

Ms. Lauren Lind  
Planning Director  
Town of Cohasset  
41 Highland Avenue  
Cohasset, Massachusetts 02025

July 17, 2021

Ref.: T1125

Re: Engineering Peer Review  
Scituate Hill – Cohasset, Massachusetts

Dear Ms. Lind:

On behalf of the Town of Cohasset, TEC, Inc. (TEC) reviewed documents as part of the traffic, transportation, stormwater, and civil engineering peer review for the proposed office complex located on an 8-acre parcel of land on Scituate Hill in Cohasset, Massachusetts. Outpost Properties (the “Applicant”) submitted the following documents which TEC reviewed for conformance with the Town of Cohasset Zoning Bylaws and generally accepted industry standards:

- *Proposed Scituate Hill Office Complex (Traffic Impact Assessment) – Cohasset, Massachusetts*; prepared by VHB, Inc; May 25, 2021;
- Site Plan entitled “*Scituate Hill Office Complex – Cohasset, Massachusetts*,” prepared by VHB, Inc.; dated May 26, 2021;
- Stormwater Report entitled “*Scituate Hill Office Complex – Cohasset, Massachusetts*,” prepared by VHB, Inc.; dated May 26, 2021.

Upon review of the documents and plans, TEC has compiled the following comments for the Board’s consideration:

### **Traffic Impact Assessment**

1. The Project, along the Scituate Hill Subdivision Road directly accesses King Street / Cushing Highway (Route 3A) which is under the jurisdiction of the Massachusetts Department of Transportation (MassDOT). The Applicant should coordinate with MassDOT on the issuance of a Permit to Access State Highway.
2. The traffic study area includes one (1) intersection in the vicinity of the site, including the site’s primary access via Scituate Hill Driveway (the Scituate Hill Subdivision Road). Based upon the size and scope of the development, TEC finds that the study area as provided in the Traffic Impact Assessment (TIA) is sufficient to capture the effects of the project on surrounding roadways based on Traffic Impact Assessment (TIA) Guidelines (Section 3.I.C) set forth by the Massachusetts Department of Transportation (MassDOT). This includes an evaluation of intersections in which the site-generated trips increase the peak hour traffic volume by more than 5 percent and/or by more than 100 vehicles per hour.
3. The Applicant has collected traffic volumes in April 2021 during the COVID 19 pandemic. The Applicant has also provided traffic data conducted in October 2016, which was completed prior to the onset of the COVID-19 pandemic and while public schools were in session. The

use of traffic volumes from this time period have been conceptually approved by MassDOT, if properly adjusted, for use in traffic studies in the interim until traffic volumes are normalized. These 2016 traffic volumes were adjusted using MassDOT seasonal and annual growth data to reflect a 2019 condition. TEC agrees that this is appropriate for use in the TIA.

4. The Applicant has provided a crash history for the intersection of Chief Justice Cushing Highway (Route 3A) / King Street / Scituate Hill Driveway based on data available from MassDOT's online IMPACT database, which contains up-to-date crash report statistics through the recent five-year period. The data generally indicates that the intersection has experienced a low number of crashes over recent years and has a calculated crash rate well below the statewide average for unsignalized intersections.
5. An adjustment of 1.0% per year was applied to the counts to reflect ambient growth between the existing and future year conditions. TEC concurs with the Applicant's finding of the conservative growth rate based on both nearby permanent count stations and MassDOT's annual growth factors for principal arterials.
6. The proposed Scituate Hill Office Complex is located within the bounds of the Scituate Hill Subdivision as submitted to the Massachusetts Environmental Policy Act (MEPA) Office in December 2007. The Project, at the time, was subject to an Environmental Notification Form (ENF) as part of that process and was granted a Certificate on the ENF with no further MEPA action in January 2008. Adjacent to the proposed development is the recently constructed Extra Space Storage facility which accesses the subdivision roadway. Based on TEC's investigation, the Extra Space Storage facility is NOT part of the original Scituate Hill Subdivision project.
7. Site trip generation calculations for the proposed use were generated using the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* for Land Use Code (LUC) 710 – General Office Building. TEC concurs with this methodology. The Applicant provides a direct comparison of site generated traffic for the original ENF building program vs. the current proposed project. The current building program is meant to build-out the site in place of the ENF building program and therefore the site would not be projected to experience additional traffic beyond as reported in the current proposed project based on segmentation rules. The TIA shows that the overall trip generation is approximately 53 new trips in the AM peak hour and 34 new trips in the PM peak hour.
8. The Applicant identified additional traffic to the roadway based on a proposed 20-unit residential development at 380-400 Chief Justice Cushing Highway. However, the TIA does not include information pertaining to traffic volumes generated by the development and its impact on the study area. The Applicant should provide details regarding the specific development.
9. The Applicant utilized existing traffic patterns on Route 3A in the determination of the directional distribution of traffic approaching departing the site. The Applicant should provide a more formalized trip distribution utilizing US Census Journey-to-Work data.
10. The 2028 Build Conditions traffic volume diagrams presented in the TIA appear to be a copy of the 2028 No-Build Conditions traffic volume diagrams. TEC has reviewed separately the reports generated from Synchro as part of the capacity analysis, and it appears that the appropriate volumes were used and carried through separate from the network diagrams. The Applicant should attach a corrected 2028 Build Conditions traffic volume diagrams.

11. The comments, as noted above, may result in modifications to the results of the capacity and queue analysis. Therefore, TEC reserves the right to provide additional comments and improvement recommendations upon the completion of the peer review comment responses.
12. The Applicant has utilized the *Highway Capacity Manual* (HCM) 6th Edition methodology to conduct analyses on the unsignalized study intersection. TEC concurs with this methodology.
13. The Applicant applied peak hour factor (PHF) values per approach as opposed to the intersection PHF value as stated in the *HCM* 6th Edition methodology. The Applicant should change the inputs accordingly.
14. Heavy vehicle percentage (HV%) values used in 2028 Build Conditions for weekday morning and weekday evening were inconsistent with the 2021 Existing Conditions and 2028 No-Build Conditions inputs. The Applicant should make changes accordingly. TEC additionally recommends applying heavy vehicle percentage values specific to the movements as opposed to the total approach percentages since most approaches consist of formal and informal turn lanes.
15. The capacity analysis worksheets summarize that the delay per vehicle along King Street westbound increases approximately 500 seconds from No Build to Build during the weekday morning peak hour and 270 seconds during the weekday evening peak hour. Although TEC understands that this significant increase is based upon a condition where the volume-to-capacity ratio (v/c) is well above 1.00, the Applicant should provide additional details as to the effect of their site traffic on the intersection and the opposing King Street approach.
16. The Applicant did not provide sight distance measurements in the TIA. TEC recommends that The Applicant provide detailed information related to existing and proposed sightlines, in the form of stopping sight distance (SSD) and intersection sight distance (ISD) at each driveway location along Scituate Hill Driveway. In addition, TEC has measured the observed that ISD from the Scituate Hill Driveway does not meet the American Association of State Highway and Transportation Officials (AASHTO) recommended minimum ISD value. TEC suggests the Applicant discuss this deficiency in the TIA and provide mitigation strategies.
17. The nature of the individual office spaces on-site would suggest that the site will necessitate single-occupancy trips and therefore the parking on-site. The Applicant should evaluate potential parking demand on-site and modify the size of the off-street parking within the site as needed.

### **Site Plan - Transportation**

18. There is a discrepancy between the office square footage (SF) between the TIA, the stormwater report, and the site plan whereas the TIA referenced 27,840 SF, the stormwater report references 28,000 SF (seen as equivalent), and the site plan references 14,088 SF. The Applicant should clarify the scope of the building program. The site plan does not provide individual building-by-building square footages and therefore the scope of project shown on the plans cannot be confirmed.
19. Based on the discrepancy noted in Comment #18 above, the overall number of off-street parking spaces shown in the plan is insufficient. The Cohasset Zoning Bylaw §300-7.1 denotes 1 space per 200 square feet within the Technology Business District which would

equate to 140 parking spaces. The site plan depicts only 80 spaces. The overall parking field should also incorporate the results of Comment #17.

20. The Applicant should provide turning templates showing the ability of garbage trucks and emergency vehicles (Cohasset Ladder) to access, circulate, and egress the site through the circulation pattern without leaving the paved surface. A garbage truck template should depict the subject vehicle accessing all designed dumpster locations.
21. The Applicant should coordinate with the Town of Cohasset Fire Department and Highway Department for preferred locations of fire lanes (if needed), confirmation of hydrant locations, and sign requirements for fire lanes within the site.

TEC assumes that Scituate Hill Driveway should be designed with an operating speed of 30 miles per hour (mph), standard for thickly settled areas and the likely prima facie designation on MGL Chapter 90 Section 17. Comments #22 through #23 relate directly to the 30 mph roadways and sight distance:

22. The plans as provided depict several horizontal curvatures in the roadway. Along 30 mph roadways, the AASHTO minimum recommendation for stopping sight distance (SSD) is 200-feet. There appear to be multiple curvature locations within the complex provide locations where the sight lines may be impeded by vegetation, the change in grade, and/or off-street parking stalls (assuming vehicles parked within the stalls. Such locations may not attain a full 200-foot distance for at least one direction of travel. The Applicant should evaluate the on-site roadway, or confirm that tree canopies will be above the necessary sight lines (if vegetation is the limiting factor) at:
23. The plans do not provide internal roadway profiles and therefore K-values for vertical curvature cannot be compared to AASHTO minimum recommendations for sight distance along 30 mph roadways. The Applicant should provide profile information to confirm that adequate sight distance is provided.
24. The Applicant should provide sight distance plans which includes line of sight, intersection sight distance, and stopping sight distance measurements for both directions for stop-key intersections within the office complex and the intersection of Chief Justice Cushing Highway and Scituate Hill Driveway.
25. The dimensions of the standard parking spaces meet the Town of Cohasset Zoning requirements. Additionally, the dimensions of the standard accessible parking spaces meet the Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Board requirements.
26. Various pedestrian curb ramps around the site entering the crossing location at an angle at the apex of the curb line thereby leading pedestrian towards the center of the roadway. The Applicant should reevaluate the orientation of pedestrian curb ramps at crossing locations to provide perpendicular ramp where possible.
27. Various pedestrian curb ramps lead pedestrians along head-in parking within the pavement surface as opposed to separating pedestrians from the roadway and in this case, parking maneuvers. The Applicant should reevaluate pedestrian accommodations within the site so to provide vertical separation between vehicular and pedestrian traffic where possible, notably with sidewalks around these individual parking stalls.

### **Site Plan - Zoning**

28. As currently designed, the Sales and Conference Center directly abuts the 50-foot front yard setback. The Zoning Table on the cover sheet should be adjusted accordingly.
29. The side yard setback in the northeast corner of the side is mistakenly labeled as front yard. This side yard setback also appears to be drawn incorrectly and is not shown parallel to the property line.
30. Erosion control is currently shown on the abutting property – If shown accurately, this will require a temporary easement. TEC suggests revised grading to leave a buffer at property line.
31. TEC recommends adding “top of wall” grades every 50-feet and at changes in direction along proposed retaining walls.
32. At a minimum, additional contour labels should be provided at the top and bottom of steep slopes.
33. The grading at top of site does not appear to tie into existing grades. It appears that there is an existing break in slope at approximately elevation 140. The proposed contours do not tie into this break in slope.
34. The parking for the sales and conference center should be added to required parking calculation. As noted above, the total square feet of office is shown incorrectly in the parking summary table.
35. Snow storage locations should be provided on the layout plan.
36. Section 300-14.4.C.(5) – The Applicant should submit a plan showing lot coverage is under 35% impervious. The plan should clarify if rip rap areas were included in this impervious calculation. If over 35%, a special permit would be required by the Zoning Board.
37. Section 300-14.4.C.(6) - A clearing plan should be provided that shows less than 70% of the land will be cleared as part of the project. If over 70%, a special permit would be required by the Zoning Board.
38. Section 300-14.5.A. – The Applicant should describe the safeguards being provided for the stormwater system in case of accidental damage or spillage. If a spill occurs, how will it be controlled with the current system?
39. It appears that the project will require a Stormwater Permit from the Conservation Commission as an activity that will alter over 5,000 square feet (Section 223-4.A.(1)).

### **Stormwater Management**

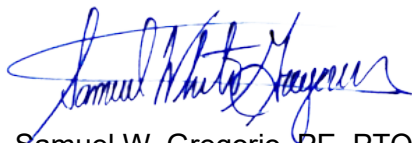
40. The project will rely upon the functionality of the existing detention basin (P1) to control stormwater runoff. The Applicant should provide evidence of the Operation and Maintenance of the basin since it was constructed. If maintenance reports can't be provided, an inspection and report documenting the functionality of the basin should be prepared.
41. The proposed modifications to the basin should be shown on the Grading & Drainage Plan for TEC review.

42. TEC is concerned with the low number of drainage structures (catch basins, manholes) being provided as part of the project. Gutter flow calculations should be provided to show that flooding along the driveways will not occur. Several drainage flow paths exceed 300-feet in length as currently proposed.
43. Headwall 16 is shown with invert at 59.00 however the plan shows the outlet at elevation 50.00
44. The Cohasset Planning Board should confirm that the submitted calculations prepared by Cavanaro Consulting dated August 31, 2006 and December 9, 2015 are current and applicable to the project. TEC was not involved with the review at that time and has no way to verify these reports.
45. MA Standard 1 – TEC generally concurs that standard 1 is met by the project. However, TEC is concerned about the proximity of the rip rap slope to the abutting property. At a minimum, TEC recommends a 5-10 buffer to the property line.
46. MA Standard 2 – TEC generally concurs that the project proposes slightly less impervious area than was previously shown in the 2015 Stormwater Report. It appears that the project meets Standard 2. TEC reserves the right to make additional comments related to Standard 2 based on the resolution of other comments in this section.
47. The SC-740 chambers should be included in the hydrologic model.
48. MA Standard 3 – TEC can not confirm that the project meets Standard 3. The calculations in Appendix C reference pond storage between elevations 80.5 and 81.0, however the site plans show the basin at elevation 75.0.
49. HydroCAD pond storage calculations should be provided to prove adequate recharge volume exists.
50. MA Standard 4 – The water quality volume calculation for the Stormtech chambers state that a peak flow rate of 1.9 cfs must be treated, but treatment is provided for only 1.5 cfs. The applicant should review this calculation and if needed, adjust the design to provide adequate treatment. Also, it appears the calculation references 15 isolator row chambers where 20 have been provided on the plans.
51. MA Standard 5 & 6 – TEC agrees that these standards are not applicable.
52. MA Standard 7 – TEC agrees that the project is not considered a redevelopment and must be designed to fully meet the stormwater standards.
53. MA Standard 8 – A Construction Period Pollution Prevention Plan has been provided and the Applicant has agreed to file a Stormwater Pollution Prevention Plan prior to the start of any work.
54. MA Standard 9 – The Operations & Maintenance Plan should be revised to include the following:
  - Plan Showing the location of all stormwater BMPs and maintenance access areas;
  - Description and delineation of public safety features;
  - Estimated operation and maintenance budget;
  - Operation and maintenance log form.

55. MA Standard 10 – The stormwater report provides an illicit discharge statement that satisfies Standard 10.
56. The Stormwater Report should include a Stormwater Checklist stamped and signed by a professional engineer.

Please do not hesitate to contact me directly if you have any questions concerning our comments at 978-794-1792. Thank you for your consideration.

Sincerely,  
TEC, Inc.  
"The **E**ngineering **C**orporation"



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