SURFSIDE CROSSING

FILE No. 020-18

3, 5, 7, & 9 South Shore Rd.

Peer Review Reports

TETRA TECH

TRAFFIC

August 17, 2018

Ms. Eleanor W. Antonietti
Zoning Administrator/Land Use Specialist
Planning and Land Use Services (PLUS)
Nantucket Planning Office
2 Fairgrounds Road
Nantucket, MA 02554

Re: Traffic Peer Review
Proposed Surfside Crossing Residential Development
Nantucket, Massachusetts

Dear Ms. Antonietti:

As requested by the Nantucket Zoning Board of Appeals, Tetra Tech (TT) has completed a peer review of the transportation-related materials submitted for the proposed Surfside Crossing residential development project located at 3 – 9 South Shore Road in Nantucket, Massachusetts. Specifically, the following documents were reviewed:

- *Traffic Impact Assessment, Proposed Surfside Crossing Residential Development, 3-9 South Shore Road – Nantucket, MA*, prepared by MDM Transportation Consultants, Inc. (MDM); February 16, 2018 (Updated July 12, 2018).
- *"Surfside Crossing" a Proposed 40B Development in Nantucket, Massachusetts, Permitting Set, February 15, 2018 (Sheet 2 Revised June 4, 2018 and Sheet 11/11.A Revised June 11, 2018)*, prepared by Bracken Engineering, Inc.

The July 2018 Updated Traffic Impact Assessment (TIA) evaluates the potential traffic impacts associated with the currently-proposed project which includes 60 single-family homes and 96 residential condominium units. The existing site consists of undeveloped land along South Shore Road. Proposed access to the site will be provided by three site driveways; one (1) driveway serving the multifamily condominium units and two (2) driveways serving the single-family homes.

The TIA generally conforms with standard professional practices in the Commonwealth of Massachusetts for the preparation of traffic impact studies for projects of the size and nature of the proposed Surfside Crossing development. However, the Applicant should provide additional information on the items identified in this letter to provide a comprehensive review of the project's traffic-related impacts.

Project Study Area

1. The TIA evaluated the unsignalized, all-way stop-controlled intersection of Fairgrounds Road, Surfside Road and South Shore Road and the South Shore Road intersections with the proposed site driveways. The Massachusetts Department of Transportation's *Transportation Impact Assessment Guidelines* indicate that intersections experiencing peak hour traffic volume increases of 5 percent or more on any intersection approach should be analyzed. Tetra Tech recommends that the study area be expanded to include intersections where this threshold is met or exceeded.

Infrastructure Northeast
Marlborough Technology Park 100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com

Study Analysis Time Periods

2. The study includes an impact analysis of the weekday morning (7am – 9am) and weekday evening (4pm – 6pm) peak periods. The time periods chosen for detailed analysis are appropriate for a residential development.

Traffic Volumes

3. The turning movement counts (TMCs) were collected at the study intersection on Thursday, June 28, 2018. The as-counted (observed) peak hour traffic volumes were adjusted to represent peak season traffic volumes. Conducting a peak season analysis is reasonable given Nantucket's significant tourism during the Summer months.

4. Daily traffic volumes were not collected as part of this traffic study.

5. The 2018 Baseline Conditions traffic volumes are presented in Figure 3 of the TIA for the weekday morning and weekday evening peak hours. The traffic volumes are generally consistent with the TMC data sheets provided in the TIA.

6. The peak season adjustment was based on monthly data for Cape Cod published by the Cape Cod Commission. Although use of local planning agency data is typically preferable for conducting seasonal adjustment analyses, it may not be representative of the unique seasonal characteristics experienced by Nantucket. Additionally, review of historical traffic volumes, including those included in the Applicant's February 16, 2018 Traffic Impact Assessment, indicates significantly higher volumes during the PM peak hour than the seasonally-adjusted 2018 Baseline volumes presented in the July 2018 TIA for Surfside Crossing. These historical studies indicate potentially poor operating conditions (Level of Service F) at the intersection of Fairgrounds Road and Surfside Road/South Shore Road. Therefore, the Applicant should explain the significant difference between the seasonally-adjusted 2018 Baseline volumes and the historical traffic volume data and update the seasonal adjustment factor as appropriate.

Observed Travel Speeds

7. Speed data was collected using an automatic traffic recorder (ATR) along South Shore Road near the proposed site driveway from 12pm on Wednesday, January 24, 2018 to 8pm on Thursday, January 25, 2018. The observed average and 85th percentile travel speeds for both the northbound and southbound travel directions were 33 miles per hour (mph) and 38 mph, respectively. The speed data collection program is appropriate.

8. The TIA states that the observed travel speeds are highly consistent with the 35 mph speed limit. However, there is a 30 mph posted speed limit sign located along the South Shore Road southbound travel direction adjacent to the northerly edge of the site. The Applicant should confirm the regulatory speed limit in the vicinity of the site and determine if any traffic calming measures are warranted.

Intersection Crash History

9. The crash analysis has generally been prepared in accordance with industry standards and includes an evaluation of MassDOT crash data for the study intersection for the three-year period between 2013 and 2015. Tetra Tech generally agrees with this methodology.

10. Two crashes were reported at the Fairgrounds Road/Surfside Road/South Shore Road intersection resulting in a crash rate of 0.17 crashes per million entering vehicles which is well below the statewide and District-wide averages for unsignalized intersections. The crash rate calculation was based on peak season average daily traffic volumes (ADT). Although the average annual daily traffic volumes (AADT) are typically used, the resulting crash rate using the AADT (0.23) would still be well below the statewide and District-wide averages.

Public Transportation Facilities

11. The TIA identifies two bus routes in the vicinity of the project site operated by the Nantucket Regional Transit Authority (NRTA) – i) the Surfside Beach Route and ii) the Miacomet Loop. The TIA states that these routes operate seasonally. Tetra Tech notes that the NRTA now offers the Miacomet bus route year-round.

12. The nearest stop for both bus routes is along Fairgrounds Road at its intersection with Surfside Road and South Shore Road. Although the development will be in close proximity to existing local bus service, Tetra Tech agrees with the TIA that no credit was taken for transit services in the trip generation estimates.

Pedestrian and Bicycle Accommodations

13. Tetra Tech generally agrees with the existing pedestrian and bicycle accommodations described in the TIA, specifically that three bike paths are provided near the site: i) South Shore Bike Path, ii) Fairgrounds Bike Path, and iii) Surfside Bike Path.

14. The proposed site plan presented in Figure 2 of the traffic study and in the permitting plan set indicate that the Proponent proposes to construct sidewalk along the site frontage from the proposed southerly site driveway to the northerly site driveway. The Applicant should ensure that the sidewalks will be constructed in accordance with Town guidelines.

15. The permitting plan set and the traffic study are inconsistent in the number of proposed crosswalks proposed across South Shore Road. Some plans show two crosswalks – one each at the southerly and northerly site driveways. However, the AutoTurn graphics provided in the TIA appendix indicate a third proposed crosswalk across South Shore Road at the center site driveway. The Applicant should confirm the number and locations of the proposed crosswalks.

16. Tetra Tech recommends that the number of pedestrian crosswalks across South Shore Road be minimized to prevent impacts to mainline traffic operations. The Applicant should also consider the existing equestrian crossing located just south of the site. All proposed crosswalks should be designed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and American Association of State Highway and Transportation Officials (AASHTO) guidelines. The Applicant should also consider the feasibility of constructing sidewalk along the westerly side of South Shore Road connecting the proposed sidewalk along the site frontage to the pedestrian accommodations at the Fairgrounds Road/Surfside Road/South Shore Road intersection to help reduce the number of crossings across South Shore Road.

17. Tetra Tech recommends that the driveways be constructed so that they are flush with adjacent sidewalks or, when this cannot be achieved, that wheelchair ramps compliant with the American Disabilities Act (ADA) be implemented.

Sight Line Evaluation

18. Both stopping sight distances (SSD) and intersection sight distances (ISD) were evaluated for each of the proposed site driveways on South Shore Road. The available SSD was generally compared to recommended sight distances published by AASHTO for the regulatory speed limit of 35 mph and observed average and 85th percentile travel speeds. The southbound SSD at the northerly site driveway was based on a turning speed of 15 mph since the driveway is located near the all-way stop controlled intersection of Fairgrounds Road/South Shore Road/Surfside Road. The recommended SSD calculations were generally prepared in accordance with AASHTO standards.

19. The available ISD at the proposed site driveways were compared to the minimum recommended ISD for the observed 85th percentile travel speeds and to the ideal ISD which was based on the regulatory speed limit. The ideal ISD calculations should be updated to reflect the 85th percentile travel speeds.

20. The TIA recommends that any plantings or physical landscaping features proposed should be limited to 2 feet in height within the sight triangles of the ways serving the site. Tetra Tech generally agrees with this recommendation.

21. Tetra Tech recommends that the Applicant provide sight triangles for all three driveways to ensure that adequate sight distance can be provided and that all proposed vegetation, physical landscape features and signage within the sight triangles be kept to 2 feet in height. If minimum AASHTO SSD and ISD criteria are not satisfied, mitigation should be proposed, where possible, to enhance sight lines. The Applicant may also consider alternative access locations where adequate sight lines can be achieved.

Study Time Horizon

22. The TIA utilized a five-year planning horizon (2023 No-Build and 2023 Build conditions). Although MassDOT *Traffic Impact Assessment Guidelines* suggest a 7-year study horizon, the five-year planning horizon used in the TIA is consistent with industry-standard guidelines published by the Institute of Transportation Engineers in *Transportation Planning Handbook, 4th Edition.* Since the study area intersection is under local (Town) jurisdiction, a five-year planning horizon is appropriate.

Background Growth

23. A one percent per year growth rate was applied to the existing traffic volumes for five years to estimate peak hour traffic volumes in the planning year 2023 based on MassDOT continuous count station data and historical traffic count data. The supporting background growth data and calculations were not provided in the Attachments. Tetra Tech recommends that the Applicant provide this information to the Town for review.

24. Based on a review of Massachusetts Environmental Policy Act (MEPA) files, the TIA states that there are no planned development projects in the area that would impact the study area intersections. Since MEPA only reviews projects that meet certain criteria, Tetra Tech recommends that the Applicant confirm with the Nantucket Planning staff that no development projects are planned for the area that would impact traffic conditions in the study area.

Roadway Improvement Projects

25. The TIA does not provide information on planned area roadway improvement projects. The Applicant should confirm with the Town that no roadway improvements in the study area are planned by the Town or others that would impact traffic conditions within the study area.

No-Build Traffic Volumes

26. The 2023 No-Build traffic volumes presented in Figures 4 and 5 of the TIA include the 2018 Baseline traffic volumes grown by 1 percent per year. As previously recommended in this peer review letter, traffic associated with any development projects identified through consultation with Town Planning staff should be included in the development of the future year traffic volumes.

Trip Generation

27. Traffic generated by the project was based on average trip rates published in ITE's *Trip Generation Manual, 10th Edition* for Land Use 210 – Single-Family Detached Housing (applied to 60 homes) and Land Use 220 – Multifamily Housing Low-Rise (applied to 96 units). Tetra Tech agrees with this methodology. Any future changes to the site's build program (land uses or sizes) should be evaluated to determine if supplemental traffic review is warranted. The TIA did not take credit in the trip

generation estimates for use of the nearby local bus service. Tetra Tech agrees that this represents a conservative analysis.

28. The site program evaluated in the TIA is expected to generate approximately 1,272 daily trips on a weekday (88 vph during the morning peak hour and 113 vph during the evening peak hour).

Trip Distribution

29. The TIA developed the regional trip distribution patterns for the proposed residential uses on-site based on existing travel patterns at the Fairgrounds Road/Surfside Road/South Shore Road intersection. Tetra Tech generally agrees with this methodology since the majority of land uses along South Shore Road are also residential uses and that there are no major public roadways south of the site that connect to other regional roadways in the area.

30. The traffic volumes used to develop the trip distribution patterns were taken from the initial traffic counts collected in January 2018. Tetra Tech recommends that the trip distribution patterns be revised to reflect the updated traffic counts collected in June 2018 which appear to have more traffic generated to/from the west along Surfside Road resulting in a greater project impact to the critical northbound left-turn movement from South Shore Road.

Future Traffic Volumes – Build Condition

31. The 2023 Build traffic volumes presented in Figures 8 and 9 of the TIA include the 2023 No-Build traffic volumes plus the project trips. Tetra Tech agrees with this methodology.

32. The South Shore Road southbound movement traffic volumes at the South Shore Road intersections with the proposed middle and southerly site driveways have been incorrectly shown Figure 9. However, the capacity analyses utilized the correct volumes.

Operations Analysis

33. The TIA utilized HCM 2010 methodology using Synchro software to conduct the capacity analyses which is consistent with industry standard methodology.

34. As previously mentioned, a review of historical traffic volumes, including those included in the Applicant's February 16, 2018 Traffic Impact Assessment, indicates significantly higher volumes at the Fairgrounds Road/Surfside Road/South Shore Road intersection during the PM peak hour than the seasonally adjusted 2018 Baseline volumes presented in the updated July 2018 TIA for Surfside Crossing. These studies indicate potentially poor operating conditions (LOS F) at this intersection. The Applicant should explain the significant difference in volumes and operations between the seasonally-adjusted 2018 Baseline volumes and the historical traffic volume data and update the capacity analyses, as appropriate. The Proponent should also identify measures to provide acceptable operations (LOS D or better).

35. The peak hour factors used in the capacity analyses were based on the existing (observed) overall intersection peak hour factor for the Fairgrounds Road/Surfside Road/South Shore Road intersection. MassDOT standards indicate the use of peak hour factors by approach.

36. The peak hour factor used for the proposed intersections on South Shore Road was 0.95. HCM 2010 guidance indicates using a default value of 0.92 when peak hour factors are unknown. The analyses should be revised to reflect a peak hour factor of 0.92 at these locations.

37. The heavy vehicle percentages do not appear to be taken from the latest traffic counts. The analyses should be revised to reflect the correct heavy vehicle percentages associated with the traffic counts collected in June 2018.

38. The capacity analysis worksheets provided in the TIA appendix do not indicate if pedestrian and bicycle activity at the study intersections was included in the analysis. The Applicant should confirm that pedestrian and bicycle activity have been appropriately considered in the capacity analyses per HCM 2010 guidance.

39. The capacity analysis worksheets provided in the TIA appendix do not indicate the lane assignments assumed for each approach to the study intersections. The Applicant should confirm that the capacity analyses have been conducted assuming a single, general-purpose lane at all approaches to each study intersection.

Parking

40. A parking analysis was not provided in the TIA. Tetra Tech recommends that the Applicant conduct a parking analysis based on industry-standard parking rates and Town standards to ensure that anticipated parking demand can be accommodated on-site.

41. Tetra Tech recommends prohibiting on-street parking along the on-site roadways to ensure safe and efficient travel through the site.

42. Tetra Tech recommends that Applicant ensure that the parking spaces are designed in accordance with Town guidelines.

Emergency/Fire Access

43. The TIA and the "Construction Details & Vehicle Turning Analysis" sheet of the permitting plan set included AutoTurn analyses of a 36.5-foot long ladder truck and a single unit (SU) truck. Review of the AutoTurn analyses indicates that the ladder truck and an SU truck can generally maneuver in and around the site adequately with the following exceptions:

    a) Access to the multifamily condominium buildings may require the ladder truck and SU truck to reverse direction when exiting.

    b) The areas shown on Exhibits 1 and 2 where the SU and emergency vehicles have to maneuver to/from the parking fields show possible encroachment onto the proposed curbing and/or parking spaces. The AutoTurn analysis presented in the "Construction Details & Vehicle Turning Analysis" sheet of the permitting plan set shows different maneuvering paths for the ladder truck that indicate it can be accommodated in these areas. This indicates that the ladder truck may have to be maneuvered in a very particular manner to adequately enter/exit these portions of the multifamily condominium area of the site. The Applicant should confirm that the design vehicles will be able to adequately maneuver through the parking areas without interference from parked vehicles or curbing or ensure that proposed curbing is mountable.

    c) The single-family home portion of the development is proposed to be served by a mix of 20-foot and 24-foot wide on-site roadways (curb-to-curb). The AutoTurn analysis indicates that the Town's ladder truck will be able to maneuver through the single-family home part of the site, although maneuvering through the roadway curves appears to be tight. Additionally, the AutoTurn analysis indicates that two-way traffic flow may be impeded while a ladder truck is traveling through the site which may slow down emergency response times.

    d) The Applicant should ensure that adequate emergency access to Lot 23 will be provided.

44. The Applicant should review the site plan with the Fire Department to ensure the Town agrees with the design vehicle used in the AutoTurn analysis and are satisfied with the emergency vehicle accommodations proposed.

School Bus Pick-Up/Drop-Off

45. Tetra Tech recommends that the Applicant discuss possible bus pick-up/drop-off locations with Town Officials including the School Department. The anticipated location(s) of any bus stops should have adequate sight lines for vehicles driving behind or opposing the school bus to see the bus's flashing lights.

Roadway Configuration & Signage

46. The TIA recommends that Stop-sign control and Stop line pavement markings be implemented at each of the site driveways for vehicles exiting the site onto South Shore Road in accordance with MUTCD standards. Tetra Tech agrees with this recommendation.
47. The Applicant should consider installing Stop bars and Stop signs at the on-site internal intersections. In the single-family home portion of the site, the eastbound and westbound approaches to the internal intersection are offset. Therefore, Tetra Tech recommends that all-way stop control be implemented at this location.
48. The Applicant proposes crosswalks across each of the proposed site driveways at their intersections with South Shore Road. The site plans also indicate proposed crosswalks at the internal intersection in the center of the single-family portion of the site. Tetra Tech recommends that any proposed crosswalks be implemented in accordance with MUTCD standards.
49. The TIA recommends that weather-protected bicycle storage racks be implemented near the multifamily condominium buildings. Tetra Tech agrees with this recommendation.
50. The TIA recommends that the final curb radii at the South Shore Road/Site Driveway intersections be designed to accommodate the Town's largest emergency apparatus and SU trucks. Tetra Tech generally agrees with this recommendation.
51. Should a central mailing system be implemented, the Applicant should consider a curb bump out or designated parking space for the mail delivery vehicles and motorists picking up/dropping off mail.
52. The Applicant should identify locations of any community trash and recycling centers and ensure that trucks can adequately access the facilities without impeding on-site traffic flow.
53. The Applicant should identify areas of snow storage to ensure unimpeded access to on-site parking and travel ways.

Transportation Demand Management Program (TDM)

54. The TIA recommends that the Applicant implement a TDM program at the site to encourage alternative modes of transportation. Tetra Tech agrees with this recommendation and recommends that the TDM plan be included in the final permitting of the project.

Conclusion

In summary, the TIA generally conforms to industry standards. However, the Applicant should provide additional information on the items identified in this letter to provide a comprehensive review of the project's traffic-related impacts.

These comments are offered for the Town's consideration. If you have any questions or comments, please feel free to contact us at (508) 786-2200.

Very truly yours,

Courtney E. Jones, P.E.
Senior Project Engineer

P:\30248\143-30248-18001\DOCS\REPORTS\PEER REVIEW LETTER #1\REVIEWLTR_SURFSIDE CROSSING_2018.08.16_DRAFT.DOCX

Weston & Sampson

Wastewater

Sewer

Weston & Sampson

5 Centennial Drive, Peabody, MA 01960 (HQ)
Tel: 978.532.1900

August 17, 2018

Mr. Edward S. Toole, Chairman
Nantucket Zoning Board of Appeals
2 Fairgrounds Road
Nantucket, MA 02554

Re: Surfside Crossing Development
ZBA File No. 20-18
Peer Review: Wastewater and Sewer

Dear Mr. Toole:

Weston & Sampson has completed an initial review of the wastewater system for the Surfside Crossing Development. Our review was based on the February 15, 2018 plans entitled "Surfside Crossing a Proposed 40B Development in Nantucket, Massachusetts". The plans include a preliminary sewer system design for the collection of the on-site wastewater, but do not include a design for transmission of the wastewater to the Surfside Wastewater Treatment Facility (WWTF).

On August 9, 2018, we met with the proponent's engineer, Don Bracken, to review and discuss the options for transmission of wastewater to the WWTF. The options discussed include:

1. A new pump station in the proposed development to pump flow into one of the three (3) existing force mains. Currently, all the wastewater flow to the WWTF is pumped via three (3) force mains. Two (2) of the force mains (20-inch and 16-inch) are located in the old Sewer Bed Road layout which crosses through the proposed Surfside Crossing Development. The third force main (12-inch) is located under the bike path along South Shore Road. These options are not feasible due to hydraulic capacity limitations and structural pipe condition concerns.

   The 12-inch force main currently pumps flow from the South Valley Pump Station and will soon include flow from the new Monomoy South Pump Station being built as part of the Nantucket Harbor Shimmo project. Additional flow to this force main will have an adverse impact on the capacity of the other pump stations.

   The 16-inch polyethylene force main runs from the Sea Street Pump Station to the WWTF. This is the pipe that failed over the winter. While the break has been repaired, there are concerns with the structural condition of the remainder of the pipe. This force main is currently not operational. The flow from the Sea Street Pump Station is being pumped through the 20-inch ductile iron force main, which also runs from the Sea Street Pump Station to the WWTF. Due to the age and configuration of the 20-inch pipe, there is concern for the structural condition of this pipe as well. The planned inspection was put on hold due to the failure of the 16-inch force main and the need to keep the 20-inch force main in service. The Sewer Department is currently looking at the potential of replacing the 16-inch force main followed by an inspection and rehabilitation of the 20-inch force main.

2. A new pump station in the proposed development to pump flow to one of the nearby existing pump stations. This is not feasible as the existing pump stations discharge to the Surfside Road Pump Station, which does not have capacity for additional flow.

3. A new pump station in the proposed development and a new dedicated force main along South Shore Road to pump flow directly to the WWTF.

4. Installation of a new gravity sewer along South Shore Road from the proposed development to the WWTF. This option would require the installation of a new pump station at the WWTF to pump the flow up to the headworks of the plant. Further investigation of this option is needed to determine the feasibility. A gravity sewer along South Shore Road could also potentially serve the Miacomet Needs Area and properties along South Shore Road. This option could also potentially allow for the diversion of flow from several of the existing pump stations along South Shore Road which currently pump flow to the Surfside Road Pump Station. This would allow for additional capacity at the Surfside Road Pump Station.

Based on our discussion with the proponent's engineer, it is our understanding that they will be further evaluating options 3 and 4 to determine the method for transmitting their wastewater to the WWTF. We also discussed the need to design the pump station to the Town's latest standards, which we will forward for their use. Once the number of housing units is finalized, the proponent's engineer can determine the wastewater flows to appropriately size the wastewater collection system and complete the design plans. At that point, we can complete our peer review of the system.

In 2014, the Town completed a Comprehensive Wastewater Management Plan (CWMP) which identified the sewer needs areas in Town. These flows were used to determine the capacity of the Surfside WWTF. The WWTF is currently being upgraded based on the CWMP. While the Surfside Crossing properties are part of the service area to the WWTF, the density of the proposed development creates much higher wastewater flows than the current zoning would allow. It is our understanding that the planned development currently includes 389 bedrooms. Based on Title V, the wastewater flow would be approximately 43,000 gallons per day (gpd). Building of single family lots with current zoning would allow up to 56 bedrooms (7 lots x 8 bedrooms per lot). Based on Title V, the wastewater flow would be approximately 6,200 gpd. The additional flow from the proposed development would be taking up planned capacity at the WWTF. The proposed development should be subject to the appropriate sewer related fees to allow the town to raise revenue for the cost of the WWTF capacity upgrades.

If you have any questions regarding our initial review of the Surfside Crossing Development's wastewater system, please do not hesitate to contact me.

Very truly yours,

WESTON & SAMPSON ENGINEERS, INC.

Daniel E. Sheahan,
Senior Associate

Haley & Ward

Water

Haley and Ward, Inc.
Civil and Environmental Engineers

"Client Service and Engineering Excellence...Since 1897"

August 20, 2018

Via Electronic Mail

Mr. Edward Toole, Chairman
Zoning Board of Appeals
2 Fairgrounds Rd.
Nantucket, MA 02554

Re: "Surfside Crossing"
Comprehensive Permit Application
Peer Review of Water Supply Issues

Dear Chairman Toole:

In accordance with our July 11, 2018 Agreement with the Town, Haley and Ward has completed a review of the Comprehensive Permit Application and permitting plans for the proposed 40B development referred to as "Surfside Crossing". The permit plans were prepared by Bracken Engineering, Inc. and are dated February 15, 2018. We offer the following comments on the water supply related issues associated with this project.

1) The plans propose the addition of 156 dwelling units (60 stand-alone single family cottages & 96 condominium units). Water to the development would be supplied by the Wannacomet Water Company (WWCo) through two connections to the 12-inch water main in S. Shore Rd. Water mains within the development are shown to be 8-inch. The average day demand (ADD) for a residential service connection in the WWCo system has been 236 gallons per day (gpd) over the past five years. Using this figure, the domestic water consumption at the project would reach an average of 36,800 gpd.

   Utilizing a 2.5 peaking factor, the average peaking factor seen in the WWCo system over the past five years, the peak day demand (PDD) from the development is expected to be ±92,000 gpd.

2) To evaluate the impacts of Surfside Commons' anticipated water demands we have first identified the demands associated with currently approved residential projects within the WWCo service area. Based on the data available to us, there are at least 16 other multi-unit residential developments that already have Town approval, and at least one extension of the water system planned by the WWCo. These developments represent a combined total of 594 units that we estimate will be connected to the WWCo system over the next 5 years. This represents an ADD of 140,200 gpd, and a PDD of 350,500 gpd.

63 Great Road, Suite 200, Maynard, MA 01754
Phone: (978) 648-6025
Email: hwi@haleyward.com • Web: www.haleyward.com

Over that same period, we estimate that the ADD from commercial service connections would increase 16,000 gpd, and the PDD by 40,000 gpd. These estimates are based on the WWCo's commercial connection and water use data for the past five years.

Our estimate of the future average day demand is as follows:

Current ADD (5-yr. avg):	1.68 MGD
Estimated ADD approved projects	0.140 MGD
Estimated Commercial ADD increase	0.016 MGD
Estimated ADD Surfside Crossing	0.037 MGD
Estimated Future ADD (±2022)	1.873 MGD

The WWCo's current physical capacity to supply water to the system is 5.71 MGD from its five groundwater wells. With improvements to several of its individual wells the system could supply up to 6.0 MGD, the full approved capacity of its five sources. An additional ±2.0 MG of water storage is available to help meet the demands of the system and provide fire protection.

There is capacity to meet the projected average day demands of the system with the proposed development, but Nantucket's population increases significantly during the summer months, and having enough pumping capacity to meet the peak water demands is the more important measurement of the development's impact on the water system.

Over the last five years the highest peak day demand was 4.43 MGD (August 2016). The ADD in August 2016 was 3.92 MGD. The average PDD over that same five year period was 4.16 MGD. Our estimate of the future PDD with the proposed development is as follows:

Current PDD (5-yr. high):	4.430 MGD
Estimated PDD approved projects	0.350 MGD
Estimated Commercial PDD increase	0.040 MGD
Estimated PDD Surfside Crossing	0.092 MGD
Estimated Future PDD (±2022):	4.912 MGD

The average day demand during the peak month is estimated at ±4.35 MGD, assuming the same ratio of ADD/PDD seen in August 2016.

The projected peak day demands can be met by the current system, but as those demands increase over time, and more water from storage is needed to meet them, the level of service

provided by the system would gradually decrease during peak periods, marked by decreased system pressures and a reduction in the volume of water available for fire protection.

A public water system should also be able to meet the peak demands of the system with the largest supply out of service, through a combination of source capacity and water storage. In the WWCo's case, the loss of their largest supply would reduce their current peak pumping capacity to 4.34 MGD. In this emergency situation, the WWCo should be able to meet the projected peak system demands for a few weeks before reductions in system pressure and available fire protection became evident but would require all the remaining wells to operate all day, every day, until the situation was resolved.

Considering the peak demands from the proposed development, those already approved, and the inevitable future development beyond the 5-yr period we have looked at, supply capacity improvements should be implemented to ensure the system continues to reliably meet peak demands, whether due to typical daily fluctuations in demand or the unexpected loss of pumping capacity. The WWCo has already recognized this and has begun the process of identifying potential sites for the development of a new water supply well to further increase the reliability of the water system.

3) From a permit capacity standpoint, the WWCo has a Water Management Act (WMA) Permit with the State that currently allows them to withdraw an average of 1.68 MGD from its water sources. The WWCo's annual average withdrawal has averaged 1.68 MGD over the last five years, but they exceeded the permit limit twice in the last three years.

   In February 2016 the WWCo applied to the State for a permit renewal that also requested additional flow, but to date, the State has yet to issue the new permit. The new permit, when issued, would increase the WWCo's authorized withdrawal volume to 1.90 MGD in 2021, increasing to 2.06 MGD in 2026, then finally to 2.31 MGD in 2031. The State has acknowledged that the delay in issuing the permit has been on their end, and that the WWCo has properly filed the application, and would not be held accountable for permit exceedances while awaiting the new permit.

   The average day demand projected for 2022 in paragraph #2 above is 1.873 MGD, using the average daily withdrawal volume for the past 5 years (1.68 MGD). The average withdrawal volume over the past 3 years was 1.72 MGD.

   With the additional demands from the proposed project and approved projects the WWCo will continue to operate at or above its 1.68 MGD authorized withdrawal volume and will be very near its new permit limit of 1.90 MGD when it takes effect in 2021. Moving forward, if development on Nantucket continues at its recent pace it's possible that the new permit limits will be exceeded soon after they become effective.

4) The fire protection capacity of the water distribution system should be evaluated prior to approval. This evaluation should include the following components:

i) Fire flow demand based upon proposed construction and NFPA standards. It should be noted if the structures will include fire sprinklers and the applicable code.

ii) Fire flow capacity to the Surfside Commons site through the connections to the distribution system. Capacity should be based upon hydrant flow tests conducted by the applicant.

iii) An estimate of the fire flow capacity within the development. The anticipated peak hourly demand should be considered in the evaluation of the fire flow capacity to the site to allow for a fire protection during the peak use period.

5) Water system installation details for the following should be should be provided and reviewed prior to approval:

   i) Typical water main trench

   ii) Hydrant installation

   iii) Gate valve installation

   iv) Service installation

   v) Meter pit installation

   vi) Fire service installation (if applicable)

   vii) Joint restraint

   viii) Water main crossing of the existing sewer force mains

6) Proposed water main valve locations should be shown on the plans.

7) Fire service locations should be shown on the plans, if applicable.

8) The placement of fire hydrants looks satisfactory, though we will defer to the Nantucket Fire Department's opinion if they feel otherwise.

Please don't hesitate to contact me if you have any questions regarding these comments.

Very truly yours,

HALEY AND WARD, INC.

Robert W. Pickering, P.E.
Project Manager

John Chessia

- Local Zoning Regulations
- State regulations
- Site Plan Review
- Design standards
- Engineering
- Stormwater drainage

Chessia Consulting Services LLC

August 20, 2018

Mr. Edward S. Toole, Chairman
Zoning Board of Appeals
2 Fairgrounds Road
Nantucket, MA 02554

RE: Plan Review
Comprehensive Permit
Surfside Crossing
Nantucket, MA

Dear Mr. Toole:

Chessia Consulting Services, LLC has reviewed the submittal data provided to us regarding the above referenced project. The project has been submitted under Chapter 40B as a Comprehensive Permit application and as such the applicant can request relief from local regulations for Zoning, Subdivision Regulations, Board of Health Regulations, Conservation Commission By-laws, etc., which are more stringent than State requirements. The requirements for Comprehensive Permit Applications do not include the preparation of fully designed plans with all pipe inverts, pump calculations, etc. In my opinion, the plans should include sufficient data to demonstrate that the project is feasible to construct and maintain in compliance with applicable regulations and utility purveyor requirements as well as providing plans from which realistic project costs can be estimated for budgeting purposes. I recommend that final construction plans and calculations be developed and reviewed prior to any construction activity if the project is approved.

My review included review of local Zoning Regulations, State guidelines for local review of Comprehensive Permits, and general design standards and standard engineering practices relative to land development projects. It is my understanding that traffic issues, environmental issues associated with Natural Heritage and Endangered Species Program (NHESP), and utility capacity issues for water and sewer are being reviewed by others.

The following documents were provided for review:

Plan Set Entitled:

- "Surfside Crossing a Proposed 40B Development in Nantucket, Massachusetts" dated February 15, 2018 and prepared by Bracken Engineering, Inc. (Site Engineer & Land Surveyor), emeritus (Architects). Ahern LLC Landscape Design Studio (Landscape Architects), MDM Transportation Consultants, Inc. (Traffic Engineers). The total set consists of 11 sheets. Sheet 2 has a revision date of 6-4-

P.O. Box 724 781 378-1400 tel
Norwell, MA 02061 jchessia@chessia.com 781 424-9407 cell

18. Sheet 11 is dated June 11, 2018. An additional copy of Sheet 11 (labeled 11/11.1 Schematic Planting Plan for Planning Board) a new Sheet 11/11.3 Landscape Details and Sheet 11/11.4 Planting Specifications, all dated June 11, 2018 were also provided separately.

Reports and Documents:

- "Stormwater Report Prepared for Surfside Crossing for Surfside Crossing LLC Map 67 Parcels 336,, 33.7, 336.8 & 336.9" prepared by Bracken Engineering, Inc. and dated February 15, 2018.

The above data was received on July 20, 2018.

I also reviewed data on the Town of Nantucket website including but not limited to:

- The Comprehensive Permit Application
- Selectmen's letter to MassHousing regarding the Project Eligibility Letter Application dated February 14, 2018.
- Staff report dated 6-13-18.
- Correspondence from the Applicant's counsel regarding the February 14, 2018 letter.

I also reviewed on-line resources including MassGIS and the Natural Resource Conservation Service (NRCS) Web Soil Survey.

I visited the site on August 14, 2018 to observe current conditions with Eleanor Antonietti and Ryan Maxwell of Bracken Engineering, Inc. The property is located on the west side of South Shore Road to the south of Surfside Road and near the intersection of South Shore Road, Surfside Road and Fairgrounds Road. All of these roadways have both vehicular and pedestrian/bicycle lanes. The project includes four parcels with a total area of 590,607 square feet (13.5 acres). Abutting properties are mostly single family residential dwellings with some multifamily developments based on on-line mapping and site observations. The site is currently undeveloped woodlands with a small clearing that was cut in for recent soil testing, a sewer easement that is partially overgrown with brush and a portion of a paved turnaround along South Shore Road. There is also an area of encroachment that was not observed in during the site visit but is identified on the plans, off of #7 Wherowhero Lane.

Topographically, the site has very gentle slopes, with the highest point in the northwest corner of the property (EL 33+/-) and the lowest point in the southwest near #1 Wherowhero Lane (EL 28 +/-). Based on my observations during the site visit the property is gently undulating with numerous small depressions (less than one foot deep) within the parcel. The sewer force main easement has two existing pipes and crosses the parcel approximately 320 feet west of South Shore Road. No wetlands have been identified on the site.

Based on a review of MassGIS on-line the site is entirely within a NHESP Habitat area and is also nearly entirely within a Zone II of public water supply wells. The south west corner of the property is out of the Zone II as mapped.

It is proposed to develop 60 single family residential lots and a six building, 96 unit condominium development on the parcel. The site would be served by Wannacomet Water Company for domestic water and fire protection and municipal sewer. Electric power, telephone and cable services will also be provided underground based on the plans.

I have listed below a summary of the major issues to be considered by the Board in review of the project.

Site Design:
The layout has narrower roadway right of ways for most of the subdivision portion of the site, that result in minimal space for utilities, snow storage, on street parking, (which is likely in this type of development if guests visit), as well as space for landscaping, street trees, etc. Many of the lots are smaller than typical even in zoning districts that allow small lots. Space for emergency access, vehicle access for parking in the condominium, etc. are issues that should be considered. The submittal should identify which units are on which lots together with where affordable units would be located. I recommend that public safety officials comment on the site design. I also recommend that the Town's transportation consultant comment on this aspect of the design.

Habitat Impacts:
This is a significant issue to be addressed as clearing the site would likely be considered a taking and approval from MassWildlife through the Natural Heritage Endangered Species Program (NHESP). To address habitat on the site would likely substantially impact the design. It is my understanding that the Town is in the process of engaging an independent consultant to review these impacts. Nantucket has a number of threatened and endangered species. I recommend that any site investigation review and identify <u>any</u> species that may be present or use the site for habitat in addition to those specifically identified by NHESP.

Water Supply:
The Applicant should demonstrate the suitable water supply and pressure is available for both domestic use and fire protection. The Fire Department should also comment on the location of hydrants for accessibility etc. It is unclear if an irrigation system for the landscaping is proposed. A pool is proposed for the condominiums. Total estimated water use inclusive of irrigation (if proposed) pool use, etc. should be included in the submittal. The site is nearly entirely in a Zone II of water supply wells. There are aspects of the design that should be modified to comply with DEP requirements for protection in Zone II areas. It is my understanding that the Town has an independent consultant reviewing water supply and distribution issues.

Sanitary Sewer System:
It is proposed to have a gravity collection system discharge into a new sewage pumping station. The Applicant should provide flow data, including peak discharges from the proposed pump station for the Town to assess the impact to the existing system. It is proposed to extend a new force main in the public way (South Shore Road). There is no design data provided for the force main. The submittal should provide information on maintenance responsibilities for the on-site gravity system, pump station and force main, on and off site. It is my understanding that the Town has an independent consultant reviewing water supply and distribution issues.

Stormwater Management:
It is proposed to collect runoff in a standard catch basin to manhole storm sewer system for discharge to subsurface leaching pit systems that would infiltrate runoff. The site is located in a Zone II of water supply wells and based on the data provided, insufficient treatment has been provided. There are several calculations and design issues to address to demonstrate that the site would provide adequate collection, treatment and disposal of stormwater runoff.
Utilities:
It appears that electric, cable and telephone would drop underground from two utility poles along South Shore Road. One connection would be at an existing pole for the condominiums and the other at a proposed relocated pole at the location of Road B. A pole would also be relocated at Road A. The plans are in conflict relative to treatment of the frontage of the site along south Shore Road relative to these utilities and the vegetative buffer proposed.
Access:
It is my understanding that traffic issues are being reviewed by others.
Ownership and Maintenance:
The project includes multiple aspects with interconnected utilities and emergency access. The Applicant should address overall ownership and maintenance requirements for roadways, open space areas, utilities, etc. The Application requests relief from any bonding or covenant requirements. The Applicant should address how new residents will be protected should there be issues completing the work.
Waivers:
The Submittal includes a listing of waivers. There are many waivers, in particular relative to Subdivision Regulations that would also be required. Some requested waivers may not be required. The Board should consider the waiver request relative to public safety issues in particular.

MassHousing has issued an Eligibility Letter dated April 12, 2018 with specific recommendations that were based on input from the Town of Nantucket and others.

I offer the following specific comments as identified in the regulations and review guidelines:

Part I- Town of Nantucket Zoning Board of Appeals Comprehensive Permit Rules and Regulations

(a) Preliminary Site Development Plans

The project includes two sections, a condominium on 3.6 acres of the overall site and a single family subdivision development on the remaining 9.9 acres.
Condominium Site:
The Condominium site plans indicate a proposed 24 foot wide access drive. The access drive is defined by granite curbing on both sides. There is a brick sidewalk proposed on both sides of the access drive and in front of all of the buildings in the parking lot areas. The outer perimeter of the parking lots would have cape cod berms. Dimensions for the drives and walks are provided on the plans and details for the brick walk, parking lot pavement, cape cod berm and granite curbing are included in the Plans as required.
Some setback dimensions are indicated for the condominium buildings on Sheet 5. Building

dimensions should be added to the plans to comply with requirements.
A Landscape Plan is included with the Plan and Landscape Detail sheets have been provided as a supplement.
The required data has generally been provided; however, I note the following issues that should be addressed:
The parking lot design does not provide sufficient back up space for the corner spaces at the end of the lots. Typically a small turn out area is provided at the ends of parking lots to allow backing out and driving away in a single movement. A larger vehicle in a full lot would not be able to maneuver out of the corner spaces without multiple movements creating potential safety concerns.
The details are inconsistent relative to gravel base depth for the parking lot paving and the cape cod berm.
A detail or cross section of the proposed condominium roadway should be provided.
A detail for the emergency access connection to the subdivision roadway should be provided.
The Fire Department should comment on the proposed access for the Condominiums in particular and the entire project overall.
I recommend that the appropriate consultants comment on the Landscaping Plan. I do note that it is not common to install pervious paving around a swimming pool due to settlement and maintenance issues.
Subdivision:
The subdivision portion of the project proposes a 20 foot paved roadway with vertical curbs of unspecified material with a four foot wide sidewalk of brick adjacent to the roadway, based on the Landscape Plans. The central roadway (Road A) has a 40 foot wide layout and the remainder of the roadways (Roads B & C) would have a 30 foot wide layout. Subdivision Regulations required a 40 foot wide layout. The Plans indicate the location and dimensions for the roadways and walkways. Driveways for the lots are indicated on the plans. There are paved driveways 9 feet in width with an extension consisting of two paved strips for tires; each strip is 2 feet wide with vegetation between the paved strips, for an additional vehicle. Most of the lot driveways would be paved contiguous with the abutting lot's driveway. A waiver has been requested to allow installation of 9 foot driveways versus the required 10 foot driveway. Lots 21, 22 & 23 would share a common driveway between Lots 21 and 22 with pervious/gravel pavement after a paved apron at the roadway. Lots 54 through 60 would also have a paved driveway apron of brick and pervious/gravel surface approximately 20 feet deep by 38 feet wide with the access apron at the center. It is unclear how many parking spaces these driveways would provide.
The Plans should include a plan or plans of the entire subdivision development with building setbacks, building dimensions and unit labels both for the unit type that relates the buildings on the plans to the Architectural Plans as required in the Regulations.
The Landscape Plan is the only plan that indicates the entire site and identifies open space. Data on grading, building types, etc. is not listed on the Landscape Plans.
Issues:
The proposed 30 foot layout limits space for utilities. Refer to comments under (f). Wider layouts are required by the Subdivision Regulations to provide utility space, snow storage, etc.
I recommend that the Applicant specify house types on the plans with labels for the affordable units. Affordable units should be spread throughout the project.
Lot 22 has no frontage on a roadway and would be accessed by a narrow easement, the Fire Department should comment on access to this lot.

The roadway layout could be adjusted to have more uniform lot sizes if the loop roadway section was shifted south. This could also provide a greater front setback, which provides more space for street trees as noted below.
Details on materials for the pervious/gravel pavement, subdivision curbing, and driveways should be provided as required.
There should be a walkway from the sidewalk to the front door of each house. Many of the houses have porches and the close spacing and proximity to the sidewalk appears to be to encourage pedestrian traffic in the neighborhood. As the driveways are requested to be narrower than typically required an alternative access to the front door and/or porch would be appropriate.
It is unclear if future buildings, i.e. sheds, garages, etc. would be allowed on the subdivision lots. It is likely that if homeowners are responsible for lot maintenance these structures will be desired for storage of equipment. This issue should be addressed at this stage as it would impact coverage and potentially the drainage design. In addition, would other lot improvements such as swimming pools, impervious patios, etc. be allowed or restricted by covenant.
I recommend that the appropriate consultants comment on the Landscaping Plan. I do note that some of the proposed trees are very close to buildings and based on the materials provided on Sheet 11/11.4 the trees would interfere with the buildings and possibly the sidewalks.
The "Open Common Space" labeled on the Landscape Plans over the sewer easement is not identified as such on the Subdivision "Lotting Plans". This area is part of the adjacent lots with the lot lines approximately at the center of the easement. This would not be available for use by others based on the plans.

(b) Report on Existing Site Conditions

The Application includes a brief description of existing site conditions. The site is currently undeveloped and is crossed by a sewer easement containing two force mains. Nearly the entire site excepting a small portion in the southwest corner is in the Zone II of public water supply wells. As required by Mass DEP the Town has adopted regulations regarding development within the Zone II. The Applicant has requested relief from impervious coverage requirements in this Overlay District.

The site is also in an estimated habitat area. Based on documents provided by the Town, the Applicant has requested and received verification under the Massachusetts Endangered Species Act that the site is within a Priority Habitat area. As this is a significant issue relative to the proposed project design I recommend that verification of the plans suitability for this site relative to the Priority Habitat be received from Mass Wildlife prior to approval of any aspect of the plans.

It is my understanding that a Traffic Study has been prepared for the area and is under review by others. This Study should document existing conditions relative to traffic patterns, etc. Some data has been provided relative to existing development in the vicinity. I recommend that the Board review the data and determine if additional information on the surrounding area is required.

Massachusetts Historical Commission (MHC) has identified the site as a potential archeological site. As the project is subject to MEPA review the project will be required to perform an

archeological investigation, which may alter the proposed project to avoid impact to archeological resources according to MHC. It would be appropriate to identify whether any archeological sites exist and would be impacted by the project prior to approval of the project. It is my understanding that this study has been performed, based on a discussion with Eleanor Antonietti.

The project is subject to MEPA review based on the data provided as ENF thresholds for impervious area and NHESP impacts and may trigger others as well depending on water use, wastewater flow, MHC requirements, etc.

Soil conditions on the site are identified as Evesboro sands created by glacial outwash according to on-line data from the Natural Resource Conservation Service (NRCS) and soil testing that has been performed indicate materials consistent with NRCS mapping. Soils are highly pervious according to the NRCS. Four test pits were excavated in March of 2017 and the logs report sand with some having loamy sand overlying the more permeable sands. Test pits were not performed at the locations of all of the proposed stormwater infiltration systems and are not indicated on the proposed conditions plans to identify the tests proximity to proposed systems. The tests generally are along a line roughly in the center of the site.

I recommend that the plans include the date and type of survey performed to establish existing conditions. During the site walk I was informed that the survey was an on-the-ground survey. The plans should identify the existing paved turnaround that is partially on the property.

(c) Preliminary Architectural Scaled Drawings

Preliminary Architectural Plans were provided for both the condominium buildings and the single family houses. As noted above, the plans and building drawings should be keyed to identify which buildings are on the specific lots. I defer issues related to the proposed architecture to the Board and their consultants. It should be determined if it is proposed to site the specific houses as indicated on the plans or if it is proposed to offer typical houses that a buyer can choose and place on their selected lot. As the lots are variable in size and shape the Board may want to limit which houses may be on particular lots and where on the lot they would be located to that proposed on the plans submitted. The Board may also want to limit the number of bedrooms for the project. On some of the Architectural plans it appears that rooms could be converted to bedrooms, in particular on the Type D units, or unfinished basements could be completed to add additional bedrooms. It is unclear how the project's proponent would address this issue.

(d). Tabulation of Proposed Buildings

The Application package includes tabulations for Ground Area Coverages separated for the Condominiums and the Single Family Lots as well as a total. The areas are significantly different based on the drainage calculations. It is unclear if the drainage assumptions are overestimated but the data should be clarified. As noted under c. above it should be determined which houses are proposed for the specific lots and how overall coverage will be limited in the project, in particular as it is in a sensitive Zone II area. If the single family house lots are not

limited the impervious area could change from that presented in the Application. I have listed the differences below.

Impervious coverage:

Drainage calculations	348,382 square feet (sf) or 8.0 acres	
Coverage Tabulations	Condominium 107,864 sf	
	Single Family 177,455 sf	
Total		285,319 sf or 6.55 acres

The tabulations also include a listing of the various unit types with square footages, number of bedrooms and whether the units are affordable or market rate. The single family portion skews the affordable units to smaller houses with fewer bedrooms. For example there are no market rate 3 bedroom units and no affordable 5 bedroom units. The largest affordable unit is smaller than the smallest market unit. Typically the mix is required to be more equal between market and affordable units with only interior finishes being the difference between units. The Board should review this aspect of the proposal.

(e) Subdivision Plan

A portion of the site would be developed as a residential subdivision. The Rules and Regulations Governing the Subdivision of Land (R&R) require that the submission conform to the requirements for a Definitive Plan. Following is a list of the data provided, including requested waivers, as compared to the R&R for a Definitive Subdivision Plan. The Application will also require an Approval Not Required plan filing to create the separate condominium lot. The Applicant has requested a waiver from Section 2.03c relative to identification of wetland areas.

2.06a Submission Requirements

I note that as a Comprehensive Permit Application the Zoning Board is to review the Subdivision rather than the Planning Board. The Zoning Board may request comments from the Planning Board. I have listed each requirement by number as listed in the Regulations, but not all require engineering comments. It is not clear from the submission if the subdivision roadway is to remain a private way maintained by the homeowners or if to be requested to be accepted by the Town. As any group of citizens can request a roadway be accepted the Board should consider this in their deliberations. This is a significant issue as the site is designed with many inter connecting utilities, etc.

(1) Sufficient copies of plans should be submitted for review by various Town Agencies. The R&R require 12 copies be submitted.
(2) The R&R require an 8 ½" X 11" sheet be submitted indicating proposed, existing and adjacent streets, names and locations of abutters, north arrow and any adjacent natural features. The Application includes several sheets and the cover sheet of the plans would provide most of the data required. The Application lists this requirement as a requested waiver.
(3) A properly executed Form B. This form was not found in the Application materials provided and a waiver has not been requested.

(4) This section requires a Certified abutters list and appropriate notification. I defer this issue to the Board and staff.

(5) A master plan is required for adjacent undeveloped land owned or controlled by the owner or subdivider. Based on the data provided there is no other land owned or controlled by the owner of subdivider adjacent to the site.

(6) This section addresses filing fees and a waiver has been requested. The Board should consider some fees to cover the Town's cost for review of the submittal.

(7) This section discusses fees for inspection services and a waiver has not been requested. It is not known if this fee has been submitted. I recommend that inspections be required and funded by the Applicant.

(8) This section requires a Covenant or Bond to provide funds to complete work in the event of a failure by the Applicant or future developer to complete the project. A waiver has been requested. The Board should carefully consider release of lots prior to completion of the roadway and infrastructure if there is no guarantee by bond or Covenant in place. At a minimum I recommend that all infrastructure be installed and the roadway completed to the binder course, including curbing and sidewalks prior to any occupancy permits being issued. If the project is proposed in phases, the data on the phases should be submitted and reviewed as part of the Comprehensive Permit application. Town Counsel should also comment on this issue as future lot owners and/or the Town could be required to fund work to complete the project.

(9) This section discusses submission to the Town Clerk and does not require engineering comment.

(10) Storm drainage runoff flow calculations have been submitted as required. Refer to my comments under (f) Utilities Plan and 4.06 below.

(11) Site Analysis Report and Map.
The Applicant has requested a waiver from this requirement. Based on my review much of the data required for the Map has been provided and could easily be provided on a plan or plans with specific references or notes.
The analysis Report data could also be provided as much of the data is in the Application or other supporting data.
It is unclear that this waiver is necessary. I also recommend that data on project phasing be provided for the Board's review.

(12) This section discusses requirements for a traffic study. It is my understanding that a traffic study has been submitted and is under review by others.

2.06b Contents of the Definitive Plan

(1) The plans include the name, boundaries, north arrow, data scale and legend. The Project is identified as a 40B development not a Definitive Plan as required under the R&R. A north arrow is not included on all of the sheets and should be added to any plans that do not have a north arrow.

(2) The name of the Owner is specified on the plans (Sheets 3 & 4) as required, the name of the Applicant, Engineer and Surveyor are listed on at least one plan and all plans except for the Existing Conditions and Landscape Plans and Details have been stamped. All plans should be stamped by the responsible professional.

(3) Parcels are identified but abutters are not listed on the plans as required. The Abutters should be identified as required.

(4) This section requires that the plans include current zoning requirements on every sheet. A waiver has been requested, as a Comprehensive Permit the Applicant has also requested relief from zoning requirements for intensity of use. The Board may request that the intensity data ultimately approved by the Board, if the project is approved, be added to the final plans. I note that current Zoning requirements are listed on Sheets 3 & 4.

(5) The plans indicate the existing and proposed lines of streets, easements, sidewalks and their widths. Public open areas are identified although the plans are not consistent between the Civil and Landscape Plans relative to the open space on Lots 48, 49, 59 and 60.

(6) The plans include three existing bounds and metes and bounds descriptions of existing and proposed lines such that the data should be reproducible in the field. It would be desirable to have additional existing monumentation as the three existing bounds located and identified on the plans are in the same general area. No Massachusetts Coordinate System coordinates were found on the plans. The R&R require that at least one bound on each lot include these coordinates. I note that there are no specific lot bounds proposed as required.

(7) The plans include proposed bounds at street radii points. No lot bounds, easement bounds or perimeter bounds are proposed. As a densely developed project additional bounds to identify easements (existing and proposed) lot corners, etc. may be requested by the Board.

(8) The plans include the boundary lines, lot areas and lot numbers of proposed lots.

(9) The plans identify the width of South Shore Road only. The requirements include identification of both adjacent streets and approaching streets. It is not known if data in the traffic study includes information on approaching street widths. The plans do indicate the location of nearby streets.

(10) The Existing Conditions plan and Sheet 6 through 9 indicate topography. The elevations are tied to a catch basin rim as a bench mark and the datum is NAVD 1988. I note that there is not a plan or plans that indicate all of the proposed grading for the project. Subdivision grading is limited to the roadways and although most of the site is covered between the various sheets, the south west corner of the property is not indicated. Some of the proposed contour data is inconsistent within the Plans. In particular, there is a swale on the north side of the subdivision lots that discharges to the condominiums that is not indicated on all of the plans.

(11) The Cover Sheet includes a vicinity map at a scale of 1”=1000’. The map and parcel numbers are not on this sheet and should be added. The plan indicates the required area around the locus (1/2 mile).

(12) The plans list the current zoning classification as required on several sheets.

(13) This section requires that all existing and proposed municipal services be indicated in sufficient detail to coordinate all services. Refer to comments under (f) Utilities Plan below.

The plans provided include profiles of the proposed roadways in the subdivision with water, sanitary sewer and storm sewers indicated on the plans and profiles. It is my understanding that others are reviewing the water and sewer systems. I note that the plans indicate conflicts with water and storm drain laterals to catch basins in several locations. The sewer is very close if not touching the storm sewer catch basins or

manholes at some points. There is minimal space between the duct bank, force main and storm sewer between CB 14 and SWMA 4. The force main and duct bank are all within the 4.5 foot wide shoulder/sidewalk from Sta 17+50 to 24+00. There should be sufficient separation for installation and maintenance/repair. The electric, cable, telephone is indicated as a single line but is installed as a duct bank and frequently can be four or more feet in width. In addition, there is a duct bank and one transformer proposed in the 30 foot wide area where existing vegetation is proposed to remain along South Shore Road for the subdivision according to the Landscape Plan. There is also a transformer and duct bank in the frontage of the condominium parcel that is specified as vegetation to remain on the Landscape Plan. The plans do not identify any of this area as an easement. This aspect of the plans should be addressed by the Applicant. If proposed as a buffer strip it should also be protected from encroachment by an easement.

(14) A Landscape Plan and details has been provided. A waiver from the requirement to indicate existing trees to be preserved has been requested. I defer review of the plan to the appropriate professional, but note that some of the street trees proposed would likely interfere with houses and possibly infrastructure as located. I recommend that the Landscape Architect discuss with the Board this aspect of the design. In particular some of the houses have trees proposed as close as 2 feet to parts of proposed houses.

(15) A signature block for the Zoning Board of Appeals has been provided on the subdivision lotting plans only. The Board should determine if they will require other sheets to be recorded.

(16) The plans indicate the location of curbs and gutters as required.

(17) Sheet 7 includes typical roadway cross sections for both a 30 foot and 40 foot right of way. As noted for the narrower right of ways of 30 feet space for utilities is limited. I recommend that the typical cross sections indicate all utilities to scale with material sizes and location, including full duct bank dimensions and depths. The location of utilities as proposed differs from the R&R typical section. Water is in the shoulder and sanitary sewer is in the center in the R&R typical section. It is unclear why the Applicant is proposing a different utility layout than the standard cross section. A waiver has not been requested.

(18) It does not appear that there would be a suitable location for disposal of brush or trees. The Board could request data on where these materials will be disposed.

(19) The plans indicate the proposed system of storm drainage. The design includes catch basins manholes, proprietary stormwater treatment units and subsurface infiltration systems. The plans only indicate the existing catch basins in South Shore Road not any associated piping. Based on observations some of these catch basins are connected across the roadway with pipes. They appear to be leaching catch basins based on my observations.

(20) Sheets 7 through 9 include plan and profile data. Profiles indicate some of the required data. It is unclear if the Board has been provided with color plans with red proposed centerline and grade elevations. Profiles do not have existing left and right sideline elevations as required and the existing center line is a dashed line. The submittal does not included profile data for 200 feet on each side of proposed intersections for South Shore Road as required. This data should be provided to identify clear sight lines. The data is at a scale of 1”=30’ not 1”=40’ as required.

(21) No data on erosion and airborne dust control has been provided as required. This could be an important issue on a project of this size that is surrounded with developed parcels.
(22) There is no reference to a covenant as required.
(23) None of the required notes regarding lot area are on the plans. A waiver has been requested from this requirement.

2.06c It is unclear if the Board of Health has commented on the plans.

2.06d It is unclear if other Town officials have commented on the plans. The submittal should address responsibilities for various utilities, whether maintenance or repair is to be the responsibility of a private development association or the utility purveyor or DPW.

a) I recommend that the Fire Chief comment on the project relative to emergency access for fire apparatus, hydrant locations and available flow and pressure for fire suppression purposes.
b) The Board should obtain comments from the Department of Public Works relative to the proposed sanitary sewer system. It is proposed to have an on-site gravity collection system and a subsurface wet well/pump station. The DPW and their consultant should review the calculations for flow and how the proposed pump station discharge will interact with the sewage treatment facility. Based on the data submitted a new force main would be installed in the public way (South Shore Road) to the Wastewater Treatment Facility. There are no plans for implementation of this force main work and a full design and survey from the site to the plant will be required. I note that there are already two force mains in the roadway together with other utilities. This is a significant issue to be addressed in the submittal, in particular with regards to traffic management during construction.
c) The Wannacomet Water Company should comment on the adequacy of supply, pressure and flow as well as the proposed materials and installation details for the water main. As noted the location of the water main is not consistent with the typical cross section.
d) The Nantucket Electric Company should review the layout of the conduits, transformers, etc. and comment. As noted space is limited for location of these utilities and no easements have been provided.
e) The Telephone and Cable companies should also review the layout. On a dense site such as this with narrow roadway layouts, the location of manholes, handholds, etc. can be complicated.
f) This section requires comment from the Conservation Commission. Based on the data provided there are no wetlands within 100 feet of the project locus.

2.06e A waiver has been requested relative to staking of the subdivision. It is generally useful for site visit purposes to stake the roadway centerlines and particular features at a minimum. I defer this to the Board.

2.06f The R&R require a performance guarantee. A waiver from Section 2.06a 8 has been requested but not from this section. As noted it is standard to require surety for completion of a subdivision for the protection of the new residents as well as for general health and safety for abutters, etc. should the project owners not be able to complete the work.

The remainder of section 2.06 does not require engineering comment at this time and no further waivers of this section have been requested.

3.01 A waiver has been requested from the requirement to comply with dimensional requirements for lots.

3.02 A waiver from the requirement to include a park or parks for public open space has been requested. This is a dense development with small lots and limited play space for children. The Board should consider the proposal relative to open space for the residents. I note that some open space is proposed; however, it is not clear who could use the open space.

3.03 Based on the data provided there are no wetlands on the site locus. I recommend that the Conservation Commission comment on the plans.

3.04 Based on the data provided there are no flood prone areas on the site locus.

3.05 A waiver has been requested relative to protection of natural features as nearly the entire site would be cleared for the proposed project. This is a significant waiver as the site is entirely within a Priority Habitat area.

3.06 A waiver has been requested from the requirement that only one dwelling be on a lot for the condominium portion of the project, although this is outside of the subdivision portion of the project and may not be applicable.

3.07 This section addresses "Further Subdivision" and could be applicable if the design removes the condominium component and develops that parcel as subdivision lots. It appears that if that is the case the roadways could connect as well as utilities, etc.

3.08 It is not known if there are any specific hazards on the site but it does not appear that there would be any.

3.09 Reverse lot frontage is not applicable as no lots would access directly off of South Shore Road.

3.10 A waiver has been requested from this section.

a) It is not known if the design conforms to the Master Plan but as the plan requests relief from many of the R&R requirements it is assumed not to comply.
b) The street layout is continuous as required and generally in alignment with existing streets. It is unclear why there is a jog through Sta 5+00 to 6+00. This results in the lots also being skewed in overall area.
c) It does not appear that there is any undeveloped land without other access that the roadways should be extended to for access.
d) Streets other than the jog and potentially the emergency access to the condominium parcel are generally the most direct route into the site. There are minimal grade issues with this property as topography is relatively level.

4.01 General, no comments required.

4.02 Roadway Layout and Parcel Perimeter Monumentation
A waiver has been requested from this section.

a) This section requires monumentation of the roadway layout at all changes of direction, intersections and every 500 feet on straight sections of roadway. The plans (Sheets 3 & 4) indicate the required monuments as proposed to be installed. It is unclear if the waiver applies to this section but it is a typical requirement for roadways to have these monuments. It is unclear the justification for this waiver.
b) This part of the section requires monuments at lot corners along the street. None of these monuments are indicated except those that coincide with a monument as required under a) above. I recommend that some lot monumentation be provided, in particular as the lots are smaller than typical lots.
c) This section specifies monument dimensions. No comment required.

4.03 Streets
A waiver has been requested from this section. The waiver is based on the assumption that all of the roadways would be minor roadways and the request is for a 30 foot right of way versus the 40 foot right of way required for Roads B and C. It is unclear the basis for this request. The larger right of way provides space for installation of utilities with fewer conflicts and greater separation between utilities for maintenance, etc. It also provides space in the right of way for snow storage on the shoulders. As designed there is no area to store snow on the narrower right of way and houses are proposed close to the street. I also recommend that the Fire Department comment on the street classification and available access.

a) This subsection defines street classifications.
    - The design the proposed roadways have considered them all Minor Streets based on the pavement width. I note that this is a larger than typical subdivision and the Board may consider Road A and Road B as Secondary Streets as they provide access from Road C which has 35 house lots in addition to the lots that front on Roads A and B. I recommend that the Board request input from their Transportation Consultant regarding the classification of the roadways. Road A does have a 40 foot layout as required.
    - As noted above Roads A and B may be considered Secondary Streets by the Board. Secondary Streets are required to have a 22 foot pavement width.

    The above requirements reference Plate 5 in Appendix A for construction requirements. A Type 1 cross section for pavement is proposed. Based on a comparison of Plate 5 with the cross sections on Sheet 7 I note the following variations:
    - the sidewalk is next to the curb no grass strip has been provided
    - the utilities are not all indicated and are in different locations than required
    - the side walk construction material should be specified

    If it is proposed to install the roadway to binder course prior to construction on the lots, I recommend that a minimum 2 to 2 1/2" dense binder be used as this will serve as a construction roadway with heavy loads from concrete trucks, etc. that could damage the roadway prior to the top course being placed. Dense binder is more

suitable to exposure to seasonal freeze/thaw cycles than standard binder.

b) The proposed roadways comply with the requirement for intersection angles. No intersection of greater than 60° is allowed.
c) The proposed roadways have changes in grade connected by vertical curves. I recommend that the Transportation Consultant determine if the curves are of sufficient length for the proposed roadway speeds. Based on my review of the K values on the vertical curves the design speed appears to be 25 mph but it is not noted in the submittal.
d) The plans should indicate the clear sight distance sight lines at the intersections with South Shore Road for all intersections. I recommend that the clear sight lines also be on the Landscape Plans to confirm that proposed plantings will not impact sight lines. Sight lines for interior roadways should also be indicated on both the Civil and Landscape Plans.
e) This sections specifies design standards for grades, horizontal curve layout, roadway layout and pavement width, etc. for Minor and Secondary Streets. I note the following:
    - Layout width of Roads B and C is 30 feet versus 40 feet required (both Minor and Secondary Streets), refer to comments above.
    - Pavement width is proposed as 20 feet which complies with Minor Street requirements. Secondary Streets require a 22 foot paved width.
    - Minimum centerline radius is 200 feet for a Minor Street and 300 feet for a Secondary Street. The proposed minimum centerline radius is 50 feet and does not comply. None of the centerline radii are labeled. All centerline radii should be labeled. A waiver was not requested from this specific section.
    - The maximum grade indicated on the profiles is 2.12% which is less than the allowed maximum of 6% on a Secondary Street and 10% on a Minor Street.
    - The minimum grade is 1.05% which meets the allowable minimum of 0.5% for both Secondary and Minor Streets.

4.04 Dead End Streets

There are no dead end streets proposed for the subdivision. The condominium would have a dead end but it would not be reviewed under the Subdivision Regulations.

4.05 Roadway Construction

Refer to Section 5 and comments above under 4.03 a).

4.06 Storm Drainage

a) Subdrains do not appear to be required based on soil mapping on-line and data provided in the submission.
b) A storm sewer collection system has been proposed for the roadway with catch basins, manholes, proprietary treatment units and leaching pit systems for collection and discharge of stormwater. No stormwater discharge is proposed to the surface or to a wetland or existing municipal or private system based on the data provided. The overall system has been analyzed using HydroCAD hydrology software for hydrology and a separate analysis using the Rational Formula for flow to catch basins with pipe capacity, velocity, etc. has been provided. The 25 year storm was used in both the HydroCAD calculations and the Rational Formula calculations as required although the storm criteria are different between Rational and NRCS based analysis.

(1) Catch basin spacing meets requirements, except that not all catch basins are located at the actual low point in the roadway. In addition, the plans should be clarified relative to the raised intersection and how drainage will be achieved without creating ponding in the roadway. Inverts and rims are indicated as required.
(2) Manholes are provided as required and meet spacing requirements. Inverts and rims are indicated as required.
(3) All catch basin/manhole systems connect to a leaching pit system but a leaching pit is not provided at each pair as required. The leaching pit system details differ in dimensions to Plate 12 in Appendix A.
(4) The minimum pipe size is 12 inches which exceeds the required minimum of 10 inches. Pipe slopes all exceed the minimum allowed slope of 0.05%. I note that there are some differences between the plans and calculations relative to pipe lengths. I did not check every pipe after noting that some were inconsistent. Velocities comply based on the calculations, although changes to the plan or calculations could change velocities. I note that some of the pipe outlets into the leaching areas would be surcharged based on the calculations provided and the calculations assume a free discharge. This should be addressed as it could be a factor for pipes that are near maximum capacity as designed.
(5) The plans do not include the required gas and oil separators. Proprietary units have been proposed. At a minimum, if allowed, these units should have the same storage capacity as would be required if the gas and oil separators were proposed. As the area is in the Zone II of water supply wells, protection from contamination is a critical component of the design. Refer also to DEP Stormwater Management Regulations section under (f) utilities. I note that specific design features are required in a Zone II.
(6) It is unclear if the design has been prepared in conformance with the publication "Artificial Recharge: Evaluation and Guidance to Municipalities: a Guide to Stormwater Infiltration Practices in Public Water Supply Areas of Massachusetts". The publication is dated 1996 and gives some guidance for site design as well as model bylaws to minimize groundwater recharge. The design proposes to recharge all of the runoff from a 25 year storm but uses different systems than identified in the report.

c) There are open drainage systems in the yard areas associated with Lots 33-35 and 42-44 and Lots 36, 37, 40 and 41. Lots 33-35 and 42-44 flow to an inlet on Lot 44 that discharges across the roadway to SWMA 3. Lots 36, 37, 40 and 41 flow to an inlet over a leaching pit in SWMA 2 in the open space Lot B. There is also a swale indicated on the Post Development Watershed Plan but not on some other Plans across the rear of Lots 25-32. No easement, as required, has been provided for any of these areas. There is an easement for SWMA 3 and SWMA 2 is on a separate lot. There is no easement associated with the swale in the rear of Lots 25-32. The slopes for the swales comply with grade requirements. More detail on the proposed inlets should be provided; one directly discharges to the infiltration system by placing a grate over one of the leaching pits. There is no treatment or safety feature if there is a spill in a tributary yard area.

4.07 Easements

Some easements for stormwater infiltration systems are proposed and there is an existing easement for the sewer mains that cross the property. Other easements will be required as noted under other sections of this report.

4.08 Adequate Access to the Site
I defer issues associated with the suitability of existing roadways for access to the Transportation Consultant. Adequate utility service should be provided as required. I recommend that the respective utility purveyors and/or their consultants indicate if suitable service is available. I note that a new force main is indicated to be installed to the Wastewater Treatment Facility south of the site. No data on this force main and any associated construction issues have been provided.

4.09 Shoulders
A waiver has been requested from this section. As noted above, shoulders are typically provided for snow storage and to provide space for utilities. I recommend that justification for this waiver be provided to the Board.

4.10 Guard Rails and Posts
No guard rails or posts are proposed and the grades are gentle so they should not be required.

4.11 Street Signs
No data on street signs has been provided as required.

4.12 Water Pipes and Related Equipment
The Wannacomet Water Company should comment on the layout and materials for the Water system as it is proposed to connect to this system. The Fire chief should comment on the location of fire hydrants. The submittal should demonstrate that there is adequate water available including pressure and flow to serve the domestic and fire protection requirements of the proposed development.

4.13 Dry Sewer Lines
The plans indicate a sewer collection system and lift station. The DPW should comment on the plans. As part of the submission, plans for the complete system including the offsite force main should be provided to fully assess the impact of the project. No calculations for the sewer system were included in the submittal. At a minimum the proposed wastewater flows to the pump station and peak discharge from the pump station should be provided to the town for assessment of the impacts. The section of the regulations requires that each house lot be designed for a flow of 750 gallons per day. As no calculations or estimated flow data has been provided, it is unclear if it is intended to comply with this requirement.

4.14 Power Lines
The Nantucket Power Company should comment on the plans. The plans indicate an underground conduit system as required, with transformers and hand holds. Services to the lot line or house are not indicated. It appears that there will need to be conduits on both sides of the roadway in many areas to service the houses from the transformers. No details for the conduits, etc. have been provided. This data should be provided to allow the Town and Power Company

to assess the available space for utilities in the right of way. It is also proposed to relocate two utility poles. The Nantucket Power Company should also comment on this aspect as there appear to be underground service connections to properties across South Shore Road at these poles.

4.15 Telephone Poles
The Telephone Company should comment on the plans. No data on telephone or cable TV services has been indicated on the plans.

4.16 Landscaping
A waiver from the requirements of planting new trees has been requested.

The Landscape Plan provided has new trees indicated on the plans, it is unclear why this waiver is requested. I note that the trees are 3 – 3-1/2" diameter versus 4" required. Some of the proposed trees are consistent with the list in the Regulations but not all. I recommend that the appropriate professional review the landscaping plan.

Very little existing vegetation would remain and very few existing trees have been identified on the plans. Some trees on the northerly side of the property are indicated on the plans by size and a C or D designation presumably for deciduous or conifer.

4.17 Fire Alarm Systems and Emergency Water Supply Systems for Fire Fighting
No data on a Fire Alarm System has been provided. I defer this issue to the Board and Fire Chief. The project is proposed to be served by public water and an emergency water supply is not required under the Regulations.

4.18 Sidewalks
The Plans include a four foot sidewalk on each side of the street as required. Insufficient data to demonstrate compliance with the Massachusetts Architectural Access Board has been provided. Crosswalks are indicated on the plans but accessible ramps with grading specifications have not been provided.

4.19 Bicycle Paths
A waiver has been requested from this regulation. I note that South Shore Road has a bicycle path and connection of the subdivision to this path should be a consideration of the Board.

4.20 Street Lights
A waiver from the requirement to install street lights, if required by the Board, has been requested. I defer this issue to public safety officials. It is typical practice to have street lights at intersections in particular if there are cross walks.

4.21 Bridges
A waiver has been requested but is not necessary as no bridges are proposed in the project. This section specifies standards of design for bridges for projects where bridges are proposed.

4.22 Curbing and Berms

It is proposed to install curbing on both sides of the roadway. The plans comply with this requirement.

4.23 Soil Test (Deep Observation Holes and Percolation Tests)
Four soil test logs were provided with the Application data. Refer to other comments, this is not a sufficient number of tests to meet DEP Regulations for proposed infiltration systems for drainage. Testing at each system should be performed. Logs for test data provided indicated some less permeable soils that may also be located at proposed system locations. This could impact the design relative to capacity of the systems.

4.24 Driveway Aprons
A waiver has been requested from the requirement for a 10 foot apron, a 9 foot apron is proposed.
Many of the proposed driveway aprons are combined between lots. To justify the waiver more data on parking, turning radii, etc. should be provided. It is likely that larger 4 wheel drive vehicles will be common in this type of development.

(f) Utilities Plan

In general the plans should address suitable spacing for utilities to allow for installation and maintenance without conflicts. In many locations utilities provide minimal if any separation.

Water: It is proposed to connect to the existing water main in South Shore Road at three locations, one for the condominium parcel and one at each subdivision roadway entrance. The size of the existing main is not specified, the proposed mains would all be 8 inch. Materials are not specified but should be required to meet the requirements of the Wannacomet Water Company. Final detail plans are not required at this time but it is important to determine that there would be adequate water available at suitable pressure and flow for both domestic use and for fire protection. The submittal does not include any data on the estimated water demand for the project. The Application should provide an estimate of water use for the proposed units. I recommend that available pressure and flow be determined through hydrant flow testing to demonstrate that the project would have adequate fire protection and domestic service. If off-site improvements are required to provide adequate water supply, the general extent of improvements should be determined as part of this review process. The Fire Department should also comment on the suitability of the hydrant layout and access to hydrants and buildings for emergency purposes. Water services to the condominium buildings have not been indicated but these buildings will require sprinklers. For dense developments such as proposed higher fire protection requirements for flow and hydrant spacing are required. The submittal should also discuss irrigation if proposed. The Board should obtain input from the Water Company relative to irrigation wells if proposed in the Zone II of the public water supply.
The above are general comments as it is my understanding that the Town will receive comments on the water system from other consultants.
Sanitary Sewer: It is proposed to install a gravity sewer collection system throughout the project. The sewer collection system is proposed to consist of 8 inch gravity pipes that all flow to a centrally located manhole near the intersection of Roads A, B and C. Sewage would then

discharge from this manhole into a new wet well and submersible pump system located in Open Space Lot A. Based on the data provided, a new force main is proposed to extend from the wet well to the wastewater treatment plant at the end of South Shore Road. Final detail plans are not required at this time but it is important to determine that there would be adequate capacity at the Plant, adequate capacity, including emergency provisions at the new wet well/pump station, and that it is feasible to install the force main in the roadway. No data on the feasibility of installing the force main has been provided, I note that there are already two force mains indicated in South Shore Road on the plans. The submittal does not include any data on the estimated wastewater flows for the project. The Application should provide an estimate of wastewater flow and preliminary data on the wet well capacity including emergency provisions for power outages, etc. I recommend that the design also consider seasonal flows as the pumps may need to be adjusted if seasonal use of the units is likely to avoid odor issues. The proposed wet well has a vent 3 feet off the ground at the central intersection for the site. The location of this vent relative to odors and protection from damage by snow, etc. should be considered in the design.

The location of the existing sewer force mains in the municipal easement have been identified in two locations. It appears that exploratory tests were performed in the cleared access into the site based on the Existing Conditions Plan. The force main depths vary but are approximately 3.5 - 4 feet deep at this location. There is also a manhole that indicates the top of one force main as 4.9 feet below the manhole rim. It will be important to confirm the depths in the location of proposed crossings with other utilities since testing indicates variable existing depths.

The above are general comments as it is my understanding that the Town will receive comments on the wastewater system from other consultants.

<u>Electric, Telephone and CCTV:</u> Only electric is indicated on the plans, typically other cable utilities are installed in a common duct bank with telephone and cable adjacent to the electric conduits. The plans indicate an underground electrical conduit(s) as a single line under the sidewalk on the south side of Road A, B and the condominium access. The conduits would be on the outside of the loop roadway (Road C). Power is proposed to connect at two poles, one existing pole for the condominiums and one from a relocated pole south of proposed Road B. There are currently utility poles located in the center of the proposed layouts for Roads A and B. Underground electric lines are proposed along the street frontage across much of the site. Transformers have been located throughout the site including several along South Shore Road within the site. No easements for any of the transformers or for the electric lines have been provided.

I recommend that the Nantucket Electric Company comment on the plans. The proposed electric system conflicts with the proposed undisturbed vegetated area along South Shore Road.

<u>Drainage:</u> The Application includes a Stormwater Report with data on both the storm sewer network using the Rational Formula and an overall hydrologic analysis using HydroCAD. Refer to comments on the Rational Formula analysis under (e) Subdivision Plan subsection 4.06 Storm Drainage.

The Report identifies the project design as complying with DEP Stormwater Management Regulations. These are considered the standard of practice for the design of stormwater management systems in Massachusetts. The DEP Stormwater Management Regulations consist of ten standards. This section of the correspondence lists the standards and identifies whether the submittal complies, does not comply or if additional information is required to demonstrate compliance. The Standards were reviewed using the Massachusetts Stormwater Handbook Volume 3 Documenting Compliance (MSHDC) together with other sections of the Handbook

including Volumes 1, and 2 for specific requirements and system design features. The design of this project includes BMP's (Best Management Practices) that would be utilized to address different standards. I have discussed issues regarding the design of BMP's under the most appropriate Standard. I have also utilized standard design practice and past correspondences with DEP regarding interpretation of the Regulations and other reference data.

Standard 1 – Untreated Stormwater

This standard requires that the project not result in point sources of untreated runoff and that runoff not result in erosion or sedimentation.

It is proposed to collect and infiltrate all runoff up to and including the 25 year storm. There are no outlets from any of the systems other than overflowing at a catch basin, manhole or leaching pit system.

This Standard would be met subject to modifications regarding other aspects of the design that would result in untreated or erosive discharges.

Standard 2 – Post Development Peak Discharge Rates

This standard requires that the peak rate of discharge does not exceed pre-development conditions and that the design would not result in off-site flooding during the 100 year storm. System designs should comply with the DEP Handbook for stormwater management systems. Infiltration BMP's are proposed to achieve peak rate control and recharge. The submittal does not credit infiltration systems with TSS removal. When this is the case various factors under the MSHDC apply.

Topographically the land has very gentle slopes and many isolated lower areas within the site that would trap runoff. The soil conditions and existing vegetative cover generally have no runoff or minimal runoff in all but the largest storms in the undeveloped condition. Conversion of the site to impervious surfaces and lawn areas would increase runoff. The submittal does not include an analysis of existing conditions. It is not feasible to claim that there would not be an increase in runoff offsite as the undeveloped condition has not been analyzed. Although the roadways, parking areas and most of the roofs would flow into proposed infiltration systems, portions of the southerly side of the site would have approximately half of the house roofs and all of the rear lot area flowing off site to the south. It is unclear what is proposed for disposal of roof runoff relative to downspouts, but typically they would be directed away from the house to avoid impacts to basements. I note that many of the basements are proposed to be finished spaces. Downspouts should not discharge to abutting properties or impact the proposed house basements. The submittal should provide a pre and post development analysis to demonstrate that there is not an increase in runoff offsite. The submittal should include analysis of the 2, 10 and 100 year 24 hour storms, consistent with DEP requirements and the 25 year storm required in Nantucket. For this site another factor to consider in the design is that many of the small depressions that are currently on the site will likely be eliminated to develop lawns and yard areas, which also increases runoff.

The Post Development Watershed Plan has drainage watersheds that are not consistent with contours. The divides should also reflect roof pitches and downspouts. As noted not all of the site has been analyzed. In addition to the south side there is an area in the north east part of the site that was not included in the analysis.

The design assumes that the site consists of 1/8 acre (5,445 sf) lots with 65% impervious, this is likely conservative but should be clarified as it is inconsistent with other aspects of the submittal for impervious coverage. The Application should clarify if future impervious areas are proposed. I also note that the median lot size is 4,841 sf. In this case as the ultimate buildout is defined by the plans an actual calculation should be performed for the lots and condominium area.

The calculations use the wetted area in the infiltration calculations for the subsurface systems. Wetted area calculations include vertical and horizontal infiltration components. Based on an email from Tom Maguire of DEP regarding other projects, the bottom area only should be used in these calculations for rate control use of infiltration. This will reduce the infiltrated volume and increase the elevation in the system. The proposed systems are very deep with the deepest having the bottom set at EL 12.25. The deepest test pit was excavated to EL 15.3 and was 14 feet deep. To take credit for infiltration during storm events of 10 year or greater including the 25 year storm modeled, it is required to either have four feet of separation from seasonally high groundwater or to perform a mounding analysis that demonstrates the system would not be impacted by groundwater. Four feet of separation would have groundwater at EL 8.25 for the lowest system, which is lower than indicated based on a Google search of groundwater elevations in Nantucket.

As noted there are issues that need to be addressed to document that the proposal will meet this Standard. Issues noted under other Standards could also impact compliance under Standard 2.

Standard 3 – Recharge to Groundwater

The design would result in an increase in impervious area. The difference in impervious area over the existing conditions should be infiltrated in accordance with the standard.

The site appears to have suitable soils based on NRCS (Natural Resources Conservation Service) soil mapping. Some on-site testing data has been provided; however, the method of testing and the number of tests and locations does not comply with DEP Handbook requirements. A minimum of three tests per basin are required under the DEP Handbook (Volume 2 Chapter 2 page 88).

I note the following non-compliance or where additional information is required:

- Some systems are less than 10 feet to a property line, the DEP Handbook requires a minimum of a 10 foot setback.
- The design calculations should assess the impact to adjacent foundations/basements as applicable. Some are very close to the systems. The assessment should include both impacts due to water infiltration into basements as well as feasibility to excavate and replace these systems without impact to the proposed foundations.

- The submittal should discuss access for maintenance as well as how systems would be replaced when they become clogged.
- Not all of the impervious area is captured in the proposed systems. DEP requires an adjustment calculation be provided. The Town regulations require that 95% of the annual rainfall be recharged in a Public Well Recharge area overlay District. The submittal should include adjustment calculations for roofs and any other impervious area not discharging to an infiltration system. The submittal should also demonstrate that at least 95% of the impervious area is captured for recharge.
- DEP requires that calculations for the time it takes for a system to empty be provided and that it be less than 72 hours. This is likely not an issue in this type of soil but typically small footprint systems require more time than systems that are shallower and cover more area. The submittal should include drawdown time calculations
- DEP requires a minimum testing at each leaching pit or galley. Soil testing should be performed at each system location. Soils are likely to be consistent on a site like this; however, upper layers in half of the pits excavated had less permeable soils than used in the calculations. As noted above testing to determine seasonal high groundwater on the site should be performed to demonstrate compliance with required groundwater separation. A minimum of 2 feet of separation is required but either a mounding analysis or a four foot separation would be required for these systems as they provide peak rate control.

Refer also to comments under Standards 2 and 4.
Additional data is required to demonstrate compliance with this Standard.

Standard 4 – 80% TSS Removal

This standard requires that runoff be treated to remove 80% of total suspended solids (TSS) prior to discharge.

It is proposed to utilize the following systems:
- Street sweeping
- Deep sump hooded catch basins
- Proprietary stormwater treatment units (Stormceptors)
- Subsurface infiltration systems (not included in TSS removal credits)

As noted the infiltration systems are not credited with TSS removal in the submittal. According to the DEP MSHDC 44%TSS removal should be achieved in upstream BMP's prior to discharge to infiltration systems that are in rapidly draining soils as are reported over most of the site. In addition for site in a Critical Area (Zone II) 44% pretreatment is also required.

I note the following non-compliance or where additional information is required:
- Street sweeping is a discretionary credit as few facilities implement a program with sufficient street sweeping to obtain the credit. I recommend against allowing this credit.
- Catch basins are required to capture no more than ¼ (0.25) acre of impervious area to be suitable for treatment credit. Several catch basins capture over 0.25 acre of impervious area and would not receive removal credit.

- Proprietary treatment units (Stormceptor 900 and 450) are proposed. The value of TSS removal for these units is discretionary for the Board to accept under DEP Regulations. I recommend that the Board reference a report prepared by DEP in April of 2013. This report cited studies by various agencies. I recommend that the Commission use a removal rate of 30% for the Stormceptor units subject to proper sizing. Based on the DEP report this type of system typically can achieve 30% TSS removal if properly sized. DEP has also published a Water Quality Volume to Flow Rate formula that should be used to develop flow rates to select proprietary treatment units of this type. The data provided does not include this conversion calculation.
- Subsurface infiltration systems. Runoff to these systems flows through a catch basin and a Stormceptor unit prior to discharge to the infiltration systems. As noted above pretreatment for 44% removal from the tributary system, prior to this BMP, is required in a Zone II of a public water supply well and also in HSG A soils as occur on this site. The submittal does not include TSS credit for removal in infiltration basins although it could be applied subject to appropriate sizing data. As noted above pretreatment requirements would not be met for some of the areas flowing into the infiltration systems and additional sizing data is required.

Based on the data provided, this Standard would not be met. Not all catch basins would receive credit, the proprietary units have been credited with more removal than should be allowed based on my review of available data and may not be sized as required as the flow conversion has not been provided. More data on the infiltration systems would be required to apply TSS removal credits under this Standard. I note that additional issues are addressed under Standard 6 as the site is in a Zone II of a public water supply well.

Standard 5 – Higher Potential Pollutant Loads

The project would not be a Land Use with Higher Potential Pollutant Loads (LUHPPL).

This Standard would not apply to this site.

Standard 6 – Protection of Critical Areas

The site is in the Zone II of a public water supply and this Standard applies to the project. Volume 1 of the Stormwater Handbook identifies acceptable systems for use in Zone II areas in Table CA 3 Standard 6. I note that this Table states "Proponents must comply with local source water protection ordinances, bylaws and regulations." It is proposed to exceed the allowable coverage in the Zone II under the local Bylaws.

It is proposed to use deep sump catch basins and proprietary separators for treatment. Both are listed as Pretreatment BMP's and proprietary units must be approved under the TARP or STEP process. The Stormceptor may be approved but a copy of the approval should be provided. In addition, under Volume 2 of the Handbook, it states that the proprietary units must be placed first in the treatment train. In this case they are considered the major treatment unit in the TSS removal sheets provided for Standard 4. There are specific design requirements for subsurface structures that should be incorporated into the design if it is proposed to use them for TSS

removal credit. As submitted no credit for TSS removal was credited and the overall system would not meet the requirements under this Standard.

Systems in a Zone II are required to include source control that includes proper management of snow and deicing chemicals. No data on snow management has been provided. In addition means to isolate these systems in the event of a spill or other contamination issue are required. No data has been provided to document compliance with these aspects of the Regulations were included in the submittal.

This Standard would not be met.

Standard 7 – Redevelopment Projects

The project is not considered a redevelopment project. This Standard does not apply.

Standard 8 – Erosion/Sediment Control

This Standard addresses construction phase erosion and sediment controls. No data has been provided regarding erosion and sediment controls. For this project a NPDES (National Pollutant Discharge Elimination System) SWPPP will be required prior to construction. For sites with intensive development as proposed, I recommend that the appropriate Town agency be given sufficient time to review and comment on the proposed SWPPP. The Report states that this data will be provided with final plans.

I recommend that construction, if the project is approved, be performed in a logical phased method to minimize exposure of stabilized soil. Only the minimal amount of clearing necessary to implement each phase should be performed.

Additional information will be required to comply with this Standard. I recommend that the Board require submission of the required data for review by the Town at least one month prior to the proposed start of construction. If there are comments on the SWPPP that require revision the start date may need to be postponed.

Standard 9 – Operation and Maintenance Plan

A Long-Term Pollution Prevention and Operation & Maintenance Plan (O&M) has not been provided in the Report. The Report states that this data will be provided with final plans.

I recommend that the O&M be provided at this stage. It should be feasible to provide the data and it is likely that the design engineer has prepared many of these that could serve as a template. Since the site is in a sensitive Zone II area the Board should have an opportunity to review the O&M as part of the Application process.

This Standard would not be met.

Standard 10 – No Illicit Discharges

An illicit discharge statement has not been provided nor any of the associated documentation.

This Standard would not be met.

(g) Project Eligibility Letter

The Application included a copy of the Project Eligibility Approval from MassHousing as required. The following specific issues are required to be addressed in the submittal based on the Project Eligibility Letter:

Environmental Conditions:
The submittal data provided to Chessia Consulting Services, LLC does not address wildlife habitat requirements. The entire site is identified as a habitat area by NHESP, which has been confirmed by letter from Mass Wildlife. This is a significant issue to address as the project would likely not comply with requirements as currently submitted.
The entire site excepting one small area is in a Zone II of public water supply wells. The proposed water use, available pressure and flow should be provided to the Board and Wannacomet Water Company to determine if the project can be served adequately by the existing system. In addition, the stormwater system should be revised to provide adequate protection to the Zone II tributary area. Refer to comments under (f) Drainage above.
The DPW should comment on the proposed sewer collection and discharge system relative to capacity at the treatment plant, pump station design, etc. The submittal should provide estimated wastewater flow to the pump station and preliminary discharge data from the pump station for the DPW to assess the impacts. The DPW and Selectmen should also review the proposed force main route and identify any issues with the work in the public way as this could have a large impact during construction.
The submittal should identify how waste from both construction and household uses after development will be stored, processed and disposed.

Traffic Study:
It is my understanding that traffic is being reviewed by others. I recommend that the review include circulation, parking and emergency access within the proposed project in addition to offsite impacts.

Landscape Plan:
A Landscape Plan and Detail sheets has been provided.
The plan indicates open space as required in the Eligibility Letter; however, the open space identified is not consistent with the lot plans as some of the open space is on private lots. All of the open space in the subdivision is at drainage lots, the sewer easement or the open space parcel that has the maintenance building and sewage pumping station.
The plan does not address lighting as identified in the Eligibility Letter. The plans should also include a photogrammetric plan for lighting to demonstrate that proposed lighting remains within the property. I recommend that lighting comply with the Regulations. The Regulations list specific types of lighting to avoid impacts to neighbors and overall light impacts to the area.
The Landscape plan does not address signage as required. There are cross walks indicated but

no signage.
The plan should address trash management, dumpster locations, etc. as referenced in the Eligibility Letter.

Ownership and Management:
It is unclear how the site will be managed. There is a condominium parcel, a subdivision with open space parcels and a maintenance building on an open space lot in the subdivision. The sewage pump station would serve both parts of the development. Some of the subdivision drains into the condominium parcel, etc. This issue should be addressed as well as what is expected from the Town relative to ownership and maintenance. A subdivision could be put up for street acceptance even if proposed as a private way. The Application should address these issues as noted in the Eligibility Letter.

(h) Listing of Requested Waivers

The Application includes a request for waivers with the specific waivers requested listed and the variation from the regulations. Waivers are listed as follows:

Zoning Bylaws:
Section 139-7 Use Chart; prohibited uses in all districts: Section B (1) Prohibits more than two dwelling units per lot. The Applicant is requesting relief to allow apartment buildings for the Condominiums which are prohibited in the LUG-2 Zone.
Section 139-12 B. Overlay Districts: The Public Well Recharge Overlay District limits impervious coverage to 15% or 2,500 square feet unless artificial recharge is proposed. The condominium section would have 68% coverage according to the Application. I note that the drainage calculations have different impervious calculations than the Tables in the Application. It is unclear if the table for the subdivision includes the roadway or just the lots. This should be clarified. Refer to Comments in Section (f) regarding Drainage. This section of the Zoning Bylaw considers monitoring requirements for groundwater impacts. The Board should consider requiring monitoring of groundwater quality in their conditions if the project is approved. Although other requirements under the DEP Standards should be implemented to comply with those Regulations, the design of the proposed subsurface systems could allow an accidental spill or illegal discharge to the groundwater without detection.
Section 139-16 Intensity Regulations: LUG-2 requirements include the following with the requested relief as indicated below:

	Required:	Proposed:
Min. Lot Size	80,000 square feet	3,700 square feet
Frontage	150 feet	0 feet
Front Yard	35 feet	0 feet
Side/rear yard	15 feet	5 feet
Ground Cover ratio	4%	50%

The Board should review this request, I recommend that the setbacks allowed consider access for maintenance of the buildings without encroaching on abutting properties or roadways. The Board should request information regarding this issue.
Section 139-19 B. (1) & D Screening of Parking: Parking areas for 20 or more cars require a 10 foot buffer strip with at least one tree for every eight spaces. The Board should review the

proposed Landscaping Plan relative to this issue.
Section 139-20.1:
B. Driveway access approved by DPW. The Applicant is requesting that the Board approve the driveways. I recommend that the Board solicit DPW input on the driveway design.
B. (1) Not more than one driveway access allowed on a lot. The request is for the condominiums. The request identifies that the condominiums have an access at South Shore Road and at the rear to the subdivision. As this access is an emergency access it is unclear that a waiver would be required.
B (2) (f) [2] Minimum driveway width of 10 feet. It is requested to allow a minimum width of 9 feet. I recommend that the DPW and the traffic consultant comment on this waiver, many of the driveways would be placed adjacent such that there would be no open space between the driveways.
It appears that the driveways do not comply with the requirements of (a) or (d).
Section 139-23 Site Plan Review: The Applicant has requested that the entire section be waived. It is understood that the Zoning Board reviews Comprehensive Permits and that the site plan review process would be different for a Comprehensive Permit. Many of the submittal requirements, etc. are the same or the data has been provided. It is unclear that the entire section should be waived. The Board should determine if any specific sections should not be waived.
Section 139-26 Issuance of Building and Use Permits:
C (1) Certificate of Appropriateness issued by the Nantucket Historic District Commission. The Applicant has requested that this requirement be waived. I recommend that Board discuss this with the Nantucket Historic District Commission. There may be design considerations that would benefit both the Town and the Developer.
I. No building permit shall be issued until fees are paid. The Applicant is requesting relief from payment of fees for affordable units.
Section 139-28 Issuance of Occupancy Permits:
B (2) Certification by the Nantucket Historic District Commission. The Applicant has requested that this requirement be waived. I recommend that Board discuss this with the Nantucket Historic District Commission. There may be design considerations that would benefit both the Town and the Developer.

Town of Nantucket, Comprehensive Permit Chapter 40B Regulations.

Section 3.01(i). The Applicant has requested that the proforma specifically not be required to be submitted to the Town. I defer this issue to Town Counsel.

Miscellaneous Waivers

Nantucket Historic District Commission (HDC): The Applicant requests a waiver from HDC requirements in particular a Certificate of Appropriateness and Nantucket Code Chapter 124. I recommend that the Board solicit input from the HDC regarding the design and other applicable issues.
Board of Water and Sewer Commissioners/Water Department and Sewer Department: The Applicant requests that the Zoning Board grant permits typically required by water and sewer and that any requirements to apply to the Board of Water and Sewer Commissioners the Water Department and the Sewer Department be waived. I recommend that the Board of Water and Sewer Commissioners the Water Department and the Sewer Department comment on the plans and recommend appropriate testing, investigations, analysis, etc. as required to demonstrate that there is sufficient infrastructure capacity, pressure, flow, etc. to serve the site and if not to comment on proposed system improvements to assure a safe and compatible system is proposed.

Nantucket Code Chapter 132/Trees and Shrubs: The Applicant requests that any permits, approvals or waiver under this section be issued by the Zoning Board in connection with the Comprehensive Permit. I note that Town Counsel should review this request as in one case I am familiar with, a Zoning Board determined that removal of public shade trees would be a state required permit under the Shade Tree similar to a Board of Health Permit or Conservation Commission Order of Conditions and it may not be appropriate for the Zoning Board to issue this permit if there is an appeal regarding removal of a public shade tree. The plans do not identify trees so it is not known if there are any public shade trees within the project limits that would require removal.

Nantucket Code Chapter 102/Outdoor Lighting: The Applicant is not requesting a waiver from the requirements but is requesting that the Zoning Board issue any associated waivers and permits. The plans do not indicate any lighting. I recommend that a lighting plan, including a photogrammetric plan be provided.

Nantucket Code Chapter 127: The Applicant requests that the Zoning Board issue any permits associated with opening of a public way. I recommend that the Zoning Board solicit input and impose the requirements of the DPW relative to street opening permits. The project will require work in South Shore Road for connection to the water main, construction of the proposed roadways connecting into the site and the sewer force main. Traffic management requirements, repair of excavations, etc. should be as specified by the DPW.

Rules and Regulations Governing the Subdivision of Land

§2.03c Plans Believe not to Require Approval (ANR): The Applicant requests that a wetland boundary determination not be required. Based on my review of data, there are no wetlands near the site. The Board may request that the Conservation Commission comment on the plans.

§2.06a(2) Submission Requirements: The Applicant request a waiver to show the street network plan. The required data has been provided, but not on an 8 ½ by 11 sheet.

§2.06a(6) Submission Requirements: The Applicant requests a waiver regarding filing fees.

§2.06a(8) Submission Requirements: The Applicant has requested a waiver to provide a bond or covenant. This is not recommended as a partially completed project would leave the residents, in particular those occupying affordable units, with the cost to complete the roadways and other infrastructure that has not been installed.

§2.06a(11) Submission Requirements: The Applicant request a waiver from the requirement to provide a site analysis report and map. As noted under (e) much of the data has been provided in the Application. It is unclear that this waiver is required.

§2.06b(4) Submission Requirements: The Applicant request a waiver from the requirement to show current zoning data on each sheet. As noted under (e) some of the sheets contain this data.

§2.06b(14) Submission Requirements: The Applicant request a waiver from the requirement to show location and size of existing trees to be preserved. I recommend that the plans indicate any existing street trees. As noted there are discrepancies in the plans as construction identified on the Civil Site plans would disturb vegetated buffers as indicated on the Landscape Plans.

§2.06b(23) Submission Requirements: The Applicant request a waiver from the requirement to show lot area requirements under current zoning. As noted under (e) some of the sheets contain this data.

§2.06e Submission Requirements: The Applicant request a waiver from the requirement to provide staking for viewing. The Board should determine if a site visit to review site conditions is proposed and if staking of specific proposed features would be beneficial on a site walk.

§3.01 Zoning: The Applicant requests a waiver from the dimensional requirements of the Zoning Bylaws.
§3.02 Public Open Spaces: The Applicant requests a waiver from the requirement to provide public open spaces. The plans do identify some open spaces. The Board should review these areas.
§3.05 Protection of Natural Features: The Applicant requests a waiver from the requirement to protect natural features to the extent necessary. As noted the project is located in a NHESP Habitat area and will remove nearly all of the existing vegetation to construct the site.
§3.06 One Dwelling Per Lot: The Applicant requests a waiver from the limitation to one dwelling per lot for the condominium parcel. It is unclear if this applies under the Subdivision Regulations as it would be a separate lot and not part of the subdivision.
§3.10 Street System: The Applicant requests a waiver from this section. With the exception of the requirement to comply with the Master Plan, it is unclear if a waiver is required.
§4.02 Roadway Layout and Parcel Perimeter Monuments: The Applicant requests a waiver from this requirement. As noted under (e) above, the plans indicate street monuments. I recommend that the waiver be clarified.
§4.03 Streets: The Applicant requests a waiver from the requirement to have a 40' wide street layout. As noted under (e) above, the plans should clarify utility spacing. A wider layout would provide more space for utilities, in particular for maintenance. Some utilities are very close if not touching each other and would be difficult to repair.
§4.09 Shoulders: The Applicant requests a waiver from the requirement to provide four foot shoulders. This waiver is associated with the waiver for §4.03 Streets. Since the roadway right of way is narrower, there is no space for shoulders. Shoulders are desirable for snow storage, utility installation to avoid impacts to pavement for repairs, etc.
§4.16 Landscaping: The Applicant requests a waiver from the requirement to plant new trees. A Landscape Plan has been provided that indicates new trees. The waiver request should be more specific relative to this section.
§4.19 Bicycle Paths: The Applicant requests a waiver from the requirement to provide bicycle paths. Sidewalks are proposed on both sides of the roadway. I recommend that the transportation consultant comment on this issue.
§4.20 Street Lights: The Applicant requests a waiver from the requirement to provide street lights. I note that in the comments on the waiver from Nantucket Code Chapter 102, the Applicant states that the project will comply with lighting requirements but that a waiver from the section is requested relative to the Zoning Board issuing any permits or waivers from the section. Street lighting should be provided in specific areas for safety purposes. In particular, lighting should be provided at pedestrian cross walks, intersections, etc.
§4.21 Bridges: The Applicant requests a waiver from this requirement. It is unclear why this is requested as no bridges are proposed.
§4.24 Driveway Aprons: The Applicant requests a waiver from this requirement relative to the width of proposed driveways. Refer to comments under Section (e) and the waiver request under Section 139-20.1.

I appreciate the opportunity to assist the Zoning Board of Appeals on this project and hope that this information is sufficient for your needs. This report is for the Nantucket Board of Appeals only and provides no engineering, planning or other advice that may be relied upon by any party or agency other than the Nantucket Board of Appeals. I would be pleased to meet with the Board or the design engineer to discuss the project at your convenience. If you have any questions, please do not hesitate to contact us.

Very truly yours,
Chessia Consulting Services, LLC

John C. Chessia, P.E.