

March 1, 2021

Town of Pembroke
Zoning Board of Appeals
Town Hall
100 Center Street
Pembroke, Massachusetts 02359

Attn: Sabrina Chilcott, Assistant Town Manager
schilcott@townofpembrokemass.org

**RE: Comprehensive Permit Peer Review
River Marsh Village - Water Street
Pembroke, Massachusetts**

Dear Ms. Chilcott and Members of the Board,

As requested, Merrill Engineers & Land Surveyors (Merrill) has completed our review of submittal of the Comprehensive Permit Application for the above referenced project for compliance under the Town of Pembroke Zoning Board of Appeals Comprehensive Permit Rules and Regulations. This report is based on our review of the submitted documents listed below:

- **River Marsh – Pembroke MA, Comprehensive Permit Application, prepared by River Marsh LLC, 196 pages, undated**
- **River Marsh Village - Comprehensive Permit Plan, Water Street, Pembroke, Massachusetts, prepared by McKenzie Engineering Group, 8 sheets, dated September 22, 2016. Revised January 27, 2021**
- **Drainage Calculations and Stormwater Management Plan, Comprehensive Permit Plan, River Marsh Village, Pembroke, MA, prepared by McKenzie Engineering Group, dated November 27, 2018.**
- **Traffic Impact Assessment, Proposed Residential Development, Pembroke, Massachusetts, prepared by Vanasse & Associates, dated March, 2019.**

INTRODUCTION/BRIEF NARRATIVE OF PROJECT

The property is located on the westerly side of Water Street approximately 200 feet north of the intersection of Water Street and Church Street (Route 139). It is bordered on the west by the North River and on the east by Water Street. The project site consists of a total area of 49.94 acres, of that 22.53 acres is upland and 27.41 acres is wetlands. A Superseding Order of Resource Area Delineation (ORAD) confirming the wetland resource areas has been issued by Massachusetts DEP. The site is located in the Residence "A" Zoning District and the Business "B" Zoning District. The topography of the site generally slopes in a westerly direction towards the North River.

The project proposes the construction of 56 residential condominium units consisting of 3, 4 and 5 unit building as well as the construction of approximately 2,422 linear feet of roadway, stormwater management system, utilities and parking areas. The units will be connected to a common wastewater treatment plant and subsurface sewage disposal system which is proposed on the southerly side of the

property. Access to the property will be provided by two (2) driveways from Water Street. A wetlands crossing is proposed for the construction of the roadway to access the proposed wastewater treatment plant and subsurface sewage disposal system. As presented on the plan, a wetlands alteration area of 188 square feet is proposed and the wetlands replication area of approximately 1,148 square feet is proposed. The stormwater management system will consist of catch basins and manholes which will direct the stormwater runoff from the roadway and some overland areas to a stormwater infiltration basin with outlets to the wetlands.

We offer the following comments on the proposal and have organized our comments in order of the referenced sections of the Town of Pembroke Zoning Board of Appeals Comprehensive Permit Rules and Regulations. The format of this report will follow the format and sections outlined in the Rules and Regulations and only addresses areas where comments are required. The report does not include a detailed review of the proposed septic system design.

COMPREHENSIVE PERMIT RULES AND REGULATIONS

3.01 The application for a Comprehensive Permit shall consist of:

The following is a listing of the items required by the Zoning Board of Appeals shown in *italic print* with our comments noted below.

- a) *Site Control: Evidence that the developer has control over the property in question; a copy of the deed, purchase and sale agreement or option agreement.*

This information has been submitted as part of the Application material referenced above. Since much of the information in the Application is dated 2018, we recommend that it be updated or documentation provided that the information in the Application is still valid.

- b) *Preliminary site development plans showing the locations and outlines of proposed buildings, the proposed locations, general dimensions and materials for streets, drives, parking areas, walks and paved areas; and proposed landscaping improvements and open areas within the site. An applicant proposing to construct or rehabilitate four (4) or fewer units may submit a sketch of the matters in 760 CMR 56.05(2)(a) and 31.02 (2)(c) which need not have an architect's signature. All projects of five or more units must have site development plans prepared by a registered architect or engineer.*

A Comprehensive Permit Plan prepared by a registered professional engineer has been submitted for this project as required. The plan set consists of eight (8) sheets: Existing Conditions Plan, Preliminary Site Layout Plan, Preliminary Grading & Drainage Plan, Preliminary Utilities Layout Plan and Construction Details Sheets 1-4. The dimensions and materials for the roadway are show on the Detail Sheet. The plan shows that the existing dwelling is to be retained. If this is the case, this is extremely close to the proposed Building 2 and additional information should be provided.

Grading is proposed immediately adjacent to abutting properties at a number of locations. We recommend that a vegetated buffer be provided for those areas of the project abutting residential dwellings. As shown on the plan, no sidewalks are proposed. In order to provide for pedestrian safety along the roadway system, we recommend that sidewalks be provided within the project area and possibly extend off-site. The deck for the northern most unit of Building 10 is extremely close to the roadway. Additional setback distance should be provided from the roadway.

We recommend that the following additional information be shown on the plans:

- Distance between buildings
- Distance along driveway from edge of pavement to garages
- Distance from the stormwater basin to units and property line
- Roof Drains
- Designated Open Areas
- Landscaping, in particular for the areas in close proximity to abutting property and around the stormwater basin
- Estimated earthwork quantities
- Preliminary proposed roadway profiles should be presented to demonstrate that adequate sight distances are provided.
- The type of curbing and all curb radii specified
- The perimeter of the subject property shown in darker/thicker line type.
- Topographic and utility information on Water Street adjacent to the site
- Additional topography between the site and Water Street.
- Sight Distance triangles at both project driveways
- Provisions for Accessible Parking Spaces including details
- A Fire Truck Access Plan should be added to the plan set.

- c) *A report on existing site conditions and a summary of conditions in the surrounding areas, showing the location and nature of existing buildings, existing street elevations, traffic patterns and character of open areas, if any, in the neighborhood. This submission may be combined with that required in 760 CMR 56.05(2)(a).*

Information on the Existing Conditions has been provided. An Overall Map at a scale of 1 inch = 250 feet is presented on the Comprehensive Permit Plan and a USGS Locus Map is provided in the Drainage Calculations and Stormwater Management Plan showing the location and nature of existing buildings and existing streets. As required, a detailed Transportation Impact Assessment prepared by Vanasse & Associates Inc. discussing both existing and future conditions has been submitted for this project. A peer review of the Transportation Impact Assessment is being performed by Ron Muller & Associates and is being submitted as a separate document.

Soil Logs for soil testing performed in 1992 were included in the submittal. We recommend that the plan be revised to label all test pits and that additional updated soil testing be performed regarding the existing soil conditions and depth to estimated seasonal high groundwater (ESHGW) since these conditions have a significant impact on the design of the proposed stormwater management system and proposed subsurface sewage disposal system. We recommend that the soil testing results be shown on the plan. The depth to groundwater as well as the infiltration capabilities of the soil will have a significant impact on the size and elevation of these systems. This may impact the building placement as well as the elevation of the roadway and consequently the total amount of fill which may be necessary for construction.

- d) *Preliminary, scaled, architectural drawings. For each building the drawings shall be prepared by a registered architect, and shall include typical floor plans, typical elevations, and sections, and shall identify construction type and exterior finishes.*

Preliminary, scaled, architectural drawings showing typical floor plans, typical elevations, and typical sections are contained in the Comprehensive Permit Application document. Due to the scale of the plans, 8-1/2" X 11", it is unclear whether the construction type and exterior finishes were provided. We recommend that full scale preliminary, scaled, architectural drawings be submitted.

- e) *A tabulation of proposed buildings by type, size (number of bedrooms, floor area) and ground coverage, and a summary showing the percentage of the tract to be occupied by buildings, by parking and other paved vehicular areas, and by open areas.*

A tabulation of proposed buildings is contained in Section 6. of the Comprehensive Permit Application document.

- f) *Where a subdivision of land is involved, a preliminary subdivision plan is required.*

Not Applicable.

- g) *A preliminary utilities plan showing the proposed location and types of sewage, drainage, and water facilities, including hydrants. Adequate supporting information, including pre-construction and post-construction drainage calculations and soil test results (which result shall have been witnessed by an appropriate and qualified Town Official or a qualified Town consultant) shall be provided to demonstrate that the proposed drainage system shall meet all Stormwater Management Guidelines promulgated by the Massachusetts Department of Environmental Protection, or best management practices, whichever is more stringent and shall result in no net increase in the rate or volume of stormwater runoff;*

A preliminary utilities plan showing the proposed location of the subsurface sewage disposal system as well as the stormwater management system and water facilities, including hydrants, is shown on the plans.

We recommend that additional design information be provided to demonstrate that the size of the subsurface sewage disposal system has been adequately designed to meet the state and local regulations. This additional information should include soil testing results and a mounding analysis.

A stormwater management report entitled "Drainage Calculations and Stormwater Management Plan" has been submitted and indicates that the overall stormwater management system will attenuate the post development stormwater flows to a level not exceeding the existing conditions. The stormwater management report should provide the information to demonstrate that the project is capable of meeting the 10 Standards for Compliance with the Massachusetts DEP Stormwater Management Regulations.

We offer the following comments regarding the stormwater management system design and analysis:

- We recommend that a MassDEP "Checklist for Stormwater Report" be submitted for this project.
- As previously stated, we recommend that updated additional soil testing be performed within the limits of the proposed stormwater infiltration basin to confirm the soil conditions and depth to the Estimated Seasonal High Groundwater Elevation

(ESHGW) used for the design and to demonstrate that the design meets the criteria specified in the Mass DEP Stormwater Management Handbook.

- Watershed Plans for both the Existing and Post-Development Conditions have been included in the Drainage Calculations and Stormwater Management Plan. We recommend that the Post-Development Watershed Plan be revised to account for the offsite areas which will be flowing onto the proposed roadway and consequently into the proposed stormwater basin. Additional topographic contours should be shown between the site and Water Street.
- The post development watershed plan indicates that all roof runoff will be directed into the proposed stormwater infiltration basin. We recommend that the roof drains be shown on the plan. The size and material of the roof drains should be specified.
- We recommend capacity calculation for the roadway stormwater system be provided and that the Preliminary Grading & Drainage Plan be revised to show the pipe size, material, slope and flow arrows for all drain lines.
- Capacity calculation should be provided for the proposed arch culvert at STA 10+42 Road B.
- Calculations should be submitted to demonstrate that the sediment forebay for stormwater infiltration basin contains the required volume.
- The Hydro CAD analysis for the stormwater infiltration basin (Pond 1P) lists an outlet "Special and User Defined". Additional information should be provided to clarify the specific type of outlet, it appears that it may be infiltration and if so, the backup calculations should be submitted.
- As specified in the Mass DEP Stormwater Management Handbook, stormwater infiltration basins shall be designed to exfiltrate in no less than 72 hours. Calculations should be provided to show that the basin meets this requirement.
- A cross-section of the stormwater infiltration basin is shown on sheet C-5 of the plans. We recommend that the elevation of the estimated seasonal high groundwater (ESHGW) be provided to demonstrate that the minimum separation to groundwater is provided. A mounding analysis is required when the separation from the bottom of an infiltration basin to ESHGW is less than four (4) feet and the basin is used to attenuate peak discharges from the 10 year or higher 24 hour storm.
- We recommend that all flared end sections (FES) be made of reinforced concrete and equipped with trash racks/safety grates and erosion control pads and that these erosion control pads be presented on the Grading and Utility Sheets.

It is general practice to design sites to comply with Massachusetts DEP Stormwater Management Regulations. The following section describes the 10 Standards for Compliance with Stormwater Management Regulations and the status of the submittal relative to each standard.

Standard 1 – Untreated Stormwater

This standard requires that no new untreated point source discharges are created and that point source or sheet flow discharges do not result in erosion into or scour of wetlands.

A new point source discharge is proposed from the stormwater basin, calculations and details should be provided for the design of the plunge pool and outlet at the basin. In addition as previously stated, we recommend that updated additional soil testing be performed within the limits of the proposed stormwater infiltration basin.

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.

A stormwater management report entitled “Drainage Calculations and Stormwater Management Plan” has been submitted and indicates that the overall stormwater management system will attenuate the post development stormwater flows to a level not exceeding the existing conditions. Additional information as noted above is necessary.

Standard 3 – Recharge to Groundwater

This standard requires that designs provide on-site recharge to mimic pre-development conditions.

Calculations should be submitted to demonstrate compliance with this Standard.

Standard 4 – 80% Total Suspended Solids (TSS) Removal

This standard requires runoff be treated to remove suspended solids (TSS) to at least 80% removal. In areas with a rapid infiltration, pretreatment of 44% is required prior to infiltration systems.

No Total Suspended Solids (TSS) calculations have been submitted. A TSS Removal Calculation Worksheet for each of the treatment trains should be submitted.

Standard 5 – Higher Potential Pollutant Loads

This project is not considered a source of higher pollutant loads. This Standard is not applicable.

Standard 6 – Protection of Critical Areas

The project is not located in a Critical Area based on DEP requirements. This standard is not applicable under DEP requirements;

Standard 7 – Redevelopment Projects

This project is not considered a redevelopment project and consequently this Standard is not applicable.

Standard 8 – Erosion/Sediment Control

This standard requires construction phase erosion controls.

No construction phase plan has been provided. The limits of erosion controls are indicated on the Grading and Drainage Plan. A filter sock erosion control device is provided at the limit of construction and a detail is presented on the plans. We recommend that a detailed construction sequencing be provided and that the location of the construction entrance,

stockpile areas and temporary sedimentation basins be included. Calculations should be submitted for sizing of the basins and details of the sedimentation basins be provided including the proposed grading as well as the type of outlet control structures. An EPA Notice of Intent and Stormwater Pollution Prevention Plan (SWPPP) will be required since the project proposes more than 1 acre of disturbance. If this project is approved and if acceptable to the Board of Appeals the submittal of this additional information could be made a Condition of Approval.

Standard 9 – Operation and Maintenance Plan

This standard requires long term maintenance of non-structural and structural BMP's and requires a specific inspection schedule, etc.

A Post-Construction Best Management Practices Operation and Maintenance Plan (O&M) has not been submitted. This information should be submitted and we recommend that the O&M be a standalone document with a plan that identifies BMP locations, snow storage areas, locations for landscape debris disposal if proposed, etc.

Standard 10 – Illicit Discharges

In order to meet this standard, an "Illicit Discharge Compliance Statement" meeting the requirements specified in the Stormwater Management Regulations has been submitted. This statement requires a signature. Additional Information required.

- h) A Project Eligibility Letter that satisfies all of the requirements of 760 CMR 56.*

A Project Eligibility Letter/Site Approval Letter from Mass Housing dated February 15, 2018 is included in Section 7 of the Comprehensive Permit Application. This Approval is valid for two (2) years unless extended by Mass Housing.

- i) A list of requested exemptions to local requirements and regulations, including local codes, ordinances, bylaws or regulations.*

A List of Waivers and Other Exemptions dated August 29, 2018 is included in Section 8 of the Comprehensive Permit Application.

- j) A complete copy of any and all materials and applications submitted by the applicant to any prospect subsidizing agency or source, including, but not limited to applications for site approval.*

It appears that copies of any and all materials and applications submitted by the applicant to any prospect subsidizing agency or source, including, but not limited to applications for site approval are included in the Comprehensive Permit Application. This should be confirmed by the Applicant.

- k) A list of each member of the development and marketing team, including all contractors and subcontractors, to the extent known at the time of application. The Applicant shall also be required to disclose its relationship to all such entities.*

A List of River Marsh Development Team is included in Section 10 of the Comprehensive Permit Application.

- l) *A list of all prior development project completed by the Applicant, along with a brief description of each such project.*

A statement regarding the applicant's prior development projects is included in Section 11 of the Comprehensive Permit Application. The statement states that "The applicant is an entity created for the sole purpose of developing River Marsh, a multi-family housing development in accordance with M.G.L. 40B, S 20-23, and therefore it has not completed any projects. The Development Team behind the Applicant has successfully constructed commercial developments and residential developments that are similar in nature, such as Washington Woods that consist of seven residential buildings and associated site work on approximately 10 acres off of Washington Street (Route 53) in Norwell, Massachusetts."

We recommend that additional revised project submittals include a Response Letter to address the review comments presented above.

Merrill Engineers and Land Surveyors appreciates the opportunity to review this project for the Board of Appeals. Please feel free to call me with any questions or to request additional information.

Very truly yours,

MERRILL ENGINEERS AND LAND SURVEYORS



Peter G. Palmieri, P.E.
Director of Engineering

cc: Matthew Heins, Pembroke Planning Board
Amy E. Kwesell, Esq.
Brian Murphy
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