

February 11, 2021

Groton Planning Board  
c/o Mr. Takashi Tada  
Land Use Director/Town Planner  
Town of Groton  
173 Main Street  
Groton, MA 01450

RE: Nitsch Project #13346.15  
The Village at Shepley Hill  
Definitive Plan and  
Special Permit Review  
Groton, MA

Dear Planning Board Members:

Nitsch Engineering has received and reviewed the revised Site Plans (the Plans) entitled "The Village at Shepley Hill, Groton, MA, Sand Hill Road & Longley Road" (27 sheets) prepared by Meridian Associates (MAI) and dated February 5, 2021. In addition to the Plans, Nitsch Engineering has also received and reviewed the following documents:

1. Response letter prepared by Meridian Associates to December 20, 2020 letter from Nitsch Engineering;
2. List of Waiver Requests prepared by Mann & Mann, P.C., dated February 10, 2021;
3. Updated Stormwater Management Report prepared by Meridian Associates and dated February 5, 2021;
4. Updated Stormwater Management Analysis and Calculations prepared by Meridian Associates and dated February 5, 2021;
5. Vehicle Movement Plans (4 sheets) prepared by Meridian Associates and dated February 4, 2021;
6. The Landscape Plan entitled "The Village at Shepley Hill Groton, MA" (2 sheets), prepared by William Fleming Associates Incorporated, dated November 20, 2020 and revised on February 4, 2021; and
7. The Lighting Plan entitled "Shepley Hill" (one sheet), prepared by Illuminate and dated February 5, 2021.

Nitsch Engineering has reviewed the Plans to determine conformance to the following:

1. "Zoning Bylaw", Chapter 218 from the Code of the Town of Groton, latest version; and
2. "Subdivision Rules and Regulations", Chapter 381, Part 1 from the Code of the Town of Groton, latest version.

#### **WAIVERS REQUESTED BY THE APPLICANT**

1. Section 381-10 C.(2) – A waiver is being requested to reduce the right-of-way width (50 feet minimum required, 40 feet proposed) and to reduce the pavement width (22 feet minimum required, 20 feet proposed).
2. Section 381-10.D.(3)(b) – A waiver is being requested to reduce the safe stopping sight distance from 175 feet to 155 feet.
3. Section 381-10 D.(5) – A waiver is being requested to allow fills greater than 7 feet. The Applicant has noted that all cuts greater than 7 feet have been eliminated.
4. Section 381-13.A.(1)(a)[2] – A waiver is being requested to eliminate a segment of the pedestrian sidewalk located before the proposed wetland crossing which is approximately 250 feet from the intersection with Longley Road.

5. Section 381-13.A.(2) & (3) – A waiver is being requested to extend the sidewalk outside of the limits of the right of way and for the sidewalk constructed along a portion of the interior to be constructed as a boardwalk.

This letter includes Nitsch Engineering's original comments in standard text, MAI's responses in *italics*, and our current comments in **bold**.

## **SUBDIVISION RULES AND REGULATIONS**

1. Section 381-8.B.(1)(a) states that station numbers should be included in the subtitle when the road and profile plan cannot be included on one sheet.

The Plans should be revised to include station numbers in the subtitles when the road and profile plan cannot be included on one sheet. This applies to Sheets 19, 20, and 21.

*MAI Response: The requested information has been added to the Plans.*

**This comment has been addressed.**

2. Section 381-8.B.(5) states that the Plans shall contain existing and proposed lines of streets, ways easements and any public or common areas within the subdivision.

The Applicant should confirm if they are proposing any new easements for maintenance of utilities, access, or for other uses.

*MAI Response: There are no internal easements proposed.*

**This comment has been addressed.**

3. Section 381-8.B.(8) states the Plans shall contain the location and outline of all existing buildings and site features such as existing stone walls, fences, large trees or wooded areas, rock ridges and outcroppings, swamps, floodplain areas, water bodies and watercourses, including depth of water and direction of flow within or adjacent to the proposed subdivision.

The Plans should be revised to include the direction of flow of the intermittent stream.

*MAI Response: This has been added to the Plans.*

**This comment has been addressed.**

4. Section 381-8.B.(19) states the Plans shall contain the location of a minimum of two permanent benchmarks.

The Plans do not contain a minimum of two permanent benchmarks. The Plans should be revised to meet the requirements of this section.

*MAI Response: This information has been added to the Plans.*

**This comment has been addressed.**

5. Section 381-8.B.(20)(c) states that on each plan to be recorded the following statements shall be noted:  
"I \_\_\_\_\_ Clerk of the Town of Groton, hereby certify that the notice of approval of this plan by the Planning Board has been received and recorded by this office and no appeal was received during the 20 days after such receipt and recording of said notice."

Sheets 3,4,5, and 6 do not include this statement. The Plans should be revised to meet the requirements of this section.

*MAI Response: This certification has been added to the Plans.*

**This comment has been addressed.**

6. Section 381-8.B.(22) states the Plans shall contain the location of subsurface test pits and percolation tests as required by the Board. The Board will not normally require more than one pit per four proposed lots, locations to be selected after consultation with the Board of Health and the Conservation Commission. Test pits and percolation tests shall be performed at locations of leaching catch basins and detention basins. Test pits shall be performed during that portion of the year when groundwater is at its highest elevation.

The Plans include the locations of subsurface test pits. However, the information for these test pits was not included in the submission package. The Applicant should provide test pit and percolation test information for review.

*MAI Response: The test pit information has been added to the Plans.*

**This comment has been addressed.**

7. Section 381-8.B.(27) states that the Plans shall include the geometry of both the centerline of the pavement and the centerline of the right-of-way at cul-de-sacs and/or where the pavement is not centered within the right-of-way.

The Plans should be revised to include the centerline of the right-of-way at the cul-de-sac.

*MAI Response: This information is depicted on the Profile Sheets.*

**This comment has been addressed.**

8. Section 381-8.B.(31) states the Plans shall include the location of specimen trees to be saved.

The Plans do not include the location of specimen trees to be saved. The Applicant should confirm if there are any specimen trees to be saved.

*MAI Response: All trees including specimen trees that are outside the limit of work will be preserved and this has been so noted on the Plans.*

**This comment has been addressed.**

9. Section 381-8.C.(1) states that the definitive plan shall be accompanied by a written statement addressing Section 381-8.C.(1)(a) through Section 381-8.C.(1)(e) including subsections.

Nitsch Engineering did not receive a written statement pursuant to all subsections of Section 381-8.C.(1). The Applicant should provide a written statement that addresses all subsections of this section including, but not limited to, zoning, test pit log results, estimated seasonal high groundwater elevations, erosion and sediment control methods, and cut and fill calculations.

*MAI Response: This narrative and information was included in the Attorney's cover letter.*

**The Applicant has indicated that cut and fill calculations will be provided. Remaining items have been generally addressed by the latest documents.**

10. Section 381-10.C.(2) states that the minimum width of minor streets shall be 50 feet of right-of-way and pavement of 22 feet.

A waiver is being requested to reduce the right-of-way width (50 feet minimum required, 40 feet proposed) and to reduce the pavement width (22 feet minimum required, 20 feet proposed). Nitsch Engineering takes no exceptions to this waiver request and recommends the Planning Board decide if this is acceptable.

*MAI Response: No comment necessary.*

**As previously noted, Nitsch Engineering takes no exceptions to this waiver request and defers to the Planning Board for their decision.**

11. Section 381-10.D.(5) states that the proposed grades within the right-of-way, including the cul-de-sac, shall not be more than seven feet above or below existing grade unless specifically authorized by the Board in unusual topographic circumstances.

A waiver has been requested to allow cuts and fills greater than 7 feet. The Plans indicate areas of the site have cuts and fills greater than 20 feet. The Applicant should provide additional information on earthwork requirements for the project, cut and fill calculations, and a color-coded site plan showing areas of both cuts and fills with magnitude. The Applicant should also provide information on groundwater elevations and any impacts groundwater will have in areas of cut both during and after construction.

*MAI Response: The plans have been revised to limit the amount of cut to seven feet. As such we do not anticipate any issues with ground water. The volume calculations and "isopach" plans will be filed with the Planning Board soon.*

**Based on our review of the revised Plans, test pit information, and seasonal high groundwater elevations, Nitsch Engineering agrees with the Applicant's findings. We take no exceptions to the waiver request for fill greater than 7 feet and defer to the Planning Board for their decision.**

12. Section 381-10 G.(2) states that the shoulders shall pitch at 3/8 inch to the foot towards the curb or swale. This area shall have an eight-inch gravel foundation and be loamed, graded with at least six inches of loam or other good topsoil conducive to the growing of grass, rolled and seeded with lawn grass seed.

The Applicant should ensure the proper slope is provided on the landscape shoulder with 6 inches of loam instead of 4 inches as shown on the Plans.

*MAI Response: The Plans have been adjusted accordingly.*

**While the Landscape Plan shows 6 inches of loam for lawn areas, the Roadway Cross Section Detail on Sheet 25 still shows 4 inches of loam. The Applicant should update this detail to match the landscape detail. Also, the Applicant should indicate the minimum required slope (3% min.) for the lawn area that adjacent to the roadway.**

13. Section 381-11.D. states catch basins will be required at all low points and on both sides of the roadway on continuous grade at intervals of not more than 300 feet. Drainage patterns at intersections shall be evaluated and catch basins designed and constructed so as to prevent any flooding at the intersection. Any catch basins used shall be at least six feet deep and four feet in diameter (inside measurements), with a thirty-six-inch or greater sump below pipe invert and shall be constructed of precast concrete units. Manholes used shall be at least four feet diameter (inside measurements) and shall be constructed of precast concrete units, with formed inverts (unless waived by the Board to allow the use of concrete blocks). Oil and grease traps shall be installed on all structures that discharge to a resource area as defined by 310CMR, the Wetlands Protection Act, and where required by the Board. Manhole covers and catch basin grates shall be in conformance with Massachusetts Department of Public Works Section 201, with catch basin grates designed and placed so as to cause no hazard to bicycles. Standard catch basin frames and grates and manhole rims and covers are specified in Part 2, Construction Appendix. Granite curb inlets shall be provided at all catch basins located within the roadway.

Drain manhole and catch basin details included in the Plans do not include formed inverts or granite curb inlets. The Plans should be revised to include formed inverts in drain manholes and granite curb inlets at catch basins.

*MAI Response: The plans have been revised accordingly.*

**This comment has been addressed.**

14. Section 381-13.C.(1) states that street trees, not less than 12 feet in height and 2 1/2 inches in diameter and of a species approved by the Planning Board, after consultation with the Tree Warden, shall be placed on each side of every street in the subdivision wherever, in the opinion of the Board, existing woodlands or suitable individual trees are not retained. A landscaping plan showing street trees, plantings and specifications for grass seed to be used on the road shoulders shall be submitted with the definitive plan.

The Landscape Plan includes trees less than 12 feet in height. The Landscape Plan should be revised to meet the requirements of this section.

*MAI Response: The landscape plans have been revised accordingly.*

**This comment has been addressed.**

15. Section 381-13.F.(1) states that street lines shall have bounds placed at all angle points, at the beginning and end of all curves and every 1,000 feet on straight lines. Such bounds shall be of sound granite, not less than three feet long and not less than five inches square, with a dressed top and one-half-inch drill hole. Reinforced concrete bounds will not be allowed.

The Plans do not include the locations of bounds. The Plans should be revised to meet the requirements of this section.

*MAI Response: This has been added to the plans.*

**This comment has been addressed.**

16. Section 381-13.G. states that street signs shall be provided and installed as directed by the Highway Surveyor. A street sign shall be placed at every intersection and shall clearly indicate if the road is a private way and shall state the name of each street. Street signs shall be installed prior to the issuance of any building permits.

The Plans do not indicate a street sign at the intersection with Longley Road and Sand Hill Road or at the interior intersection of Road A and Road B. The Plans should be revised to indicate a street sign at these intersections.

*MAI Response: This has been added to the site plans.*

**This comment has been addressed.**

17. Section 381-13.J. states that at the access to lots on a dead-end street, cul-de-sac or permanent turnaround, a sign shall be provided and installed as directed by the Fire Chief indicating the location and street numbers of all residential units accessed from the turnaround.

The Plans do not include this required sign. The Plans should be revised to meet the requirements of this section.

*MAI Response: Signs have been added to the plans as suggested.*

**This comment has been addressed.**

## **GENERAL COMMENTS**

18. The Plans should include a north arrow on all Plan and Profile sheets with a plan view.

*MAI Response: This has been added to the Plans.*

**This comment has been addressed.**

19. The Applicant should provide all test pits and percolation test data as applicable.

*MAI Response: This information has been added to the Plans.*

**This comment has been addressed.**

20. The Plans should be revised to indicate the limit of work on all sheets, or the Applicant should confirm if the proposed tree line coincides with the project's limit of work.

*MAI Response: The Limit of Work coincides with the limit of the Erosion Control.*

**This comment has been addressed.**

21. The Plans should include additional information, including a detail, for the design of the 1:1 rip rap slopes.

*MAI Response: The 1:1 rip-rap has been removed from the design and we are now proposing to use an engineers earth support system called Envirogrid that will allow for these steep slopes to remain vegetated.*

**This comment has been addressed.**

22. The Applicant should consider providing a safety barrier (i.e. fence) where unit side and/or rear yards are adjacent to 1:1 rip rap slopes.

*MAI Response: Fencing has been added to the top of all 1:1 slopes.*

**This comment has been addressed.**

23. All temporary sediment basins to be converted to permanent infiltration basins shall be dredged and cleaned of all collected sediment prior to final conversion.

*MAI Response: This has been so noted on the Plans.*

**This comment has been addressed.**

24. Silt fence should be provided in addition to the compost filter sock for all perimeter erosion control protection.

*MAI Response: The silt fence has been added to the plans.*

**This comment has been addressed.**

25. The Water Main Extension Plans include multiple sections of erosion control barriers. Additional erosion control measures should be provided if needed to protect adjacent property owners and wetlands.

*MAI Response: The Water Main Extension Plan has ben approved by the Conservation Commission and has adequate Erosion Control measures in place.*

**This comment has been addressed.**

26. The Air Release Valve Assembly detail on the Water Main Extension Plans should be provided with a drain on the vertical section of copper tubing to prevent freezing in the winter and damage to the assembly.

*MAI Response: The Water Main Extensions plans are being reviewed by the Water Department and the Water Department's Consultant. We will finalize the water Main plan through that process.*

**Nitsch Engineering will defer to the Water Department and their Consultant for review of the Water Main Extension Plans.**

27. The Watermain/Storm Drain Clearance detail on the Water Main Extension Plans should include a minimum separation dimension between the water pipe and drain pipe.

*MAI Response: The Water Main Extensions plans are being reviewed by the Water Department and the Water Department's Consultant. We will finalize the water Main plan through that process.*

**Nitsch Engineering will defer to the Water Department and their Consultant for review of the Water Main Extension Plans.**

#### **ADDITIONAL COMMENTS**

28. The Applicant has requested a waiver from Section 381-10.D.(3)(b) to allow a safe stopping sight distance (SSD) of 155 feet in lieu of the required dimension of 175 feet for minor streets. This SSD exceeds the requirement for a lane (125 feet). For a 25-mph speed limit, MassDOT design guidelines require an SSD of 155 feet. Nitsch Engineering takes no exceptions to this waiver request provided that the SSD for downgrade portions of the new roadways also meets MassDOT design guidelines.
29. Four proposed sag curves do not meet the minimum K value of 26 per MassDOT design guidelines.
30. One proposed sag curve does not meet the minimum length of 75 feet per MassDOT design guidelines.

#### **RECOMMENDATIONS**

The Plan appears to conform to the Code, except as noted. The applicant should revise and resubmit the applicable documents.

If the Planning Board has any questions, please call.

Very truly yours,

**Nitsch Engineering, Inc.**



Basel Alhadidi  
Project Designer

BMA/jeg

Approved by:



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