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ALLEN & MAJOR ASSOCIATES, INC.

October 23, 2023

Michael King, Chair
Town of Wareham
Planning Board
54 Marion Road
Wareham, MA 02571

Re: Initial Peer Review
Hidden Trails Definitive Subdivision Plan, Special Permit for Residential Cluster Development & Site Plan Review
PB Case 15-23
Off County Road
Wareham, MA

Dear Chair King and Members of the Planning Board:

In accordance with our contract to conduct a peer review of Hidden Trail a Definitive Subdivision, Special Permit for a Cluster Subdivision and Site Plan Review off County Road in Wareham, Massachusetts, Allen & Major Associates, Inc. (A&M) is pleased to provide the following comments. The comments presented below are based on the review of the design documents provided to A&M by Wareham Planning and Community Development. A&M did not conduct a field assessment of the project but can do so if the Planning Board requires.

In conducting the peer review, A&M reviewed the following documents:

- Plans entitled "Hidden Trails Definitive Subdivision Plan of Land and Special Permit for a Residential Cluster Development off County Road West Wareham, MA prepared for Sarajon Reality, LLC prepared by JC Engineering, Inc. dated September 7, 2023";
- Drainage Calculations & Supplemental Information for Hidden Trails off County Road W. Wareham, MA prepared for Sarajon Reality, LLC prepared by JC Engineering, Inc. dated September 7, 2023;
- Special Permit for Cluster Development and Site Plan Review Application Town of Wareham Planning Board for Hidden Trails off County Road W. Wareham, MA prepared for Sarajon Reality, LLC prepared by JC Engineering, Inc. dated September 7, 2023.

A&M reviewed the information/materials, listed above in conjunction with the applicable requirements of:

- Town of Wareham By-Laws revised October 25, 2021;
  - Division IV, Article III Earth Removal Regulations;
  - Division V, Article XI, Article I Stormwater Management & Article II Illicit Discharge;
  - Division VI, Article I Wareham Wetland Protective By-Law.
- Town of Wareham Zoning By-Laws Revised April 24, 2023;
  - Article 4: Overlay Districts
  - Article 6: Density and Dimensional Regulations;
  - Article 8: Alternative Residential Site Development;
  - Article 12: Performance Standards;
  - Article 15: Site Plan Review.

- Rules & Regulations Governing the Subdivision of Land Town of Wareham, Massachusetts Planning Board dated March 2013;
- Massachusetts Stormwater Handbook, Volumes 1 through 3, as applicable under the Massachusetts Wetlands Protection Act (310 CMR 10.00) with focus on the Stormwater Management Standards.
- National Fire Protection Association (NFPA 1) and the Massachusetts Amendments (527 CMR 18) as applicable to site development plans.

The following represents A&M's review comments. A&M may submit additional comments based on supplemental information provided after the initial peer review.

Wareham By-Laws and Zoning By-Laws

1. The southeasterly portion of the property is located within the Floodplain Overlay District, therefore subject to subject to Article 4: Overlay Districts, subsection 420 Floodplain Overlay District. Even though no work is proposed within the designated flood zones, the plans should be updated to note and refer to the overlay district.
2. Article 8, §814 Density is *"the total number of proposed lots in the development shall not exceed the number of lots which could be developed in the underlying zoning district for single family residential development*." The lot count is relying on a previously approved subdivision plan entitled The Pond at Fearing Hill endorsed by the Planning Board in 2010 showing 44 buildable lots plus several parcels of non-buildable land. The subdivision was never constructed and is considered void per condition 9 of the Covenant as of March 25, 2012 where no installation of utilities or ways occurred. A&M is not aware of any extensions granted by the Planning Board that would extend this date. Map 63 Lot 1013 was not included as part of the original subdivision and is currently being used as part of the new subdivision being proposed. Sheet 23 of the plan set shows a conceptual layout showing a total of 12 lots. A&M has the following comment on the conceptual layout:
    a. The plan does not account for the installation of drainage and the location of a stormwater basin to treat and mitigate stormwater from the subdivision that may reduce the yield number of lots as would be typical for evaluation under a preliminary plan (Section III C. 7.)

Site Plan & Drainage Calculations

3. The design engineer has determined six (6) design points for the purpose of drainage calculations to confirm and verify that the proposed project will not increase peak discharge rates and volumes to the design points. The calculations demonstrate an increase to two (2) of the design points. The design points are designated as DP-3 (onsite) and DP-6 (onsite). DP-3 (onsite) is an isolated wetland and DP-6 (onsite) is the pond. A&M understands that both design points are located on the property, but the proposed project is increasing the peak discharge rates and volumes to a design point which is in violation of the Stormwater Standards which requires mitigation of runoff to the nearest property line or jurisdictional resource area as defined under the Wetlands Protection Act. The design engineer should review and reevaluate the proposed stormwater management system to bring the design into compliance with the Stormwater Standards.
4. The proposed stormwater management system is proposing the use of hydrodynamic separators with higher than typical TSS removal rates based on sizing worksheets provided by the manufacturer. No third-party testing data has been provided to demonstrate this removal rate. Proprietary treatment devices are typically maxed out at 50% unless documentation is provided. The design engineer should

update the TSS worksheets accordingly or provide the supporting documents to support the TSS removal rates used.

TSS removal efficiency guidance is provided by Volume 2 Chapter 4 of the MassDEP Stormwater Handbook. In it, they provide historical context to a testing database as part of the Massachusetts Strategic EnviroTechnology Partnership (MassSTEP) and Technology Acceptance and Reciprocity Partnership (TARP) programs. Both programs are defunct and no longer provide current documentation on removal efficiency. Design engineers are directed to provide supporting information by the program vendor and/or third-party testing. The stormwater handbook recommendation to rely upon other testing agencies, in this case, the NJCAT stormwater program, which is part of the TARP program, issued published guidance in 2016 (as the latest available) that the First Defense unit has been certified as follows:

> *Hydro International received New Jersey Corporation for Advanced Technology (NJCAT) verification of claims for the FDHC in February 2016 (1) based on the New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device (2) dated January 25, 2013. The report was submitted to NJDEP and the FDHC was subsequently NJDEP certified for use as a 50% TSS removal device on April 4, 2016.*

The 50% TSS limitation seems appropriate given the regulatory guidance.

5. The onsite pond is man-made based on anecdotal records. No information is provided on the pond and its historic use to the extent there may be buried materials and/or contaminants present that may affect the underlying groundwater flow. The pond will be considered jurisdictional under the wetlands protection act and may be discussed further in the Notice of Intent.
6. Minimal soil testing has been provided around some of the proposed infiltration basins. MassDEP requires that one test pit for each 5,000 square feet of bottom area of the stormwater device be provided. Test pits should be provided to confirm adequate soil conditions and determination of the estimated seasonal high-water table.
7. Groundwater mounding calculations have been provided, but no supporting or backup information was provided to verify/confirm that values used in the spreadsheet. Please provide backup information specifically on the Horizontal Hydraulic Conductivity, Specific Yield and initial saturated thickness parameters.
8. The design engineer should review the pre-development and post development watershed areas. The total overall areas are not equal. The post-development area is approximately 0.122 acres less than pre-development. The design engineer should provide a statement on the discrepancy in areas or revise the plans and calculations accordingly.
9. The design engineer should review the time of concentration calculation for sheet flow and update the calculations accordingly. The value for the 2-yr event differs from the actual 2-yr rainfall event.
10. The design engineer is proposing 2 drywells each for the roof runoff for the back of the houses on lots 27-36. The design engineer should provide a note on the lotting plans as well as the grading and utility plans documenting the design intent so when the lots are sold and being designed by others, the homeowner will be aware of the drywells. The note should also specify the maximum size of roof area accounted for. Please note that these lots will also be required to accommodate a private on-site

septic system. The Board may also elect this to be a condition of the covenant to ensure this integral drainage function is not overlooked.

11. The stormwater calculations provide for an area of impervious cover on each proposed house lot but it is not specific to each lot. A&M recommends the engineer provide further detail on the amount of house roof area and pavement assumed for each lot as these would become limited factors for development and where areas exceed these on final design additional stormwater volume may be required.
12. Infiltration Basin #2 does not provide the required 1-ft of freeboard. The design engineer should revise the plan and/or calculations accordingly to provide the required 1-ft of freeboard.
13. No emergency spillways are provided on the proposed infiltration basins. The design engineer is proposing an outlet control structure with a 4-ft weir which is directed through a 12" pipe. The design engineer should review the carrying capacity of the outlet structure/outlet pipe and if it is capable of conveying flows associated with emergency spillways for 100 year storm events.
14. The lotting sheets (sheets 4-10 of 23), which require recordation at the Registry of Deeds are missing the Registry of Deeds box and certifications. The lotting sheets should also include the notes from sheet 2.
15. The lotting sheets should include a note consistent with the intent of Zoning By-Laws Article 8 §819.2 whereas "No lot shown on a plan for which a permit is granted under this section may be further subdivided."
16. The lotting plans should be updated to include the location of all permanent monuments, both existing and proposed. (Subdivision Rules & Regulations, Section IV, §B.13). Monuments shall be installed at all street intersections, at all points of change in direction or curvature of streets and all other points where in the opinion of the Planning Board, permanent monuments are necessary. (Subdivision Rules & Regulations, Section VI, §I).
17. The proposed lotting plan should be revised to include yard setbacks as defined by the Town By-Laws to illustrate the effective buildable area for each lot. The Zoning District information/cluster development requirements should be added to the lotting plan.
18. The profile should be updated to include the utilities, or otherwise note where not applicable. (Subdivision Rules & Regulations, Section IV, §B.22)
19. The profile should be updated to include the proposed right and left sideline, elevation every 50 feet and 25 feet on vertical curves. (Subdivision Rules & Regulations, Section IV, §B.24)
20. The plans should be updated to show the location of street trees. (Subdivision Rules & Regulations, Section IV, §B.26)
21. The drainage easement shown across lots 48 and 49 is only 10-ft wide. The subdivision rules and regulations require a minimum 20-ft wide easement. (Subdivision Rules & Regulations, Section V, §B.1 & Section V, §E)
22. Sheet 12 of 23 depicts an 18" culvert pipe to be installed within the existing drainage ditch that is approximately 20 in width. No calculations are provided to confirm that the use of an 18" pipe and restriction of the ditch width is justified. Supporting calculations should be provided accordingly.

23. Catch basins shall be spaced along both sides of a street at approximately 400-foot intervals and located at all low points and corners at street intersections. (Subdivision Rules & Regulations, Section VI, §A) The following areas should be reviewed:
    a. Street Intersection of Road A and County Road;
    b. Street Intersection of Road A and Road B;
    c. Street Intersection of Road C and Road D;
    d. Street Intersection of Road B and Road C;
    e. 400-ft interval exceeded between high point 3+01.74 to low point 7+45.41 for Road A;
    f. 400-ft interval exceeded between low point 24+45.20 to high point 29+80.91 Road A;
24. Radii's at street intersections and at cul-de-sac should be added to the plans to verify and confirm compliance. (Subdivision Rules and Regulations Section V, §C.2f and §C.5.b).
25. The design engineer should review all the labels associated with the proposed infiltration basins and outlet control structures on the grading and utility plans. There are duplicate names throughout the plans.
26. The plans should be updated to show the rip rap at the ends of all pipes to verify and confirm they can be constructed as designed and show the limit of work required for installation. Calculations should be provided to confirm the provided rip-rap is designed for the anticipated discharge flows.
27. The design engineer should review the outlet pipe from the outlet control structure associated with Infiltration Basin #2, which is directed towards an abutter. Can the outlet pipe be directed towards the pond on the property to minimize off-site impacts?
28. Smaller diameter drainage pipes should be designed to match crowns. The design engineer should review the following structures:
    a. DMH 5
    b. DMH 9
    c. DMH 11
    d. DMH 12
    e. DMH 13
    f. DMH 16
    g. DMH 18
    h. DMH 21
    i. DMH 22
    j. DMH 23
    k. DMH 26
    l. DMH 29

29. A&M suggests the applicant include information on the anticipated impacts during construction which include a statement on the anticipated earthwork required to construct the roadways as shown including truck traffic for import and export of material.
30. The project will require a Stormwater Pollution Prevention Plan during the construction period to control sediment, ground erosion, and wind-blown erosion. The SWPPP should be maintained onsite at all times and reports made available to the Town if desired by the Planning Board.
31. The project report makes mention of appropriate sight distance at County Road to support the proposed development. The sight distance should be calculated and added to the plans. The sight distance triangle shall be maintained to prevent accumulation of snow, tree limb clearing that may be necessary, and any other elements to confirm that safe sight distance shall be provided. Internal sight distances at each intersection should also be calculated and provided on the plans.
32. Each of the 56 residential lots shall rely on individual sewage disposal systems constructed on the lot with access to municipal potable water. The individual septic systems shall be designed and permitted in accordance with the Wareham Board of Health and permitted accordingly. Lots 27 through 36 will also have individual roof drainage systems onsite that require consideration for individual lot planning.

Statement on Waivers

A&M offers the following comments on the requested waivers for consideration by the Planning Board.

1. A waiver from installing street lights (Section VI.D).

   As a reminder to the Board, the prior subdivision approval located on this land required the use of lanterns at each driveway as a condition of covenant recorded at the Registry of Deeds (Book 38588 Page 40). The lanterns could be provided to increase the safety of the subdivision while remaining dark sky complaint and not generating increased light source pollution.

2. A waiver from installing sidewalks on both sides of roads a, b, and c, which are considered residential standard streets. Also, a waiver to allow the sidewalk to be within 3 feet of the roadway edge for portions of the roadway (Section VI.G).

   The request to reduce grass strips in certain locations at wetland/resource area crossings appears reasonable to minimize the scope within sensitive environmental areas. The reduced grass strip does minimize areas that could be used as part of snow plowing operations and requires the sidewalks to be maintained more vigilantly during winter. This should be enumerated in any final homeowner's association documentation that will be responsible for the roadways.

   Elimination of one sidewalk does not inhibit connectivity to other areas of the development.

3. A waiver from installing concrete curbing on both sides of the road. Concrete curbing is proposed only in the location where the sidewalk is adjacent to roadway. For the remainder of the streets, a cape cod berm is proposed along both sides of the road. (Section VI.H).

   Cape cod berm curb is less durable than concrete curbing and is susceptible to damage during plowing. Section VI.H allows for the use of berm curbing where grades, curves or traffic justify their

installation. The information provided offers no justification of bituminous curbing. A&M would recommend the applicant justify the request to aid the Board in consideration.

4. A waiver from installing fire alarms (Section VI.K).

   This waiver should be reviewed in concert with feedback from thew Wareham Fire Department upon review of the subdivision plans to determine if granting relief is acceptable to the health and safety of the residents.

Relationship to other permits

The applicant is also required to submit a Notice of Intent to the Wareham Conservation Commission for work within 100 feet of a resource area protected under the Wetlands Protection Act. Under the Wetlands Protection Act, additional comments may apply.

As part of the conservation process, the wetland lines shown on the proposed plans requires verification. The date of the wetland line is noted from August 2007 and has since expired. Verification of the line occurs simultaneously during the Notice of Intent. The final resource area evaluation may result in additional changes pertinent to the Planning Board's review of the application.

In order to track any changes made to the proposed project, A&M recommends the applicant/engineer provide a written response to the items identified above and/or supplemental information necessary to review the application.

Very Truly Yours,

ALLEN & MAJOR ASSOCIATES, INC.

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Philip Cordeiro, PE
Branch Manager