

Chessia Consulting Services LLC



October 13, 2016

Ms. Mary Savage-Dunham
Community Planning Director
Town of Hingham
210 Central Street
Hingham, MA 02043

RE: Engineering Review
Parking and Site Improvements
Worlds End

Dear Ms. Savage-Dunham:

In response to your request, Chessia Consulting Services, LLC has reviewed the site plan submittal for the above referenced project for compliance with the requirements of the Zoning Bylaw (ZBL) for projects submitted under an Application for Site Plan Approval in Association with Application for a Building Permit. An Application for a Special Permit A3 for parking determination has also been submitted. In addition to the above filing, an Application to the Zoning Board of Appeals for a variance under Section IV-B has been submitted. I also reviewed the submittal relative to general engineering design standards, DEP Stormwater Management Regulations/drainage design and parking and circulation as applicable. I visited the site to on October 5, 2016. The data reviewed included the following information:

Plans:

- “Site Plan Set Worlds End Hingham, MA 02043” dated 9-21-16 prepared by Cavanaro Consulting consisting of 3 sheets.
- “Landscape Plan Worlds End Reservation the Trustees of Reservations Martins Lane, Hingham MA” dated September 20, 2016 prepared by Sean Papich.

Documentation:

- Cover letter, Application for Special Permit A3 with Site Plan Review and associated supporting documentation, including traffic and stormwater analysis sections and plans. (Report)

The site is located at the end of Martin’s Lane and comprises a large open space parcel with open fields, wooded areas and trails all surrounded by coastal wetlands including Hingham Harbor and the Weir River estuary. There currently is a gate house at the entrance and gravel parking area to the east of the entrance with gravel access roads and trails. Based on MassGIS mapping the Natural Heritage and Endangered Species Program (NHESP) has

identified habitat areas on the site and part of the proposed work area is included in this habitat area. There are wetlands proximate to the site both to the north and west, part of the work would be in the buffer zone and a Notice of Intent (NOI) will likely be required. MassGIS also identifies that part of the site would be in an Area of Critical Environmental Concern (ACEC). The ACEC limits should be indicated on the Plans. FEMA maps part of the property as in the VE zone and some is in the AE zone.

The portion of the site where the proposed work is located currently includes approximately 72 parking spaces and associated access drives. The spaces are not striped. It is proposed to relocate the existing gate house approximately 100 feet to the north and to the east side of the access drive. Parking would be redesigned and expanded, in particular a larger lot is proposed at the far easterly side of the current parking area. A new loop roadway and parking area is proposed with a new visitor center at the general site of the existing toilets. Most of the area to be altered is either wooded or currently gravel used for an access drive, parking or a pathway. There are exposed ledge outcrops on the easterly side of the project.

Based on and published data, soils appear to be mostly Canton-Chatfield Rock Outcrop Complex in the area proposed for work. These soils are listed in Hydrologic Soil Group A or B (Canton and Chatfield respectively) but can be shallow to bedrock.

GENERAL PLAN REVIEW:

The following issues are considered the most significant for the Board to consider in review of the project:

Summary of Main Concerns:

- The Board should determine if peer review of the traffic and parking analysis is required. I have not reviewed this aspect of the project.
- Potential issues with the Conservation Commission regulations. A Notice of Intent has been filed with the Commission.
- Potential impacts associated with removal of ledge.
- Landscape issues relative to consistency regarding clearing limits, grading and replanting of cleared areas.

I have described my comments with reference to the specific section of the submittal requirements. My comments are as identified below:

Section I-I Site Plan Review:

1. Purpose:
No comment required.
2. Procedures:
It is assumed that the appropriate information has been submitted to initiate the review process. The Board should review the project relative to the specific

subsections of this section. I note that an Application for a Special Permit A3 for a parking determination is included in the submittal.

3. Pre-Application Submittal.

It is unknown if a pre-application submittal has been submitted or commented on by the Board.

4. Submittal Requirements:

a. The submittal did not include a Locus Plan as required. The parcel is over 200 acres and only a portion of the site is indicated. The Application did include deeds for the property but an overall plan with areas etc. has not been provided. The Applicant is the Trustees of Reservations. The property limits are partially indicated on the plans; however, there is no descriptive data (metes and bounds) for the property limits. Topography has been indicated in the vicinity of the project area but not for the entire property. There are existing buildings to the south that should be indicated on the plans and some additional topography to identify whether runoff flows onto or off of the locus to the south should be provided.

b. The plans are drawn to scale and indicate the proposed building including floor plan and elevation sketches. The two smaller sheds do not have plans but are very small buildings and one currently exists and would be relocated. The Board should determine if more data is required regarding these buildings.

c. The submittal includes data on traffic, site usage and operations, etc. It is unclear if the Board will require peer review of this data.

I have reviewed the plans relative to dimensional data and details. The plans include some but not all parking dimensions. Some areas would not comply with the dimensional requirements, in particular the areas closer to the entrance; the "Far Lot" would comply with dimensions. A waiver from the requirements is requested in the Application. The plans propose a total of 122 spaces including 5 handicap spaces. Currently there are 74 spaces on the property based on the Table provided on Sheet 3. There is not a plan of the existing spaces other than the general outline of the areas. I note that existing spaces are in unstriped gravel parking areas.

The proposed parking pattern adds a drop off loop with handicap accessible parking on the loop near the proposed visitor center, west of existing parking areas. The Far lot would also include a loop pattern based on the plans. Sign locations are indicated on the Landscape Plan. Specific sign details are not included. The plans indicate one way traffic circulation arrows; it is assumed that these represent the proposed traffic pattern.

No profiles have been provided. Sheet 3 includes cross sections for a gravel base with crushed stone surface.

Refer to comments under Section V-A Off Street Parking Requirements for specific requirements and requested waivers.

d. The Application requests relief from zoning requirements under Sections IV-B Special Requirements to Schedule of Dimensional Requirements and Section V-A Off Street Parking Requirements. The site is in the Official and Open

Space Zoning District. The site has been granted waivers in the past for construction of the existing gate house and for certain aspects of the existing parking. The proposal includes parking in the 100 foot residential setback, some of which currently exists. The new loop drive and handicap access would be in the 100 foot setback as would the expanded area along the drive just east of the proposed loop. It is my understanding that a waiver is requested for these areas. The plans should indicate the required 20 foot green space strip along the abutting residential area south of the access drive and parking area.

The proposed building appears to meet dimensional setbacks in the Zoning Bylaws, although no setbacks are indicated on the plans.

- e. There are no utilities proposed. The new building would have composting toilets and water would not be required. It is unclear if electric service is proposed, none is indicated. It is my understanding that the Building would be constructed in a later phase.

A landscaping plan has been provided. The Landscape plan includes data on species and size for the area abutting the residential district. Some of the new planting in the access loop area are not labeled. No planting details were included on the plan. Some areas that would be cleared as a result of site grading are indicated as woods to remain. This should be corrected on the plans.

It is unclear if any trash receptacles exist or are proposed.

- f. The submittal includes a grading plan and stormwater runoff analysis. Refer to comments under Stormwater Management Regulations below for drainage design. The grading plan is incomplete along the east side of the Far Lot. There are some missing contours and the contours are not consistent with the clearing limits in some areas. It appears that some grading would be required for the path located between the Far and closer parking lots, there is a 40% cross slope for a small section. The grading by the proposed building indicates substantially more tree clearing than indicated on the plans. It is unclear if the building could be constructed with a partially exposed foundation to the north to reduce required clearing and grading. I note that removal of ledge is likely required to implement the plan. There are areas of exposed ledge through much of the area and although the plan appears to attempt to avoid exposed ledge areas, there will likely be areas of unexposed ledge encountered during construction.

As noted under c. above, it is unclear if the Board will require a peer review of the traffic study.

- g. The proposed project does not propose water or sewer service. There is minimal drainage infrastructure and any pipes are existing pipes. There are composting toilets proposed, no septic system would be installed. Soils on site appear to be shallow to ledge. There will likely be removal of ledge required to implement the plans. As noted the Board should determine if peer review of the traffic impacts to existing streets is required.

- h. The regulations require compliance with DEP Stormwater Management Regulations as discussed below:

STORMWATER MANAGEMENT POLICY/EROSION AND SEDIMENT CONTROL:

The DEP Stormwater Management Regulations consist of ten standards. The standards were reviewed using the Massachusetts Stormwater Handbook Documenting Compliance (MSHDC) together with other sections of the Handbook as appropriate. 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. This project would be considered a redevelopment only for the portion of the site currently covered with impervious surfaces and for other parts full compliance is required. It is my understanding that the existing gravel parking lot would not be considered impervious by DEP, which limits the requirements under some of the standards. This site is also in the coastal zone and would not require mitigation of runoff rates as any discharge would be to a tidal area.

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.

There are no new outlets proposed. The project would utilize gravel, if permitted, for the new/expanded parking lots. It has not been specified where the proposed roof will discharge. It is assumed that roof runoff would discharge to the surface at the corners of the building via downspouts. Downspouts and outlets, if proposed, should be indicated on the plans.

This standard could be met by the design. More data on the proposed roof discharge locations should be provided.

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. In this case, as the site discharges to a tidal water body, it is not required to meet runoff rates if the Applicant requests and the Conservation Commission grants a waiver from this requirement. A Notice of Intent (NOI) is required for this project and it is my understanding that one has been filed with the Conservation Commission.

Calculations have been provided and based on the calculations there would be more runoff due to the increase in gravel parking area and building roof.

It is unclear if the Applicant has requested a waiver from the Conservation Commission; typically it is not required to meet this standard at this type of location. Subject to the waiver this standard would be met.

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.

No site specific soil testing has been performed. Soils appear to be suitable for infiltration based on published data, where sufficient depth of soil exists. I note that the Natural Resources Conservation Service (NRCS) soil survey would classify the soils at the location of the proposed building (the only new impervious area on site) as Hydrologic Soil Group (HSG) A or B. The calculations assume HSG C. The system is proposed to be located in HSG C soils. A higher volume of recharge would be required than used in the calculations. Based on the grading it does not appear that the infiltration trench will capture much runoff from the area. The plans should direct runoff to the proposed infiltration system. The trench is located closer to the resource area than the siting criteria listed in Volume 2 of the DEP Handbook. I recommend that some pretreatment be considered. Based on the DEP Handbook, pretreatment is recommended for infiltration trenches. They are frequently subject to clogging due to sediment.

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. For this project the only new impervious area on site is the building roof.

Building roofs, unless constructed of certain metals, are considered clean and do not require treatment. Based on the Architectural sketch, an asphalt shingle roof is proposed, therefore no treatment is required.

This standard would be met as no specific treatment is required for this project. I note that capture of sediment from gravel area prior to discharge to the ditches or pipes would be desirable to prevent sediment from entering into the resource areas at the various discharge points. The Board my desire to impose conditions that adequately sized stone sediment traps be placed at the start of the ditches. Stone is proposed at these locations but no sizing data or particular design was included.

Standard 5 – Higher Potential Pollutant Loads

The project is not considered a source of higher pollutant loads, this Standard is not applicable.

Standard 6 – Protection of Critical Areas

The site is located in a critical area. An infiltration trench is an appropriate method of treatment at this location if properly sized and designed.

Standard 7 – Redevelopment Projects

The site could be considered a partial redevelopment project. There is minimal existing impervious area. Based on my understanding all of the buildings proposed including the relocated gate house would be in currently pervious areas and subject to the standard. In this case there is no requirement on runoff rate, if waived by the Board and Conservation Commission as discharge to a tidal area, and TSS removal is not required for the roofs. This standard could be met subject to compliance with other conditions as noted above.

Standard 8 – Erosion/Sediment Control

This Standard requires development of plans and narrative data to control erosion and sedimentation resulting from the removal of vegetation, etc. as a result of construction. In this case the work area may be more than the one acre of disturbance threshold and an EPA NPDES Permit and SWPPP could be required.

The Report includes a write up regarding erosion and sediment controls and the Plans include the location of a silt fence along the 50 foot buffer on the north side and closer to the work limits on the east side with a silt sock proposed near the harbor on the west side.

I recommend that the plan address soil and stump stockpile areas, staging areas for workers, etc. A tracking pad should be added to prevent tracking of soil onto the public way or into resource areas. I also recommend that sediment controls be located closer to the limit of work to protect areas not proposed for disturbance outside the 50 foot buffer. It is likely that removal of ledge and other unsuitable materials will be required. The description should include a description of this work. Data as required in the DEP Checklist regarding contractor, contact numbers, schedule, sequencing, etc. should be provided with the Application.

Additional data is required under this Standard.

Standard 9 – Operation and Maintenance Plan

An Operation and Maintenance Plan (O&M) was provided. For all projects a comprehensive O&M is required for the entire site, including areas not proposed to be altered.

This site has few BMP's to maintain. The O&M should discuss maintenance of the gravel parking areas and access drives, including snow plowing if proposed. Maintenance of the existing ditches should also be included. The maintenance of the infiltration trench is consistent with the requirements.

Additional data is required to comply with this Standard.

Standard 10 Illicit Discharge

There is a general statement regarding illicit discharge connections. Reportedly a signed statement was included but it could not be found in the Report.

- i. The plans do not indicate any existing or proposed lighting. If lighting is proposed a photogrammetric plan should be provided.
- j. It is unclear if the Board requires or requests and other materials not identified above regarding the project. I note that a NOI will be required and has been submitted. It is unclear that all resource areas and setbacks are indicated. The wetland line does not appear to be flagged and other coastal resource areas such as coastal bank and beach may exist on site. The Board may want information from the Conservation Commission relative to any impacts to the project based on their review.

The Board should review the comments and determine if all of the information required under Section 6. Review Standards and Approval have been addressed by the Applicant prior to arriving at a decision.

Section V-A Off Street Parking Requirements

1. The site is used by the Trustees of Reservations for open space and various events associated with the site and scenic landscape. The parking required for this use is not specified and an A3 Special Permit is requested. Data on uses for the proposed facility have been provided. The Board should determine if a peer review by a Transportation Engineer is desired regarding these issues.
2. The site does not have a specified use in the Bylaws. It could be considered recreational land but my understanding is that recreation areas would be active not passive recreation such as team sporting events. A Special Permit A3 has been requested. Usage and occupancy data has been provided for the Board's review.
3. The Application requests waivers relative to parking space and aisle dimensions under this section.

The proposed parking spaces vary in size. The Far Lot has spaces 18 feet long with an overhang. The dimensions for the closer lot are not all specified but

appear to vary in dimension. Some sections of parking access drives within parking areas do not meet requirements for width. Specifically, this would apply to the closer lots; the Far lot would comply for aisle width. The new handicap spaces would only have back up space if a vehicle was not in the drop off area. It is also appears that there would not be sufficient back up space for the easterly handicap space to be able to back out and travel to the southwest in a one way direction within the space provided. It appears that this area could be altered to comply with minimal effort. The Board should review this aspect of the design.

4. The plan is drawn at 1"=20' as required. The majority of the required information is provided.
 - a. Details of proposed gravel base and surfacing, space marker posts and handicap parking sign have been provided. Refer to other comments regarding design issues. A street opening permit would be required to install the transition area in the public way to the widened access drive.
 - b. The required building locations are not all indicated on abutting properties. Lot lines, zoning lines, etc. have been indicated, excepting the 20 foot planting buffer to the abutting Residential zone.
 - c. A Landscaping Plan has been provided. Some data is missing on the Landscape Plan as noted above and below.
5. Design standards
 - a. This section addresses general safety and access convenience.
 - b. The intent of this project is to improve access and reduce queuing on Martins Lane. Sight visibility appears adequate based on my site visit.
 - c. Not applicable, no loading spaces would be required for this use.
 - d. Not applicable, no loading or service doors are included with this submittal.
 - e. The parking layout generally complies with the requirements relative to backing and maneuvering. As noted above, the handicap area may require waiting for a vehicle in the drop off area to move. Vehicles at the end of the "closer lot" do not have a backup area without encroaching on the walkway.
 - f. The parking spaces do not overhang a sidewalk or fire lane and are not close to the building. This requirement would be satisfied.
 - g. A waiver has been requested from this section. The parking lot is not surrounded by curbing or any substantial bumper as required. Vehicles would overhang into vegetated open space areas.
 - h. The plans do not indicate any light fixtures.
 - i. A waiver has been requested from this section. The plan proposes cedar posts at end corner of each space in lieu of white striping.
 - j. The number of handicap spaces complies with 521 CMR; however, the center space would not comply as there is no aisle for access. Only four spaces would meet requirements and five are required. The plans should be revised to comply with Architectural Access Board requirements.
 - k. The plan should indicate proposed snow storage areas. It is unclear the extent of snow plowing that would be performed in the winter. I note

that crushed stone drives are difficult to plow without displacing the stone. This issue should be addressed in the Application.

- l. A waiver has been requested from this section relative to surfacing materials. It is proposed to install crushed stone over a compacted gravel base. The Regulations include provisions for alternate pervious materials where a drainage system sized for the 10 year storm is provided. In this case there is no formal drainage system excepting existing ditches. The plans for the parking areas comply with grade requirements.
- m. The parking lot would have 122 spaces and be subject to this requirement for trees within or around the parking lots. The site is currently wooded around the parking areas. It is proposed to limit the clearing around the edge of the parking areas although as noted above in some areas tree clearing limits and grading are inconsistent. The Landscape Plan indicates grass planting areas adjacent to portions of the parking areas. The grass areas are of various widths, but typically 5 feet wide. As designed the central island in the Far Lot would be cleared to implement the proposed grading. The plans indicate a woods line to remain, but as the area would be graded there would be no remaining vegetation. The plan should include proposed plantings for this area. The Board should review this requirement.

Section V-B Signs

The plans indicate the location of some signs but do not include any details for proposed signage.

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

Very truly yours,
Chessia Consulting Services, LLC

John C. Chessia, P.E.
JCC/jcc