



June 21, 2019

VIA EMAIL

Mr. Ewell Hopkins, Chairperson
Town of Oak Bluffs Planning Board
56 School Street
Oak Bluffs, MA 02557

RE: Third Party Environmental Sustainability Review of Planning Board Filing
Martha's Vineyard Community Services (MVCS) Site Plan Review

Dear Ewell Hopkins and Planning Board Members:

The Horsley Witten Group, Inc. (HW) reviewed the available materials associated with the Site Plan Review application and the Martha Vineyard Commission's (MVC) Development of Regional Impact for the proposed MVCS redevelopment project. We also visited the site and met briefly with the Applicant to better understand existing conditions and MVCS's operational context, as well as the key design decisions and objectives leading to the current site plan. The scope of our effort is to provide independent input on a range of sustainability metrics including how the project meets or exceeds current state and local stormwater management standards, protects natural resources/habitats, and applies resiliency/sustainability components associated with a changing climate. Our review does not include a detailed analysis of how the project complies with local bylaws and regulations.

HW obtained and reviewed the following materials:

- Martha's Vineyard Community Services Master Plan and Phase One memo, prepared by South Mountain Company, dated May 29, 2019
- Martha's Vineyard Community Services Master Plan, prepared by South Mountain Company, dated March 6, 2019
- MVCS Parking Analysis, dated March 16, 2019
- Proposed Sewage Disposal System Plan, prepared by Schofield, Barbini, & Hoehn Inc., dated May 9, 2019
- Martha's Vineyard Community Services Redevelopment Nitrogen Analysis, prepared by Schofield, Barbini, & Hoehn Inc., dated February 19, 2019
- Decision of the Martha's Vineyard Commission: DRI 223-M3.V.C.S. Master Plan and Expansion, dated April 4, 2019 and MVC Staff Report, dated January 24, 2019
- BioMap2 for Oak Bluffs, produced 2012. Conserving the Biodiversity of Massachusetts in a Changing World, produce by MA Dept of Fish and Game, MA Division of Fish and Game, MA Natural Heritage & Endangers Species Program and The Nature Conservancy.

- Oak Bluffs Planning Board letter to MVC dated March 15, 2019 transmitting comment from the Oak Bluffs Fire and Highway Departments regarding Village Road.
- Letter from Simone DeSorcy, of Island Elderly Housing to the MVC, dated January 18, 2019.
- Oak Bluffs Comprehensive Master Plan, Adopted April 25, 2019

Our comments are presented below, along with recommendations for policy/code changes or development incentives the Planning Board might consider adjusting to improve overall sustainability of development projects in the future and achieve goals of the Town's Comprehensive Master Plan. We agree with the MVC's assessment that the probable benefits of the project outweigh the few issues discussed below and that, overall, the proposed project offers a number of model practices that should be implemented for new and redevelopment projects in Oak Bluffs moving forward.

1. The proposed site layout results in alteration of much of the existing site and contributes to further habitat disconnection. One of the tenets of environmentally-sensitive site design is to consolidate structures (buildings and parking) on a site in order to reduce sprawl, maintain habitat connectivity, and minimize the negative effects of the automobile. This can be challenging to achieve on individual parcels—especially during redevelopment—yet is critical when looking comprehensively across multiple parcels or when attempting to protect remaining habitats and their ecosystem services. According to the 2012 Oak Bluff BioMap2 report (Figure 1), the approximately 45,000 sf of site being cleared for the new Early Childhood Center (ECC) building, parking, septic system, and playground is within the Town's core habitat. While not regulated, this area is the edge of designated critical habitat of the Southern Woodlands Reservation and associated NHESP habitats for species of conservation concern such as the faded-grey geometer (threatened), Gerhard's Underwing Moth, Pine Barrens Zale, and the Oak Hairstreak. Incremental encroachment of edge habitat ultimately impacts the integrity of the core.

Arguably, this area has already been effectively severed from adjacent habitat by Village Road, the elderly housing complex to the north, as well as the residential area to the west. MVCS reports that a species inventory conducted found no presence of the moth (and presumably other species of concern). While the proposed landscaping plan clearly illustrates an effort to maintain existing trees where feasible and replace lost vegetation, it is difficult to evaluate the cost/benefit between existing and proposed vegetation since a tree survey was not conducted to quantify the number and diameter of trees that will be removed. Other than the staff reports and site summaries downloaded from the Planning Board and MV Commission websites, we have not reviewed any habitat assessments or species inventories.

Better habitat connectivity could be achieved by minimizing land clearing, consolidating new construction to existing impervious areas, and shifting the ECC building footprint southward. However, these suggestions may not be practical. Maintaining community service operations throughout the construction process is one of the primary drivers of site layout and construction phasing. The Island Roads DCPC also reportedly forces the ECC building and parking closer to Village Road in order to maintain a buffer along Edgartown-Vineyard Haven Rd.



Figure 1: Map showing Core Habitat at site (top) and excerpt from BioMap2 for Oaks Bluffs (2012) showing broader connection to critical habitat #78 (Southern Woodlands).

This project offers a few insights into opportunities for the Oak Bluffs Planning Board to strengthen the protection of core habitat in the future through incentives or regulatory measures, such as:

1. Requiring a tree survey/tree removal plan that indicates number and diameter of trees to be removed;
2. Considering a mechanism to waive Island Roads DCPC standards that lead to the severing/isolation of open spaces; and
3. Encourage agreements between adjacent property owners intended to protect and consolidate habitat areas. For example, how can remaining habitat adjacent to the Southern Woodlands be preserved if there is a proposed expansion of the elderly housing complex, widening or straightening of Village Road, for example.

2. Addressing parking deficiencies is a primary objective of proposed site layout. As previously mentioned, one of the core tenets of environmentally sensitive design is to minimize the influence of the automobile. Often, parking access and availability are main drivers of site design to the detriment of pedestrian-friendly design and environmental protection. This site expands the footprint of the existing main parking lot, reconfigures the lot closest to the intersection with Edgartown-Vineyard Haven Road, and adds a new lot for the ECC. The proposed parking changes will significantly change the character of the site, creating more impervious cover and resulting in a significant loss of existing mature trees. A lack of canopy cover can present an unappealing first impression, reduced canopy interception/evapotranspiration, and contribute to urban heat island effect.

According to Oak Bluffs Zoning Bylaw, Office/Professional Use requires one parking space for each 150 sq. ft. of new gross floor area. According to the Applicant's parking analysis, this would require 207 total spaces for the MVCS campus. However, the Applicant has performed their own analysis to more accurately reflect the uses/activities of the site. This analysis found that the campus would need 140 parking spots, instead of the minimum of 207 required by zoning. Even with this adjustment, parking dominates the perimeter of the site and there are five curb cuts on to Village Road. As mentioned above, having parking lots as the first impression of a site can be unappealing. However, in the context of redevelopment and of the types of services provided by MVCS, separation from the road and a focus on the interior courtyard seems appropriate for child safety. Finally, while the proposed parking areas are in the same general location as the existing parking areas, the proposed parking lot changes will require the removal of most of the vegetation in those areas.

HW recommends that the landscape island between the two rows of parking in the parking area closest to the Edgartown-Vineyard Haven Road be expanded to allow for a planted area and to retain more of the existing trees. HW also recommends the use of additional permeable paving under the solar panel canopies, if the canopies allow for runoff between each panel row. The applicant may want to consider permeable paving in the drive aisles as well, as opposed to only the parking stalls. Recent developments in the specifications for permeable asphalt have resulting in better performance in light-duty locations. Loading docks or locations for delivery of goods by heavily loaded trucks can result in "tracking" in permeable asphalt. We would encourage the Applicant to consider expanding the use of permeable paving (specifically: permeable asphalt) beyond the current areas shown for permeable pavers.

The Oak Bluffs Planning Board may want to consider making adjustments to the parking space requirements for future projects. Currently, the only identified categories of building are retail sales/service establishments, places of public assembly, restaurants/theaters/halls/clubs, office/professional use, inns/hotels/guesthouses, or other undefined uses. Additional guidance for other uses might be useful. The Planning Board could also require more individual parking analyses like the one conducted for this project. More broadly, the Planning Board may also want to consider the parking demand effects of public transportation to a site, as well as the availability and use of ridesharing services like Lyft and Uber and how these would reduce the need for parking at a site.

1. 1 per 150SF is higher than average compared to many other communities and national industry standards such as the Institute of Transportation Engineers-Parking Generation.
2. Stall dimensions, aisle widths, angled parking, hybrid/electric car charging stations, and tree shading/stormwater provisions can be examined as part of a green parking lot assessment.

3. The site offers ample opportunity to promote sustainability through enhanced pedestrian/bike paths and public transportation. Because of the environmental and human health benefits of alternative transportation, site connectivity is one of the most widely recognized LEED certification credits. There is an existing sidewalk along Village Road, a public bus stop at the neighboring YMCA (and a VTA Bus Stop is proposed with the new site MVCS site plan), and a bike route/sidewalk along Edgartown-Vineyard Haven Road. Redevelopment at MVCS could enhance these connections and address some of the transportation safety issues that have been raised (i.e., speeding and visibility along Village Road).

The proposed plan shows two pedestrian crossings across Village Road. We suggest installing traffic calming measures (such as a pedestrian crossing raised speed table) at these crossings to improve visibility and reduce speeding. The Fire Department (PB letter to MVC) and abutters (Island Elderly Housing) have suggested widening Village Road or potentially straightening it. We have not reviewed any traffic studies as part of this effort; however, these techniques are widely acknowledged as design features that lead to increased vehicular speeds.

A number of mature trees along the roadway were flagged for removal at the time of our site visit, reportedly to improve sightlines. Urban trees play a significant role in stormwater management (canopy interception and evapotranspiration), heat island reduction, air quality improvement, biodiversity, and quality of life. We suggest a more thorough review of the safety benefits before these trees are removed.

The Oak Bluffs Planning board should consider the tradeoffs between transportation needs, pedestrian safety, human health, and environmental benefits and what zoning requirements may be barriers to striking an appropriate balance. We did not identify locations for bike racks on the site plan, but presumably these will be provided.

4. Stormwater management relies on green infrastructure and functional landscaping.

MVCS is located in the Lagoon Pond watershed that has a nitrogen load reduction target. The stormwater management plan is preliminary and no calculations, drainage maps, or cross-sections/details were provided to confirm sizing, routing, and treatment performance of proposed practices. That being said, the stormwater plan relies on a distributed network of green infrastructure practices (bioretention/raingardens and permeable pavements) and presumably will be designed to meet or exceed the MassDEP's water quality requirements. The plan includes 10 raingardens (some that overflow to infiltration practices), permeable pavers in the non-PV covered lots, and dry wells in the central drive aisles of the main parking lot.

Based on our review and site visit, we offer the following comments:

- a. To ensure that BMPs are designed to minimize maintenance and ensure long term performance, the applicant should design raingardens/bioretention to include pretreatment/sediment forebays. The drywells proposed in the center of the parking lot do not offer a pretreatment alternative and are subject to clogging, which could lead to ponding after heavy rains; they also lack treatment for nitrogen reduction. We suggest that the Applicant provide an alternative to the central dry wells (i.e., use porous asphalt or drain to perimeter bioswale/raingarden). Given the amount of potential runoff from the upper section of the main parking, an additional rain garden may need to be added (see Figure 2).

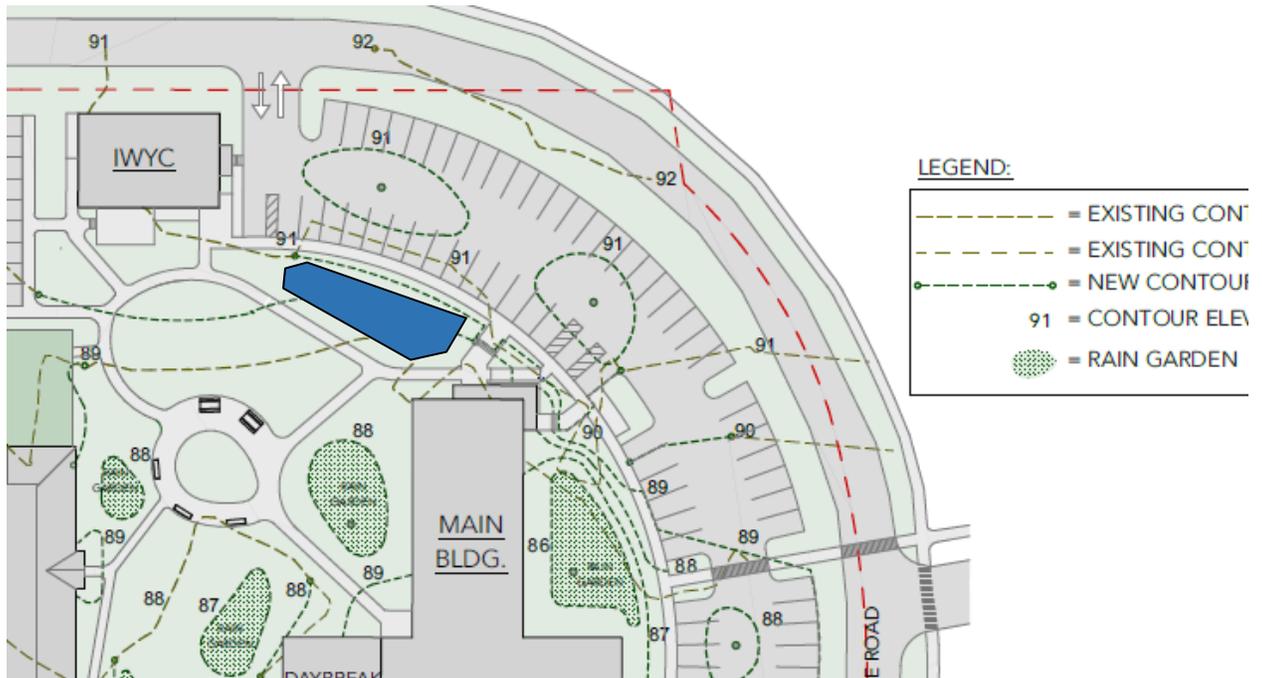


Figure 2: Add raingarden/bio (in blue) to manage runoff from main parking lot

- b. Rainwater harvesting was not considered as a preferred option for this site according to the Applicant since native, low maintenance landscaping is proposed (no irrigation is needed) and water conservation is apparently not a priority on the Vineyard. The MCVS

is on Town water, and while plumbing codes make it difficult to use non-potable water for flushing toilets, for example, rainwater reuse is a leading practice for sustainability and resiliency. There is a cost associated with the generation and distribution of potable water and this should be accounted for in the overall energy analysis (see comment # 6).

- c. This project is a good example of integrating stormwater with landscaping. In fact, a significant portion of the site is functional landscaping.
- d. There is a proposed rain garden/bioretention identified in the southwestern edge of the parking lot closest to the main road. Instead of clearing vegetation to create this practice, we recommend shifting the parking lot north and using the area of existing pavement in vicinity of temporary workers trailers as the location for a bioswale to manage runoff from the parking lot and PV array (See Figure 3).



Master Plan Diagram Martha's Vineyard Community Services Center
South Mountain Company

Figure 3: Southernmost parking lot has been reconfigured to add more parking, shift curb cut slightly further from intersection with Edgartown-Vineyard Haven Rd., and to accommodate solar array. In the process, the mature trees in existing median (shown in green) and around the parking lot perimeter are going to be removed. This will significantly change the character of the MVCS.

- e. Nutrient calculations for runoff rely on nitrogen concentrations of 1.5 mg/L and 0.75 mg/L for rooftop and pavement runoff, which are likely derived from the 1992 Cape Cod Commission publication. These values may not be consistent with the recent literature and recommended EMCs in updated stormwater standards. The applicant also assumes 50% TN reduction for raingardens (the highest removal rate offered in the range) and 0% for infiltration practices. The Applicant should document how BMP pollutant removal efficiencies were selected and be conservative due to location in the Lagoon Pond watershed.

For future projects, the Oak Bluffs Planning Board may want to consider the following:

1. Review nutrient calculation guidance for runoff in nitrogen sensitive watersheds to ensure that the most updated land use concentrations and BMP pollutant removal values are being used by applicants. Provide guidance on how to select % removal efficiencies for BMPs when a range is provided and how to handle runoff from solar panels.
2. Incorporating canopy interception (or loss of tree stormwater services) into stormwater accounting. Tools such as i-TREE are available to help estimate volume reduction benefits of canopy interception and other co-benefits of trees (air quality and building energy use).
3. If the Planning Board wants to encourage rainwater harvesting, then policies and perhaps programmatic changes to local and even state codes should be investigated to provide incentives for rainwater harvesting and remove some of the hurdles that currently make this uneconomic for many applicants.

5. Wastewater management is achieved by relying on the existing municipal wastewater treatment plant and a new temporary on-site Title 5 septic system. It is our understanding that the existing campus's wastewater is currently managed offsite at the Town of Oak Bluffs' municipal wastewater treatment plant which is not accepting any additional wastewater flows and no expansion of capacity is expected until at least 2022.

The applicant is proposing an onsite Title 5 system for the EEC building which is being considered temporary until the municipal wastewater plant is upgraded when additional flows would be diverted and the on-site system would be taken off-line. In the meantime, the on-site system will need to meet a fairly stringent effluent criteria to achieve the MVC's Nitrogen Loading standard for discharge to Lagoon Pond (which has a total nitrogen TMDL).

The projected wastewater flows for this building should be clarified as the design plan by Schofield, Barbini & Hoehn, Inc, dated May 9, 2019 indicates a total flow of 555 GPD, where the Nitrogen Analysis by the same firm, dated February 19, 2019, indicates a flow 380 GPD. If the flow is the larger number, the Nitrogen Analysis should be updated.

The proposed design plans specify a BioBarrier-N1.0 system that has achieved "Piloting Use" approval from MassDEP that authorizes a standard denitrification treatment effluent at 19 mg/L. The Nitrogen Analysis indicates that the treatment effluent for this system can achieve a much lower effluent at 9 mg/L, but requires chemical additives and additional operational considerations to achieve this lower effluent concentration. Additionally, it is our understanding that the energy requirements of the proposed system are somewhat above average for denitrification systems.

The Applicant may be aware that a newer denitrification system known as "NitROE" that includes wood chips as a carbon source to promote a passive denitrification process (without the use of blowers and chemicals). Similar systems are being tested at the Massachusetts Alternative Septic System Test Center on Cape Cod. The NitROE system is not listed on the MassDEP website as having achieved Piloting Use approval but has been installed under "site specific use." Our understanding from the consultant representing this system is that ten "NitROE" systems have been installed in Tisbury and that these systems are be monitored

monthly by Tisbury public works officials. We recommend that the Applicant look into this new alternative nitrogen reducing technology (and the similar systems being tests at the “Test Center) as they may offer a less expensive and more energy efficient design than the current proposal.

6. The Net Zero design could be better defined. The applicant is proffering a project with net zero operation energy which is commendable. We note that the Whole Building Design Guide defines four types of “net zero” goals:

- Net Zero Site Energy
- Net Zero Source Energy
- Net Zero Energy Costs
- Net Zero Energy Emissions

We assume that net zero site energy is likely equivalent to the term “net zero operational energy” which is the term offered by the Applicant. We would recommend that the Applicant clarify their goal and that they may wish to consider that some of the project’s energy consumption may or may not be fully accounted for, such as potable water production, and off-site wastewater conveyance and treatment energy consumption, for example. If the goal is true energy neutrality, then some effort could be made to quantify off-site energy consumption that would be offset by onsite energy generation. Our understanding is that current energy demand has not yet been fully quantified and therefore the total solar array system has not been finalized. As the project moves forward, it would be exemplary if the project could generate more energy than would be used from both onsite and offsite sources.

In the future the Oak Bluffs Planning Board may want to consider the following:

1. Review Town bylaws, regulations, and policies to see if a project’s energy demand can be off-set by on-site energy generation;
2. When evaluating the energy consumption and generation of project, consider all sources of consumption both on-site and off-site.

Conclusion. As stated above, our assessment did not include an evaluation of local codes and regulations. Based on our review of the documentation and conversations with the Applicant, the project is clearly advancing concepts and actions with the intent to implement a sustainable project into the future. Our recommendations offer opportunities for the Applicant to tweak the design to perhaps further these sustainability goals and hopefully provides the Oak Bluffs Planning Board with a set of potential actions for the review of future projects.

Mr. Ewell Hopkins
June 21, 2019
Page 10 of 10

We would be pleased to provide additional clarification in any of the above topics and are prepared to attend an upcoming Planning Board public hearing to answer questions from the Board. Thank you for the opportunity to provide this input into your Site Plan Review process.

Sincerely,

Horsley Witten Group, Inc.



Anne Kitchell, LEED AP
Associate Principal



Richard A. Claytor, Jr, P.E.
President

Enclosure(s)

cc: