August 12, 2021
21429

Maureen O'Meara, Town Planner
Town of Cape Elizabeth
320 Ocean House Road
P.O. Box 6260
Cape Elizabeth, Maine 04107

Subject: Carr Woods Condominium Development - Deep Brook Road
Major Subdivision and Resource Protection Permit Review

Dear Maureen:

We have received and reviewed a July 30, 2021 submission package for the subject project. The package included the following items:

- a July 30, 2021 response letter from Travis Letellier of Northeast Civil Solutions;
- an undated Project Narrative and undated Community Impact Analysis;
- a revised May 2021 Stormwater Management Report as prepared by Northeast Civil Solutions;
- a June 25, 2021 High Intensity Soils Report as prepared by Christopher Coppi of Albert Frick Associates;
- three June 25, 2021 opinion letters as prepared by Christopher Coppi of Albert Frick Associates covering the topics of proposed impacts, the classification of Wetland D, and the effect of dry conditions during delineation;
- a twenty-two (22) survey and site civil drawing plan set most recently revision dated July 30, 2021 as prepared by Northeast Civil Solutions;
- and three landscape plans dated April 30, 2021 as prepared by Barry Hosmer ASLA. NOTE: It appears that these plans have been updated since the last submission, but no changes have been made to the revision status blocks. Future revisions should include revision dates with a status update so that the changes to these plans can be tracked through the progression of the project.

Many of the revisions have addressed comments as presented in our initial May 13, 2021 review comment letter, however, additional submitted material and subsequent review has modified previous comments and created additional review comments. Based on our review of the submitted material and the project's conformance to the technical requirements of Section 16-2-4 Major Subdivision Completeness and Section 19-8-3 Resource Protection Completeness, we offer the following comments:

1. The applicant is proposing to construct an approximately 1,800 linear foot private roadway, named Deep Brook Road, to serve a multi-unit residential subdivision development consisting of 4-single units, 7-duplexes, and one existing house for a total of 19-residential units on a 14.3-acre mostly wooded parcel with access off Shore Road. Approximately 11,789 square feet of R-2 wetlands would be impacted by the construction of this project. Various areas within the property will be designated as open space.

2. As a matter of full disclosure, it has come to my attention since our last review of this project in May 2021 that Sebago Technics has previously performed work on the property for the applicant in assessing options in the area of the former Post Office prior to its demolition. This past work also included the preparation of a boundary survey. Sebago Technics does not currently have any business dealings with the applicant.

3. We understand that the Board will be conducting a completeness review for this project at their upcoming meeting. Many of our following comments should be considered beyond the completeness level and have been provided here to facilitate future submissions and reviews of the project. It should be noted that additional submitted information may result in additional review comments.

4. The proposed 11,789 square feet of wetland impacts will require a Tier 1 Natural Resource Protection Act (NRPA) from the Maine Department of Environmental Protection (DEP) as well as filing a Self-Notification form to the U.S. Army Corps of Engineers. As the subdivision contains over 1-acre of impervious area, a Maine Department of Environmental Protection (DEP) Stormwater permit will also be required. We understand that the applicant will be applying for those permits in the near future.

5. We have received and reviewed the August 9, 2021 review comment letter on the Post-Construction Stormwater Inspection & Maintenance Plan as prepared by the Town's MS4 Stormwater Compliance Consultant, Kristie Rabasca of Integrated Environmental Engineering, and anticipate that the designer will be address the remaining comments presented in this letter in a future submission.

6. The designer has received ability to serve the project letters from various utility companies. Included in these letters was a May 19, 2021 letter from Robert Bartels of the Portland Water District (PWD) addressing the PWD's ability to serve both the water and sanitary sewer needs of the proposed project. Although the letter did not mention this item, it is our understanding that the designer is working with the PWD to adjust an existing sanitary sewer easement through the property so that the existing sewer manholes and connecting pipes are located with the easement. The designer has added a Drop Sewer Manhole Inside Connection Detail to the *Construction Details – Sheet 3* plan (Sheet 17 of 20) which will need to be approved by the PWD. The physical connection to the PWD's sanitary system needs further information depicted on the plans as currently the existing inverts in the connecting manhole will also need to be added to the *Profile Sheet 1* drawing (Sheet 3 of 20).

7. The designer has indicated that the first-floor elevations of the new units have been added to the plan, but we were unable to find this information. We continue to have concerns regarding the constructability of the drives given the apparent relatively steep slopes on several driveways. As the plans become more refined and the building first-floor elevations are established, the designer can confirm the grading of the driveways so that suitable transitions and driveway slopes are being provided.

8. The proposed erosion and sediment control measures are now depicted on suitable scale drawings. A detail of the stone check dam should also be added to the plans.

9. As noted in our May 13th letter, the *Construction Details – Sheet 1* has a curb tip down detail that should be supplemented by an ADA compliant sidewalk ramp detail. Also, several of the detail provisions appear to have dated utility information which the designer has stated is currently being reviewed.

10. Deep Brook Drive will be a private roadway to the Carr residence and condominium accessway beyond that point, but will built entirely to Town roadway standards as contained in Chapter 16 - Subdivision Regulations. The Typical Road Cross Section on the plan entitled *Construction Details – Sheet 1* has been revised to address the previous discrepancies with the Ordinance standards. One exception to the standards is being pursued as a waiver request for the reduction of the esplanade width from a standard of 8-feet to the proposed 6-feet. We defer to the Planning Board's consideration of this waiver request, but from an engineering standpoint, a waiver of the esplanade dimension to a smaller width appears to be a reasonable request.

11. The Typical Road Cross Section has also been revised to address several of our earlier comments. The designer may want to review the specifications for the roadway pavement surface material as a 9.5mm (fine) hot mix asphalt surface course. In our experience, the "fine' designation is more often applied to sidewalk areas rather than a roadway surface.

12. Additional items that should be addressed on the *Construction Details – Sheet 3* drawing include:

    - The Precast Concrete Catch Basin Detail sump dimension of 3-feet does not match the information shown for the catch basin sumps on the *Deep Brook Road Profile Sheets 1 and 2*.
    - In Note #2 of the Precast Concrete Sewer Manhole Type A Detail, it appears that a cascade grate is being specified instead of a solid cover.

13. On the Landscape Plans, it should be noted that the proposed trees to be planted behind (i.e., to the north) of Units #4 through #12 will be planted on relatively steep 2:1 slopes and may include ledge excavation. The designer has added a note indicating proposed tree locations may need to be relocated due to the presence of ledge conditions. The note further states that the general arrangement and screening will be maintained as designed to the extent practical and that changes to the planting locations are to be approved by the Landscape Architect. The Planning Board should review the intention note and determine the extent of allowed deviations from the approved plan that would be acceptable and the entity that would have the responsibility to approve of any changes to the general landscaping arrangement and screening proposed for this project.

14. As a minor comment, it is also common practice for tree planting and shrub planting details to be included on the Landscape Plans.

<u>Stormwater Management Plan Comments:</u>

15. The submission package included a Stormwater Management Report narrative with supporting calculations which detail the proposed improvements, the stormwater methodology, the regulatory requirements, and the results of the stormwater modeling. The report has added discussion as to the proposed stormwater quality treatment methods and water quantity control

measures before stormwater is discharged to the Town's enclosed drainage system Shore Road, however, additional information on the subcatchments and the manner in which the drainage plan was modeled would be beneficial. This report is supplemented by information on the *Pre-Development Drainage Area Plan – Sheet 1 of 2* and the *Post-Development Drainage Area Plan – Sheet 2 of 2*.

16. To control the quantity of stormwater flow from the project, the designer is proposing several underground storage tanks consisting of large diameter pipes which would be located under Deep Brook Road and connected in series. Stormwater release from each of these storage pipes would be throttled by a corresponding outlet control structure which would limit the rate of flow with the use of an orifice in an interior weir wall. The proposed stormwater treatment method to be employed would consist of a Contech Stormfilter system which would consist of 30 filtration cartridges located in a 14-foot by 8-foot concrete vault that would receive and treat runoff prior to being discharged off-site.

17. As noted in our May 13th letter, this Stormwater Management Plan approach appears to be a viable solution in concept provided that it is suitably designed. As runoff from this project will eventually be discharged into the Town's public stormwater system in Shore Road which is then conveyed down Cottage Lane to an outfall at Casino Beach, it is imperative that the future peak rate of runoff not be increased from its current levels. The design has been revised to avoid a the previously proposed use of an existing troublesome storm drainage connection to the Shore Road receiving drainage system. The current design now proposes to utilize a new routing approach to discharge stormwater to Shore Road. While the designer has addressed several of our previous comments with this most recent submission, we continue to have concerns as to the Stormwater Management Plan design and modeling.

18. The stormwater from this project's developed area is proposed be attenuated and treated within the proposed roadway footprint and is now proposed to be then connected via a cross-country storm drainage pipe system to a Town-maintained drainage manhole which is located approximately 180 feet southwesterly of Wood Road and 335-feet to southeast of Shore Road. This manhole then connects through a Town easement to the catch basin on Shore Road which is being identified as Study Point 1 in the drainage model. Information regarding the proposed cross-country drainage pipe system details (i.e., rim elevations, pipe slopes, inverts, etc.) need to be developed and included into the project plan set. Also, the designer needs to confirm the size and material of the outlet pipe from the Drainage Manhole which is believed to be a 24-inch pipe and add this dimension and material type to the plan.

19. The off-site drainage contributions to the south from the Littlejohn Road neighborhood and Little League baseball field facility and to the north from the Wood Road enclosed drainage system are not well defined on the current plans and there are several surface areas, catch basins, drainage manholes, and drainage pipes shown in these areas that may or may not contribute to this development's drainage system and Study Point 1. The Town's GIS system contains stormwater infrastructure information and topographic contours that can assist in the determination of off-site runoff that enters both the site and the connecting drainage manhole from Wood Road. The flow contribution from Wood Road into the connecting drainage manhole should be evaluated in addition to the proposed flow from the new development to confirm that the existing drainage pipe connection to Shore Road has the capacity to handle the proposed new flow from the development.

20. Locations of roof drains and subsurface pipe connections to the enclosed roadway drainage system have been roughly shown on the *Grading & Drainage Plan – Sheets 1 & 2* (Sheets 10 & 11 of 20). As these plans are furthered, the pipe connections into the Deep Brook Road drainage system will need to include more information on the pipe sizes, slopes, inverts, and materials. Currently, Unit #13 does not appear to have a roof drain connection pipe to the enclosed roadway system.

21. As noted in our May 13, 2021 review comment letter, the plans should also indicate the means in which foundation drainage for each unit will be provided. Given the raised elevation of the proposed terrain on the north side of the property along the westerly portion of the roadway and the proximity of the residences to the south, the foundation drain connections should connect to the Deep Brook Road drainage system to avoid nuisance conditions to the sidewalk, roadway, and abutting properties. Again, the plans should show the connection locations into the Deep Brook Road drainage system along with information on the pipe sizes, slopes, and materials. The designer may also need to extend the drainage system of Deep Brook Road further to the west to accommodate the condominium units at that end of the roadway.

22. The designer has indicated in his response letter that first floor elevations have been added to the plans which it does not appear this has been done yet. These floor elevations and a determination on whether the buildings will have a full basement or a crawl space will assist in determining the foundation drain elevation and the means to connect the foundation drains to the enclosed roadway drainage system. There have also been comments within the submission materials that the roof drains would be connected to the foundation drains. We believe that the designer should review that design consideration given the potential ramifications of introducing surface water into a perforated perimeter foundation drainage system.

23. The designer has added a culvert at the new Carr Lot driveway. We encourage the designer to review the drainage around Units 2 and 3 as well as a driveway culvert may be beneficial for these units and the flow from the area behind these units is currently graded to flow directly toward the back of this building.

24. The designer has added a more defined drainage swale on the north sides of Units #4 through #12. It should be noted that this continuous swale will be located very close to the back of these units and will be located at the toe of a proposed 2:1 slope which will limit the use of the area behind these units. The designer stated in the response letter that a detail of the swale was added to the plans, however, we were unable to locate the detail. The designer should also provide direction on how ledge slopes will be addressed during construction and the desired maximum slopes of any exposed or excavated ledge.

25. As the plans are developed, the designer will need to review the overall drainage components and the underground storage system components to provide additional information on the stormwater system so that the intent of the design can be properly constructed. Items to consider are as follows:

    - Confirm that SD21 and the existing out pipe (at EX DMH) have the sufficient clearance angle within the existing structure.
    - Confirm clearance angles at OCS-1 (especially SD-7 and SD-3).

- Plan view should show the 12-inch pipe connection from storage chambers to Outlet Control Structures.
- Add a detail showing how the transition is made from 36-inch and 48-inch underground storage pipes to the 12-inch pipe connections to the outlet control structures.

26. The previously submitted Stormwater Management Report indicated that there will be small increases in projected peak flow rates for Study Point 2 which is on the westerly side of the property and discharges onto open space property owned by the Town. The current Stormwater Management Report now projects a much larger peak flow for both the pre- and post-development condition. The increased rate of peak flow appears to be due to the proposed development and regrading of the existing terrain which is enlarging the post-development contributing area on the proposed project property to Study Point 2 by 0.5 acres. In the response letter, the designer has stated that this increased flow is insignificant as the drainage from the site enters a vast land area that eventually drains to a culvert under Shore Road to the north of Dyer Pond Road and eventually into the Atlantic Ocean.

    The designer will need to demonstrate that the project meets one of the alternatives of Ordinance Section 25-1-4.c.4 which states "*Downstream impacts. The storm water runoff system shall provide for the discharge of storm water from the site without damage to streets and storm water infrastructure, adjacent properties, downstream properties, soils and vegetation. When post-development flows exceed pre-development flows, the development shall demonstrate that either (1) storm water runoff will be stored on-site and released at a rate not to exceed pre-development flows or (2) that the storm water runoff system has sufficient capacity to carry the increased flow without adverse impacts. Direct discharge to tidally influenced areas shall be considered sufficient capacity to carry increased flow.*"

<u>Stormwater Management Report, Modeling, and Drawings Related Comments:</u>

27. The Stormwater Report should be stamped by a Maine Professional Engineer.

28. Within the Project Description report section, the disturbed area amount mentioned in the first paragraph is not consistent with the "Proposed Development area" at the end of the section.

29. Section 2.1 Site Location of the report describes two existing single-family homes. This section should be expanded to discussed the future demolition and preservation aspects related to these two homes and their driveways.

30. Within Section 2.4 of the report, it states that the design rainfall is SCS Type III storm distribution; however, the model uses NRCC 24-hour D for the storm distribution. The designer should run the model using the SCS Type III 24-hour storm distribution in accordance with Maine DEP, Chapter 500 requirements.

31. Section 2.4 of the report references that rainfall amounts shall be obtained from Stormwater for Maine BMPS instead of the Maine DEP's Chapter 500, Appendix H. The designer should correct this reference. Further, the table within Section 2.4 of the report lists rainfall amounts do not appear to be consistent with the amounts contained in Maine DEP Chapter 500, Appendix H. We believe that 3.10 inches should be used for the 2-year storm event, 4.6-inches should be used for

the 10-year storm event, and 5.8-inches should be used for the 25-year storm event. The designer should also make these adjustments to the stormwater model.

32. In Section 2.5 of the report, it is noted that the soil information for the drainage analysis was taken from the NRCS Web Soil Survey which is a medium intensity soil survey. Now that a high-intensity soil survey has been prepared for the property, this more site-specific information should be used as the basis for the stormwater modeling rather than the medium-intensity soil map information.

33. After the conversion to the high-intensity soil information, the designer should confirm the soils group area (acres) in the model as currently there appears to be an increase of 5.6 acres of Type A soils from the pre- to the post- development conditions which does not appear to be plausible. The high-intensity soil types and boundaries should be added onto the drainage plans

34. The designer should add additional descriptions in the report regarding the flow path considerations for time of concentration paths under both pre- and post-development conditions and include overland and channelized flow for the subcatchment areas. The flow paths should also be reviewed within the model and on the plans for additional segments where the flow path travels over significant changes in the grade of the terrain. The path should also be reviewed to ensure that they cross contours perpendicularly.

35. In Section 5 of the report and on the supporting calculation sheet in the appendix of the report, it appears that the designer has a applied a weighted average for the entire property's impervious and developed areas based on factoring the DEP's linear standard within the overall total developed areas. Our interpretation of this water quality standard is that the roadway linear scope needs to be separated from the overall project developed area so that water quality treatment percentages can be provided for the impervious and developed areas within the roadway and the development areas to confirm that the Chapter 500 water quality treatment requirements are met for the linear portion of the project and the remainder of the developed land. Therefore, the designer should provide two tables; one with the linear portion treatment calculation and another with the total development minus the linear portion (i.e., show the treatment values separately).

36. We continue to believe that an additional Study Point needs to be introduced into the analysis along the southerly property line where the time of concentration for the subcatchment exits the property to confirm that the peak rates of runoff will not be increased in this location. Intuitively, it does appear that the peak flow should be reduced at this point given that the proposed developed area will be directed to the new roadway area for treatment and then discharged away from the southern property line, however, the projected pre- and post-development flow rate conditions at the property line should be documented. The designer may wish to consider separating the on-site southerly portion of post-development Subcatchment S10 from the off-site southerly portion to create another subcatchment so a clean analysis can be made at the property line. Likewise, the pre-development Subcatchment S1 will also need to be separated between areas flowing to the southerly property line and areas flowing to Shore Road without exiting the property to the south.

37. Similarly, the current post-development model contains a southerly portion of Subcatchment S10 and a northerly portion of Subcatchment S10 separated entirely by Deep Brook Road which is a unique modeling approach. We believe that the designer should separate the two sections of

Subcatchment S10 into additional subcatchment areas with appropriate reaches. In addition, two new subcatchments should be considered; one to the north of Units #4 through #12 that discharges under Deep Brook Road in a southeasterly direction through a proposed culvert with an inlet near Station 10+00 and the other to the northeast of the Carr residence that discharges flow under Deep Brook Road in a northeasterly direction through a culvert located near Station 6+25.

38. In our May 13th letter, we suggested an additional study point should be evaluated at the Frick Associates labeled Wetland C as it appeared that drainage may exit the property in that location as well. The designer dismissed this study point as being as not needed without an explanation. It should be confirmed that flow does not exit the property at this location or if it does, that no increase in peak flow will occur in this location.

39. To facilitate the review of the Stormwater Management Plan, future revisions to the stormwater model should be consistently presented in the report, in the model, and on the plans. For instance, the model's Post-Development Routing Diagram new subcatchments should be properly named and underground storage tanks numbered. Modeling ponds and reaches should also be shown on the drainage plans.

40. The model should also introduce a reach along the existing storm drain pipe connection from the existing manhole receiving discharge from the development to the Study Point 1 catch basin.

Traffic Study Comments:

NOTE: These comments were presented in our May 13, 2021 letter and have been included in this review letter to provide comments for the Planning Board's upcoming completeness evaluation of this project's most recent submission.

41. The project's application materials included a traffic study completed by Bill Bray, P.E. The study includes trip generation calculations which conclude that the development would generate 148 daily trips, 12 AM Peak Hour Trips, and 14 PM Peak Hour Trips. We are in general agreement with this trip generation calculation. Further, the study noted that there were no high accident locations within the project vicinity.

42. The study provided a capacity analysis of the intersections of Shore Road/Site Roadway, Shore Road/Surf Road/Deep Brook Road, and Shore Road/Fort Williams Park/Littlejohn Road. It is noted that the study states the anticipated trip assignment of project generated trips during the AM Peak Hour would be 65% to Shore Road NB and 35% to Shore Road SB. Figure 3 depicting the trip assignment appears to show 35% to Shore Road NB and 65% to Shore Road SB. However, given the overall low traffic generation of the development we would not expect reversing this trip assignment to affect the overall conclusion of the study and would not require the analysis to be revised. The study concluded that these intersections would operate at a Level of Service A condition.

43. The study states that available sight distance from the proposed development roadway would exceed the distance required by MaineDOT standards. We confirmed this measurement and find it to be accurate. It is noted that Section 16-3-2-A.1.b of Town Subdivision ordinance specifies that sight distance should be measured at a location 15' behind the edge of travel way,

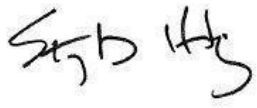
opposed to the MaineDOT standard of 10' beyond the edge of travel way. The applicant should confirm that the required sight distance is available by this measurement standard.

44. The applicant notes existing tree(s) and vegetation as indicated on the site plan are to be removed for the construction of the driveway which will allow for the required sight distance to be available. Additionally, the plans note that an existing utility pole will be relocated for the construction of the roadway. During construction it should be confirmed that this utility pole is relocated as indicated on the plans and does not impede the sight line of a driver leaving the site roadway.

We trust that these comments will assist the Board during their deliberations on this project. Should there be any questions or comments regarding our review, please do not hesitate to contact us.

Sincerely,

SEBAGO TECHNICS, INC.



Stephen D. Harding, P.E.
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