating systems at enhanced treatment levels by requiring an operations, maintenance, and compliance agreement when private wastewater systems are proposed for flows greater than 2,000 gallons per day and designed for greater treatment efficiency than specified by MassDEP approval letter.

Commission staff submit that the updated project plans represent a substantial improvement to drinking water protection over the original plans, that mitigate much of the potential risk to downgradient resources through enhanced treatment and more rigorous operation and monitoring. Modest improvements to effluent nitrogen through treatment system optimization and/or enhancements to stormwater treatment on-site would likely bring the project's site wide nitrogen loading below the Cape Cod Commission's 5 mg/L planning standard. Coupled with requirements for effluent and groundwater monitoring, a sufficiently rigorous contingency plan, and an operations and maintenance agreement, these improvements yield a wastewater plan staff would consider consistent with Regional Policy Plan water resources objectives.

Project review has identified potential drinking water quality issues that already exist within the town. Commission staff believe that the project as currently conceived sufficiently addresses its potential impacts to drinking water resources. Commission staff reiterates however, that there is a benefit, independent of the project, to the town investigating improved public drinking water and wastewater infrastructure.