MOHR & SEREDIN
Landscape Architects, Inc.

LANDSCAPE TREATMENT PLAN

Right of Way Adjacent to the Luedke Residence
Crescent Avenue, Great Diamond Island, Maine
June 28, 2016

Background -
On June 23, 2016, I accompanied staff from the City of Portland (Jeff Tarling, Arborist, and Phil Dipierro, Development Coordinator) and Ms. Juliet Browne, Esquire (owner's counsel) to review and assess the landscape disturbance which occurred earlier in the month on land adjacent to the parcel owned by James Luedke on Crescent Avenue. The area of disturbance is ± 11,800 square feet, and is within a dedicated but not accepted right of way (aka paper street) which runs parallel to the shoreline of Great Diamond Island. This area is within the 75 foot setback from the top of the adjacent bank, which is identified on the City's Shoreland Zoning Map as a Coastal Bluff. The top of the bank is 15 to 20 feet away from, and approximately 12 feet higher than the identified normal high water line of Casco Bay.

The prior intrusion into the right of way included the removal of six (6) to seven (7) overstory trees (as reported by Ms. Chris Stacey, City of Portland Zoning Specialist), removal of understory vegetation (primarily invasive species), and disturbance of the soil. The disturbed area has had hay applied at an acceptable coverage rate, and there is visual evidence that the understory growth is returning. Much of what was observed for regeneration on the 23rd was invasive species including Japanese Barberry, Oriental Bittersweet, Multiflora Rose, and Honeysuckle. The group examined the remaining stumps and concluded that the tree removal count was
somewhere between six (6) and nine (9) live trees, the largest of which was a Red Pine.

Of particular note was the disposal of the cut vegetation and ground litter, which was pushed or dumped over the embankment. Approximately 130 to 140 feet of the bank is covered with wood debris, leaf duff/litter, and soil. There is evidence of bank settlement (± 6") at the top of the bluff near the north end of the right of way. When examined from the bottom of the bank, there is clear evidence of erosion and undercutting of the bank. Based on our knowledge of the area, we believe this is caused in part by groundwater migration from the upland, but is also a result of wave action during times of very high water.

Observations -
Much of the area within the right of way has a reasonably well distributed stand of trees, with the notable exception of the opening in the north end of the right of way. There is a well distributed, healthy overstory of Red Oak, Norway Maple, Poplar, and Birch. The approximate locations of the existing trees are shown on the attached existing conditions plan and can be seen in the photographs. At the south end of the right of way, and on the bank, much of the understory trees and shrub growth has been preserved. Speckled Alder, Black Cherry, Serviceberry, High-bush Blueberry, Bayberry and Spicebush were observed within the right of way, mostly in close proximity to the bank.

The areas near the top of the bank showed evidence of settlement and a shared concern of those present was the potential for soil settlement and loss of bank integrity if mechanical equipment is used within twenty (20) feet, horizontally, of the top of the bank. There is also concern that the efforts to remove the debris on the bank could result in soil disturbance and lead to soil movement or loss of the embankment integrity.

The balance of the disturbed ground surface within the right of way shows no evidence of erosion, or potential for creating issues with stormwater runoff from the uphill parcel. While there is evidence of groundcover revegetation on fifteen percent (15%) to twenty percent (20%) of the disturbed surfaces, the group noted that establishing a stabilizing groundcover in the right of way would be beneficial.

Recommendations for Mitigation and Restoration -

Mohr & Seredin recommends that the disturbed area be restored as soon as is practicable through planting, seeding, and limited, careful removal of the larger debris and soil/duff at the top of the embankment. There are several key issues that the contractor performing the work must adhere to in the work plan:

1. All work activities within 25 feet of the top of the bank shall be hand work with no mechanical or motorized equipment in that area.
2. Erosion control measures must be in place for all of the proposed planting and surface restoration activities prior to those tasks being performed.
3. All planting must be performed in compliance with the Maine Nurserymens Association standards for planting and seeding.

The specific recommendations for the restoration are as follows:

A. Bank Debris:
   1. By manual labor remove the loose, non-interlocking logs and large diameter limbs (those over 4" in size at the butts) on the top of the debris piles on the bank. If the material does not freely move, it must be left in place.
   2. The four to five mounds of leaf duff, litter, and soil at the top of the debris area shall be carefully raked out with metal rakes to smooth the areas. This will help to avoid long-term settlement and allow these areas to be seeded.

B. Disturbed Ground Surface Between the Top of the Bank and the Lot Line:
   1. In the areas where there is no evidence of groundcover revegetation the hay and soil surface shall be lightly scarified (no more than 1" depth) with a metal rake and the area seeded with the mix noted in the plant list.
   2. In areas where there is groundcover revegetation occurring, the seed shall be broadcast over the hay, then raked with a leaf rake.
   3. No fertilizer, lime or other soil amendments shall be applied.
   4. The seed rate of 1.5 lbs. of the native seed mix shall be followed. After 45 days, any areas not showing 80% catch shall be reseeded.

C. Planting:

   A planting plan and plant list have been prepared to accompany this written report. The plan graphically shows the general locations for the native plantings included in the plant list. In the southern portion of the right of way, just a few trees are proposed in the small opening in the overstory canopy, and a limited number of shrubs are shown to be installed near the top of the bank.

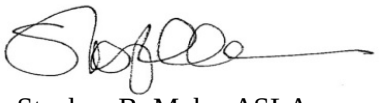
   The majority of the proposed plantings are shown within the northern half of the right of way where there is a larger break in the overstory canopy. Our recommendation is that a representative from Mohr & Seredin be present to layout the plants prior to installation.

   The proposed plant list includes eight (8) overstory deciduous trees of mixed sizes; seven (7) understory shrubs/small trees and forty -even (47) shrubs. The plants are all native except for the Renaissance Reflection Birch which was selected for disease and insect resistance. The seed mix is also a native mix selected for this setting in close proximity to the shore.

The owner will need to provide on-going watering and care for the plantings for at least two (2) growing seasons to assure that the plants survive.

D. Conclusion:
The implementation of this remediation plan will repair the disturbed area, re-establish the lost shrubs and tree vegetation, and restore the area to a natural condition, noting the exception of the invasive species in this area.

Respectfully submitted,



Stephen B. Mohr, ASLA
Maine Licensed Landscape Architect
Mohr & Seredin Landscape Architects, Inc.