SCHNEIDER, DAVIGNON & LEONE, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS

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February 6 , 2023

Town of Fairhaven
Planning Board
40 Center Street
Fairhaven, MA 02719

Attn: Paul Foley, Town Planner

Re: Peer Review No. 1- Reply
Applicant/Developer: Starboard Drive Nominee Trust
To Be Known As "Starboard Drive Estates"
Site Address: 2, 3, 5, 9 & 11 Starboard Drive off Sconticut Neck Road
Assessors Lots #9D, #9E & a portion of #9A on Map #42

Dear Mr. Foley,

Schneider, Davignon & Leone, Inc. acting as agent for the Applicant's hereby submits the following responses to a memo prepared by GCG Associates, Inc. dated 11-4-22.

The following replies are the sequentially numbered items as outlined is said memorandum:

The following are general stormwater related comments with respect to the plans and development of the project.

1. 198-31.1. B. (1) – This subdivision consists of 8 Lots and is required to meet the Town of Fairhaven Zoning Chapter 198-31.1, Stormwater Management standards.

   Reply: General Statement – No Response Required.

2. 194-4(A)(1)(a) - This development requires a Land Disturbance Permit with the Fairhaven Board of Public Works. Permit could be exempted per 194-4. A.3.

   Reply: The Applicant will submit a Land Disturbance Permit Application with the BPW as required.

3. This project requires an US-EPA National Pollutant Discharge Elimination System (NPDES) permit and associated Stormwater Pollutant Prevention Plan (SWPPP) filing.

   Reply: We concur with this statement and a SWPPP will be submitted to the EPA.

4. There are wetland resource areas delineated on the property. The property is in the Zone VE Costal Flood Zone with Velocity Hazard (wave action). A Notice of Intent will be filed with the Town of Fairhaven, Conservation Commission.

   Reply: The Applicant has filed a Notice of Intent and the project is under review by the Conservation Commission.

Plan Sheet 1 – Cover

1. No stormwater related comments.

   Reply: None Required

Plan Sheet 2 – Lotting Sheet Existing Conditions Plan

1. No stormwater related comments.

Reply: None Required

Plan Sheet 3 – Existing Conditions Plan

1. Show and clarify soil test pit locations. There were seven test pit symbols shown on this plan and three marked T.P. D-2. There were three Test Pit Data (Soil logs) shown on plan sheet 6. The applicant should identify and number all soil test pit locations and provide associated soil logs for proposed drainage system and demonstrate the system meets the minimum separation from the estimated seasonal high groundwater (ESHW).

   Reply: All test pits have been labelled together with their respective estimated seasonal high groundwater (E.S.H.G.W.) elevations in the plan view of sheet no. 3. Soil logs have been provided for all seven test pits on sheet no. 6

Plan Sheet 4 – Grading and Utility Plan

1. MassDEP "Standard Design Guideline for Shallow UIC Class V Injection Wells" – Minimum Setback Distance table, footnote [5] – Proposed roof drain infiltration chambers system is classified as Shallow UIC Class V Injection Wells. "A 50-foot setback distance from Title 5 soil absorption systems applies to all stormwater UIC wells" is required. Lots #1 & #2 roof drain chambers system do not meet the 50-foot setback to the Title V soil absorption systems.

   Reply: The roof drain systems for lots #1 & #2 have been adjusted to meet the 50-foot requirement and dimensions have been provided.

2. MassDEP "Standard Design Guideline for Shallow UIC Class V Injection Wells" – depth requirements (1)(a) – two feet for all stormwater wells. The bottom of proposed roof drain chambers systems are approximately three feet below finish grade. Based on the soil logs shown on plan sheet 6, the ESHW is between 19" to 25" below surface. Roof drain infiltration system do not meet the 2-foot separation to ESHW. (Additional comments in Stormwater Report).

   Reply: The elevations of the estimated seasonal high groundwater together with the bottom of each system have been added in the location of each proposed roof runoff recharge system.

3. 198-31.1. C.(2)(g)[6][d] - Design standards require all basins/ponds designed for stormwater runoff control shall have side slopes at a no steeper than a 4H:1V grade. Ponds A & B have 3H:1V side slopes.

   Reply: The Applicant requests a Waiver.

Plan Sheet 5 – Roadway Plan & Profile

1. (Massachusetts Stormwater Handbook) MSH Vol.2, Ch.2, Pg. 78 – Dry Water Quality Swale (WQS) should be provided with pretreatment device. WQS should have a 30" permeable soil (specific soil media mix) and underdrain with a minimum of 2-feet separation to ESHW. The proposed Water Quality Swales (#1 & #2) do not have a pretreatment device and do not have the soil media thickness required and are close to the ESHW.

   Reply: The description of the swales has been changed to grass swales as they are only intended to be for the conveyance of stormwater and not considered as a Water Quality Swale requiring 30" of soil media.

2. 198-31.1. C.(2)(k)[1][d] - Design standards, Pond A forebay is only 0.5 feet deep, (enclosed by a 6" high trap rock berm). (2)(k)[1][d] requires 4' deep forebay, waiver requested.

   Reply: The Applicant requests a Waiver.

3. Design Standards (2)(k)[1][b], forebay should be sized to contain 0.25 inches per impervious acre of contributed drainage. Portion of the proposed roadway pavement drains directly to the Pond-A forebay, forebay should be sized to receive the 25% TSS removal for pretreatment credit.

   Reply: The size of the forebay has been modified to meet this specification and the stormwater report has been revised as requested.

4. Detention ponds (A & B) were equipped with a sump and sized with an exfiltration rate, which is an infiltration basin design. (Additional comments in Stormwater Report). Approximately 75 % of Pond-A and 100% of Pond-B are in the Hydrologic Soil Group 'D' area and not suitable for exfiltration.

   Reply: Pond B is no longer considered an infiltration basin and will be dry extended detention. Pond A will be a dry infiltration basin with wet forebay.

5. Detention Ponds A & B as shown are infiltration basins, both ponds do not have the 1- foot of freeboard required (MSH Vol.2, Ch.2, Pg. 90). The emergency spillway should be sized based on Brimful conditions.

   Reply: Pond B is no longer considered an infiltration basin and will be dry extended detention. The emergency spillway is now sized to accommodate brimful conditions. The Applicant requests a Waiver from the minimum 12" Freeboard requirement.

6. Ponds A & B's earthen berm will be constructed with fill material approximately 1.5' to 2' above existing grade in the costal velocity zone. The top of the berm is only 4-foot wide. GCG recommends the width of earth berm be increased to minimum 10-foot width with an impervious core to secure the earthen berms.

   Reply: The width of the berm has been increased to 10 feet.

Plan Sheet 6 – Roadway Plan & Profile

1. The Cul-de-sac forebay does not have a sump. A sump sized to contain 0.25 inches per impervious acre of contributed drainage should be provided. An outlet control structure detail should be provided. Drainage HydroCAD calculations were based on a 6" round culvert outlet with invert at the bottom of forebay (elevation 5.5), which provides no storage for sediment and defeats the function of a forebay.

   Reply: The cul-de-sac forebay has been removed and the roadway will now be graded from the inside diameter towards the outside diameter and into a grass swale, which will discharge into the forebay of Pond A.

2. MSH Vol. 2, Ch. 2, Pg. 15 – Unless part of a wet basin, post construction sediment forebay must be designed to dewater between storms. The bottom of the forebay should be at a minimum of 2 feet above seasonal high groundwater. The cul-de-sac forebay bottom grade is approximately 0.5 feet below existing grade. Based on the three soil logs, the forebay bottom is less than 2 feet above ESHW separation requirements. Furthermore, the forebay is in HSG 'D' soil, applicant should demonstrate that forebay exfiltrating/draining between storm events.

   Reply: The cul-de-sac forebay has been removed and the roadway will now be graded from the inside diameter towards the outside diameter and into a grass swale which will discharge into the forebay of Pond A.

3. Outlet Control Structure detail should be provided.

   Reply: The outlet control structure within the forebay of the cul-de-sac has been removed.

4. Roof drain leader overflow control detail should be provided. Calculations included a 4" vertical orifice/grate to discharge the excessive roof runoff, which is a typical roof drain leader overflow design, provide connection details.

   Reply: The roof drain leader overflow control detail was depicted on sheet no. 6. Pop up drain emitters have also been added to the detail on sheet no. 6.

5. 198-31.1 (Article 37) – Amendments. 198-31.1. (1)B(1) - Proposed roadway pavement is classified as new-development and requires a 90% TSS removal and 60% of Total Phosphorus, based on average annual load.

   Reply: The Applicant considers the project a redevelopment project & has requested that the Planning Board treat it as such. However, Pond A with outfall to Pond B, which provides redundant TSS and detention for the project. Pond A is dry infiltration basin with wet forebay (80% TSS removal) and Pond B is dry extended detention (50% TSS removal), which will together provide 90% TSS removal and 60% of total phosphorus for the project.

6. The roof runoff is considered clean water and requires not treatments. However, a minimum of two feet separation between the bottom of infiltration system to ESHW should be provided. Lots #4, #5, #6, and portion of the #7 roof drain infiltration system are in HSG 'D' area, which is not suitable for infiltration.
   Reply: The estimated seasonal high groundwater has been added at each location of a roof runoff system to illustrate compliance with the 2 ft. separation to E.S.H.G.W. It should be noted the system for lot 6 has been eliminated and no infiltration was assumed for the systems for lots #4 & #5 and therefore omitted from the stormwater design.

7. 198-31.1. C. (2). (n).[6] – Requires storm drains shall be at least 12 inches diameter, with at least 24" cover, all drain pipes except subdrain shall be reinforced concrete or ADS and reinforced concrete Class IV pipe if having less than 48 inches of cover within a street right of way. The project proposes triple 8 inches diameter ADS pipes for a driveway culvert, 6 inches ductile iron pipe culvert under the cul-de-sac pavement, and twin 6" ADS pipes connecting the two detention ponds. All pipes with less than 24" cover. Wavier has been requested

   Reply: The 6 inch ductile iron pipe has been eliminated and the Applicant requests a Waiver for the sizes and cover for the pipes which connect Pond A to Pond B and which discharges from Pond B.

Stormwater Report.

MHS and Zoning 198-31.1 - Stormwater Treatment – This project is a re-development and new- development project. The site is previously developed. However, re-development impervious areas are limited to the existing five building roofs only. The proposed new roadway pavement, new building roofs, and enlarged building roof areas are all classified as new development. The design should be revised to meet the following.

Reply: The Applicant considers the project a redevelopment project & has requested that the Planning Board treat it as such.

1. 198-31.1 amendments adopted 2021 June ATM, Section 3(a), which requires new development to provide the average annual post-development load of 90% TSS removal and 60% TP removal. Section 3(b), which requires redevelopment to provide the average annual post-development load of 80% TSS removal and 50% TP removal standards. (See 2021 June ATM Article 37 for detail requirements.)

   Reply: The Applicant considers the project a redevelopment and has achieved the 80% TSS and 50% TP removal required.

2. 198-31.1. A.(1)(b). Water quality – the first flush of stormwater runoff should be treated prior to discharge off site. See 198-33 – Definitions – "First Flush" definition for first flush treatment volume calculation formula.

   Reply: The "first flush" requirement is difficult to meet due to the majority of the project site being located in Type D hydrologic soils and the close proximity to the ocean. The water quality requirements of 0.50-inch x impervious area as required by the MADEP is met for the project. The Applicant is requesting a Waiver for the first flush requirement.

3. 198-31.1. A. (1)[2] - Tables 2, 3, and 4 should provide comparison of the 10-year, 24- hour design storm pre-development and post-development volumes to demonstrate the net increases. There appeared to be increased in runoff volume during the 10-yr storm event and the applicant is requesting a waiver.

   Reply: The Applicant is requesting a Waiver from Pre- vs. Post-development runoff Volume Control.

Stormwater HydroCAD report – Existing

4. Show flow path for each existing sub-catchment, verify sub-catchments 'North Wetland' and 'Southeast Wetland' time of concentration (Tc) input. In comparison with these two sub-catchments with 'Southwest Wetland', which consisted of 50 feet sheet flow of 14.6 minutes, which should be similarly applied to sub-catchment 'North wetland' and Southeast Wetland' (both shown 6 minutes Tc through direct entry).

   Reply: The flow path mapping and analysis has been updated as requested.

5. Sub-catchments North Wetland, Southeast Wetland, and Southwest Wetland utilized Woods area with 'Fair' hydrologic conditions. There is not evidence to support the Woods areas were grazed but not burn as defined in 'Fair' conditions, (see SCS TR-55 Table 2-2c Woods footnote #6 for 'Fair' definition). GCG recommends using 'Good' conditions for the Woods coverage in both pre-development and post-development conditions.

   Reply: The stormwater model has been updated as requested.

Stormwater HydroCAD report – Proposed

6. Sub-catchments Pond A and Pond B should use the pond surface area at 100-year event peak instead of the pond bottom as water surface (CN value 98), to match the exfiltration rate specified 'over the surface area' in the Detention Pond-A and Detention Pond-B modeling. Minimum Tc should be 6 Minute instead of 10.

   Reply: The stormwater model has been updated as requested.

7. Sub-catchment houses 1 through 8 should be modeled with minimum Tc of 6 minutes.

   Reply: The stormwater model has been updated as requested.

8. Show flow path for each proposed large sub-catchment, verify Tc value for sub- catchments North Wetland and Southeast Wetland (SE), see pre-development Tc comments.

   Reply: The stormwater model has been updated as requested.

9. Sub-catchment East Entrance should include the existing pavement area in the Sconticut Neck Road right of way, (matching the existing conditions watershed boundary).

   Reply: The stormwater model has been updated as requested.

10. Sub-catchment North Wetland's Woods coverage become 'Good' hydrologic conditions. The same watershed in pre-development conditions was assigned 'Fair' conditions. GCG recommends using 'Good' conditions for all woods coverage in both pre- development and post-development conditions, including proposed sub-catchments SE and SW.

    Reply: The stormwater model has been updated as requested.

11. Ponds Lot 1, Lot 2, Lot3 and Lot 8 - Roof Recharge Trench(es) are in HSG 'C' and 'C/D' soils, Pond Lot 7 is partially in HSG 'D' soil. Ponds Lot 4, Lot 5, and Lot 6 are in HSG 'D' soil. The HydroCAD exfiltration rate was based on HSG 'B' soil. Even though, the three soil logs show sandy loam soil on site, but the proximity of the ESHW will not support the exfiltration rate. The roof trench would not meet the two feet separation to ESHW requirements.

    Reply: The estimated seasonal high groundwater has been added at each location of a roof runoff system to illustrate compliance with the 2 ft. separation to E.S.H.G.W. It should be noted the system for lot 6 has been eliminated and infiltration for lots #4 & #5 systems have been omitted from the stormwater design.

12. The proposed detention Pond A and Pond B were labeled as a detention basin, which receives no TSS removal credits. (MSH Vol.2, Ch. 2, Pg. 108). However, the HydroCAD modeling utilized a sump below outlet invert and assigned with a HSG 'B' exfiltration rate, with draw down calculations and water mounding calculations. All the necessary calculations for infiltration basin design. The two proposed ponds/basins are in HSG 'D' soil area, where infiltration system is not recommended. Due to the proximity to ESHW, the forebays do not meet the minimum two feet separation to ESHW requirements.

    Reply: Pond B is no longer an infiltration basin. The E.S.H.G.W. has been added to prove that the 2-foot separation will be achieved.

13. Applicant should provide calculations to demonstrate the new development and redevelopment meeting the First Flush water quality treatment, TSS, and TP removal requirements.

Reply: First flush water quality treatment calculations and TSS/TP removal provided have been updated in the stormwater report.

14. The site is restricted by the HSG 'D' soil and the shallow ESHW, controlling runoff peak and volume by infiltration and utilizing soil media filtering (water quality swale, sediment forebay) are not practical. Applicant could consider wet BMPs (wet swale, constructed wetland/wet pond with wet forebay treatment) in series to meet the TSS & TP removal requirements.

    Reply: Per phone conversation with GCG an acceptable BMP treatment train has been deployed to meet the TSS requirement without deploying a wetland/pond which is a major concern relative to mosquito diseases such as EEE and West Nile.

15. Operation and Maintenance plan should be updated with the BMPs comments above and revisions. Plan should include sample inspection form and operation budget.

    Reply: The O & M Plan in the stormwater report has been updated as requested. Additionally, the O & M Plan has been updated to include the roof runoff recharge systems (as requested by the Con Com Peer Reviewer).

16. An Illicit Discharge statement should be provided.

    Reply: The Illicit Discharge statement has been added to the stormwater report.

If you have any questions or require additional information, please call me at (508) 758-7866 (ext. 203).

Sincerely,
Schneider, Davignon, & Leone, Inc.

David M. Davignon, P.E.

cc: File 3474
Dennis Arsenault
Attorney J.P. Mathieu