

February 16,2021

## Project Description 302-304 Whiting Street

Prepared for;  
South Shore Habitat for Humanity  
20 Mathewson Drive  
Weymouth, MA 02043

The existing site is in the Residence C Zoning District in Hingham at 302 Whiting Street. The lot is located on the south side of Whiting street and generally runs from southwest to northeast up to Whiting street. A perennial stream is located south of the lot and the bordering vegetated wetlands adjacent to this stream have been flagged along the southwest property line. The Riparian Zone associated with this stream projects into the lot. Within the lot, the area of the inner riparian zone is 10,720± square feet and the outer riparian zone is 18,282± square feet. The flagged wetlands along the westerly property line occupy 132± square feet of the parcel. Overall, the lot area is 41,287.0 square feet (0.95 acres) and is identified on Assessors map 187, parcel 24.

There is an existing 2-bedroom single family dwelling on the lot which is located within the inner riparian zone only 81.7' from the flagged limit of the top of bank of the stream and is only 59.4' from the flagged limit of the bordering vegetated wetlands. The existing subsurface sewage disposal system for the house is located behind the dwelling. Accordingly, it is closer to both the stream and the wetlands than the house. Water supply for the dwelling is from a well which is in front of the house. Access to the dwelling from Whiting Street is gained by a gravel driveway. The entrance to the driveway is located at the southeast corner of the lot. The area in front of the existing house has been cleared and is an exposed gravel surface. This area in front of the dwelling is on a relatively flat plateau at elevation 152.0±. The driveway up to this plateau from Whiting Street slopes at a 10%± grade up from the edge of the pavement which is at elevation 143.8±. To the west the grade slopes at a 5 horizontal to 1 vertical grass covered slope down to the property line which ranges from elevation 135.0 – 138.0. To the southwest back towards the wetlands, this area slopes at about a 4 horizontal to 1 vertical down to elevation 134.0± along the wetlands line. The grades on the abutting lot to the east are consistent with the existing grades on the parcel.

This site was part of the development area associated with the Derby Brook Condominiums. This development is a 20-unit condominium approved under the 40B program. The units are all located across the stream west of this site. The

driveway across the stream to the condominium borders this lot along the west property line. Two stormwater control structures are located between the driveway and the property line. From Whiting Street west there is a rain garden approximately 120' long along the southerly edge of the driveway. The parcel currently slopes at a 4±hor:1vert slope down from elevation 152.0 at the top of the lot to elevation 135.0 at the edge of the rain garden. This slope is currently lightly grass covered. The flow from the rain garden is split and flows directly across the driveway towards the stream with extremely larger flows being directed into a detention basin located just west of the northwest corner of our lot. At the top of the lot in front of the existing dwelling, the lot is primarily a bare gravel surface that allows vehicular access to the dwelling. In conjunction with the development of Derby Brook Condominiums, this lot area was altered significantly. The changes made were:

- The second single family dwelling that was present on this lot which was in front of and west of the existing dwelling, was removed.
- All the forested area along the northerly side of the former dwelling was removed to grade the lot in conjunction with the construction of the driveway and the stormwater improvements.

Accordingly, nearly 85% of the lot has been cleared of all woodland vegetation. The only area that remains wooded is an area of approximately 6,100 square feet between the house and the wetlands at the rear of the lot.

Based upon percolation tests that were conducted in 2003 in conjunction with a proposed upgrade to the septic systems for the 2 dwellings, the soils on the parcel are all an extremely well drained sand & gravel. They are well suited for subsurface sewage disposal systems. The site is partially located within the Zone II of a public drinking water supply well as mapped on the MASS GIS site. In addition, there is a private drinking water supply well that is located on the abutting residential parcel east of the site approximately 48' from the property line.

Power to the existing dwelling comes up along the easterly property line from Whiting Street to a utility pole 106' from the right way and then up to the dwelling. No other service connections to public utilities are located on the lot.

The proposed development will be to remove the existing dwelling on the parcel and construct 2 new 3-bedroom single-family dwellings which will be accessed from whiting street by a common drive that will come into the site at the southerly edge of the parcel where the existing gravel driveway is located. The 2 dwellings will be staggered from back to front. Both of the new dwellings will be located outside of the limits of the 100' buffer from the bordering vegetated wetlands. At its closest the house at the rear of the lot will be 114±' from the wetlands. This unit will also be located outside of the inner riparian zone approximately 133'

from the top of bank. The dwelling at the front of the lot will be both outside the riparian zone and well outside the limits of the 100' buffer from the wetlands. The common driveway will be paved and will be sloped back towards Whiting Street. The driveway will be 110'± long, with a 20' wide travel lane and a 12" cape cod berm along the northerly edge. All of the pavement for the common driveway will be located outside the riparian zone and the wetlands buffer. The only pavement proposed in the outer riparian zone will be an area of approximately 925 square feet which will include the parking and turn around area and walkway into the second house.

In order to help reduce the slope of the driveway and flatten the proposed development area, approximately 1,900 cubic yards of soil will be removed from the site in order to drop the top of the site approximately 3' from elevation 152 to 148. In addition, a wall will be established along the northerly slope to help reduce the grade down towards the rain garden. This area will be landscaped in order to provide a screen from the driveway traffic and provide a more stabilized surface treatment on the slope.

All of the proposed paved surfaces will be treated in accordance with the stormwater standards. A catch basin will be located at station 0+21 which will collect the runoff from most of the common driveway and the individual parking areas for each lot and direct it into an infiltration trench. The catch basin will be equipped with an insert that will treat the runoff prior to discharge into the infiltration chambers. Roof runoff from each of the dwellings will be collected and directed to subsurface infiltration structures.

The 1st dwelling will be located 29.7' off of the whiting street right of way and completely out of the riverfront area. The 2<sup>nd</sup> house will be located 140.3' off of the whiting street layout and will be 133' from the top of bank outside of the inner riparian zone and outside of the 100' buffer to the vegetated wetlands.

Erosion control during the construction period will be handled by 12" mulch logs set along the perimeter of the development. The initial phase of the development will be the demolition of the existing dwelling, removal of the septic system and abandoning the well. Mulch logs will be established along the existing tree line to protect the resource areas directly below. The structure itself will be demolished in place. The existing foundation will act as a reservoir for the demolition debris until it is placed into containers and removed from the site to a local recycling center. The existing foundation is concrete, and it will be broken up into 6" pieces and left in the ground as solid fill. Similar to the foundation, the existing septic system will be destroyed in place. The septic tank will be pumped dry of all waste in the tank and effectively destroyed in place, so it does not store any water in the future. The leaching pit will also be broken up to eliminate all voids and left in place. In addition to the demolition, any debris, including plastic, tires, construction materials, etc..., which are located within the buffer between the house and the flagged limit of wetlands will be removed by hand and deposited in

the dumpsters used for the house demolition. Once the demolition and clean up has been completed, gravel from the upper portion of the lot will be used to grade off the depression. Adequate topsoil will be brought into the site to cover the disturbed areas. The area will then be seeded with a perennial rye grass which will serve to stabilize the slope during the period that it takes the forest to reestablish itself in this area. Once the area has been seeded, mulch logs will be reset above the restoration area and the remainder of the development completed. At the end of the development, markers will be set as shown on the plans a minimum of 25' behind the proposed house. They will ensure that the inner riparian over time will revert to a natural forest setting.

### ***Riverfront Issues***

The existing house was built in the 1950's. As noted above, there were 2 dwellings on the parcel at that time. The 2<sup>nd</sup> dwelling was removed in conjunction with the Condominium development to the southwest of the site. The remaining dwelling is approximately 800 square feet and is completely within the limits of the inner riparian zone. The dwelling that was removed was well inside the outer riparian zone. The proposed use will remain exactly the same with 2 dwellings. The 1<sup>st</sup> dwelling will be located completely outside of the riparian zone and the 2<sup>nd</sup> dwelling will be located in the outer riparian, 133' from the top of bank. Overall, the area of the inner riparian zone within the lot measures approximately 10,720 square feet, while the outer riparian area is 18,282 square feet for a total of 29,000 square feet. In its current status, only 6,100 square feet of this area remains wooded in a natural state. The remainder of the riparian zone has been altered either in the past or in conjunction with the Derby Brook condominium development. There is little to no topsoil remaining on approximately 9,000 square feet of the site at the top of the plateau in front of the dwelling which is hard enough and smooth enough to accommodate vehicular traffic.

The proposed development will essentially restore 100% of the inner riparian back to a natural state. Proposed lawn area at the rear of the 2<sup>nd</sup> dwelling will be limited to 25' to ensure that the inner riparian zone remains undisturbed and reverts back to a natural condition. Posts will be set along this limit 25' on center to help identify the limit of the lawn for the future homeowner. Within the outer riparian zone, approximately 6,000 square feet located at the toe of the slope to the north adjacent to the stormwater treatment features will be seeded with a wildflower seed mix and allowed to naturalize over time. The remainder of the parcel within the outer riparian, approximately 12,300 square feet, will continue to be utilized by the owners of the 2 dwellings. The use will consist of

- 850 square feet for the house and decks
- 925 square feet of driveway pavement, and
- 10,525 square feet of lawn and landscaped area

Thus, the proposed development of the lot will reduce the overall disturbance in the riparian zone from the existing 23,800 square feet to 12,300 square feet.

### *Alternatives analysis*

As previously noted, the existing dwellings were erected in the 1950's. Accordingly, the alternatives analysis will be limited to the lot area alone and will not include any other potential mitigation measures beyond the limits of the parcel itself. The use of the lot is single family residential which does conform to the zoning by laws. We will look at 3 options for the lot while maintaining the existing use. They are;

1. *Leave the existing dwelling to stand alone*

In this option, the only change on the lot would be interior repairs to the existing dwelling as needed to bring the house up to modern standards. The limits of the lawn and exposed gravel area would remain the same. No stormwater improvements would be made. No grade changes and or vegetation would be added and the overall disturbance of 23,000 square feet within the riparian zone would remain. The septic system would remain in its current status 50' from the wetlands.

2. *Build one dwelling*

Development of the lot is not an economically viable option which if it did occur would present some real issues for the low-income developer, which include.

- The cost of demolition of the existing dwelling would be a real cost issue. In reality, this cost need not be incurred. Leave the house standing to be maintained as an accessory structure. Although not ideal it is the most economic alternative for this structure.
- Landscaping would also be a cost that would not be required and could be restrictive if implemented. In addition, the large gravel area on the plateau could present a real opportunity for substantial vehicle access and parking.
- A paved access driveway and stormwater improvements would also become an expense that need not be exercised.

The structure that would be built would be the proposed structure out front which is outside the jurisdictional limits of the commission. Accordingly, as noted above, the existing dwelling would remain and be converted to an accessory structure. The septic system would remain in place. The driveway would remain the same as well as all of the existing landscape treatment. The existing septic system would remain to serve what ever use was maintained in the structure.

3. *Construct 2 smaller dwellings.*

In this preferred option, the existing dwelling is removed, and the inner riparian is restored in total. The proposed dwelling will have a slightly smaller footprint than the existing dwelling and will be set 133' back from the top of bank. The 2<sup>nd</sup> dwelling is located outside the riparian zone. Almost 45% of the existing

disturbance inside the riparian zone will be restored to a natural state. Vehicle movement will be restricted to the common driveway and parking areas. A total area of 925 square feet which is a minimum of 172±' from the top of bank. All of the exposed gravel surface on the lot which measures approximately 9,000 square feet in the riparian zone will be loamed & seeded. All of the impervious surfaces will be treated in accordance with the stormwater standards and will primarily recharge the groundwater resources in the area.

The proposed construction of the 2 dwellings will allow us the ability to exercise all the benefits to the riverfront noted above. Overall, the proposed redevelopment will result in approximately 1,775 square feet of impervious coverage within the outer riparian zone. However, this increase is offset by some significant improvements. They are.

- 4,600 square feet of existing disturbed area inside the inner riparian zone will be restored to a natural setting including 800 square feet of existing impervious surfaces.
- Over 9000 square feet of gravel surface within the outer riparian zone which can support vehicle access and parking will be incorporated into the design and eliminated.
- Stormwater improvements in accordance with the standards can be provided for the entire site. Groundwater recharge will help reduce runoff rates and volumes off the site and will benefit the perennial stream adjacent to the lot.
- The proposed leaching facilities will now meet the requirements of the local board of health regulations for setback from the wetlands.

### ***Conclusion***

Based upon the alternative's analysis, the development of the lot will provide some significant long-term benefits to the riverfront in terms of both stormwater and general health of the inner riparian. Simply maintain the existing structure or restricting the development to a single dwelling will not provide any real benefits to the riverfront and has the potential to adversely impact the riverfront values further depending upon the use of the land by the potential owner.