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 100 to 200-foot, outer riparian zone to Cedar Swamp Brook. The project also proposes work within the 100 ft Buffer Zone to the Bordering Vegetated Wetlands adjacent to the perennial, Cedar Swamp Brook.

The existing site is composed almost entirely of undeveloped land which is made up of woodland, wetlands, and a cleared section of land at the entrance to Summer Street. The site is proposed to be developed into 300 units, which include 4 multi-family buildings, 11 townhouse buildings, and 60 single family houses throughout the 54 ± acres of land. All the buildings, parking, utilities, and all other impervious areas have been designed outside of the 200 ft riparian zone. This project intersects the outer riparian zone with three areas of grading, the most significant of which being stormwater management, as provided for in the Regulations. The first is located to the West of Proposed Road "E", behind single family buildings # 22-27. There is grading associated with the homes to tie into the existing contours. The second location is adjacent to the proposed compactor and dog park. The remaining work within the 100 - 200 foot outer riparian zone consists only of stormwater Best Management Practices (BMP's).

No fill has been proposed within Bordering Land Subject to Flooding (BLSF) associated with the River and depicted on the FEMA Maps as flood Plain Zone A.

There is one vernal pool located onsite and two potential vernal pools. The vernal pool is located just south of the first wetland crossing. Both potential vernal pools are located on the Eastern side of the property, just West of the existing railroad tracks.

Mapped Priority and Estimated Habitats associated with the extensive, off-site Atlantic White Cedar Swamp extends to partially overlay the extreme northern part of the Site. No work is proposed within the habitat polygon. Correspondence received from the Massachusetts Natural Heritage and Endangered Species Program indicates that the Project will not result in a prohibited "Take" of State-listed wildlife, as defined in 321 CMR 10.02, nor conflict with the performance standards at 310 CMR10.59.

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.

(b) Protection of rare species.

The proposed project development is shown to not impact the habitat area as specified within Natural Heritage Habitat Mapping which are shown to be present adjacent to Cedar Swamp Brook.

(c.) Practicable and Substantially Equivalent Economic Alternatives

The development proposed at 55 Summer Street has been designed to follow the existing features of the land and minimize impacts to the Riverfront Areas as much as possible. The development has been laid out to avoid both the existing wetlands, the 25' local wetland no disturbance buffers to the maximum extent practicable, and suitable buffers to the vernal pool and potential vernal pools located on site. All impervious development has remained outside of the Riverfront Area. Since the natural flow of the land is from the entrance to the property, at Summer Street, to Cedar Swamp Brook located at the rear of the property it makes the most sense to retain the natural flow of water and have the drainage infrastructure located at the rear of the site.

<u>Practicable and Substantially Equivalent Economic Alternatives</u>

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.

Given that this is an affordable housing project with greater development constraints regarding costs, they pose a significant impact on this project and have been given special consideration throughout the layout of the development. As was previously mentioned, the site drops roughly 40 feet from the entrance of the site at Summer Street to Cedar Swamp Brook at the rear of the property. The development was laid out and designed to follow the existing conditions and runoff flow paths of the site to both align with the affordability objectives of the CH. 40B program and reduce impact to the

surrounding wetlands. Designing the development in this way is beneficial for both the overall usability and feel of the site, but also helps lower the overall cost of offsite material to be imported and construction costs associated with these additional materials.

Using the slope of the land to dictate where the stormwater infrastructure should be placed is the most logical and cost-efficient option. All proposed rooftops have been designed with infiltration at all drip edges, therefore immediately placing clean runoff back into the ground in close proximity to where it falls, and collecting all run off from pavement in infrastructure created to treat, detain and infiltrate runoff requiring pretreatment. Since only grading and stormwater infrastructure has been located inside of the outer riparian zone, it was designed so that only what was needed for Best Management Practices would be located within this area. All stormwater features have been located outside of the 100 ft inner riparian zone, outside of the 100 ft wetland buffer zone and outside of BLSF associated with Cedar Swamp Brook.

While there are physical alternatives that would reduce the impact in the river front area, none of the alternatives are "Practicable and Substantially equivalent Economic Alternatives". For instance, the no-build alternative would not amortize the cost of the land, or the real estate taxes owing on the land. Another physical alternative to reducing the impact to the Riverfront Area, would be the addition of expensive underground detention systems located within the footprint of one of the four-story garden buildings and replacing the 12-townhomes at the entrance with the removed garden building. The loss of 12-units could be made up for within one of the garden style units by adding a fifth story. However, the addition of a fifth story adds significant costs in the way of additional engineering and architectural design and plan sets. The cost per foot of a 5-story building is also substantially higher than the cost per foot of a 4-story building due to higher structural and fire protections specifications. Simply sacrificing the 12-units would also substantially increase the cost of the land and site work per unit. Maintenance of an underground infiltration system comes with higher long-term maintenance costs and in the event of a failure, potentially more costly repairs. It can also be more difficult to spot potential failures within the system and one would likely only know when something needs repairing after the system has already failed. Again, none of the physical alternatives are "Practicable and Substantially equivalent Economic Alternatives".

b.) Existing technology

There are currently no stormwater treatment practices on the property. New infiltration basins in combination with structural BMP's have been designed to maximize removal of total suspended solids, infiltrate and detain stormwater, to mimic the existing drainage conditions on the subject site.

Since the site has been designed in its current configuration to avoid existing wetlands and observe the 25-foot do not disturb policy buffer, this has not left any room between the proposed features and

the 25-foot buffers for stormwater features. One alternative is the use of pocket stormwater management throughout the site to capture and infiltrate the stormwater at the cost of the 25-buffer. Stormwater would either enter though catch basins or sheet flow to shallow infiltration basins throughout the site. Due to the proximity to the wetland and the assumed depth to seasonal high-water table, the site would need to be raised a couple feet in some areas. This would add significant cost to the design as well as leave much of the 25-foot buffer impacted, whereas the current design leaves 94% undisturbed.

c.) Proposed Use

The site as proposed will be subdivided into two lots, the Eastern lot (Lot 1) will be composed of rental townhouse units and 4 apartment buildings. The Western lot (Lot 2) is composed entirely of 60 for sale single family houses. Both lots are connected via a looped system of roads and shared drainage facilities to minimize length of road.

All the proposed buildings, roads, and parking areas have been located completely beyond the Riverfront Area. The proposed roadways and parking facilities have been designed with curbs and grading so that all the stormwater can be collected, treated, and significantly infiltrated prior to entering the area adjacent to Cedar Swamp Brook.

d.) Logistics

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

Since there are many variations of buildings located throughout this development, the placement of the buildings was designed to minimize both the impact to the surrounding wetlands, vernal pools, habitat, riparian areas, and existing residential housing adjacent to the site. The five single family homes adjacent to Summer Street are of similar density, height, and aspect of the surrounding neighborhood. The multi-story apartment buildings were situated as far to the rear of the property as possible to reduce their visibility from Summer Street. These site constraints left most of the development occurring on the northern half of the property toward the rear of the property outside of but adjacent to Cedar Swamp Brook.

Due to site constraints and the fact that the existing net site drainage is from Summer Street, northward to the Cedar Swamp Brook wetland system, the practical solution for stormwater management is most preferentially located at the lower site elevations in proximity to Cedar Swamp Brook while avoiding any disturbance within inner riparian zone.

(d) No Significant Adverse Impact

1. Within the 200 foot riverfront areas, the issuing authority may allow the alteration of up to 5,000 square feet or 10% of the Riverfront Area within the lot, whichever is greater, on a lot recorded on or before October 6, 1997 or lots recorded after October 6, 1997 subject to the restrictions of 310 CMR 10.58(4)(c.)2.b.vi., or up to 10% of the riverfront area within a lot recorded after October 6, 1997 provided that:

a. "At a minimum, a 100- foot wide area of undisturbed vegetation is provided. Replication and compensatory storage required to meet other resource area performance standards are allowed within this area; structural stormwater management measures may be allowed only when no practicable alternative.

The subject site contains 470,366 sf of Riverfront Area. Ten percent of this area provides for 47,037 square feet of disturbance within RFA in accordance with the performance standards provided above. Due to grading associated with some of the single family homes, location of the trash compactor and dog park area, 4,000 sf of disturbance is counted toward the alteration within the riparian zones, constituting 0.8%, when the remaining areas, consisting of 67,986 sf, 14%, are stormwater management practices exempt per the below section of 310 CMR 10.58.

The proposed project shows no vegetation removal in the 100 ft inner riparian zone. The proposed project utilizes the area outside of the resource area buffer zones for the proposed structures and parking. Due to topographical and project constraints, stormwater has been proposed downhill from the improvements. This area is located between the 100 and 200-foot outer riparian zone is utilized only for stormwater best management practices and two small sections of development grading.

310 CMR 10.58 (4) (c) 3. (d) 1. d.
d. Proposed work shall not impair groundwater or surface water quality by incorporating erosion and sedimentation controls and other measures to attenuate nonpoint source pollution. The calculation of square footage of alteration shall exclude areas of replication or compensatory flood storage required to meet performance standards for other resource areas, or any area of restoration within the Riverfront Area. <u>The calculation also shall exclude areas used for structural stormwater management measures, provided there is no practicable alternative to siting these structures within the Riverfront rea and provided a wildlife corridor is maintained (*e.g.* detention basins shall not be fenced).</u>

The proposed work in the 100-200 ft Riverfront Area has been designed with infiltration basins to provide enhanced removal of total suspended solids by incorporation of multiple pretreatment devices, infiltration and detention while using as little land area as possible. Each infiltration pond will remain unfenced to promote wildlife passage through the riparian zones.

These basins are located within the 100-200 ft outer riparian zone due to constraints from the layout of the site topography and abutting properties which requires the stormwater management systems to be located downhill from all site improvements. The infiltration basins and other devices have been

designed close to the proposed development, but with suitable underlying soil profiles based on extensive exploratory testing and within areas of appropriate topography to accept stormwater while preserving the more sensitive portions of the Riverfront Area.