



Riverfront Area Narrative

Per 310 CMR 10.58 Riverfront areas are likely to be significant to protect the private or public water supply; to protect groundwater; to provide flood control; to prevent storm damage; to prevent pollution; to protect land containing shellfish; to protect wildlife habitat; and to protect the fisheries.

A portion of the proposed project is located within the 200-foot Riverfront Area of Burnt Swamp Brook. A portion of the project also lies within the 100-foot buffer zone of a bordering vegetated wetland.

The existing site located at 20 Hancock Street is comprised of a single-family home and associated gravel driveway, with a small shed located at the rear of the site. The existing site located at 1139 West Street is currently undeveloped and is comprised of a mix of woodland, grass fields, and bordering vegetated wetlands throughout. Burnt Swamp Brook runs along the property line joining both properties. The site is proposed to be developed into a 55+ housing development with a total of 46 units. The development will have a mix of single-family, duplex, and triplex structures with two clubhouses, associated parking, and utility improvements. All houses, apart from a small portion of one of them, lie outside of the 200-foot riverfront area. In addition to the small portions of one house, small amounts of grading and drainage infrastructure lie within the 200-foot riverfront area with no disturbance being proposed within the 100-foot riverfront area. All grading that takes place within the 200-foot riverfront area is necessary to accomplish required drainage infrastructure to improve upon existing conditions. Two separate roads will be constructed, one from the adjacent West Street, and the other from Hancock Street, with both remaining completely outside of the Riverfront Buffer Zones.

Due to a naturally high groundwater table, fill is being proposed throughout the site, including the 200-foot riverfront area and 100-foot buffer zone of a bordering vegetated wetland. Due to current topographical conditions, fill is required throughout the site in order to tie into both existing roadways with adequate drainage infrastructure. There is no flood plain shown on site.

There are no mapped, identified/specified rare habitat sites, or vernal pools in the area of the proposed development.

Per 310 CMR 10.58 (4) and (5):

(4) General Performance Standard

(a) Protection of other Resource Areas.



The work being proposed is intended to meet all other performance standards for all other resource areas associated with the Riverfront Area. The project meets or exceeds all required Massachusetts Stormwater Standards.

(b) Protection of rare species.

The proposed project is not within a habitat area as specified within Natural Heritage Habitat Mapping or within the proximity of a certified vernal pool.

(c) Practicable and Substantially Equivalent Economic Alternatives

The development proposed at 20 Hancock Street and 1139 West Street has been designed to follow the existing features of the land and minimize the impacts to the Riverfront Areas as much as possible. Fill is required on site to create the necessary vertical separation from the groundwater table but is intended to mimic the existing conditions. Since the property's frontage is along both Hancock Street and West Street, having the two separate entrances are the only way to access the site without disturbing Burnt Swamp Brook. The development has been laid out to best avoid the bordering vegetated wetland and riverfront areas. However, small portions of the development still reside within the riverfront areas. All new impervious runoff from the development will be directed to one of six BMP's on site. All new impervious runoff will be treated prior to discharging into the bordering vegetated wetland and river. By creating six BMP's, post-development peak discharge rates and volumes will not exceed pre-development rates or volumes.

Practicable and Substantially Equivalent Economic Alternatives

Per 310 CMR 10.58 1. Definition of Practicable is an alternative that is substantially equivalent economically if it is available and capable of being done after taking into consideration costs, existing technology, proposed use, and logistics, in light of overall project purposes. Available and capable of being done means the alternative is obtainable and feasible.

The four factors to be considered are:

a.) Costs

Costs include expenditures for the project within the riverfront area, such as land acquisition, site preparation, design, construction, landscaping and transactional expenses.

Costs have a significant impact on this project. The site topography varies by roughly 20 feet, sloping from West Street down towards the wetlands to the south of the site. The development was laid out to mimic existing conditions as best as possible with runoff generally flowing from north to south. In the existing conditions, flow generally flows from north to south, ending up in the bordering vegetated



wetland. The post-condition attempts to mimic these flow patterns, with most runoff discharging into the bordering vegetated wetlands. The current layout of the development requires fill to be brought on site but is the most cost-effective design given the existing topography. The amount of fill necessary for the project is due in part to the naturally high groundwater table on site. The fill is necessary on site in order to maintain the required distance to the underlying groundwater table.

Using the slope of the land to dictate where the stormwater infrastructure should be placed is the most logical and cost-effective option. All proposed rooftops have been designed with infiltration at all drip edge systems, immediately placing clean runoff back into the ground in close proximity to where it falls. All pavement runoff will be captured in infrastructure designed to treat, detain, and infiltrate runoff that requires pre-treatment. The six ponds on site have been designed to remain outside of the 100-foot riverfront area as well as the 200-foot riverfront area, apart from a small portion of two of the ponds. No disturbance lies within the 100-foot riverfront area. All other grading activities and structures have been placed outside of the 200-foot riverfront area, aside from what has already been mentioned.

There are three representative physical alternatives that demonstrate that alternative stormwater management designs are not “Practicable and Substantially equivalent Economic Alternatives”.

Alternative 1- the “no build” scenario, **Alternative 2-** Reduction in Number of Units and **Alternative 3-** Minimizing the Amount of Fill Required On-Site.

Alternative 1 – The No Build Scenario - The no-build alternative would not amortize the initial cost of the land, or the annual real estate taxes owing on the land. This alternative is not Economically alternative.

Alternative 2 – Reduction in Number of Units – Depending on how many units be removed, the road could be shifted along with the grading activities currently within the 200-foot riverfront area. In order to shift the roadway along West Street, several units would need to be removed in order to remove the grading activities from within the 200-foot riverfront area. This would mean that the number of units along West Street could be cut in half depending on the type of buildings being removed. Removing units from a project with extensive site costs creates a project that is not viable. With no units being proposed within the 200-foot riverfront area, removing units from this side of the project would not be beneficial to the surrounding land. Along Hancock Street, a portion of one building is proposed within the 200-foot riverfront area with some grading activities regarding drainage. By removing this unit from the project, the building is out of the riverfront area, but the grading activities would remain. Due to the presence of a high groundwater table, reducing the number of units would not substantially reduce the overall cost of the project. Any reduction in units, due to the cost of construction, would make the project economically not viable.



Alternative 3 – Minimizing the Amount of Fill Required – *This third alternative is not economically equivalent, as the amount of fill is required due to the presence of a high groundwater table. When designing septic systems on site, a certain vertical distance is required, typically 4 to 5 feet depending on the underlying soils. The current layout provides a safe distance from the bottom of the septic system to the groundwater table. Without the proper amount of fill, the project would not have the required separation to groundwater and would not be achievable. The amount of fill on site is also due in part to the existing grade along West Street. By proposing fill on site, the design leads to a much more gradual slope leading up to West Street as well as allowing for more gradual driveways to each unit. The current layout of the site allows for both a more gradual slope leading up to West Street as well as allowing for the required separation to groundwater table. Any alternative design for the site would still require fill due to the required separation to groundwater. This alternative is not applicable.*

b.) Existing technology

The development will be serviced by independent septic on site, private water, and municipal electric which will be run to Hancock Street, and West Street, respectively.

There is currently no stormwater treatment practices on the property. New practices will be proposed to treat stormwater for the development prior to discharge to the River and Wetlands.

Technology plays a big part in the stormwater management system on the subject site. Due to the limitations in useable area, proximity to the river, and wetlands, the property is limited as to where Best Management Practices (BMP's) may be located in order to provide the most efficient and cost-effective ways in which the site can be developed to meet the Stormwater Standards to the maximum extent possible.

Due to the limited amount of useable space on site, it is most appropriate to use stormwater technology that can treat the stormwater prior to discharge. With the wetland buffers and riverfront areas on site, the drainage was broken up into six infiltration ponds. All six ponds have been designed with a sediment forebay to aid in the pre-treatment process with each pond maintaining the appropriate amount of freeboard throughout. The six infiltration ponds have been designed to handle up to the 100-year storm and any discharge that occurs will be directed to the bordering vegetated wetlands after treatment.

In order to achieve the required Total Suspended Solids (TSS), each infiltration pond has been designed with a corresponding sediment forebay to aid in the pre-treatment process. For treatment trains 1-4 and 6, runoff will first be directed to a deep sump hooded catch basin, followed by a sediment forebay and finally be directed into the associated infiltration pond. Treatment train 5 will consist of impervious runoff being directed into a sediment forebay followed by an infiltration pond.



An outlet device will be installed within the pond that will help in maintaining a safe water level. An outlet pipe will be installed and will discharge water to the nearby wetlands. To provide the required recharge, each infiltration pond was designed to detain as much runoff as possible.

We feel as though the design used provides the highest level of TSS removal while accommodating the complex issues of the site relating to the topography and proximity to the River, and Wetlands.

c.) Proposed Use

The site has been proposed as a 55+ housing development. The development will consist of a mix of single-family, duplex, and triplex structures. On-site septic, private water, and municipal electric will be provided to the development. A robust Operation and Maintenance plan has been developed which includes regular maintenance of drainage infrastructure including deep sump catch basins, sediment forebays, and infiltration ponds.

As previously described, all impervious runoff will be treated by either sediment forebays, infiltration ponds, or drip edge systems before discharging to the nearby river and wetlands. Residences specifically 55+ are typically not a use that will cause adverse impacts to a riverfront area or a critical resource area.

The riverfront area on the site prevents any further development of the parcel besides that allowed within the proximity of the proposed development.

d.) Logistics

Logistics refers to the presence or absence of physical characteristics that may influence development.

The zoning specific to the subject site allows, by special requirement, for the planned development of a 55+ housing development under the Town of Wrentham Zoning Bylaws in the R-87 – Agricultural and Residential District. The proposed project is located along Burnt Swamp Brook, which is a sensitive resource area, along with bordering vegetated wetlands throughout. The design is intended to limit the amount of impact throughout all resource areas and buffer zones.

The current use of the properties as a single-family home will be expanded upon to include a mix of single-family, duplex and triplex style structures with extensive drainage infrastructure that is intended to treat all impervious stormwater runoff prior to discharge into the nearby river and wetlands.

There are currently no stream crossings on site and there is no proposed design that includes one. Given the restrictions presently imposed by the river, and wetlands; logistically both the location and layout of the proposed structures and roadways propose the least intrusive impact to the surrounding



sensitive areas. As previously mentioned, the high groundwater table requires fill to be brought on site. The current layout provides adequate separation to groundwater that is required when constructing a septic system on site. All impervious runoff is currently being treated prior to discharging while reducing the peak discharge rates during all storm events.