Town of Truro

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Tel: 508-349-7004 Fax: 508-349-5505

ZONING BOARD OF APPEALS

Agenda

DATE OF MEETING:	**Thursday, July 9, 2020**
TIME OF EXECUTIVE SESSION:	**5:15 pm**
TIME OF PUBLIC HEARING:	**5:30 pm**
LOCATION OF MEETING:	**Remote Meeting** **www.truro-ma.gov**

Open Meeting

This will be a remote meeting. Citizens can view the meeting on Channel 18 in Truro and on the web on the "Truro TV Channel 18" button under "Helpful Links" on the homepage of the Town of Truro website (www.truro-ma.gov). Click on the green "Watch" button in the upper right corner of the page. Please note that there may be a slight delay (approx. 15-30 seconds) between the meeting and the television broadcast/live stream.

Citizens can join the meeting to listen and provide public comment via the link below or by calling in toll free at 1-866-899-4679 and entering the following access code when prompted: 704-219-365. Citizens will be muted upon entering the meeting until the public comment portion of the hearing. If you are joining the meeting while watching the television broadcast/live stream, please lower the volume on your computer or television during public comment so that you may be heard clearly. Citizens may also provide written comment via postal mail or by emailing the Town Planner at planner1@truro-ma.gov.

Meeting link: global.gotomeeting.com/join/704219365

Hearing materials can be found at the following web address:
www.truro-ma.gov/zoning-board-of-appeals/pages/cloverleaf-40b-application

Executive Session

Open Meeting Law Complaint – Peter Herridge. The Board will meet in executive session pursuant to "Purpose 1" under G.L. c. 30A, s. 19(a): "To discuss the reputation, character, physical condition or mental health, rather than professional competence, of an individual, or to discuss the discipline or dismissal of, or complaints or charges brought against, a public officer, employee, staff member or individual."

Public Hearing – Continued

2019-008 ZBA – Community Housing Resource, Inc. seeks approval for a Comprehensive Permit pursuant to G.L. c. 40B, §§20-23 to create 40 residential rental units, of which not less than 25% or 10 units shall be restricted as affordable for low or moderate income persons or families, to be constructed on property located at 22 Highland Road, as shown on Assessor's Map 36 and Parcel 238-0 containing 3.91 acres of land area.

Approval of Minutes

June 25, 2020

Adjourn

Office of Town Clerk
Treasurer – Tax Collector
JUL - 7 2020
3:43 PM
Received TOWN OF TRURO
By

Horsley Witten Group
Sustainable Environmental Solutions
294 Washington Street • Suite 801 • Boston, MA 02108
857-263-8193 • horsleywitten.com

July 6, 2020

Truro Zoning Board of Appeals
c/o Ms. Barbara Carboni, Esq., KP Law, P.C.
101 Arch Street, 12th Floor
Boston, MA 02110

Re: Second Peer Review
Cloverleaf Parcel
Highland Road
Truro, Massachusetts

Dear Ms. Carboni and Board Members:

The Horsley Witten Group, Inc. (HW) has reviewed the supplemental information supplied by J.M. O'Reilly & Associates (Applicant's Engineer) regarding the Comprehensive Permit submitted by Community Housing Resource, Incorporated (Applicant) for the residential redevelopment of the Cloverleaf Parcel located on Highland Road in Truro, Massachusetts.

In our prior review, HW provided comments on the water quality impacts of the proposed septic system as they related to the request for a waiver from the Truro Board of Health's nitrogen loading limitation regulation that restricts wastewater flows to 440 gallons per day per acre on the property. We also provided specific comments on the septic system design, the proposed stormwater management practices and on a few additional site design issues.

These issues were discussed at the March 12, 2020 Zoning Board of Appeals hearing, and since then the applicant has proposed the use of a BioMicrobics system to treat wastewater to achieve a nitrogen concentration of 10 mg/L in the effluent discharged at the site. The applicant also provided further information on the other design comments we provided. Our review of the revised plans begins with an evaluation of the requested waiver in light of the newly proposed wastewater treatment system. This is followed by a summary of how HW's other design comments were addressed.

Request of a Waiver of the Board of Health Nitrogen Limitation Regulation

HW has reviewed the proposed design of the BioMicrobics system for treating wastewater effluent at the site. The system includes treatment chambers with aerobic and anoxic zones as well as a membrane filtration system to treat for nitrogen and remove other contaminants. The applicant's engineer provided monitoring data for a similar system serving a residential community in Westport, MA. After the initial startup, the total nitrogen concentration in the treated effluent averaged below 5 mg/L. This design provides significantly greater treatment than that initially proposed by the applicant and will help to protect downgradient private wells and Pilgrim Pond. HW has updated the nitrogen aggregation calculations provided in our initial letter that show nitrogen concentration at the property boundary will be 9.1 mg/L if the proposed BioMicrobics system achieves a nitrogen concentration of 10 mg/L. The nitrogen concentration at the western boundary of the Route 6 cloverleaf, closer to properties with private wells will be 7.1 mg/L (Table 1).

TABLE 1: Results of Title 5 Nitrogen Aggregation Calculations

	At Property Boundary (mg)	At State-Owned Route 6 Land (mg)
Nitrogen Concentration of 20 mg/L (FAST System)	18.3	14.3
Nitrogen Concentration of 10 mg/L (BioMicrobics System)	9.1	7.1

HW compared the nitrogen load that would be allowed under the Board of Health's nitrogen loading limitation regulation to that which will be generated from the proposed wastewater facility. The regulation limits the wastewater flow on a property to 440 gallons per day per acre. As with Title 5, the acre is considered a builder's acre with an area of 40,000 square feet. The Cloverleaf property encompasses a total of 3.91 acres or 170,320 square feet. Therefore, the maximum wastewater discharge would be 1,874 gallons per day. Assuming a nitrogen concentration of standard septic system effluent of 35 mg/L, a total of 199 lbs/N could be discharged from wastewater on the property each year.

The proposed system will have a design flow of 7,480 gallons per day. At the requested nitrogen concentration of 10 mg/L the nitrogen load from the wastewater system will be 228 lbs N/yr, a 15% increase over what is allowed under the regulation. If the proposed wastewater system treats nitrogen to approximately 8.5 mg/L, the total load from the facility will comply with the regulation. If the effluent concentration from the system is less than 8.5 mg/L, the nitrogen load will be less than that allowed under the regulation.

HW understands there are concerns about impacts to private wells further downgradient from the site in the area of Pond Road. The main question appears to be how nitrogen levels in private wells will be impacted by the proposed wastewater system. Private wells pump groundwater that comes from rain that infiltrates into the ground on their own property and from other properties further upgradient, in this case to the east. If a well is located in line with the wastewater discharged from the Cloverleaf property, it will capture some of the nitrogen that came from the Cloverleaf site. As mentioned above the nitrogen level will be at or below 7.1 mg/L before it moves past the state-owned property where the Route 6 cloverleaf is located. This is below the state drinking water standard of 10 mg/L. Properties directly in line with the wastewater discharge and located further downgradient will experience nitrogen concentrations below 7.1 mg/L. This is because the nitrogen in the wastewater plume diffuses into a wider area as it moves downgradient. The nitrogen concentration in a particular well will depend on the percentage of water captured by the well that comes from the Cloverleaf property as compared to the percentage from water recharged to groundwater in other areas closer to their property.

If the BioMicrobics system achieves a lower nitrogen concentration then 10 mg/L, the resulting impacts to downgradient properties will be less. If the system can achieve a 5 mg/L nitrogen concentration as the property in Westport has demonstrated, then the nitrogen concentrations in groundwater leaving the Cloverleaf property and migrating towards downgradient private wells will be below 5 mg/L. The proposed treatment and filtration system will also help remove other contaminants that might have the potential to impact groundwater quality.

In our initial letter, HW stated that if the Zoning Board of Appeals agrees to the waiver with the use of an appropriate treatment system, then it should include conditions including the requirements for regular monitoring of the treated effluent, monitoring of groundwater on the southeastern property boundary, and the development of a contingency plan that describes how the property owner will address issues with the performance of the system if effluent standards are not met in the future.

The applicant proposes to enter an Operation & Maintenance (O&M) Agreement with a certified WWTP Operator to oversee the wastewater facility for the community. They propose monthly sampling of the wastewater effluent for 12 months after system startup followed by quarterly sampling into the future. HW recommends that the monthly monitoring continue for 12 months following the full or near full (80%) occupancy of the community. This will allow the Town of Truro to evaluate the effectiveness of the system when it is operating at capacity. At that point, if the effluent nitrogen concentrations are below the 10 mg/L standard, then quarterly monitoring should be sufficient. Please note the new information provided by the applicant did not address the issue of a contingency plan if the system does not perform as requested. Nor have they provided a plan for groundwater monitoring downgradient of the leaching field on the property boundary. Further discussion of these items is needed.

HW believes that it is appropriate to grant a waiver to the Board of Health nitrogen loading limitation regulation. As discussed above, at a discharge concentration of 10 mg/L the nitrogen loading from the proposed wastewater system will be 15 percent above that allowed by the Board of Health regulation, and if the treatment system provides a lower nitrogen concentration the overall nitrogen loading will be similar if not lower than that allowed under the regulation. A nitrogen concentration limited to 10 mg/L or lower also serves to protect the private wells downgradient of the Cloverleaf property.

Specific Comments on the Septic System Design

1. The applicant appears to have included reserve areas for the septic leaching facilities on the north and south ends of the property, but these are not labeled on the plans. The existing and proposed topography on the site would likely require any reserve area to be constructed in fill and/or have a significant amount of grading. The applicant should provide additional design information to confirm that these locations can function as reserve areas and meet all the Title 5 requirements for construction of a leaching facility in an area that has a significant change in topography. The applicant should also document that the proposed effluent pumps will function properly in the event the reserve areas must be utilized.

Addressed – The applicant shows the proposed reserve areas on the revised plans that include the use of drip dispersal technology that is approved for use under the State Environmental Code, Title 5. It should be noted that drip dispersal technology requires different components (pumps, hydraulic units, etc.) than a traditional pressure dosed system so there will be a different configuration of components should this be required. Additionally, although the drip tubing can be installed along trees, the tubing must be installed in zones of similar elevation and significant grading may be required for this to be constructed.

2. Test pits do not appear to have been performed in the areas if the proposed leaching facilities. The plans note that one boring was dug using a hand auger, but the location is not indicated on the plans. Title 5 requires a minimum of two deep hole test pits in the primary leaching areas and two in the reserve areas along with percolation tests.

In Progress – The applicant proposes to conduct the test pits prior to submitting a Disposal Works Construction Permit application to the Board of Health. They provide information that implies that the type of soils in the area of the disposal beds is appropriate for the design, and also provide information to confirm that the separation between the bottom of the disposal beds and the maximum mounded water table will meet the Title 5 Requirements. The test wells installed by HW in the vicinity of this site confirm the information provided by the applicant and will be further confirmed when the test pits are conducted. If the Board approves the project they may want to condition their decision to allow further review of the wastewater design if soil or groundwater conditions encountered in the test pits do not match what has been documented to date.

3. Elevations should be provided on the top of tanks and leach field to ensure the minimum/maximum cover over the entire system meets Title 5 and/or H-20 loading as required.

Addressed - HW notes that a hatch is proposed for the pump chamber instead of the standard septic system cover. A similar hatch may be appropriate for the portion of the treatment chambers where the BioMicrobic filters are located. All hatches and covers should be watertight to prevent stormwater from entering the system.

4. Pipe sizes/slopes are not labeled. HW recommend 6" minimum and cleanouts at bends where no manholes are proposed. Additionally, it appears that portions of the septic system piping will be located underneath "landings" with steps on some of the buildings including units 17-18, 13-15, 10-12, 14-16, and 18-20. HW recommends locating sewer lines away structures or footings.

Not fully addressed - A schedule has been added to sheet 3 on the right-hand side of the page that lists 6" pipes which conflicts with note 7 that lists 4". Recommend adding pipe slopes/sizes/lengths to the plan view and/or profile. A note is included at the bottom of the schedule to specify a clean out to be connected to the lines exiting the buildings, we should recommend that these be shown at bends where there are no manholes proposed. Also, a detail for the clean out should be added.

5. Final plans should demonstrate that setbacks are being met (leach field to drainage system), particularly in the areas of Drainage Facilities #4 and #5. This also applies to any roof drainage facilities that are currently not shown.

Partially Addressed – The revised plans show that most of the setbacks between drainage facilities and the septic system leaching field are being met. However, it appears that Drainage Area #3 is only 16 feet from the leach field and the setback is 25 feet. This drainage area could be moved further from the leaching field. In addition, many drywells have been added for roof runoff. Many of these are within 10 feet of the buildings, Building 24 only has a 5-foot separation to the drywell. HW recommends that the Applicant confirm that these locations will not cause any issues with water in the basement.

6. The leach field detail should clearly label the 5-foot minimum estimated seasonal high groundwater (ESHGW) separation, along with an explanation of how the ESHGW was determined. The applicant will also need to document that groundwater mounding will not impact the minimum separation between the bottom of the leaching field and groundwater. Given the depth to water, this should not be a problem in the primary leaching areas but might be an issue in the reserve areas.

In Progress – This information will be finalized when the test pits discussed in comment #2 above have been completed.

7. HW recommends allowing for more than one day of storage in the pump chamber as a safety factor to account for potential power outages. Alternatively, backup power could be provided.

Addressed – A generator has been added to provide back-up power for the wastewater facility in the event of a power outage.

8. HW recommends that the Applicant provide information on the operation and maintenance (O&M) for the septic system components.

Partially addressed – This issue is discussed above in the overall discussion of the proposed wastewater facility and the request for the Board of Health regulation waiver.

Specific Comments on Stormwater Management Facilities

1. The Applicant has proposed catch basins discharging to leaching pits as the stormwater management system. HW recommends better treatment such as vegetated bioretention areas to further treat stormwater and protect downgradient private wells.

Partially addressed – The Applicant has included the addition of two grassed swales to the stormwater management facilities. Stormwater will discharge from the closed drainage system into the swales via an outfall pipe with a rip rap apron. No water quality calculations have been provided for swales and it appears that at least one may be undersized for the water quality volume required. The Applicant indicated that the swales will provide 70% Total Suspended Solids (TSS) removal rate. Details have not been provided for the cross section of these swales and it does not appear that all runoff form impervious surfaces has adequate pretreatment. Additionally, no sizing calculations for the rip rap apron have been provided to confirm that the proposed dimensions are adequate.

2. The Applicant has delineated the sub catchment areas to include only the proposed developed driveway pavement, however there are additional areas within the property boundary but outside of the driveway that will contribute to the proposed drainage system. It is unclear how runoff from the lawn areas outside of the pavement and in backyards will be managed. These areas are currently wooded and will be cleared, increasing runoff. Additionally, the secondary access to Route 6 has not been included. It appears this will be gravel (compacted dirt roads are considered impervious) and is not included in any drainage areas. HW recommends including all of these areas in the drainage calculations and adjusting the proposed design as required.

Partially addressed – The drainage design has been slightly modified and now includes four (previously six) sub catchment areas. It is still unclear how runoff from the lawn areas outside of the pavement will be managed. A portion of the gravel secondary access is now included in the drainage area, but it appears that a large portion of this will flow directly into the swale without any pretreatment.

3. HW recommends that the Applicant also clarify if any off-site areas will be draining onto the site and captured within the drainage system proposed.

Partially addressed – The Applicant has stated that changes have been made, as necessary. It does not appear that any off-site area has been included. HW recommends that the Applicant verify that the off-site area does not contribute.

4. The drainage calculations do not include roof runoff and there does not appear to be any proposed drainage systems for the roofs. HW recommends including this in the calculations and showing locations for roof drainage.

Partially addressed – Subsurface leach pits have been provided for all buildings along with a summary of the drainage report. Although they appear to be adequate, detailed calculations for the roof runoff have not been provided for review. Several of the structures are located fairly close to buildings (see comment above). Additionally, HW recommends including an overflow for the downspout near the building.

5. The Applicant has provided proposed HydroCAD modeling calculations for the 50-year design storm, HW recommends that the Applicant provide documentation for the 50-year rainfall amount chosen along with the reasoning for only including this storm.

Partially addressed – The Applicant has provided the source of the rainfall amount but no reasoning why only the 50-year design storm has been provided. Typically, other storms are also evaluated (2-, 10- and 100-) and the closed drainage system is sized using the 10-year design storm. Including larger storms like the 100-year will show if the proposed swales will overtop and if an emergency overflow is required (currently none is proposed) in order to prevent erosion should the swale overtop.

6. HW recommends limiting the sheet flow to a maximum of 50 feet and should be less if slope differs for the first 50 feet for the time of concentration (Tc) calculations in HydroCAD.

Partially addressed – The Tc should be reviewed for the drainage areas. As examples, Drainage Areas 2 and 3 are nearly identical yet the Tc is 1.3 min and 6.9 min respectively and the length of the flow path for DA1 is only 150 feet. The Tc lines are not shown on the revised Drainage – Sub catchment Areas plan so this cannot be reviewed.

7. It appears that in at least one area (CB3A) the peak elevation is located above the invert out of the structure, meaning that stormwater will back up into the catch basin and the structure will be full of water during the modeled storm event.

Partially addressed – Revised drainage calculations have been provided but the elevations do not match those indicated on the plan view and details. It appears that the peak elevation for DA 2 may still back up into the catch basin during the modeled storm event.

8. HW recommends soil borings should be taken for each infiltration area. HW recommends that the Applicant provide soil borings to verify that the soil type, infiltration rate, and depth to groundwater assumed is realistic.

Partially Addressed – The Applicant intends to complete soil testing once access is available. If the soil type differs from what has been assumed, the drainage system may need to be redesigned. HW defers to the Zoning Board of Appeals.

9. **Additional Comment - The** HydroCAD report submitted now includes paved swales and is only modeling one catch basin per drainage area. HW requests that the Applicant clarify the location of the swales and confirm that the closed drainage system is adequate.

10. **Additional Comment –** Several elevations differ from the plan view and the profiles on the details. HW recommends that the Applicant review these for consistency.
11. **Additional Comment -** Portions of the leaching facilities beneath the grass swale are located underneath the side slopes and will have up to 5 feet of cover. In addition, some inlet grates are located on the 2:1 side slopes which may cause difficulties in grading/planting/erosion control.
12. **Additional Comment –** There is no barrier between the edge of pavement and the grass swale, HW recommends some sort of barrier (fence, placed boulders) to protect this area.

Comments on Other Utilities

1. The applicant should provide data on hydrant flow tests to confirm the water supplied to the property will meet design requirements for fire protection.

Addressed – HW understands that the Town of Truro will be conducting the hydrant flow test and will ensure property will meet design requirements for fire protection.

2. Information on transformers and site lighting are not shown. HW recommends locating these on the plan to avoid conflicts with parking, landscape and other utilities (water, sewer, gas, septic) conflicts.

Partially Addressed – Street lighting has been added to the revised Landscape Plan. There are two light posts located above leach field 1, HW recommend that the Applicant confirm that there is adequate cover over the leach field to allow this installation (pole base depth, footing, wires)

3. Other utilities (gas, electric, CATV, telephone) that will be located within driveway layout should be shown on the cross section.

Addressed – Preliminary utility layout has been added to the plans.

Other Site Design Comments

1. HW recommends a phasing plan be provided for construction.

Partially addressed – the Applicant states that a formal phasing plan will be submitted once other permits are obtained.

2. No erosion and sedimentation control (ESC) measures are currently shown. These are particularly important during construction, on steep slopes (2:1 in many areas), and for the protection of leaching areas (septic and stormwater) from compaction during construction. HW recommends that the Applicant provide ESC for both during construction as well as post-construction site stabilization.

Not addressed – Pending receipt of additional information on erosion control.

3. Cut and fill calculations were provided. These are difficult to follow as the grading plan does not show adequate detail. HW recommends that this calculation be revised once the plans are further developed.

Not addressed – the Applicant stated that the contractor is in the process of completing the calculations but does not anticipate that the volume amounts will vary from the previous submission. The existing calculations remain difficult to follow. The amount of cut/fill will impact the number of construction vehicle trips (traffic and sediment tracking) both for importing material (road base, loam) and exporting extra material. HW defers to the Board on this issue.

4. The Applicant states that salvaged ground cover will be reused onsite. HW recommends a stockpile location be identified on the plans with information on how the area will be protected from erosion during construction. Additional areas for topsoil and other materials to be stockpiled should be identified on the plans.

Not addressed – Pending receipt of additional information on erosion control.

5. The buffer to the Route 6 property appears to only be 10-feet in certain areas. HW recommends a larger buffer be provided.

Partially addressed – the Applicant has reviewed the existing vegetation along the Route 6 corridor and have relocated water and sewer services as well as has proposed additional planting along Route 6. The sewer services are now exiting the front of the homes, but it does not appear that the limit of work has been changed, with the exception of a small area between Units 10-12 and 6-8. It appears that additional evergreen trees have been proposed near the northern property line but not along the Route 6 buffer.

6. It appears that trees/shrubs are proposed over septic leach field, and possibly over the stormwater infiltration systems. HW recommends a landscape plan that overlays utilities so that there are no conflicts.

Not Addressed – There appears to be a tree located in the center of the development, over the leach field along with shadblow serviceberry trees along the perimeter. Several “shallow rooted” shrubs are proposed over the leach field, HW defers to the Board of Health.

7. The detail for the driveway pavement cross section shows a crown but some areas of the driveway seem to be not crowned.

Addressed – a note has been added to the detail specifying the super elevated section of roadway.

8. The driveway has a fairly steep slope and narrow width, HW recommends that the Applicant confirm that they have received input/approval from the Fire Department about their revised site access road design.

Addressed – the Applicant states that the Fire Department has reviewed and approved the access drive.

9. It appears that not all parking spaces have been graded and there are dashed lines that indicate double-stacked spaces. HW recommends that the Applicant verify that all parking spaces are feasible and meet the minimum requirements (handicapped spaces as well).

Addressed – the double-stacked spaces appear to be overflow spaces. HW defers to the Board.

10. One dumpster has been shown near the large building. HW requests that the Applicant confirm this is adequate (in size, distance from all units, and location for pickup by trucks) and that additional locations are not required.

Addressed – the Applicant has clarified that a dumpster is not proposed that a gated "corral" area will be provided for garbage bins to serve Building 21. All other tenants will be required to dispose of trash at the Transfer Station.

11. HW recommends that areas for snow removal be shown on the plan. The driveway is fairly narrow and there is not a lot of area outside of the driveway and parking spaces that is not occupied by stormwater or wastewater systems.

Partially Addressed – the Applicant has shown hatched areas on the Landscape Plan for snow storage – some of these hatched areas are located over the septic leach field. The Applicant also states that the drainage swales are to be used for snow storage. HW does not recommend snow storage over stormwater or wastewater systems.

12. HW recommends showing a playground area, bus stop, or mailbox location if proposed.

Addressed – the Applicant states that there are specifically designated playground areas on site; it is unclear where these are located. A bus stop and mailboxes are not proposed. For clarification, a bus stop could be proposed for school age children, if necessary.

13. No sidewalk is shown, HW defers to the Board should a connection to offsite areas be requested.

Partially Addressed – a sidewalk has been shown along the entrance drive to Highland Road. No connection is proposed. HW defers to the Board.

It was noted in the Application that the area may be mapped by as an area containing endangered species by the Natural Heritage and Endangered Species Program (NHESP). HW asks that the applicant provide further information on how they plan to address this issue.

Addressed – NHESP has approved the project.

14. Invasive species may be present onsite. HW recommends the preparation of a management plan as part of the landscape improvements.

Not Addressed – a reference is made to the Landscape Plan but there does not appear to be any mention of invasive species treatment on the Landscape Plan.

15. Additional Comment – The Landscape Plan indicated that several trees/shrubs will be planted along the 2:1 slopes throughout the property. HW recommends additional planting details be added to the final plan set. Additionally, the proposed planting material "VS" for vegetated swale should be specified for quantity and types of plants proposed.

Sincerely,

Horsley Witten Group, Inc.

Mark Nelson, P.G.
Principal

Cloverleaf Truro Rental Housing
Sustainable Design Narrative

The Cloverleaf Truro Rental Housing Development will consist of thirty-nine (39) new construction townhomes and apartments in 13 buildings. Fifteen (15) units will be single level living in an elevator apartment building and Twenty-four (24) units will be in duplex Townhouse buildings.

Design Requirements:
The project conforms with current DHCD design requirements and all applicable laws, regulations, and code requirements, including those specific to accessibility;
The project is being designed to meet or exceed all applicable requirements, except those local regulations that we have requested relief from under our Comprehensive Permit application. The design provides enhanced accessibility and sustainability, including the following:

Site Design:
The Cloverleaf site at 22 Highland Road (the "site") is currently vacant, an unbuilt section of the MA DOT Route 6 / Highland Road interchange "Cloverleaf. The site is moderately sloping terrain rising from a 24' elevation at Highland Road to a high point of 63' elevation approximately 300 feet back into the site. The slope of the site presents challenges from two perspectives, road design and septic design (the site does not have municipal sewer); both were carefully considered before we began to look at architectural design.

The development includes 68 bedrooms which requires a sizable leach field and adjustments to the topography to achieve minimum and maximum coverages per Title 5 requirements. Removing the high point of the site above 54' elevation to create a gentle slope from 50' to 54' elevation, that respects the existing grades on surrounding properties achieved the needed septic leach field area and this then began to inform the roadway design.

In terms of road design, the objective was to achieve a maximum of 10% grade which, according to fire officials and MA DOT roadway guidance, is appropriate for this size development (incorporating a "Swept Path Analysis" for large fire equipment travelling through the site). We have designed a single direction double oval roadway with the required turning radii creating a landscaped common within the upper oval roadway and above the septic leach field. In response to concerns voiced by Public Safety officials, an emergency access / egress to and from the rear of the site, gated for emergency response, was added but is subject to MA DOT approval for an access onto Route 6.

Parking is provided for all units in small clusters of spaces convenient to the individual units and adequate visitor parking is also provided.

The site currently does not have municipal water, however, the Town of Truro has completed engineering for construction of a water line extension so that the site will be serviced by municipal water.

Sustainable Storm Water Management
The site has been engineered for responsible rainwater management with systems that collect rainwater for groundwater recharge. The new roadway incorporates drainage structures for recharge of rainwater and a drainage swale is being considered to achieve 100-year storm standards. All structures will have gutters and downspouts directed to drywells or rain barrels attached to drip irrigation.

Community Impact
The site design has considered the project impact on community standards and the surrounding neighborhood, as well as the project site. The site design has provided significant buffers of vegetated areas to reduce impacts on residential abutters. These buffer areas will be supplemented with additional native evergreen plantings to further protect surrounding property. Light pollution of the night sky will be avoided by limiting the output of outdoor lighting and by using fixtures to direct lighting toward the ground plane. The site has been designed to encourage community interaction with a common area at the center of the site.

Sustainable Landscape Practices
Landscaping elements have been designed to respect the character of the pine woodland with groundcover plants and transitional oak trees in the natural progression of cape cod woodlands. Existing mature trees will be preserved wherever possible. Ground cover plants and the "duff layer" will be stockpiled from disturbed areas where the topography is altered and those materials will be recycled to re-establish cut slopes and naturalize disturbed areas with native plants and restore habitat for wildlife.

A landscape planting plan has been developed to demonstrate the use of native plant species to reestablish a naturalized landscape. No lawn areas are proposed however, seed of native grass species will further the objective of re-establishing a naturalized landscape. Native ground-cover plants and natural mulch will be used in lieu of grass throughout the development. This approach is both a low maintenance solution and sustainable for the environment. No plants listed on the Massachusetts Invasive Species list will be used.

Protection of Habitat
MA NHESP has determined that the Cloverleaf project "will occur within the actual habitat of the Eastern Box Turtle", and therefore "must be conditioned in order to avoid a prohibited take" including a Turtle Protection Plan (a mitigation protocol for construction to be developed by a qualified biologist) and a Compliance Report following completion of work at the site. CHR has engaged Gordon Peabody of Safe Harbor to develop the plan in accordance with MNHESP requirements and a qualified biologist has been retained for the TPP.

Architectural Design
The Cloverleaf Truro Rental Housing will be a new neighborhood of predominantly two-family homes, of modest scale in keeping with the surrounding single-family homes. The architectural forms of the smaller buildings reflect gable, hip and shed roof styles of the Outer Cape

vernacular. The community will also include a fifteen (15) unit apartment building with an accessible common/activites room.

The location of the buildings on the site takes advantage of the sloped topography with some units built into slopes to gain additional living space from walkout or windowed basement "garden levels". Despite the sloped topography, most of the homes are visitable with accessible entrances to the first floors and a visitable half bathroom on the first floor; only four (4) one-bedroom units on a second floor will be without the visitable attributes.

The building exteriors will have cedar shingles and painted trim boards, insulated double-hung and awning windows, and insulated fiberglass exterior doors. Roofs will have "architectural" asphalt shingles.

Universal Design:
In addition to the development of two fully accessible units, most other units will incorporate measures such as minimal rise to entrances to enhance and facilitate "visitability". Universal Design attributes include lever door hardware and cabinet pulls as well as blocking in bathrooms for future assist / grab bars. The Universal Design checklist (Appendix I, Part B) indicates the extent that we have been able to incorporate these attributes.

Energy Efficient Envelope and Sustainable Design
We have incorporated energy conservation measures that meet or exceed those required by the applicable Massachusetts Energy Building Code and the Stretch Code. The project complies with energy efficient fixtures and appliances, such as building envelope/air sealing standards and EPA's Energy Star guidelines. The exterior envelope has been designed to exceed the International Energy Conservation Code 2015 (IECC) with Massachusetts Amendments, the 9th Edition of the MA State Building Code 780 CMR requirements and will achieve the following values:

All of the proposed buildings will be 2x6 wood-frame structures with 2x12 roof framing built on crawl spaces or partial basements.

- Walls: R-30 using 2x6 studs with closed cell polyurethane spray foam .
- Slab-on-grade floor: R-10 at slab perimeter with a complete thermal break and R-10 continuous under slab, some buildings will have full basements.
  Roof: R-51 closed cell polyurethane spray foam.
- Floor: R-32 fiberglass batt.
- Air and vapor barriers: integral air infiltration barrier on exterior insulated structural sheathing with taped joints and continuous vapor retarder on conditioned side of wall.
- The building envelope will be sealed against air infiltration. Joints in rough framing and all doors and windows will be insulated with low-expansion spray foam.
- Blower door test for air-sealing measured by an independent commissioning agent to confirm air leakage of less than 8 ACH50.
- Water conservation measures will include low-flow plumbing fixtures in kitchens and bathrooms. the project exceeds state and local code-mandated regulations for

waterconservation requirements (maximum 1.28 gallon toilets, low-flow devices at showerheads and faucets, etc.). An irrigation well and irrigation system will be installed to eliminate the need for use municipal water for landscape needs.

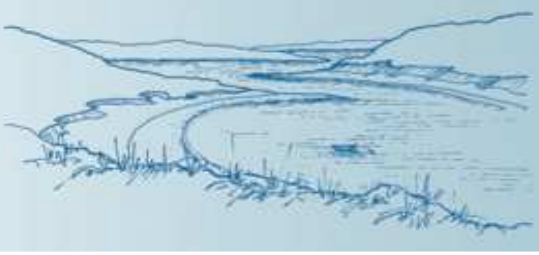
- Sustainable construction practices will be promoted through specifications that favor materials with long term durability, inclusion of recycled content and preference for local origin.
- The insulation and air sealing specifications of the exterior envelopes and the energy efficient lighting and appliances will meet EPA EnergyStar standards. In addition, use of deciduous trees on south and west exposures will provide for shading in summer and solar gain in winter for many of the dwellings while not inhibiting the potential for solar panels on roof structures.

Healthy Indoor Air Quality
We have incorporated mechanical ventilation measures to provide fresh air and control humidity in order to promote good interior air quality:

- Healthy indoor environments will be promoted through the use of non-toxic materials, adequate natural ventilation and plentiful natural daylight. Carbon Monoxide detectors will be installed per State Code requirements.
- Indoor air quality will be enhanced with programmable mechanical ventilation in bathrooms and ducted kitchen ventilation to control moisture buildup.
- Kitchen and Bathroom exhaust fans will be ducted to the outside.
- Bathroom exhaust fans will be programmable type to provide continuous low level and intermittent high-level discharge. CFM rating of at least 50.
- No VOC adhesives or carpets will be used.
- Building interiors will be ventilated after substantial completion and before occupancy to dry construction and remove any accumulating VOC's from paint.
  Specifications will disallow products made with formaldehyde or urea-formaldehyde binders.
  Environmental conservation through sustainable landscape design, erosion control during construction, storm-water recharge and re-cycling of construction waste.

Renewable Energy
We will explore the feasibility of using roof-mounted photovoltaic panels as a renewable energy source, to take advantage of the southerly exposure of the roof structures of the buildings. However, the implementation of this initiative is subject to being able to secure grants and or rebates to offset the installation cost of such systems

SAFE HARBOR
ENVIRONMENTAL MANAGEMENT
HABITAT RESTORATION



DATE: JULY 6, 2020
TO: TED MALONE CHR
ATTN: Interested Parties
FROM: GORDON PEABODY, Director, Safe Harbor Environmental Services
CONTACT: 508-237-3724, gordonpeabody@gmail.com
Office: 95 Commercial Street, Wellfleet, MA, 02667
Mail: Post Office Box 880, Wellfleet, MA 02667

ENVIRONMENTAL MANAGEMENT PLAN

Including but not limited to: excavation and grading areas; endangered species protocols; communications protocols; steep slope stabilization systems; erosion control systems; concrete management protocols; transplant strategy and protocols; revegetation protocols; inspections monitoring and reporting protocols.

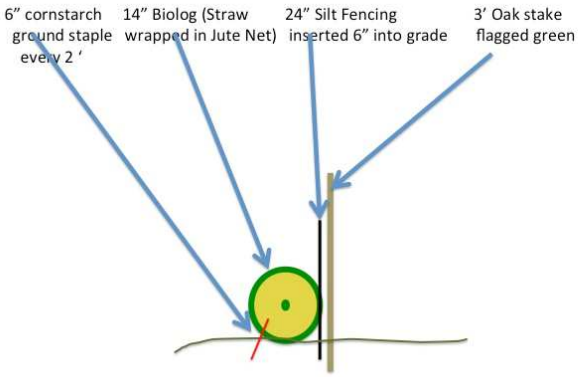
I. Project Narrative

a. The aim of the project narrative is to create an integrative project management plan, where cofactors for a successful project outcome are coordinated in all stages of construction.
b. This document integrates by reference and inclusion: the draft Storm Water Pollution Prevention Plan (SWPPP), generated by J.M. O'Reilly & Assoc. Inc.; The Turtle Protection Plan (TPP), generated by MassAudubon and approved by MA Natural Heritage and Endangered Species Program (NHESP); and several Public Domain publications by Safe Harbor, (Managing Concrete in sensitive areas; Erosion Control Systems; Steep Slope Stabilization; Invasive Vegetation Management.
c. Prior to activity, the site shall be professionally staked, per site plan of Record (SPOR)
d. Prior to site excavation, the Turtle Barrier System shall be installed by trained Safe Harbor workers, per MA NHESP approved Turtle Protection Plan (TPP).
e. Prior to site excavation activity, Audubon and Safe Harbor workers shall perform Turtle Sweeps, per TPP management plan.
f. Erosion control (EC) systems shall be installed, as shown on Site Plan 1, per Safe Harbor protocols.

g. Onsite trash containers, fitted with a device to secure the lids, shall be used to prevent human food waste from entering the native ecosystem.
h. Worker parking shall be identified, inside the L.O.W.
i. Worker toilet shall be in place.
j. Construction materials storage shall be inside the L.O.W.
k. Covered dumpsters shall control construction waste.
l. Additional EC systems shall be implemented on an ongoing basis, as assessed by Safe Harbor, to maintain site stability and maintain performance standards.
m. Prior to excavation/ construction start-up, a pre-construction site meeting shall be scheduled by Safe Harbor and held, with all parties, to review any questions about the Environmental Management Plan and to establish effective communication protocol between all parties and address any other issues.
n. Prior to site activity, the Limit of Work (L.O.W.) as shown on site plan, shall be identified with 3' Oak stakes, 10' O C, flagged single green.
o. Vegetation identified by Safe Harbor for transplanting, shall be removed and stockpiled for later use.
p. Roadway will be cut into the hillside, per SPOR.
q. Erosion control systems will be implemented as required.
r. Utility installation may need to be completed prior to slope stabilization and revegetation in some areas.
s. Safe Harbor shall supervise stabilizing and replanting of slopes.
t. Construction activity shall begin.

II. EROSION CONTROL

a. Per "***BIOLOG SILT FENCE EROSION CONTROL SYSTEMS***" Safe Harbor,2017, 7pages.



b.
c. **Erosion Control** systems shall be installed as shown on page 1 of Site Plans 1-5, J.M. O'Reilly & Assoc. Inc. 11/1/2019.
d. **All ec systems shall be** monitored and maintained by Safe Harbor, to achieve zero discharge performance standards.
e. **Silt Fencing**
    i. 24"-high semi-permeable, geotextile filter fabric shall be installed as a silt fence, as depicted on the approved site plan of record.

ii. The silt fence filter fabric shall be pushed down into the grade 4-6", with a lawn edger or similar edged-tool.
iii. The fabric shall be vertically stapled to wooden stakes every 10'.
iv. Anytime silt buildup against the fabric exceeds 4", the load shall be removed by hand, to a designated area outside the BZ.
v. All erosion control systems should be inspected weekly by trained Safe Harbor workers, to maintain and monitor performance.
vi. EC systems can be removed following assessment by Safe Harbor of site stabilization and successful revegetation.

f. **Biologs**:
i. Biologs (straw filled rolls of jute netting) or straw wattles shall be installed where necessary, as a sediment barrier, on the activity side of the silt fencing.
ii. Biologs will be monitored and maintained by Safe Harbor workers, to provide zero sediment discharge performance standards. These biologs can be recharged with new straw as necessary.
iii. Biologs shall be secured with 6" cornstarch ground staples, every 2'.
iv. Anytime sediment buildup exceeds 4", the load shall be removed by hand, to a designated area.
v. Erosion control systems should can be removed following inspection by Safe Harbor to assess site stabilization and successful revegetation.

II. EXCAVATION

Conservation of Geomass

a. The surface layer of removed overburden in excavation area (referred to as "Duff", or Rhizosphere, containing native pH levels, nutrients and microorganisms) shall carefully be removed and stored in designated area for reuse.
b. This project advocates Geocycling (on site repurposing) of overburden and underburden.
c. Disposition rationale is based on cut calculations and satisfaction of fill requirements.
d. Underburden required for fill may be stockpiled temporarily at building 1/3 and the drainage swale locationand for backfill may be left onsite within the L.O.W.
e. Underburden not required on site shall be removed.
f. Erosion control systems shall be implemented in both cut and fill areas, as necessary.

III. SLOPE MANAGEMENT

a. Slope management shall utilize Safe Harbor publication "**STABILIZING STEEP SLOPES USING NATURAL SYSTEMS"** 2017, Safe Harbor, 16 pgs.
b. Ongoing stabilization shall utilize erosion control systems per Safe Harbor publication "**BIOLOG-SILT FENCE EROSION CONTROL SYSTEMS**" 2017, SAFE HARBOR, 7 PGS.
c. Slopes may also utilize horizontal lines of 6 inch benching, canted slightly back into the grade.
d. Benching may cross entire slope area, spaced 5-6 feet vertically (image not to scale).

e. 

SLOPE SHOWING CROSS SECTION OF BENCHING

f. This strategy redirects gravitational energy, from accelerating sheet flow, to accelerating percolation.
g. This system better manages storm water, reducing erosion control efforts.
h. Following installation of erosion control systems, the re-purposed duff (also referred to as rhizosphere or overburden), will be thinly spread across the slope surface.
i. After a thin layer of duff has been applied, benches can be created.
j. Jute netting can then be spread horizontally, between the benches.
k. Netting should be secured every three feet along top and one foot up from bottom, with 6" cornstarch ground staples
l. Once these surface mitigations have been inspected by Safe Harbor workers, the system can begin to receive Native plantings; transplants; and seeding.
m. Native plantings and Native transplants will also be used, supervised by Safe Harbor, using established, Safe Harbor protocols.
n. Specific, low impact protocols are modeled after successful, Safe Harbor systems.
o. Stabilization and revegetation are ongoing, linked projects
p. Transplant strategy will assist in slope stabilization.
q. Additional erosion control systems will be utilized as necessary
r. Growing season inspections shall be weekly or as otherwise specified.
s. End of growing season report shall be provided to all parties.

IV. WATER QUALITY PROTECTIONS

a. Mechanized equipment shall be stored within the L.O.W.
b. Mechanized equipment shall be provided with absorbent response materials to protect against unintentional petrochemical leaks.
c. Mechanized equipment shall only utilize the designated access area.
a. To protect water quality, use of herbicides, pesticides and rodenticides shall be prohibited within this site.
b. Best Management Practices (BMP) and Integrated Pest management (IPM) standards shall be utilized for weeds, insects and rodents.
c. Plastic liners shall be utilized where required by building code for slab work.
d. Liners protects ground water from gravity directed, alkaline percolation, which may alter pH and nutrient loading capabilities of ground water.

e. Concrete over pour shall be directed onto tarps for drying, which also protects groundwater quality.
f. Non-leaching decking materials shall be used

V. WASTE

a. Onsite trash containers, fitted with a device to secure the lids, shall be used to prevent human food waste from entering the native ecosystem.
b. Concrete over pour can be directed onto tarps for drying and reused for drainage swales.
c. Worker parking shall be identified, inside the L.O.W.
d. Worker toilet shall be in place.
e. Construction materials storage shall be identified inside the L.O.W. Covered Dumpster shall be stored within the L.O.W.

VI. CONCRETE PROTOCOL

a. This booklet shall be used as a reference: **"*MANAGING CONCRETE IN SENSITIVE AREAS*"** 2019, Safe Harbor, 7 pages
b. Plastic liners shall be utilized where required by building code, with all concrete slabwork.
c. Concrete work shall use Safe Harbor Concrete Management protocols
d. During concrete work, over pour shall be strictly controlled.
e. Concrete over pour shall be directed to a tarp.
f. 

g. Concrete over pour on tarps shall be left to harden.
h. Pumper truck over-pour can be poured onto a tarp, dug into a pile of backfill.
i. Overpour is not a waste product. When it has dried and set it may be broken up and re-used or recycled in ground water recharge systems.

VII. HABITAT RESTORATION: *Conservation of Biomass*

a. Native species will be used to restore this site.
b. Limited areas of seed rich, pine crowns, may remain in designated areas on site in the form of habitat.

c. Safe Harbor shall assess survivability of small saplings.
d. Healthy saplings shall be removed along with geomass linkage. These shall be heeled in on site for later transplant, or directly transplanted on site, under the supervision of trained Safe Harbor workers.
e. Prior to site activity, pre-existing native vegetation may be carefully removed as appropriate, following Safe Harbor transplant protocol.
f. Qualified Safe Harbor workers, following Safe Harbor revegetation protocols, shall perform transplant removal and replanting activity.
g. Indigenous transplants conserve microorganism community, preserve indigenous pH and may require less amending.
h. Construction activity may be phased, to provide an opportunity for removal of indigenous vegetation prior to activity and transplanting to an area where activity has been completed.
i. Following installation of erosion control systems, the re-purposed duff (also referred to as rhizosphere or overburden), will be thinly spread across the slope surface.
j. After a thin layer of duff has been applied, benches can be created.
k. Jute netting can then be spread horizontally, between the benches.
l. Secure net every 3' along top and 1' up from bottom, with 6" cornstarch staples.
m. Once these surface mitigations have been inspected by Safe Harbor workers, the system can begin to receive Native plantings; transplants; and seeding.
n. Native plantings and Native transplants will be supervised by Safe Harbor, using established, Safe Harbor protocols.

VIII. Invasive Management

a. Invasive vegetation shall be removed from within the LOW by excavation or per Safe Harbor publication "***Dirty Dozen 3rd Edition"***, Safe Harbor 2017, 20 pgs.
b. Because state-recognized invasive species threaten both biological diversity and the wildlife habitat of this parcel. A management protocol which incorporates complimentary mechanical and chemical management techniques is recommended given the level of invasion on the property.
c. Monthly site inspections and management as necessary of invasive vegetation, will be performed by Safe Harbor, pending Certificate of Compliance.
d. Non-native materials shall not be kept on the site.
e. Non-indigenous plants/bushes shall be replaced with compatible native vegetation.

IX. INSPECTIONS :

Project Inspections

1. End of day visual inspections shall prevent unintentional migration on non-indigenous materials beyond the LOW.
2. Regular site inspections, to assure compliance with performance standards, shall be made weekly by Safe Harbor.
3. For the duration of deconstruction, excavation or construction activity, end of day inspections shall be performed by a representative of the contractor on site, to

control unintentional migration of non-indigenous materials beyond the Limit of Work

4. The L.O.W. shall be inspected and maintained weekly by Safe Harbor, to maintain zero discharge performance standards, pending site stability with native vegetation.
5. Mechanized equipment shall be inspected daily to prevent unintentional petrochemical discharge.

X. STORM PULSE INSPECTIONS

Additional inspections shall be performed following storm pulse events.

XI. MONITORING AND REPORTS

a. Safe Harbor shall monitor the site during activity phases, to confirm compliance with performance standards.
b. Safe Harbor shall provide bi-weekly written, photo documented, project updates during activity phases, to all parties.
c. End of growing season report shall be provided to all parties.

XII. MA NHESP

Per approved TPP guidelines, provided by MassAudubon, review and approved by MA NHESP and installed by Safe Harbor.

SAFE HARBOR
ENVIRONMENTAL MANAGEMENT
HABITAT RESTORATION

BIOLOG-SILT FENCE EROSION CONTROL SYSTEMS

Biolog-Silt Fence systems provide high performance erosion control when properly installed on appropriate sites, with reduced cost and maintenance. ***Silt fencing***, a semi permeable geotextile filter fabric is now available in 24-inch height and comes with factory staking 10 ft O.C.. Effective installation is critical to increase performance. We recommend additional stakes (5' OC). The lower edge of fabric is easily inserted 4--6" into grade using either a lawn edger or shovel tip. The outdated, 36 inch height silt fencing frequently blows out, requiring repairs. ***Biolog*** sediment barriers use straw filled rolls of jute netting, secured with 6" Corn Starch or ground staples 1' O.C.. This combined system is recommended for maintaining zero discharge performance standards on gently sloping or side slope, inland sites.

gordonpeabody@gmail.com Gordon Peabody, 2017. www.SafeHarborEnv.com

SILT FENCE INSTALLATION

Low tech silt fence installation is effective

- ✓ Canvas gaskets, vertically stapled, secure fabric from 50knot winds.
- ✓ Any heavy fabric is useful for gaskets.
- ✓ First, the silt fence stakes are driven into the grade (ground).
- ✓ Drive in stakes until about an 8” flap of fabric remains on the grade/ground.
- ✓ Use a lawn edger or shovel tip to vertically insert the edge of the 8” flap of fabric into grade 4-6”
- ✓ In root bound spots, secure fabric flap with ground staples, 6” OC.
- ✓ Flap area can also be covered with several inches of sand.
- ✓ Enhance performance by adding extra stakes, every 5 ‘.
- ✓ Extra stakes should be alternated on either side of the fabric for more

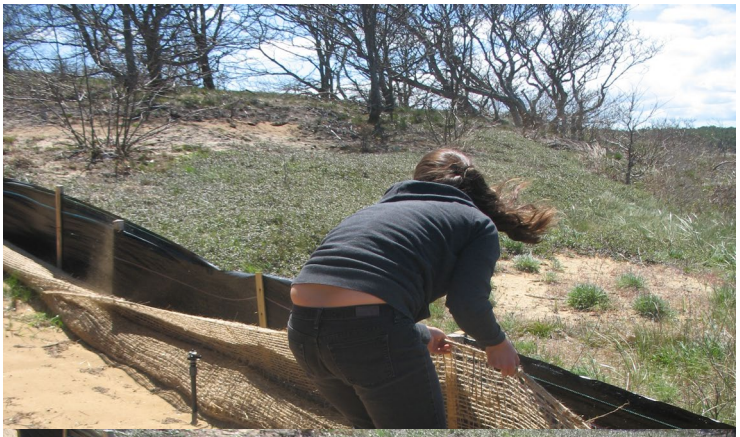
SILT FENCE INSTALLATION CONT.

- ✓ Proper materials and installation significantly reduce repair time
- ✓ Cape Cod is no place for 36” silt fencing that acts like a sail, 24” wide is ideal.
- ✓ Staple fencing fabric onto the extra stakes.
- ✓ The staples should be vertical for maximum effectiveness. We use Arrow T 50 3/8” staples.
- ✓ Hold the stapler tightly against the fabric and stake.
- ✓ A hammer can be used if the staples do not go in fully.
- ✓ Reinserting and restapling fabric should only be necessary after unusual storms.
- ✓ Installation of silt fencing shown

BIOLOG INSTALLATION

- ✓ We use affordable and easy to work with Jute Netting to build Biologs.
- ✓ Some contractors prefer factory made, Net Tubes, with a variety of fillings.
- ✓ Netting Tubes are not biodegradeable and require removal upon completion.
- ✓ Plastic netting used with pre-made tubes tends to entangle snakes when their heads get stuck
- ✓ Jute Netting is unrolled along silt fencing, inside/along the Limit of Work.
- ✓ Biologs can also be created in 20-30 ft moveable sections.
- ✓ The back of the Jute Netting is hung on the stakes of Silt Fencing.
- ✓ Straw is broken up from bales and spread evenly along the Jute Netting.
- ✓ This system can be used with Straw Bales or packaged bales of “clean boiled straw”. 30-40 ft/biolog/bale of straw

BIOLOG INSTALLATION CON'T



- ✓ The back section of Jute Netting is then pulled down and tucked over and under the front of the Biolog.
- ✓ This step is repeated along the length of the Biolog.
- ✓ Biologs are best secured using ground staples. We recommend using 6" ground staples every linear foot.
- ✓ A bale of boiled or baled straw can cover 30 feet.
- ✓ A 12 inch diameter Biolog lasts for a year.
- ✓ A 16" Biolog can last for two years.
- ✓ Biologs are easily refreshed with new straw
- ✓ We often reuse Biologs on other projects.

BIOLOG INSTALLATION CON'T

STRAW BALES

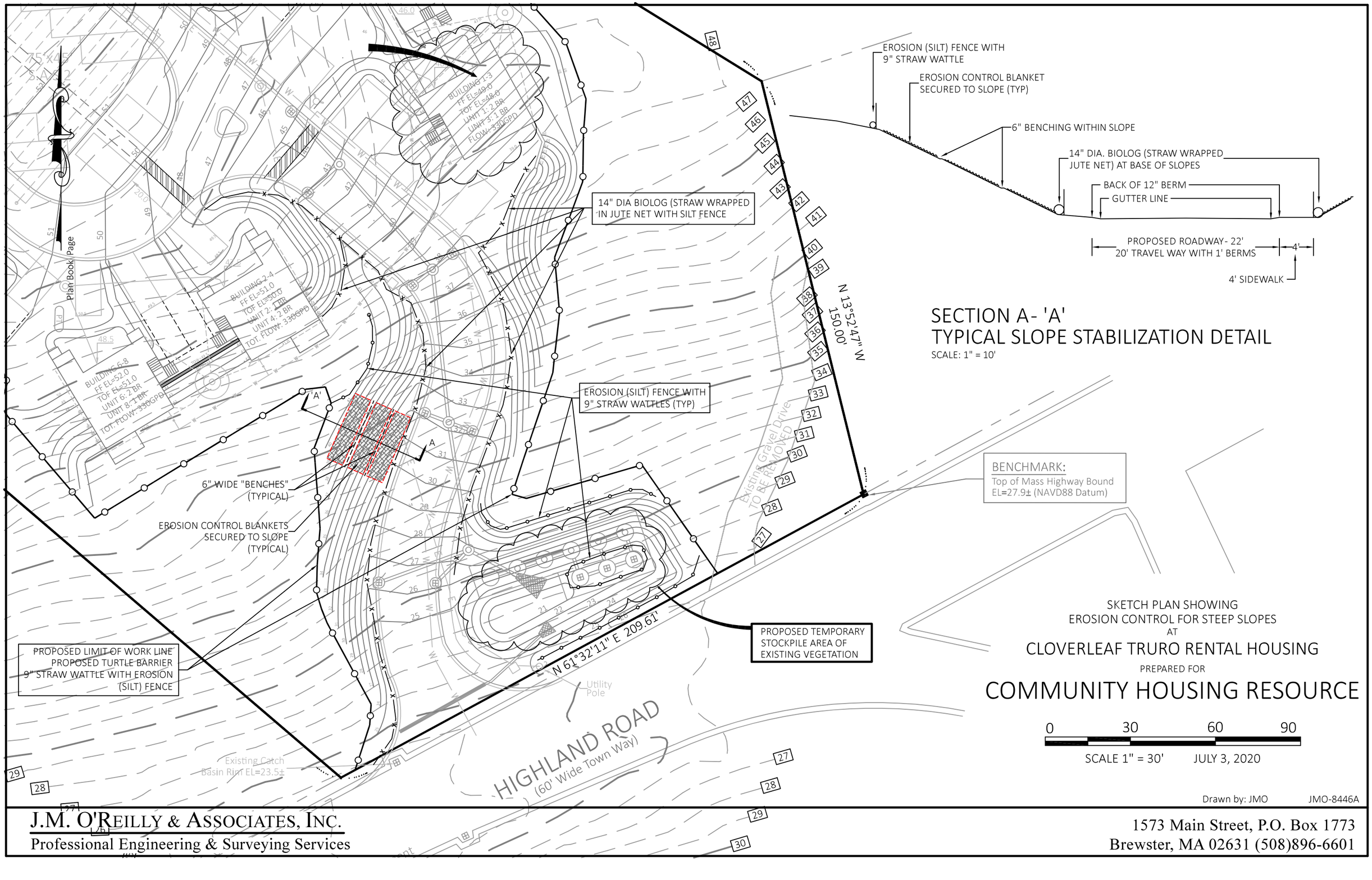
- ✓ On steep slopes, straw bales may replace a Biolog but we only recommend them in
- ✓ Recognize the difference between affordable, absorbent Straw, shown here, and Hay.
- ✓ Straw is composed of almost all stems with few seeds.
- ✓ Hay, (not shown), is full of seeds and sold for livestock food.
- ✓ Basically, we don't want non-native seeds in native habitat.
- ✓ Sometimes an upslope Limit of Work (LOW) may not require erosion control.

- ✓ Bales should never be considered for uphill runs of erosion control systems.
- ✓ The image on left shows unnecessary bales going upslope and native vegetation cut away unnecessarily for very expensive EC system.
- ✓ If you ever see water flowing uphill, contact Safe Harbor.

- ✓ This Biolog-Silt Fence Erosion Control System performed at zero discharge during a 50 year storm water event.

rnstarch
ft in place.

ose and
become part of the leaf-stem-root system.



SECTION A- 'A'
TYPICAL SLOPE STABILIZATION DETAIL

SCALE: 1" = 10'

SKETCH PLAN SHOWING
EROSION CONTROL FOR STEEP SLOPES
AT

CLOVERLEAF TRURO RENTAL HOUSING

PREPARED FOR

COMMUNITY HOUSING RESOURCE

0 30 60 90

SCALE 1" = 30' JULY 3, 2020

Drawn by: JMO JMO-8446A

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Surveying Services

1573 Main Street, P.O. Box 1773
Brewster, MA 02631 (508)896-6601


OLSEN
OLSEN

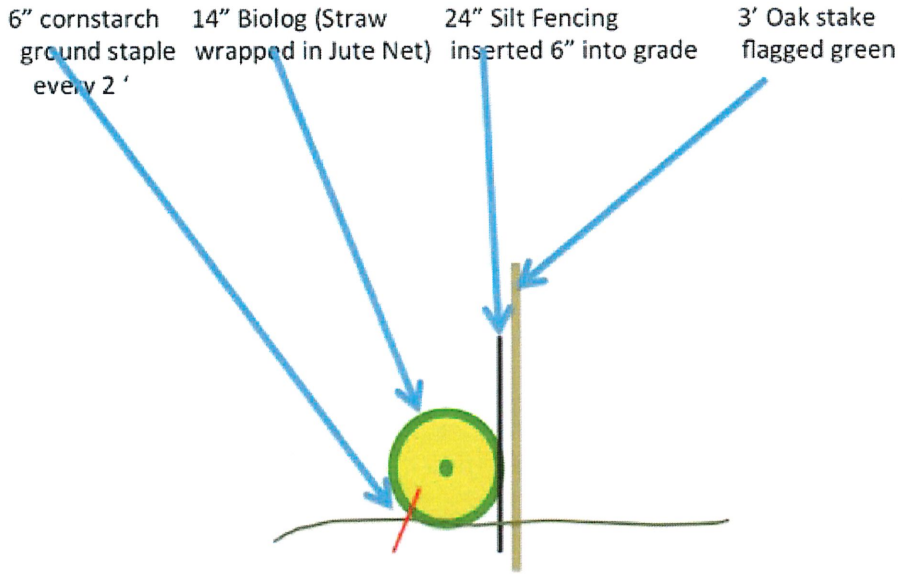
EROSION CONTROL NOTATIONS: SAFE HARBOR 2020

1. JUTE/STRAW BIOLOG SEDIMENT CONTROL SYSTEM INTERCHANGEABLE WITH STRAW WATTLE.

2. SILT FENCING MAY BE USED AS STAND-ALONE ON SIDE SLOPES OR ON MINIMAL GRADE.

3. EC SYSTEMS SHALL BE INSTALLED AT THE BASE OF SLOPES, PER SAFE HARBOR EMP GUIDELINES.

3. STEEP SLOPES SHALL UTILIZE BOTH SILT FENCING AND SEDIMENT CONTROL, AS SHOWN BELOW:



SLOPE SHOWING CROSS SECTION OF BENCHING

- ✓ **SLOPES MAY ALSO UTILIZE HORIZONTAL LINES OF 6" BENCHING, SPACED 5-6 FEET APART, AS SHOWN ABOVE (NOT TO SCALE)**
- ✓ **THIS STRATEGY REDIRECTS THE GRAVITATIONAL ENERGY FROM DRIVING SHEET FLOW, INTO DRIVING PERCOLATION.**
- ✓ **THIS BETTER MANAGES STORM WATER, ALLOWING EC SYSTEMS TO BETTER PERFORM.**
- ✓ **FOLLOWING EC IMPLEMENTATION, THE THIN LAYER OF REPURPOSED OVERBURDEN OR DUFF LAYER CAN BE SPREAD OUT, FOLLOWED, WHERE NECESSARY, BY BENCHING.**
- ✓ **JUTE NETTING CAN BE THEN SECURED BETWEEN THE BENCHES, FOLLOWED BY PLANTING AND SEEDING.**

SAFE HARBOR
ENVIRONMENTAL MANAGEMENT
HABITAT RESTORATION

Stabilizing Slopes, Very Steep Slopes & Coastal Banks

Above: Two images by Gordon Peabody, taken 1 year apart, of steep slope in Brewster, MA. Safe Harbor advocates considering natural system alternatives for stabilization of steep and very steep slopes. Slope cofactors of Geomass and Biomass interact to create successful, sustainable habitat and linkage to scale.

Gordon Peabody, Safe Harbor Environmental 2017. gordonpeabody@gmail.com

INDEX:

A word about Safe Harbor: *We provide environmental consulting, permitting, compliance monitoring, mitigation and management services for Restoration, Construction and Invasive Vegetation projects under the jurisdiction of the Massachusetts Wetlands Protection Act; Massachusetts Endangered Species Act; Local Wetlands Bylaws; FEMA Flood and Velocity Zones and Areas of Critical Environmental Concern (ACEC).* ***Safe Harbor*** *specializes in developing stabilization strategies, using low cost/low impact sustainable, natural systems.* ***Safe Harbor Educational Publications*** *are self-funded by Safe Harbor. If you have an interest in supporting our efforts, please contact* ***gordonpeabody@gmail.com*** *or www.SafeHarborEnv.com*

Image by Gordon Peabody. Low impact access and beginning of low profile benching.

I. General Strategies for Stabilization

Sustainable, natural systems for stabilizing steep slopes should always be considered in your Alternatives Analysis. A non-structural, more sustainable solution to steep slope erosion, would use the same gravity causing erosion, to control runoff, with site specific native vegetation systems to control stabilization. Steep, (45 degree) and Very Steep (60 + degree) de-vegetated slopes are fair game for rain-generated storm water erosion. Gravity-driven sheet flow is generated directly by the slope itself and indirectly by contributing, upslope sources. Gravity directs sheet flow downslope, creating accelerating point sources. The weight of this mathematically amplified, liquid-sandpaper transports soil, causing destruction primarily through erosion and secondarily through deposition. Downslope discharge often flows into wetlands. Vegetation growing in groundwater fed wetlands may be sensitive to surface discharge and deposition. Chronic deposition of sediment and silt will smother wetland vegetation. Reduced performance of wetland resources degrades habitat and invites potential regulatory consequences.

1. Assessment: Study the problem and the dynamics between elements of your problem: hydrology; slope; and habitat. Study and identify linkages between primary and secondary sheet flow sources and impacts. Then study adjacent, performing slopes that could be used as a model for your project.

2. Get Measurements: Crest-to-foot and side slope-to-side slope width measurements will assist in calculating materials you will need. We usually divide large areas and long slopes into smaller, easier-to-manage work areas.

3. Address Contributing Flow: the shortest path to successful steep slope erosion control is removing upslope contributions before they reach the slope crest. We recommend "Smart Growth" and "Low Impact Development" (LID) Guidelines for low profile, low impact and low maintenance groundwater infiltration systems such as swales, dry wells, drip lines, filter strips and retention basins. Many of these sustainable, storm water management systems are described in: http://safeharborenv.com/2010/10/03/good-neighbor-storm-water-booklet-now-available/

4. Linkage to Scale: For a system to maintain sustainable performance standards, it should be modeled to mimic nearby, performing habitat models, not only in soil profiles but also in vegetation diversity and density. We recommend excluding upper story and under upper story height plantings.

5. Select Stabilization Technique: Carefully review options (sections II. and III.) for your site. Being able to address site specificity is a key to successful stabilization.

6. Consider Native Transplants: Native transplants have high survivability, if they include the native geomass they are growing in—incorporate the soil mass with compatible microorganism community, pH and nutrient values.

7. Limited Watering: Native vegetation can endure drought but during the first growing season, early root growth is developing. In times of drought, limited watering may be necessary. By the time leaves have begun to droop, damage may have already occurred. The bioengineered system provides a degree of moisture protection to roots. Hand watering is less efficient than timer operated drip hose irrigation but drip irrigation requires more initial effort. Water system decisions are site specific but may need to be "built in" to protect ecological and financial values.

8. Chemical Use: As a matter of policy, Safe Harbor does not use herbicides, pesticides or fertilizers. These unnatural fertilizers create vegetation that is chemically more attractive to insects and encourages invasive plants. They may also destabilize the density of nitrogen-fixing bacteria in roots, making plants "fertilizer dependent". Indigenous compost and mulch, with healthy, diverse microorganism and micro-invertebrate communities, provide a sustainable flow of nutrients. Vegetation consumed as a food source by native insects, small mammals, birds and herbivores, transfers critical ecological energy from plant biomass to animal biomass.

9. Sustainable Vegetation: After three years, bioengineered native vegetation systems will become increasingly more sustainable. This will reflect increased stabilization and infiltration performance. Some reseeding and replanting may be necessary. Sustainable slope stabilization systems mimic the simplicity of natural systems, using infiltration benches and native vegetation, to create high performance results.

10. Managing Invasive Vegetation: Invasive vegetation shows up in recently disturbed areas. Invasives exhibit exceptional growth rates, out-competing slower-growing native vegetation for light, moisture and nutrients. Many types of invasives also chemically interfere using root chemicals (allopathic). During the first year, we often allow invasives to contribute to slope stability,

cutting them at the base before they seed and removing root and lower stem by hand when slope vegetation is more stable. Invasive vegetation management should be a component of slope stabilization. Without proper management, invasive canopy will characteristically block sunlight from stabilizing native vegetation at ground level, creating erosion potential.

12. Toe-of-Slope Control: Toe-of-slope mitigations may require temporary use of one or more erosion control systems to temporarily control toe erosion (double-staked straw bales, silt fences with extra stakes, and/or ground stapled biologs).

13. Support Regulations for Storm Water Protection: Uncontrolled upslope development, with impervious roofs, hardscape alterations to grade elevations and impacts to stabilizing vegetation, will alter the nature (direction, volume and velocity) of storm water discharge. Planning and Conservation regulators need support in developing effective storm water management systems. Proper infiltration contributes to sustainable water resources. Low Impact Development (LID) and "Smart Growth" recommends storm water to ground water recharge as close to the source as possible. We recommend using gravity driven, low profile swales and dry wells, instead of more expensive, infrastructure leach pits, which have impacting installation.

II. Techniques for Stabilizing Steep Slopes


Beginning of restoration pictured at left; same area 4 months later at right.

1*. Control Vertical Access*: Vertical foot traffic creates impacts that are avoidable. A person walking downslope, through sand, displaces his or her own bodyweight every ten feet. We recommend using extension ladders to accommodate slope access. Extension ladders easily accommodate slopes 40 to 90 feet long. We recommend using oak stakes to secure the ladders every 20 feet, to prevent sliding. Also consider the option, where possible, of accessing the area from the bottom of the slope and working up.


2. Slope Preparation/Benching: Create "benched" infiltration terraces about a foot wide: we use shovels or boots to level them. These low-impact,

horizontal lines of terraces (or benches) should be inclined, to lean back into (or cant into) the slope. This technique will slow down, retain and infiltrate storm water. For 30° slopes, the infiltration lines can be spaced 8 feet apart. A 45° slope can accommodate infiltration lines 6 feet apart. Variable, soil based percolation rates also determining spacing and depth of benches. Each bench wants to retain storm water from the raw slope immediately above it. As the slopes become more vegetated, the benches will also fill in with vegetation, transitioning the slope performance from mitigation to sustainable.

3. Control Horizontal Access: Use these terraces for access. The horizontal, benched terraces provide useful access paths for planting and mitigation work across the width of the slope.

4. Apply Indigenous Compost: Local, indigenous compost (fully decomposed indigenous plant material or compost which has been allowed to heat up enough to neutralize invasive seeds) is spread across the slope and gently raked into the raw, upper two inches of the slope. The profile should reflect native habitat. This layer contributes to sustainability by providing a diverse nutrient/microorganism community. We usually sample core adjacent slopes.


Images by G. Peabody. Absorbent, seed free straw and composted native soil.

5. Do Not Over Compost: More is not better. Excess nutrients will attract invasive vegetation ("like free beer at a party: you never know who will show up"). Over-composting invites downslope problems with nutrient transport.

6. Apply Indigenous Mulch: A thin layer of locally available mulch (semi-composted, indigenous plant material) reflecting the native habitat, should be spread over the compost layer. Straw mulch (*never* hay with seeds) may be used. This creates a bioengineered layer that protects new roots from atmospheric moisture and temperature spikes. Layering also contributes to sustainability by providing micro invertebrate and insect biodiversity.

7. Native Seeding**:** Successful seeding is enhanced by planting during native germination windows. Re-seeding may be required during the first two growing seasons. Sow diverse, locally appropriate seeds into the upper layers. Many native grasses need limited watering and a year, to begin performing.

8. Do Not Over Seed: More is not better. Over seeding will result in nutrient depletion from over competition. This seed mix is only intended as an initial stabilizer. Thick grass performs poorly by encouraging runoff.

9. Stabilize With Jute Netting: Natural fiber jute netting temporarily stabilizes soil structure by performing as a root/stem system and native seed capture grid. We recommend pre-cutting the four foot wide netting in 20 to 30' lengths. Two person installation teams help avoid destabilizing the previously completed surface layers. Install the upper netting edges along the outer edge of each infiltration terrace. On shallow slopes, we may only use a single width of netting, installed directly beneath each terrace.

10. Secure the Netting: Ground staples secure the top, center and bottom edges of the netting. Install staples on the vertical plane, not perpendicular to the slope, at 4-foot offset centers. We use biodegradeable cornstarch staples.

11. A Note on Bioengineering: The upper soil layer will reflect atmospheric moisture and temperature extremes. Intentionally bioengineered, constructed layers provide protective lower, root area layers from these moisture and thermal spikes for stable root growth. Jute netting seems to contribute best when used above the mulch layer and just below any elective, top cover.

12. A Note on Biodiversity and Micro Habitats: Consistent profiles should be avoided. Nature is sporadic; we want to mimic this natural randomness. Thus, inexactness in the application of slope layers, and lumpy, articulated surfaces should be expected. These features create microhabitats, which contribute to plant and insect biodiversity. Site biomass, in the form of downed tree limbs and branches, can also contribute to slope structure and habitat diversity.

13. ***Native Plantings:*** Planting during seasonal moisture periods mimics native germination windows and enhances survivability. Indigenous plantings and plugs, reflecting native vegetation diversity and density, can be directly dug in. Upslope plantings assist in downslope reseeding.

14. Habitat Restoration Matrix: Site specific, ground cover grass seeds, plugs and woody stems are critical players. Lower understory woody stems should be the limit of vertical articulation. We have also been experimenting with reintroducing native wildflowers to Cape Cod as a matrix component.

15. Use of Top Cover: More is not better. Over covering blocks sunlight, reduces air exchange and redirects rainwater. Randomly spread a thin top covering of leaves, grass, evergreen needles or straw across the netting. 60% cover protects root layers from atmospheric, thermal and moisture spikes.


Images by G. Peabody. Top cover should link restoration to local habitat.

III. Two Techniques for Very Steep Slopes

1. Working on Very Steep Slopes: The interaction of effective infiltration strategy and successful native vegetation is necessary for sustainable stabilization on Very Steep Slopes. We have presented two, proven, illustrated systems for your consideration. We do not recommend mixing these systems. A higher level of attention is necessary when physically performing mitigations on Very Steep Slopes.

2. Control Vertical Access: Vertical foot traffic may create irreversible erosion impacts, which are avoidable. Even walking on the flats of your soles will risk destabilizing surface integrity. Use extension ladders to provide vertical access. They can be paralleled to access sequential areas. Extension ladders easily accommodate slopes 40 to 90 feet long. We recommend using oak stakes to secure the ladders every 10 feet on very steep slopes, to prevent sliding and where possible consider access from the bottom of the slope.

Images by G. Peabody. Using properly secured ladders protects the project.

***3. Very Steep Slopes may be inappropriate for benching*:** Benching may risk destabilizing overall surface performance and integrity.

***4. Control Horizontal Access*:** Use ladders for horizontal access. These need to be carefully set down, using control ropes, as shown in the image. Once these are staked in place every ten feet (stakes driven vertically not perpendicular), they provide a productive work platform. Horizontal and vertical ladders can be joined to create a working grid to access the entire slope without stepping on slope surface


Images by G. Peabody. Proper set up and use of ladders protects workers.

<u>Technique One</u>: Very Steep Slope Stabilization with Fence and Netting: Lines of thin slat fencing 8-10 inches high are cut from snow fencing. A fifty-foot long roll of 4 foot snow fence will produce five sections (250 feet) of 8-10 inch high fence, with one line of connecting wire per section. Lines of this fencing are set vertically into the slope using rubber mallets. The fence lines are spaced approximately 4-6 feet apart.


Images by G. Peabody. Limited use of very short fencing helps stabilize site.

Several inches of native compost are added gently to the slope. Jute netting is ground-stapled over the compost and over the very short fencing.


Images by G. Peabody. Stages in the bioengineered, slope stabilization process.

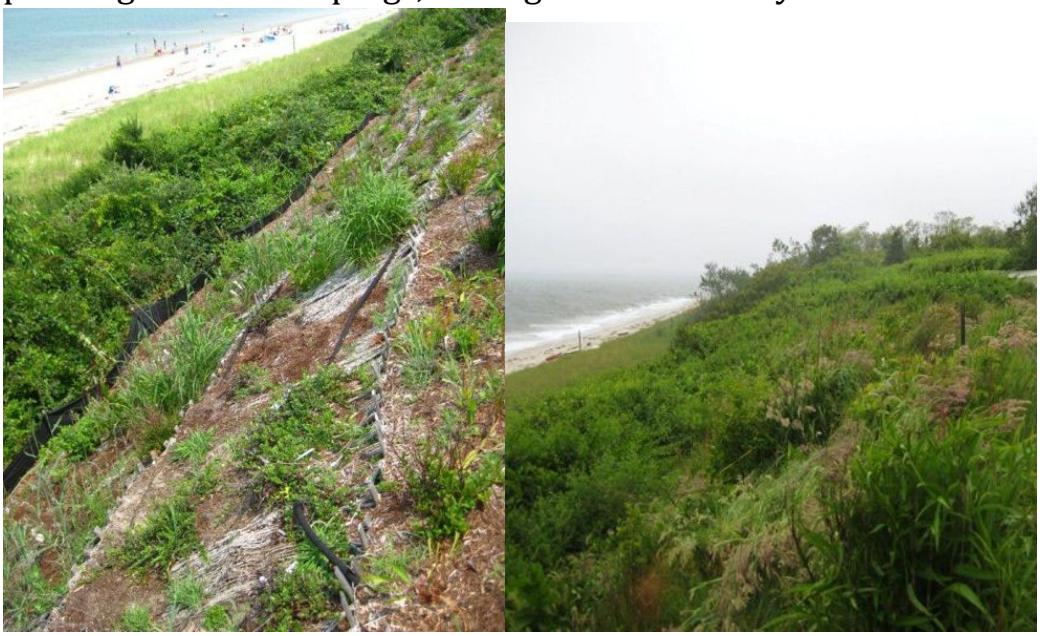
At this point we usually do an initial planting of potted native plants. If social and permitting restrictions require us to work under threat of drought, we include a temporary drip irrigation system, which goes on with a timer, 1 hr. each morning.


Images by G. Peabody. On this site we planted woody stems through netting.

After the first planting and installation of drip hoses we blow in native mulch over the site, about 2 inches thick. Using the mulch blower limits our liabilities from over-activity on very steep slopes. This mulch layer provides a safety envelope to prevent atmospheric moisture and temperature spikes from impacting new root growth on the underneath layers.

Image by G. Peabody. Blowing in mulch significantly reduces site impacts.

Once the bioengineered stabilization system of short fence, compost, netting and mulch is in place, the slope assumes a greater stability and we finish planting with native plugs, mixing soft and woody stems for diversity.



Images by G. Peabody. Same coastal bank site, images one year apart

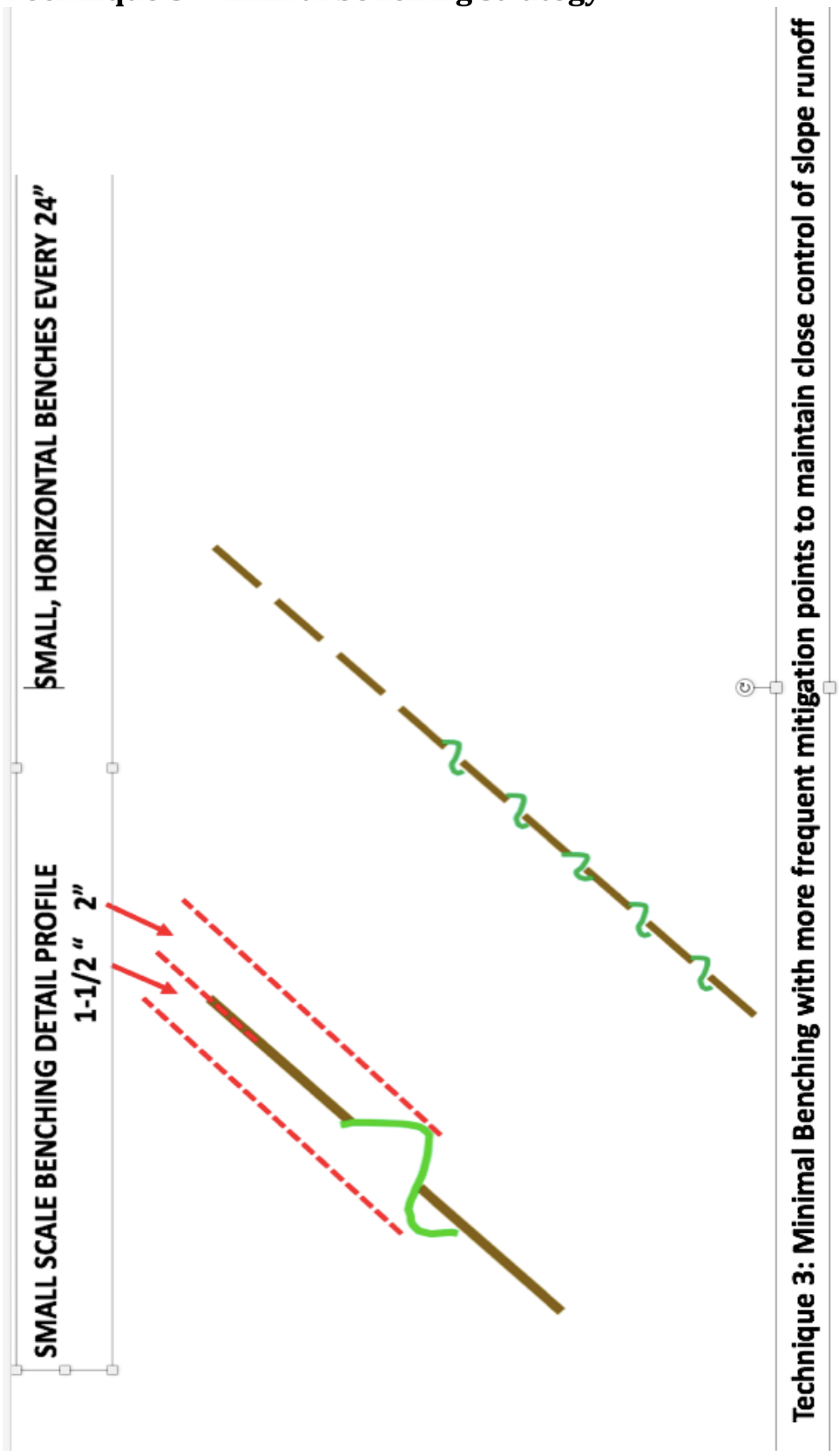
Slope stability and sustainability increases exponentially, during the first few years, as evident in the case study shown here, in Brewster, MA. This is a model and not intended to supersede the requirement for site specificity.

<u>Technique Two</u>: Very Steep Slope Stabilization with Articulation-Shelving:
Very Steep Slopes may be destabilized by benching and we do not recommend attempting that technique. Some coastal habitats are characterized by low-density vegetation but high percolation geomass. Stabilization techniques in these areas should focus on minimizing and mitigating storm water sheet flow. We recommend an innovative technique we refer to as "Slope Articulation", or "Shelving". This innovative technique creates an infiltration matrix of multiple small (24"-36", tilted into slope) shelves, randomly placed over the slope surface. Cumulatively, these articulated areas perform using the same principles as benching, without inviting cross slope consequences.


Images by G. Peabody.24" shelving, using a trowel, forms downslope berm.

We often utilize the random shelving, to plant native vegetation. This enhances storm water retention and infiltration performance. This shelf could use more back slant.

Technique 3: Minimal benching strategy



TOWN OF TRURO
ZONING BOARD OF APPEALS
Cloverleaf Meeting Minutes
June 25, 2020 – 5:30 pm
REMOTE MEETING

Present (Quorum): Arthur Hultin (Chair); Fred Todd (Vice Chair); Clerk Lucy (Clerk); John Dundas; John Thornley; Darrell Shedd (Alternate); Heidi Townsend (Alternate)

Other Participants: Jeffrey Ribeiro, AICP – Truro Town Planner; Barbara Huggins Carboni, Esq. – Town Counsel, KP Law; Ted Malone – Community Housing Resource; John O'Reilly – Project Engineer; Jessica Snare – Architect

Members of the Public Addressing the Board: James Nash; Andrea Aldana, Community Development Partnership; Brian Boyle; Christopher; Joanne Hollander

Remote meeting convened at 5:32 pm by Chair Hultin.

Town Planner, Jeffrey Ribeiro, detailed where to watch this meeting, how to access it, and to provide comment during the meeting by calling toll free (866) 899-4679 and entering the access code 746-033-605. The telephone number and access code were repeated, and he noted that a slight delay of 15 to 30 seconds between the meeting and the live stream television broadcast might be experienced. He also noted that if you are calling in to please lower the volume on your computer or television during public comments so you may be heard clearly and to also identify yourself so multiple callers can be managed effectively. Citizens may provide public comment for this meeting by emailing **jribeiro@truro-ma.gov** with your comments, and he will be checking the emails live during the meeting.

Public Hearing – Continued

2019-008 ZBA – Community Housing Resource, Inc. seeks approval for a Comprehensive Permit pursuant to G.L. c. 40B, §§20-23 to create 40 residential rental units, of which not less than 25% or 10 units shall be restricted as affordable for low or moderate income persons or families, to be constructed on property located at 22 Highland Road, as shown on Assessor's Map 36 and Parcel 238-0 containing 3.91 acres of land area.

Chair Hultin recited the **2019-008 ZBA – Community Housing Resource, Inc.** Public Hearing case description. Chair Hultin introduced the members of the Board attending the meeting as well as Attorney Barbara Huggins Carboni.

Chair Hultin turned the meeting over to the applicant, Ted Malone. Mr. Malone stated it was March 12th that we last were in person presenting. That is the date that we, that the board received, the peer review consultant's report, and since that time we have been working diligently. John O'Reilly has been leading that to respond to the letter of comment from the report from Horsley Witten. I feel like we've been able to address things adequately well. Still, having things work

financially for the project at this point. The majority of the report here is going to be done by John O'Reilly, responding directly to the Horsley Witten report. Jessica Snare is also here because we will be getting into the architecturals later in the meeting.

John O'Reilly stated he was going to be following his June 5th memorandum that he thought the Board had. It was the summary of the responses to the peer review from Horsley Witten Group dated March 3, 2020. The plans have been updated as Ted had said with regards to the wastewater. We are now proposing a treatment process by BioMicrobics Inc. which involves a submerged media with a dual train that will produce an effluent that will meet, or be below, the 10 parts per million that was recommended by the peer review. We've calculated the new nitrogen loading at the property line at 9.1. I arrived at that number simply using the numbers that Horsley Witten had done within their peer review report. And we came up to just about 9.1 parts per million of nitrogen at the property boundary. The septic system itself really has not changed its location. We are still collecting it behind Building 21, with several septic tanks, and then the treatment process, and then the pump chamber which will feed the two leach fields in the center court area. The system changed as far as the leaching facility is concerned. You'll notice that we have a larger field and a smaller field. We've done that to overcome some coverage issues with regards to the most southern portion of the leaching facility. The grade drops off or continues to drop off to head down to Highland Road, so we've redesigned the leaching facilities to maintain the proper coverages over them that they are designed for the H-20 wheel loads as some exist underneath the paved area of the Center area.

Another big change we've done is with regard to the septic system, as we do have a Treatment Unit building which is a small 12 by 12 shed adjacent to the Route 6 corridor. To the West of Building 21, also shown adjacent to the control room, is a generator that will be intended to operate the pumps in case of a power outage. We have not downsized the size of the pump chamber that was originally proposed – that does have the 24 hours of storage; but, in order to provide constant control of the wastewater, the system will be connected to the generator in case of power failure.

Stormwater was another area that had the most revisions to it. One of the things that the peer report identified is that we were dealing with deep, sump catch basins and then going straight to subsurface leaching facilities. There was a concern of spill, as well as providing some additional treatment that was available to us, so we ended up starting at the front of the property down by Highland. The plan that we described back in March had four drainage facilities running up the hill. We have simply combined them into a series of catch basins and manholes that run down to the roadway that discharge into a large grassed swale wherein you'll get some treatment, particularly suspended solids, oil and grease, prior to discharge to the subsurface leaching gallery that's located just adjacent and below the vegetated swale. The swale will be grassed and then landscaped according to the landscape plan. The two intermediate catch basins up by the central area, central circle, have remained the same as previously proposed that simply have a deep sump catch basin and then a subsurface leaching facility.

We looked at several different ways to incorporate a swale in these two areas. Simply because of the amount of what's going on in this area with the building's roadway, and most specifically the leaching facility, the swales wouldn't be appropriate here simply because of the amount of room or the lack of room that we have. We then concentrated on the rear of the site out by Building 21, wherein, again, we have two catch basins down by the parking area directly behind Building 21. Those two catch basins run into a grassed swale, which will provide some treatment to the

stormwater prior to discharge into the subsurface leaching facility adjacent to and below the proposed swale.

We have identified roof runoff control. We have a series of 14-foot diameter by six-foot deep leach pits that have been designed to handle the roof runoff for the 50-year storm, and those are shown on the updated plan Sheet 2 of 5.

On Page 2 of the memo regarding specific comments that the peer review had regarding the septic system, they were questioning the reserve area location and how it would be utilized, if needed. We would be proposing a drip dispersal system in this location because of the slope, which would allow us to place a drip disposal dispersal system, leaching facility in the two reserve areas: one by Highland and the other one on the northern side, behind the last two units to the north. I go through basically drip dispersal; the advantage here is that it can be mechanically trenched into the ground without severely impacting the vegetation or slope, and we would be opting for that. I think the peer review wanted to know how it would be delivered or dispersed, the effluent for the reserve area. So that's our response to that.

There were some comments on groundwater separation; and of course, since the peer review did the groundwater development for west of the property, we know that the groundwater at the site is about elevation 4.7. Based on the separation of the bottom of the leaching facilities that are proposed, and the reserve areas, we're looking at a separation anywhere from 28 feet all the way up to 46 feet from the bottom of these leaching facilities down to the groundwater. We did look at mounding, but given the depths that we're dealing with, we do not feel that the mounding would impact the five-foot requirement or separation between the bottom of these leaching facilities and the groundwater table.

There was some comment regarding the operation and maintenance of the wastewater treatment plant. I've given the Board some guidelines that I think would be appropriate in this manner. It would be for the sampling of the nitrogen and any of the discharge once a month for the first 12 months after startup. Then, once the 12 months have gone through, assuming the plant is operating as it's been designed, it would switch to quarterly thereafter. I also have some guidelines for sewer line inspection and the pumping of the solids out of the tank, which would be evaluated once the system was up and running.

With regards to Page 3 where it says, specific comments on the stormwater management, I think I've touched on most of these, but we are providing those grass swales that do provide some TSS removal which was the goal of the grassy swale, and I think a comment from the peer review. Although we don't provide grass swales for the two smaller drainage facilities up by the Center Court, the overall site does address about 84% of the drainage area for the entire project, so we have two swales that address 84% of the drainage capacity for the site.

We did review the contributory areas, and we did expand them slightly. I think we had a good capture of them the last time, but it was more of a crossing a “t” and dotting an “i” to make sure that we're getting every little drop that would be coming to the drainage facilities.

The roof runoff is being controlled by dry wells, and it's designed on a 50-year storm.

We did add, on Number 6, the peer review report, they questioned the amount of sheet flow that was coming down the proposed road towards Highland. We added another set of catch basins to slow that water down and improve our control of the water as it comes down towards Highland.

No physical testing has been done on the site.

We would propose that once the site was available to us, we would do the PERC test and deep soil observation holes that are required by Title 5 as well as do soil testing in the areas of the four drainage facilities that are proposed on the site.

With regards to formal phasing, other design comments from the peer review, I think that is something that needs to be generated still with regards to how the site is going to work once the Town installs the water main, grades the site. I think that needs to be provided to the Board at some point.

We did enhance the Stormwater Pollution Prevention Plan (SWPPP). We added some verbiage in there regarding the slope control, slope protection, the use of the on-site vegetation for ground cover.

I believe Safe Harbors is working on a specific landscape part of an erosion control report. They are spearheading that, and I believe either it's completed and just not submitted to the Board or is still in a final draft form, but that is something that will further document the control of the site during construction and post construction.

The cuts and fills have not changed substantially from the March project, and I don't believe I provided the Board any additional information regarding that.

Regarding to item Number 5, Ted has done some extensive work, looking at the vegetation along the Route 6 corridor. We have modified the pipe locations along that side of the lot; we're actually placing the water services on the side of the buildings closest to Route 6 and the sewer lines on the Center Court area thinking that the water lines being the only services that can be twisted around and moved around to avoid unnecessary clearing of vegetation.

Mr. Malone interjected that can be seen behind me on Buildings 10, 12, 14, 16, 18, 20. You can see the limit of work line is undulating into the site to preserve the vegetation.

Mr. O'Reilly stated that he is on Page 5 of his memo. We have addressed the comment regarding the pavement pitching. The central road coming off Highland will be crowned in the Center, and the one-way roads will be pitched to one side, or the other, so as to direct the stormwater towards the catch basins.

There is the note regarding dumpster and I'm going to leave that for Ted to discuss with the landscape plan.

The landscape plan has also been correlated to our drainage and leaching facilities, and I think, Jessica Snare and Ted can talk about that.

I don't know anything about a playground; I don't believe there is one proposed.

I think the sidewalk down at Highland still needs some coordination if there's going to be a bus stop at the bottom of the Hill, and if we do need to extend that sidewalk.

With regards to the endangered species, we have an approved Turtle Protection Plan. Again, I think Ted can comment on that.

Regarding the site, I think we have addressed the concerns of the septic system, the wastewater, the nitrogen control certainly by putting in this technology by BioMicrobics. I also gave the Board and Horsley Whitten some history on a similar project that was just shy of 10,000 gallons per day, and they are hitting 5 parts per million or below for the last 12 months since they've been up and

running. I believe we have tried to meet the stormwater intent that we are providing 84% capacity a site to be run through deep sump catch basins as well as grass swales prior to discharge.

When we get to the questions, I'd be happy to answer any that the Board may have.

Mr. Malone asked the Chair if the Board would like to ask questions about what has been presented before going on to this next plan? Chair Hultin asked the Board if there were any questions for Mr. O'Reilly at this time?

Clerk Lucy stated that he has had a couple of people ask him about these grass swales when you go into the catch bases. The runoff water, the grass is supposed to collect the oils and greases and whatever else. It's kind of a mystery as to what you're going to be planting there because if I spell grease and gasoline on my lawn it dies. So, I don't really understand how the swale is supposed to work with vegetation while at the same time it collects gasoline or oil or whatever bad stuff comes off the road. Explain what that is because once it's dead, it doesn't come back. I'm just trying to understand the need for these so-called swales as opposed to just a paved wash way into the catch basin. Mr. O'Reilly replied that the thought process with the grass swales is that the initial flush of water entering the swale doesn't directly get discharged into the leaching facility. It has a chance to sit in the swale for a period of time and the amount of time depends on the volume of water and the size of the storm.

But the Massachusetts Stormwater Handbook does find that when you run stormwater through a grassy swale and it allows for the first flush if you will, to either settle out or leach down through the grass into the soil itself, that you do have uptake of the oil and grease with the total suspended solids as well and it does deal with some nitrogen and phosphorous as well that may be coming off the pavement with the rainwater. The peer review talked about the swale so as if there was a gas or oil release that there would be a clear sign from the pollution in the swale. We have found that if there was a release like that you would deal with the vegetation that's in the swale that's dying. But, on normal rainstorm events that that these are designed for, we find that there is enough flushing and dilution of the oil and grease that there is not a systemic dying, if you will, of the grass and vegetation. The swales will need to be maintained, just like catch basins are maintained and cleaned out, and they will need to be mowed and raked clean on an annual basis.

Clerk Lucy then mentioned the catch basins and asked if they are all actually catch basins or if they are leach basins, and the difference being the catch basin would catch the solids as they settle out and the leach basin, like a septic system, will only accept the water. So actually, we're cleaning out only 1 or 2 of them as catch basin, which catch the sediment, because once the leach collect the sand and debris, it's no matter how much maintenance you do on it, it's pretty much spent, because that sand and debris got into the leaching stone. Mr O'Reilly replied that these catch basins, that are identified on the plan within the roadway, are solid basin and they have a solid bottom, no leak hole, no stone around them, they are a solid, concrete chamber. Saltwater along with solids will all get into the catch basin. The hood is the key, if you will, coming out of the catch basin which will prevent any floating debris getting into the leaching facility as well as any oil and so forth, getting in the leach. So that's one benefit of the deep sump catch basins, then it will be discharged into the swale, orient directly into the leaching facility, and then yes, just like a leach pit or leaching facility for septic, the intent is that it is only dealing with the water product, and that's the same intent with a deep sump catch basin, and then a leaching facility.

Chair Hultin asked if there was a particular a species of grass that's called out as being more hardy than another that would be planted there? Mr. O'Reilly replied that on the plan, he specified the

swale. The water in these swales will be no higher than 12 to 18 inches before it starts draining coming into the grades for the leaching facilities. Usually, on a swale like this, you'd want a drought tolerant seed mix that would survive periods of drought and not getting any as well as the occasional inundation of water. Above the waterline it's really just stability you're looking for from the grass and plants. Mr. Malone asked if he could interject that our planting plan calls out native grasses to be used in the swale, and if there are more tolerant plants that also qualify as native, those would also be selected. We would be taking further advice from the Safe Harbor consultants and also from the Master Gardener consultants as to what would be the most survivable native grasses to plant in those areas.

Chair Hultin asked if there were any other Board members with questions? Hearing none, Chair Hultin turned it over to Ted Malone.

Mr. Malone indicated the landscape planting plan currently on the screen and stated that on the left-hand side of the page was a planting key where we've specified categories of plants that are organized by their plate and whether they're deciduous or evergreen. They are plants that are already identified on the site, so this is really supplementing the native materials that we have found. They are quantity specified. On the far right of the planning plan key, there is a quantity column by grouping. The first item 28 shows that we have various oak species and black tupelo. The 28 is not broken down amongst those; a lot will be dependent on what is available at the time when planting is done. These are all appropriate trees, are deciduous, and are of a significant height at maturity. The next grouping (Key AE), which also happens to be 28 plantings, are evergreen trees that are both suitable for screening purposes and needed. The Eastern Red Cedar and American home can be good screening materials. I will come back to the plan after just walking through this a little bit further. There are evergreen trees of both the 20 to 30-foot size down at Key CE that were deciduous in that size category. Then we have shrub categories which are, for the most part, deciduous – they're not going to be providing screening. We've pointed out the various grasses and ground covers, and we spoke in the past that we will utilize the cleared duff layer of organic material that's loaded with seeds in the ground covers and we will be using that to re-establish in particular the slopes on the road.

Going back to the full planting plan, it has either a designation of a single letter or a designation with the key after it. All of the AE's that you see are evergreen; the Juniper is where the American Holly would be providing additional screening for our abutters immediately to the east. Along the roadway, the letter "G" in a triangle, those are all on the roadway coming in. All of those are the areas that we would use recycled ground covers and grasses that would stabilize that slope soon after it was graded. So, that's what all those triangles are at the front of the site. There are some existing oaks up front that are of a nice size that will be preserved. That's the designation that looks like a little airy "A" circle. We have a few more evergreens that are planted above that between Buildings 2, 4, 6, 8 that are allowing us to just give a little more screening from the road. But the squiggly line that we talked about at a previous time is basically a limit of work and limit of clearing from the standpoint the significant areas at the front of the site are going to be left undisturbed and that goes for the right-hand side of the road coming up as well. We will be interspersing that undisturbed area with some additional screening of individual plants. I should point this out because there was a question about snow storage. Snow storage and grassed areas are compatible seasonal – different uses in different seasons. The cross-hatched area that you see in the oval, all those areas would just be planted with grasses so they could be areas that could receive snow storage in the advent of significant snowfall. Those are all visitor parking spaces;

they would be expected to be used less in a big snowfall event. There is compatibility in the drainage swales to store snow in significant snow events, so we have addressed that aspect.

In the middle of the front of the site, there are planting keys for shrubs in the middle of the island that are not right at the roads edge, Letter D's, that are basically the native shrubs that we have: the huckleberry, the bayberry. Those would tolerate and be further enough inland and away from the road that they wouldn't be damaged by snowstorms.

At the rear part of the site, important as additional screening for abutters to the north, there are clusters of AE designations that are all evergreen trees that will provide some buffering for our neighbors. From the list, specific plants are there, the quantities are there, for the groups and types of plants. There is a key at the bottom of the page that designates what the cross hatch means. Also shown on the plan are dark circles with and "L" which are indications of our low-light posts that are 42 inches tall and those are scattered throughout. It's low light just for safe passage by pedestrians and vehicles and they also go along the side of the road back to Highland Road. We do have a sample of what those light fixtures might be, but they would be compliant with the night sky requirements.

In addition to the plants and the lighting, we've also used this plan to demonstrate the bicycle and trash storage for each unit. John had made reference to a comment by the Horsley Witten report that referred to a dumpster. There will be no dumpster at this property. At the rear of Building 21, where there's two "F's" next to it with a cross through it, that is actually what we call our garbage gazebo or trash trellis. It is an enclosure for trash cans that are to be assigned to an individuals' residence in Building 21. Recycling is handled within the storage areas of that building, and the transporting of trash to the Transfer Station is the individuals' responsibility. If individuals are unable to do that, arrangements could be made with management or a neighbor to get to the Transfer Station. We won't have a dumpster and any of the issues associated with those.

Between Buildings 15 and 17 is the bicycle storage and trash storage area, right behind the tandem parking spaces. There are, again, two "F's" which are basically plants that are planted on a trellis fence and those are behind each of the units. So that's where trash storage and bicycle storage would be handled for the individual units in the 2-family 2-unit structures.

The next slide, which includes the graphic depiction of the exterior site lighting, is a down post-like or exterior lighting fixture that would focus the light downward, and it also would have a lower wattage that would comply with the night sky and guidance. I'll come back to this later for the color palettes because it's not really what we're talking about. The next sheet has the graphic image of the photograph that says "Building 21: Example Trash Enclosure" that is cedar slat construction and vines over it that we're kind of talking about at the rear of Building 21. The trash bin enclosures with a lift top and drop front is the picture below that. And then, to the right and above, is the trash and bike storage enclosure sketches of what would be provided at each of the units for screening and storage of trash and bicycles. There is fencing proposed. On the planting plan between the two-family buildings where those "F's" are, there is a row of fencing that separates the two trash storage areas for each unit and there's a line of privacy fencing that would be a shadow box construction and planted to have lines on it. It would provide privacy to each of the units on either side, as well as a separation of the bike and trash storage.

Chair Hultin asked if the Board had any questions at this point in the presentation but there were none.

Mr. Malone continued. The Turtle Protection Plan has been developed by Mass Audubon, and they got it approved by the Natural Heritage & Endangered Species Program. It's actually a very straightforward process. The site will be, basically, the border of the site between the limit of work and the property line which will get silt, fencing and stakes, and it will create a turtle barrier with straw logs that hold down the base of it. Literally, they will sweep the site. During this summer, because the turtles become inactive by October, we need a couple of months to take care of that; the turtles will be basically relocated off site out of harm's way. It's a fairly straightforward approach, and it will also tie into some of the phasing of the waterline construction versus the full site construction.

Chair Hultin stated that it seemed that the skill and supervision of the excavators was going to be a key part of this, and he was wondering who the excavator might be? It sounds like there might be more than one because it's over quite a long period of time. Mr. Malone responded Burke. Chair Hultin continued by asking what is the management on-site of the actual excavation once the machine is there? Mr. Malone responded that there will be what's called an Environmental Management Plan, or construction protocol instruction, mitigation protocol that's being developed by Safe Harbor. That will be very specific and will have to be signed on by whatever contractor's engaged, both on the Town Water Line Project as well as the site contractors, importantly housing construction. That document will govern the behavior. It would be part of the Town's bid documents, and it would be part of the waterline and housing construction documents – it would be very specific. SWPPP will also be governed and will be signed by the site contractors as well to ensure that we're not dealing with any runoff during construction. But there will be two different bids and then we could end up with two different site contractors, but they are going to both be governed by these very detailed documents to protect the environmental situation.

Chair Hultin asked if the Board had any questions but there were none.

Mr. Malone stated that, as a refresher, when this application was introduced it was stated as 40 units. We are now at 39 units based on the changes that occurred at the front of the site when we were changing the road layout which was based on our communication with the fire department and the State Fire Marshal. We spoke to this road layout on the March 12th meeting, but I just wanted to remind folks that there were some changes in the front of the site – those buildings were reconfigured back in March to allow us to satisfy the safety needs for the fire department's emergency vehicles.

Mr. O'Reilly had just a couple of things to add. The peer review asked us to lay out the other underground utilities, and my plan does incorporate the propane tanks for the buildings, which are now shown, and we have, in a very preliminary manner, laid out the underground electrical and so forth from the primary pole at Highland, and that is added to the plan. That was one thing that I had overlooked in my initial conversation, but, I think, Ted, you covered everything else pretty well.

Mr. Malone asked if there were any questions on site-related issues. There were none, but Chair Hultin stated that, again, he would say the skill of the excavator is going to be important to the outcome. But with no questions from the Board, he thought they should move on to architecture.

Jessica Snare stated that the type, shape, location, quantity of the buildings hasn't really changed that much other than the front of the property as Ted was just referring to, where we had two attached units, and there are now four separate – that's the 1, 3, 5, 7, 2, 4, 6, 8 – due to the road change, and as well as an attempt on our part to reduce the amount of grading that was happening

by trying to get parking behind them. So that was an attempt. I think we reduced the grading there by two thirds. There was an additional driveway to the back of the two on the left, as you're coming up the road, where it says 2, 4, 6, 8. On the access road, there was a road there with parking before near that large amount of natural undisturbed tree growth on the left side as you're coming up the Hill? It's been expanded, and there used to be parking back there for one of the lower garden units, and so that was a huge improvement and from a cost savings point of view as well. Other than that, the buildings really have been locked in for a little while. We were asked to introduce a palette [shown on screen]. These are buildings that we have done in the last few years: Sally's Way, Stable Path and the doorway is Gull Pond Road in Wellfleet. We have borrowed the details, the massing, the layout, and modified it a little bit due to a very different kind of a site condition. Some have walkouts and some don't. The color palette that you see here might not be exact, but I think we're trying to introduce a quieter, less conventional color, not gray and white. But we've had positive feedback from the tones of the last couple of projects that we've done with this, and that is the direction that we are currently taking. There's an interior palette page as well with simple, clear, fresh-like colors, and natural wood floors.

Mr. Malone thought it would be good to talk a little bit about how the buildings, out front, that used to be three attached, three-family buildings, how they have evolved into the two-family buildings. Ms. Snare responded by stating that they are more staff than they are townhouse, which separates them. The first set of buildings, the first four as you approach, all have a very similar look to them. Three of them have walkouts because of the steep grading. There are two basic types. Ones that don't have a walkout are just stacked one bedroom – one bedroom on one level, and another one bedroom up a set of stairs; I think there's two of those. Mr. Malone clarified that in the four buildings upfront, there are four upper level one bedrooms. Those are the only units in the development that are not what we call visitable, but everything else, every other unit, is a visitable unit.

Ms. Snare stated that we were able to achieve two-story units that had a walkout basement with a den and then on top of that, which is really the second floor, if you don't count digging out the walkout, is a single one-bedroom apartment. Other than Building 21, the big building, the other units all tend to be side-by-side townhouses, and partly due to the steep grading here, it was more feasible for us to do apartment-over-apartment with outdoor egress stairs as well. If you look on the planting plan, the storage bike shadowbox fence area is what we're using for all of the other units, other than Building 21. In this case, we are putting this storage underneath the exterior stair. Mr. Malone stated that this building that used to be when we had building 2, 4, 6 as a combined structure before, those weren't going to need - because it was more than three units - to be a sprinkler building. Now that they are two-unit buildings, they don't require sprinkling, but they do require a second means of egress from the upstairs unit, which was not required before. So there's been some addition of exterior stairs that you can see in the upper right side elevation and it's some areas there that we have made for trash storage on these multiple units. Ms. Snare stated that it also gives those upstairs units a little outside space - a table and chair. So that covers the four in the front.

They are architecturally a little bit different from the rest. The oval is surrounded by two, 2-family units that are side-by-side and they resemble the one of the photographs that we showed you that if you've been to Sally's way, it's a model that we have done before. Mr. Malone stated that one includes a visitable bathroom on the first floor and a little bump out for the dining area, a little bay which is a nice improvement. Ms. Snare stated that over time, we developed a slightly better

second floor; that deck, fence in between with plants on it. You can see the bump out in the floor plan with the furniture in it; that little bay allowed for just a nicer dining area.

The next, Building 21, has gone through probably the most changes since we first met reacting to comments about its height. The approach to this building, going up from the oval, has been reduced by a whole story and it's now a true two-story building. The roof seems large when you look at it straight on in drawing form, but that roof slopes back at a fairly low pitch and will have far less impact. The grade drops off quite a bit as it circles around this building, which allows us to have a full walkout basement which houses the necessary laundry and storage, but we also got two garden units, very visitable. Can't remember if they're full ADA, but they might be, and it allowed us to keep our count by not going up the third story and there is still a group meeting room in the middle.

We have reviewed these buildings with a fire protection and code consultant, no written report yet, but we've been tapping into their expertise to make sure that our corridors are the right widths, our egress doors are in the right locations and the right widths and actually opening in the right direction. That's true for the front entry, which also serves as egress from the upper units because the egress stairs flow into it on the first-floor plan. Same thing for the width of egress stairs and the number of egress stairs, etcetera, and clearances around the fireplace. This affects the elevator and the size of the elevator. Those items have been incorporated. We have a change of materials – I can't promise that materials won't be evolving over time – but there's a combination of shingles and vertical siding to help diminish the scale of this building, it is a large building. We have compared it to a building in Provincetown [Mr. Malone replied Grace Gouveia].

Mr. Malone stated that there are also setback alterations as well. The two vertical siding stair columns/towers that have vertical siding are projected out from the other planes of the building and then there's some other parts that are recessed. So, using the materials as Jessica was saying, as well as the varied projections, all contribute to a kind of softening and bringing down the scale of the building, but it is only a 30-foot tall building from this perspective. Just like any two-story building from the street that has a walkout basement that's a single family. It works the same way.

Town Planner Ribeiro stated that there was one thing from the public wanting some details about the number of visitable units and the steps into each. Mr. Malone replied that 35 of 39 are visitable, and they were designed to be one step with and then also able to be a removable ramp if it needed to be. Ms. Snare replied that they don't actually mention the ramp; if I recall, one step falls within visitable. I guess you could have a plywood ramp if somebody was coming by regularly, but one step is considered visitable, and of course, door widths were enlarged to 2 foot 8 or 3; almost all of the units in Building 21 have three-foot doors. There never has to be a change of doors if somebody requires it. The other units have a half bath on the first floor to comply with visitability. This building has complete visitability. It has an elevator; it has ground floor units. It has an ADA-compliant front door access. All the units could handle varying degrees of inability to get around. The requirement that we have for ADA units, I believe, is two for the site but we have created units that are 90% there and could probably be adapted with modified modular kitchens for access underneath, for a wheelchair to access underneath the counter, and ovens that have the right height. But the bathrooms, as you can see, even if you don't see a five-foot circle in them, have plenty of room for either assisted use or somewhere between a walker or wheelchair. There are 7 units here; Town Planner Ribeiro is pointing to another unit section of the drawing and stating that it looks like the bathroom isn't quite sized. Mr. Malone interjected stating in construction drawings we intend to make them all compatible for wheelchair access; we're talking about a few

inches that we have to squeeze out of somewhere else. Ms. Snare stated the ADA has different levels of bathroom design and there are ADA bathrooms that don't have the 5-foot circle, but they have clearances that meet certain minimums in front of a vanity, in front of a tub shower. So, there's a Level 1 and Level 2, Type and Type B. There's room within these units for some tweaking - they're open, they're flexible.

Chair Hultin asked if Ms. Snare could review what the research or the decision-making processes is for the type of unit: one bedroom, two bedroom, three bedroom, four bedroom – and rentability, if they will be fully occupied? Is it by research or experience and how exactly do you come to that blend? Mr. Malone replied that we did a market study that confirmed the Town's interest in more one bedrooms than are typically included in family housing developments that the State funds, but the market's demand is clearly weighted towards single bedroom smaller households. Much of it was driven by the request for proposals that the Town produced seeking out the unit mix from a bedroom-size standpoint, as well as the affordability mix. They were pretty well thought through by the Town and the Housing Authority when the request for proposals was put out.

Chair Hultin asked if any Board members had comments or questions at this point. Member Dundas asked Mr. Malone what year the market study was done? Mr. Malone replied last year and refinements on it may have been done December 2019.

Member Todd stated that in the packet there was one letter suggesting that because of Coronavirus this kind of building should be rethought. Chair Hultin stated that this could be discussed during the public comment section.

Ms. Snare stated that there are two more buildings on the site. They also are a model from previous, also side-by-side townhouses, and those are three-bedroom units. There are only a couple of buildings that have three-bedroom units, and they are placed in the back end, partly due to the probability of a larger size family occupying it, behind Building 21. That covers the site in buildings.

Town Planner Ribeiro noted that these funding models from the Department of Housing and Community Development and Federal HUD also do generally require 2 and 3-bedroom units. Part of that is a lot of towns will sometimes seek to have only one bedroom to prevent additional families from moving into the town, which then, therefore, means more schoolchildren that they have to pay for. So there are also requirements for a lot of these things that some of those be provided. Ted's done this a long time out here, and he knows there are arguments that can be made to lessen those requirements based on community need. So, I think we probably do see more ones and twos here than you would see necessarily in other projects because of our local demographics. Mr. Malone responded by stating yes, certainly on the units that meet the funding requirements for the state and federal funds. We also have the other income tiers that are above the traditional state funded levels serving up to market rate, and we do have some larger units available in those income categories as well.

Town Planner Ribeiro stated we haven't met substantively since March. There are a few areas that we just want to discuss today. There have been questions about things like community need, the Turtle Protection Plan, limited natural resources concerns, limited transportation concerns, and community character and design – the biggest discussion point being Building 21. Future discussion will be our Emergency Vehicle analysis – the applicant did provide the turning radius plan, the SWPPP analysis, for the revised site drive, which is with the Fire Chief who has been working with State fire engineers. Wastewater, Stormwater and Erosion Control is currently with

Horsley Witten, the consultants that the Board retained to do their peer review, and we will have that report back in advance of our next hearing. Ted, Town Counsel Attorney Carboni, and I will be reviewing the detailed list of waivers that will be required. Those are some things that we will be coming back to at the next hearing.

To review, back on November 21st we had the initial presentation of the project, throughout December we delved deep and that's when we acquired the peer review. On March 12th we reviewed the peer review and that is when we determined that the changes needed to be made that John Riley presented today. For our future hearings, proposed dates for the next two hearings are July 9 and July 16, and there may be more after. At the July 16th meeting, hopefully we will be looking at the response from the Horsley Witten Group and also some board reports, the commenting boards, the Planning Board, etc. Hopefully we will have their comment letters to us prior to that. We're also working on the Board of Health meeting so that'll be a continuing thing.

One point of discussion that's come up at past hearings is the idea of community need and who this project serves. I think 40B is frequently understood to be an affordable housing law. It's actually a civil rights law, in addition. The Federal Civil Rights Act of 1968, part of that is the Federal Fair Housing Act, that recognized that one big way that kind of socioeconomic and racial segregation was perpetuated, particularly in northern states, was through land use regulation and things like prohibitions on multi-family housing. The 40B law was originally called the "Anti-Snob Zoning Act", so it is also a response to these things. We always talk about inclusionary zoning. There is also something called exclusionary zoning, and that's the idea of zoning being used as a tool to keep certain people out of a community. So that's kind of what 40B responds to, this idea that these units potentially can allow people to live in Truro who otherwise have been prevented from doing so. The other thing is that when we look at our employment in town, we know that we have a seasonal economy. We know that we rely a lot on tourism, restaurants, accommodations, etc., for our local jobs. So when you think about that, if you look at the jobs that actually exist in Truro, many of these businesses end up being kind of sole proprietorships, etc., but the State actually has data available. The most recent data is the second quarter of 2019, and there's 687 people who have jobs in the Town of Truro, and their average weekly wages over that period were $822. When we looked at the income limits for these units, people who qualify for affordable, and you look at a one-person household at 80% of area median income, someone making $822 a week qualifies for that unit. Another example: if you were working in Administrative and Waste Services, e.g. admin assistant at an office or a janitor/building services professional, who has a second job as a health care assistant and is a single parent with a child - they actually qualify for a 60% AMI two-person household. So, we know that those people are working here, and a lot of our housing market is not structured to allow those people to also live here. So, one big part of 40B is to ensure that equity - people who are working in a community can live in that community, and also people who historically have been prevented from living in that community do have opportunities to do so.

As far as natural resources, we briefly touched on the Turtle Protection Plan. There's no Mass Natural Resource Areas aside from this priority habitat for the Eastern Box Turtle. A lot of Cape Cod is priority habitat for the Eastern Box Turtle, and I think that we all probably see them around. They do need to be protected. The Natural Heritage & Endangered Species Program issues what's called a No Take Letter, which basically means, usually with conditions like this, that they'll have to institute this Turtle Protection Plan because the Town is doing the waterline installation. This

has been coordinated as well, so the Town is very involved in that and they have had their draft plan approved by Natural Heritage.

For transportation issues, we have the SWPPP analysis which is going to the State and they will look at it to make sure that fire trucks can get in. The concern here is that when a fire truck is turning into the site and someone is exiting the site during that emergency, the truck doesn't have to cross over into the oncoming lane. One other thing discussed was a kind of internal pedestrian circulation. The sidewalk coming into the site has been more detailed now to have additional pedestrian connections and crosswalks, and there is also now a full sidewalk going around the side of the building. As far as connections to the bus stop that exists on the other side of Route 6, when we looked at where this comes out, we're basically at the property line. That portion of Route 6 is possibly state owned, or the county might own some portion of Highland Road, so the Town is going to have to work and coordinate to potentially have that sidewalk installed, but it is off the property where this is proposed.

As far as landscaping, I think that Ted covered a lot of this. One of the biggest things that we discussed was buffering - impacts to abutters. That's obviously an important thing. I think beefing up the evergreens in the back will do a lot. I had a conversation with the abutter to the north and they did request a privacy fence which I think that a privacy fence, in addition to those evergreens, would be a very reasonable requirement should the Board want to require that as well. There is limited, additional buffering added to Route 6 as the layout is huge. There is a pretty significant portion that's treed, and those trees will remain. In theory, the state could always come through and clear cut the whole thing, but I think the likelihood of that happening is slim to none. I just want to make sure that it's out there – it is a theory, a possibility.

The other thing we have discussed is Building 21, which Jessica spoke about, and I think has been the biggest point of discussion. As far as multi-family housing goes, this is still a pretty small building, but it obviously is not the smallest building in Truro, but I think it does incorporate a lot of those best practices. We're mentioning things like changes in materials where the use of natural materials can also help break down buildings as it helps them blend into their surroundings, and also changes to the roofline. One of the big things is to have these projections. At the front of the building there are areas coming out which breaks it down so that it more or less will resemble one central building with two appendages on either side. The front of that building from finished grade, isn't the exact grade when we look at our waivers and things as that's going to be based on the average of the four corners as it exists today - some leveling and filling is going to happen there; but when the building is done, it's going to be from the front roughly as tall. On the screen is the backside of the winery. If you want to get an idea of the height, that's about how tall that will be. Also, that building is just about 97 feet end to end. The proposed Building 21 is 118 feet. So, if you can imagine another 10 feet on either side of this, that will give you an idea of the width of the proposed building. Also, this building has the changes in the roof height, but it doesn't have kind of the projections and the articulation of the facade. As another example, this is something we discussed earlier, is the Grace Gouveia building in Provincetown (faces Cemetery Road). It was a municipal building that was converted to housing a few years back. This is 101 feet wide, a similar width, and it's actually 39 feet, so when you look at the back of the building this will be the finished grade, not over the present height. It'll appear to be roughly as tall as this building. Obviously, there's differences in the roof and things. This has two stories, but if people want to get an idea of what size building we're looking at, this might be a good opportunity to see something in the flesh. Again, this is one flat facade, and the proposed building has significant

changes in its footprint, so in a lot of ways, it might actually appear smaller than this. On screen and previously discussed, briefly, are Buildings 2, 4, 6 located at the southwest corner of the site where there were going to be these three connected townhouses. Changes to the site drive, to get the emergency vehicles in there required changes to that area, which resulted in, as was discussed, the replacement of those with four small buildings. This is more or less the building. It's pretty similar to one of those modules. There will be two on that west side of the site drive and two more on the east side. I think that overall that's probably a lessened visual impact.

We did a balloon test a while back. On screen shows a balloon at the roof ridge of Building 21, and we also did that front building. While we were doing that, we took photos from various vantage points to give us an idea of where, in relation to the tree line, we could expect these buildings to be. We took photos from four spots: (1) right in front of the site; (2) from Route 6 just across from the off and on ramp there; (3) from the post office; and (4) by Head of the Meadow Road leading south towards the site. On screen (1), this is from directly across the site. You can just barely see the roofs of Buildings 6, 8 (incorrectly labeled Buildings 4, 6). There will be clearing, so the buildings will be more visible than the balloons, but just so we get an idea of relative height, we're still talking about, kind of within the tree line. So even if the tree line is thin and you see more of the buildings, it's not going to be sticking out like a skyscraper up over the horizon. On screen (2), this is probably the most interesting. This is looking northeast, and we can see Buildings 6, 8. I think that building will definitely be visible. It's going to be a small massing. The balloon on the right was actually at the end of Building 2, 4, 6 which is the building that's now been eliminated. The Building 21 balloon, you can just barely see on the left-hand side poking up. A lot of clearing is going to happen on the site, so a lot of this tree cover is going to go. I think that what this does show is that we're not going to have a building that's sitting up way above the tree line. I think that's one of the points at which you get a very significant visual impact is when you see the trees, and then it's going up, and then coming back down. So, this will sit within that tree line, but, you know, once clearing occurs, there will probably be some portions of the buildings visible maybe at the top. Site (3) is the post office where you can see that Buildings 4, 6, 8 are visible, and we couldn't see Building 21 from this angle. Site (4) is looking south by Head of the Meadow Road. We couldn't see any of the balloons, and the dense trees are going to remain. Potential impacts from Building 21 have been a concern of the community, so I wanted to make sure that the Board and the public have an idea of putting it in some context.

I think that what we need to do today, in addition to taking public comment, is just discuss what remaining concerns you have related to these issue areas, which I think are the ones we're touching on today - natural resources; transportation; and building site design; we will come back to deal with wastewater and stormwater issues, vehicle access, and the waivers. Also, are there any other questions that you still have, what materials you think you'd like to see, and then we can discuss the subsequent public hearings.

Chair Hultin stated he would like to start with planning the next meeting and the one subsequent to that. Town Planner Ribeiro stated that the next meeting is Thursday the 9th, which is two weeks from today, and then Thursday the 16th, one week after that. More hearings may be required.

Chair Hultin asked the Board members if they would be available on the 9th and also the following week; I will be available for both. Anybody who can't be available, please say so. Clerk Lucy stated he won't be available on the 9th but would be available the following week and to keep in mind that he has already missed one meeting. Discussion ensued to possibly hold the meeting on the 8th. Attorney Barbara Huggins Carboni, KP Law, introduced herself and stated that she could

speak to Mark Nelson for his availability, but she would not be available. Chair Hultin asked Attorney Carboni what is the ruling because these are recorded and reviewable, what is the limit on missing meetings for voting to which she replied that a Board member is not disqualified from voting if he or she has missed one meeting, but no more, and has reviewed the video or the audio of the hearing prior to the vote. Mr. Malone wanted to point out that there is urgency to moving this process to completion. We got into the funding round, but we were not awarded resources in the initial round because we didn't have our comprehensive permit in place. In the next round everything needs to be in place by August, including the appeal periods. If we don't have a final decision by the 17th of July, we will not make the next round, and then we're pushed off until the next year. Just want you to be aware of that real timeframe. Attorney Carboni stated that Mark Nelson said he would have the report, his comments, by the end of next week; it's cutting it close. Town Planner Ribeiro stated that we do have Barbara here, and with the special legislation, we don't necessarily have to continue, to a date, certain, we do have the ability to just schedule a hearing. It was determined that, at this time, they would come back to this discussion and take public comment as there are some callers on the line.

Town Planner Ribeiro stated that, in the order in which they were received, he was going to unmute the first person who called in and asked them to announce themselves. There was no response from Caller #6; the next caller introduced himself as James Nash, a Truro year-round resident at One Captain Williams Way, and have a comment which is related to a question that I wanted to ask. It was brought up in the meeting - the desire to use some previous designs for some of the structures that are being planned for the unit. He wondered if that raises the issue that if the design utilizes prior construction techniques, that it may not result in the most energy efficient structures, and perhaps miss an opportunity to reduce carbon footprint. I have a question, and perhaps it is something that could be followed up in a subsequent meeting, if it's possible for the developer to please describe the timeline and their anticipated process to engage with qualified professionals and Town committees to ensure that the optimal design characteristics and compliances for the Cloverleaf project meet or exceed jurisdictional energy. Mr. Malone responded that we are building these structures that we have built in the past, but they are certainly upgraded to the current stretch code, and beyond. We are meeting energy efficiency standards that are required by the State Department of Housing and Community Development with an emphasis on sustainability. So, these are just building design forms that we use to start with and then refine.

Ms. Snare also replied to this question by stating that she would like to reiterate that the drawings started from scratch. It's really just pieces and parts and the general look that we used. In the very short amount of time between now and the last project we did, even in that amount of time, the code requirements for energy use has increased considerably and our intent is to exceed where we know where it makes sense to exceed the minimal requirements for installation. We have probably improved on the mechanicals, the utilities, and in materials as far as maintenance, low maintenance materials have improved a lot since then. So, you are correct in that it will not be the same mechanicals building materials necessarily, etc. Chair Hultin asked Mr. Nash if he had any follow up question or comment? Mr. Nash replied that he was just curious and recognized that there are many details yet to come on this, and he would be curious to know the timeline anticipated and who they will be working with. The right professionals and any effected associated town committees to have an opportunity to review that, those energy efficient techniques, and provide any comments, and if that's something that could be forthcoming. Town Planner Ribeiro answered that the point of 40B is this idea of waivers from local requirements. Here, the stretch code is a local requirement, and they are not requesting a waiver from it. So just like anyone building a

house, they have to meet the stretch code. We also do encourage all of our Town committees to meet and submit comment letters to the ZBA for their consideration. There's only so much the Board could require to be on the stretch code, but it certainly is encouraged that all of those boards and committees do meet and provide public comment. If there is anything in particular, we can either relay that to Ted or you can reach out directly to Ted to get that information if it would be useful in formulating your comments.

Chair Hultin asked if they would be engineered in such a way that solar panels are possible? The roofline looks like they're short span. Mr. Malone replied that on the landscape plan, we have identified the south and southwest exposure and those areas on the landscape plan are shown as the white side of those roofs. Those are all potentially outfitted with solar panels. The economic setup is up in the air depending on what the rebate situation and the cost of materials is, but we have contemplated it. We would very much like to see solar on these but it's far off. Rebates for solar installations is declining each year but we are mindful of it and have talked with the energy committee about the potential.

Clerk Lucy asked so they won't be installed initially, but you're telling us that the buildings are solar capable in terms of structure and holding up the weight of the solar panels. Ms. Snare replied yes. Mr. Malone stated that it's possible that we might be able to do solar installation right from the start, but it's just not something that can be factored into the cost at this time because we don't know what is possible in construction period a year and a half or more.

The next caller introduced herself as Andrea Aldana of the Community Development Partnership. She stated that she was reading through the meeting packet yesterday and noticed a letter, an e-mail, from a Chuck Steinman and so I put some notes together and send that off to the Town Planner earlier today and I'm curious if you all are able to receive it. Town Planner Ribeiro responded that they did receive them via e-mail, but just before the meeting, so any letters that have come in throughout the day to day will be provided in packet form to the members in addition to digital. So, if you do want to summarize and make any of those comments, you're welcome to.

Ms. Aldana stated that she was not going to read the whole thing, as it was quite long with a bit of evidence there. What I'm responding to is in this individual's e-mail, there was a concern about Building 21 in regards to safety issues around Coronavirus and the impact of the pandemic, and I just had to respond because this is actually a concern that's been popping up around the state and frankly around the country since early on in the pandemic, and it's just not founded in fact. So, I've put together a 2-page document which explains why this is not a concern. Basically, the argument comes from a compilation of crowding, overcrowding and density which are completely different things. Having solid affordable housing stock reduces crowding and actually makes it so that public safety is less of an issue so I'm not going to get into all the details, but I have offered some studies that say density is not linked to rates of COVID-19 infections after controlling for a lot of other factors. Without getting into too much detail, I would just like the ZBA to be informed. Town Planner Ribeiro told the Board they have her email in their e-mail and will also be getting it in another paper packet.

The next caller, Caller #11, introduced himself as Eric Parker and stated that when discussing the next meeting Mr. Malone expressed concerns about running out of time, on this process, and trying to get things done quicker. My question was, due to COVID-19, public hearings have been delayed for the last three months, can you inform us of the effect on the original timeline on the 40B and where the hearing is currently in that timeline? Has the Governor, since his declarations regarding

impacts and changes to governing, town government, etc., specified anything regarding 40B timelines. Attorney Carboni replied that an Act of the Legislature, Chapter 53 of the Acts of 2020, effected permits that were in progress or the hearing was in progress or permits for which hearings had yet to open, and what it says is, basically, the clock stopped wherever you were on March 10th, and that clock will not start ticking again until 45 days after the State of Emergency. So, in this case, I'm not sure exactly where we were in terms of the 180 days or any extensions, granted by Mr. Malone, but we will not run out of time because of this kind of automatic extension granted by Chapter 53.

Mr. Parker asked if that means, going back to what Mr. Malone was stating, that there's really not that much of a rush to meet and rush through decisions and hearings? Attorney Carboni replied that she was speaking just to the effect of this statute on the timeline. I'm not expressing, not commenting, on Mr. Malone's request itself. Town Planner Ribeiro stated that the 180-day timeline was set to expire in May, and, in advance of that special legislation, we did secure a time extension to July 8th, I believe. We don't have a deadline coming up as far as the Zoning Board acting. I think that the concern voiced by Ted is as to whether or not the project will be approved in this funding round. The way the Department of Housing and Community Development awards these projects is February applications come in and they award them for the year. They've started doing these mini rounds in August. So, if the approval isn't in hand by August, then we'd be waiting until February. So I think we wouldn't want to unreasonably hold up the project, but, if we're not able to get it approved in that timeline, I don't think that we have any intention of rushing the project or approving anything before the public has been heard and the Board has had their questions answered. Mr. Parker stated that you were talking about July 7th as the next meeting, and might not have the peer review by then, and he just doesn't want to jump ahead before you have all the information you need to make a great decision.

Chair Hultin stated that he would like to just say that it's a fair comment that has been made, but myself and the Board have heard a lot of testimony and it's pretty clear what our charge is. The better we can review this in a succinct and timely way, the better it will be for everybody involved. I don't see unnecessarily delaying anything. So, having said that, I am just expressing my opinion that I think we should go ahead with things as thoughtfully as we can, without delay.

The next caller, Caller #12, introduced himself as Brian Boyle and stated that he has a quick question relating to the environmental sustainability of the project. How does a large project like this have an energy efficiency plan that will meet the State and Truro's goals and mandates for net zero emissions? A lot has changed in the past couple of years in those areas and, bottom line, I guess, is will it help or hurt the Town in achieving those goals? Town Planner Ribeiro replied that the applicant is not seeking any waivers of any energy efficiency requirements. So, the building will have to meet all the applicable codes, but as far as any kind of net zero requirement, that is not a requirement that exists for any project and it doesn't exist for this one. The building, whenever it's built, will have to meet the relevant codes at that time. So, whatever the stretch code is at that time, the applicant will have to meet. Mr. Boyle reiterated that his question was really that the State has mandated goals and the Governor as mandated goals for net zero emissions and Truro has its own goals, and if a project doesn't meet those goals, then some other people in Truro are going to have to make it up. I'm not saying anybody doesn't meet permanent requirements. I'm really talking about a different set of goals, and I don't expect an answer right now just saying it would be great to have what the project's plans are to participate in Truro's meeting those goals.

The next caller introduced himself as Christopher [unknown] and stated that he and his wife abut on the north side, and we share that 227 feet of property line to the north of the Cloverleaf. I'm on page 24 of the PDF. I have a question about the reserve area; it shows the number 4,200 gallons per day. I was wondering if the engineer can explain what would be discharged? Mr. Malone, answering the question because Mr. O'Reilly had no audio, stated the reserve area does not get constructed unless the main leach field is unusable and not repairable in place. So, as far as the future need to use that space for the technical system that John was referring to, we're going to need to wait for him, because I'm not at all versed in that. As he had more questions, Christopher thanked Town Planner Ribeiro for mentioning the fence and stated that we, as abutters, would like to see a more adequate screening. It's not just the product but safety concerns. There's no playground or anything for children to play in. There are evergreens that are 5-6 feet, but that won't do much in the way of screening for many, many years. A fence would be good, as well as a fence possibly along the Route 6 side as we still have some safety concerns there. Another question is the limits of work line. It touches our property line, and I'm not comfortable with what that represents. As far as what would be done there, we would like to see that pushed back.

Mr. O'Reilly was able to join the meeting with audio and addressed the first question from Christopher regarding reserve area. Title 5 requires new construction to show a primary leaching facility and an equal area for a reserve area. The theory would be as if the system were to fail, there is room on the site to put a reserve system or a secondary system. That's the limit of what Title 5 requires us to do. Horsley Witten have asked for some additional comments regarding how it would be constructed, how would it meet the coverage and the separation to groundwater, and I think we've addressed those, and we certainly will find out more once they complete their review. What generally happens in the real world is when the leaching facility is saturated and failed, 9 times out of 10, the primary leaching facility that has failed is removed and then replaced. Contaminated soil would be removed, replaced with a clean Title 5 sand, and you would then reconstruct the field. Nothing in Title 5 prevents you from doing that and quite frankly, once a system does fail, the owners typically find it is cheaper to remove the existing system, remove the contaminated soil, and then reconstruct a new facility rather than disturbing another area of the lot. So, my thought process here is that when this system fails or if it fails, it would be replaced in the location where the current primary field list is located.

Christopher commented that in a catastrophic failure that would use a large system, that would require a lot of time. I'm assuming you would utilize that other area. Mr. O'Reilly replied yes, if the reserve area were chosen to be utilized, as I said in my narrative a Perc-Rite System, something that would work with the contours of the grade as well as the mature vegetation that's out there and it can be placed on a hillside, on a slope, around trees. If there were a need to utilize the reserve area, you're not going to see the large clearing that you will see for the project in general. Christopher stated yes, but would that discharge be above ground or below ground? Mr. O'Reilly replied that it would be below ground. In fact, the grading and the contours that you see out on that end of the property would remain basically the same, that was the intent, that would be the intent of the Perc-Rite.

Christopher then asked what would be discharged there would be whatever goes into the leach pits? Mr. O'Reilly replied that it would be the leachate effluent and acknowledged that it went from the septic itself to that reserve area. Instead of pumping to the central area of the site, it would be pumped to the north, as well as to the southeast. Christopher asked if that effluent would be treated. Mr. O'Reilly replied that yes it would be treated and the system that's currently

proposed is designed to meet 10 parts per million, and then that would discharge to the primary leaching facilities in the central area. If the primary leaching facilities fail, the effluent would just still be treated to 10 parts per million or better, but just distributed to the back and front portions of the site at the reserve area locations. Christopher commented that's assuming that part of the system doesn't fail as well. Mr. O'Reilly replied that's why you have a maintenance and operation contract that is reviewed by the Board of Health as well as the County.

Christopher stated that he did notice the limit of work line and asked why is there a corridor that runs towards the northern property line? There's a corridor that attaches to the property line. Is there a reason for that? Mr. O'Reilly replied that portion of the limit of work line was generated on an earlier version because of the water main coming in off the highway layout. Christopher asked if that water main line would be running from a site further north where that water main comes in? The line runs past on Route 6. Mr. O'Reilly stated he believes they are.

Mr. Malone interjected that there's really no reason that we cannot, we can pull back that limit of work from the property line, but it would be to dots to the south of that property line. That would not be an issue. Christopher stated that three dots would be better, but he would prefer no work be done on the property line if possible. There's no reason to be there, and as far as storing soil, you know, worksite materials, I'd prefer it to be further than closer. Mr. O'Reilly stated that we can certainly tie back into the DPW and see if we can certainly tighten up that line. I think Ted is right? I think we can certainly bring that line well away from your common property line and further south, through discussions with the Town and just verification of where the main is coming in, we can tighten that line up as best we can.

Christopher stated I don't know if he got my comment thanking Jeffrey for mentioning the fence. We would like to see some fencing put in and some more adequate screening. Mr. Malone stated he would not have a problem with screening sections of fence to screen along a property line while we wait for newly planted trees to mature. We have intended to delineate the National Seashore Boundary and the Route 6 boundary with simple, not screening fences, but fences that will just delineate the end to the property such as a split rail and on the real property line doing something that would provide you with interim degree of protection. Christopher stated we were interested in something that would be permanent, put up before construction, not something temporary. As I said earlier, you have not provided your children with the playground, so we just don't want to find ourselves in in a state where we find ourselves being a nuisance. Town Planner Ribeiro asked something like a stockade fence – 6 feet? Christopher replied yes, maybe even a chain link or something with a decent height, and asked if people are allowed to have pets in these developments, dogs? Mr. Malone replied yes but leashed. Christopher went on to state that you also have a four-lane highway, so I would also like you to think of a fencing for your own tenants, too. Attorney Carboni commented that the concerns expressed are the sort of thing that can be addressed in conditions in a permit, and I might suggest that if there are particular conditions the homeowner would like to see, suggested conditions, that he can put those in writing and submit that to the Board and the Board could take those into consideration when crafting the permit - not necessarily agreeing to everything exactly what's proposed, but if abutters to the project have reasonable concerns that would be a way to address it. Chair Hultin stated it sounds like a great idea and asked the caller if he would submit something in writing to the Board for their review.

The last caller did not respond to Town Planner Ribeiro when asked to respond.

Town Planner Ribeiro stated that they could discuss if there were any outstanding concerns over those areas that are not wastewater, and that he did pull up the Town's calendar. He stated that we can't have more than one Regulatory Board meeting at a time, because they have to be live broadcast: the Conservation Commission meets on Monday the 6th, the Board of Health meets on Tuesday the 7th, the Planning Board meets on Wednesday the 8th, and the Select Board meets on Tuesday the 14th. Options would be the 9th, the 13th, or the 15th and 16th. As Clerk Lucy cannot attend on the 9th, if we were to try and meet that funding deadline, it would definitely be tight.

Town Planner Ribeiro stated that there is one more caller. The Caller #21 introduced herself as Joanne Hollander, a Truro resident living at 13 Tom's Hill Path, and stated that she has been a food product developer for several decades. Her concern for water safety in Truro is paramount. She went on to state that we all share the Pamet aquifer as a source of our sole source of drinking water, which is already stressed from crumbling septic systems and the threat of salinity, contamination from climate change, rising tide. My question is, what assurance do we have for the safety of our water with the proposed septic system for the Cloverleaf project? With so many people due to reside on four acres of land, how can we be assured that our water will not be contaminated further than it already is with carcinogenic chemicals such as PFOS, PFOA, and MTBE, as well as glyphosate, not to mention nitrogen contamination, which will likely occur with so many people depositing waste in a septic system on such a small piece of land. So, my question is, who has studied this on behalf of Truro? Town Planner Ribeiro responded by stating that the Town has hired the Horsley Witten Group, and the Board has retained them, and they are revealing the proposed plans. They will be discussing that at the next hearing and that report should also be out in advance of that hearing.

Chair Hultin asked, going back to the meeting dates, what about Monday the 13th? Attorney Carboni stated that she had emailed Mark Nelson to see if he could make the dates proposed because the Board would need to hear from him at the earliest date possible. Chair Hultin stated that at this point, we should at least propose the 13th as the first possible date that works for the Board members and myself, and we should have the peer review report back, and give us time to read it and process it, and we can also give the public time to research it and read it. Clerk Lucy stated that in checking his schedule once again, he could make arrangements for availability the night of July 9th as this date seems the most agreeable to everyone. Chair Hultin stated that the next meeting will be the 9th.

Town Planner Ribeiro asked if there was anything else on those issues, materials that we need, any significant outstanding questions aside from the septic, stormwater concerns? Attorney Carboni asked if she could offer one possible topic for the applicant to provide? She stated I don't know if this has been addressed by the applicant yet, but some information on management of the development, post construction because that would also, if a permit's granted, there would be conditions there in the decision about that and the more information the Board has about the intended management of the project, the better. Mr. Malone responded saying they could do that. Chair Hultin asked what do you think are the limits of our input to questions like fencing? I think you can view fencing from two directions, and I'm not sure that one person's opinion about whether a fence is a good or a bad idea should necessarily drive the issue. I'm curious what the other Board members think about that and if anybody has any comment. There might be other things from other abutters that might want this or that, or other citizens around town, to what extent are those helpful considerations? Member Shedd stated as to that particular request about fencing, I do not believe it would be the ZBA's position to make that a requirement as part of the permit grant, but

I would request maybe, or I think that Ted, the applicant, might discuss these issues with the abutters and come up with agreements on his own without the ZBA requiring such things that I don't think are really in our purview; Chair Hultin agreed. Attorney Carboni responded stating the Board would legally have the right to do it; the wisdom of it is a separate question and if the Board thinks it is better addressed sort of privately between the applicant and the abutters, of course, that's the board's choice. Town Planner Ribeiro stated that possibly we could coordinate with Mr. Malone and he could speak to the abutter to determine what could be incorporated. Member Shedd asked if they would be addressing waivers on the 9th? Town Planner Ribeiro stated that is the hope that we will start working our way through that list. I know that Ted is working on it, so hopefully he'll have it to myself and Barbara soon. I think that's going to be an important project for you to see: e.g., we're granting this exception; the setback would be 25 and we're granting 17; the requirement is X, but we're allowing Y; making sure from Board of Health regulations to Zoning Bylaws to General Bylaws, etc., that we're covering all those bases.

Mr. O'Reilly asked the question when Horsley Witten's report is delivered to the Town, will the applicant have a chance to review it? Hearing Ted's funding deadline, I was just wondering if there would be an opportunity for us to review it so at least we could have, when the Board hears from Mark on the 9th, we hope that we would be prepared to at least discuss or propose any modifications to the plan. Town Planner Ribeiro stated that this report would be forwarded to him immediately and we'll make sure it gets up on the website, and then gets to the other boards that have an interest – the Board of Health, the Planning Board, etc.

Chair Hultin asked if the Board members had any specific concerns that are in the back of everybody's mind so that they can be addressed by the 9th? Member Dundas asked if we would be permitted to see the Sally Lane waivers as a side-by-side comparison with what the applicant is going to provide, since they did both? Attorney Carboni asked if that project was a 40B. Mr. Malone responded that no, it was done under the local bylaw. Attorney Carboni stated so it wouldn't have waivers.

Member Thornley just wanted to say that he is still concerned about the discharge of water into the neighbors' area. In the past, we have always vowed in all the projects we worked on, that it would not be more detrimental to the neighborhood and I think this has potential for being quite detrimental to the neighborhood. I am really worried that we're going to pass this on and then, later on, have a disaster. I would like to have Ted Malone or John O'Reilly talk more about that later on. One thing they did, the Cape Cod Commission suggested, is that if there was a problem, they call down gradient, that they would be able to get water from the Provincetown supply and that would be piped in. Chair Hultin asked Member Thornley if it was to the houses down gradient and he replied yes. Town Planner Ribeiro stated that we had a conversation a while back and there was a question particularly about the plume and movement. That question was passed on to Mark Nelson, so he does have that question of yours. And, again, we are going to have mark on the 9th, and he is as good as just about anybody you can find in Massachusetts, if not further, on these kinds of issues. There'll be plenty of opportunity to discuss that; it is one of our big outstanding things to some degree – if areas down gradient are already impaired. I think that probably a lot of North Truro should be on public drinking water supply, with or without the Cloverleaf, based on development patterns. When you have lots as small as North Truro has, I don't think that septic plus well works. Mark Nelson will be there to discuss that with you.

Chair Hultin asked Attorney Carboni if there was an approval with conditions, is that part of the language of approval "is not more detrimental to the neighborhood"? Attorney Carboni replied

that is part of the special permit language. The way that 40B raises it is the Board is supposed to balance the need for affordable housing against local concerns, including health and safety. So that's how it's presented to the Board. The Board has to weigh the need for housing against things like public health and safety and that's how you reach your conclusion is if you find that, of course the project can't pose a threat to health and safety, but if you find that the need for affordable housing outweighs the local concerns or that the local concerns are adequately addressed then that's the basis on which the permit issues subject to conditions.

Vice Chair Todd stated that he agrees with getting all the feedback on all the issues - the wastewater issue, feedback from local boards, any other outstanding things - but it's time to start getting our arms around what this whole package will read like. I don't know whether who or whether somebody is starting to pull together the information and the waivers and the conditions and, essentially, beginning to draft a possible decision so that this does take shape when we get some answers. Attorney Carboni stated that Town Planner Ribeiro and I have discussed getting a draft decision together to be ready by the 9th. I don't know how far the Board would get because we're not sure exactly how much time the Board will want to spend with Mr. Nelson. But, yes, indeed, the Board does need to get its arms around this, and Jeff and I will make sure that there is a draft for the Board to review then. Member Dundas stated the framework would be good, at least, just what you're thinking. Attorney Carboni stated she thinks more developed than a framework. I think the Board is very educated about the project at this point and can really start thinking about details. If it were just a framework then it would require a couple more meetings to go through the decision and the waivers. Of course, I defer to the Chair on how this should unfold.

Chair Hultin responded in the past, we have asked for, and received, motions that were pretty well drafted which resulted in a, basically, up or down vote with some discussion. I think that we're at that point where we need to refine it to that point where people can decide whether this is a yes vote or no vote. Attorney Carboni stated that the only thing she would add is that 40B permits are different than permits under conventional zoning because so much of the 40B permit is the waivers and the conditions that it's lengthier and more complex than an ordinary decision is. That is why Jeff and I thought it would be best to have something more developed by then. Usually you're operating under all of the applicable regulations, and under 40B you're thinking about waiving those regulations, but also in light of the fact that you're waving a lot of regulations and are there conditions you want to impose? It just has additional layers beyond what a conventional permit does.

Town Planner Ribeiro stated he thought a lot of what was left were technical things, and then once we have that package together, it's going to be for the Board to decide yes or no. So many of those things, the operations and maintenance plan for the stormwater and wastewater systems, those are the kinds of conditions that are going to be in there, so all of these kind of technical things. I'm not hearing they need to change all the buildings or whatever. I think that a lot of this is going to hinge on those technical details and will, once we get those comments from Horsley Witten, etc., I think we will know how straightforward and linear this is going to be, and that's the hope, but you never know. Chair Hultin asked if he feels he has the bandwidth to pull it together in short order? That's a big assignment. Town Planner Ribeiro responded the 16th is three weeks away, so there's some time in there, but it's certainly not a leisurely push. But again, I don't know that we're going to be ready to vote on the project on the 16th. I don't think that we can provide any guarantee of that now, but I think that if things do move smoothly, it's at least a possibility.

Chair Hultin stated we want to go at this at a proper and direct pace. We don't want to rush, although it's been nine months since we started. I think that the sooner we can conclude this the better for everybody.

Chair Hultin stated we need a motion to continue. Town Planner Ribeiro stated it's Thursday, July 9th, at 5 30 pm, and it will be a remote meeting. Chair Hultin moved that we continue this meeting until Thursday, July 9th, at 5 30. Member Thornley seconds the motion. Chair Hultin asked the Board if there was any discussion of that continuation? No further discussion. Chair Hultin asked for a vote. Voted all in favor. So voted: 7-0-0. Meeting adjourned.

Respectfully submitted,

Elizabeth Sturdy