TECHNICAL MEMORANDUM

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October 19, 2015

Prepared for: Kennedy/Jenks Consultants, Inc.
32001 32nd Ave. S #100
Federal Way, WA 98001
Attn. Jarod Fisher

File No.: 304.007

Re: Cornet Bay Marina Model Toxic Control Act (MTCA) Cleanup Mitigation Plan: Year 1 Vegetation Monitoring Results

1 INTRODUCTION

Grette Associates is under contract with Kennedy/Jenks Consultants, Inc. to complete the Cornet Bay Marina Year 1 monitoring, as required in the approved *Cornet Bay MTCA Cleanup Mitigation Plan* (Plan; Grette Associates 2013). Grette Associates completed the Year 1 monitoring on October 6, 2015. Cornet Bay Marina is located at 200 Cornet Bay Drive (Island County tax parcels R13436-488-2260, R13436-506-2420, and R13436-517-2500) and in Section 36, Township 34 North, Range 1 East, W.M. in Oak Harbor, Washington. The purpose of this monitoring is to document the Year 1 results against the performance standards in the Plan. In addition to the results of the Year 1 monitoring, recommendations are provided to help the site meet future monitoring performance standards. Photographs taken at the designated photo point locations are presented at the end of this memorandum.

2 METHODS

During the site visit, quantitative data was collected to determine species health, density, and canopy coverage. Data and photographs were collected along three (3) monitoring transects that were established during the as-built inspection (Grette Associates 2014). These transects will be utilized over the course of the long-term monitoring period. Any additional observations, including wildlife presence, were noted and are summarized below.

Canopy coverage was determined using the Line-Intercept method along each transect (WSDOT 2008). To calculate percent cover using this method, the distance along the transect intercepted by the canopy of each species is recorded. Percent cover for each species was calculated by dividing the sum of the intercept lengths of each species by the total length of all transects. Survival rate was determined by documenting all observed mortality within the mitigation area and along transects.

3 RESULTS

Based on the monitoring results, the performance standards have largely been met in Year 1. The wetland and wetland buffer enhancement areas have at least a minimum of two native species that are providing enhanced vegetation complexity and have a minimum of 80 percent survival. The wetland and wetland buffer areas require a minimum of 10 percent aerial coverage in Year 1. Year 1 results show that the wetland enhancement area has approximately 7 percent coverage while the wetland buffer enhancement area has approximately 15 percent coverage. A summary of the Year 1 results against the Year 1 performance standards is presented below in Table 1.

According to the mortality results, the wetland enhancement area has an approximately 88 percent survival rate while the wetland buffer enhancement area has approximately 80 percent. According to the Plan, each area shall have a minimum of 80 percent survival. Therefore, both the wetland and wetland buffer enhancement areas meet performance standard 2b and 3b, respectively. Grette Associates observed 19 assorted shrubs in the wetland enhancement area and 16 assorted shrubs in the wetland buffer enhancement area that were dead (Table 2). As noted in the Contingency Action Compliance Report (Grette Associates 2015), the revised assessment standard for assessing survival within the wetland enhancement area was reduced to 50 shrubs. Originally, the area was planted with a total of 65 assorted shrubs; however, 15 were replaced with an assortment of emergent species (Grette Associates 2015).

Additionally, while there is no performance standard for the recently planted emergent area, Grette Associates completed a general assessment of the area to determine the overall health and success of the plantings. The planted emergent area is largely dominated by seashore saltgrass (*Distichlis spicata*) and Lyngby's sedge (*Carex lyngbyei*). Less dominant species observed in this area include saltmarsh bulrush (*Schoenoplectus maritimus*) and pickleweed (*Salicornia virginica*). Based on visual observations, the planted emergent area has approximately 60 percent aerial coverage.

Table 1. Year 1 performance standard summary

Performance Standards	Performance Standard met?
2a. A minimum of two (2) species of native shrubs will be present by the end of the monitoring period within the wetland enhancement area.	**Yes** – 3 species present
2b. A minimum of 80% survival of planted shrub species in Year 1 within the wetland enhancement area.	**Yes** – 88%
2c. A minimum of 10% aerial coverage of native shrubs after Year 1 within the wetland enhancement area.	**No** – 7%
3a. A minimum of two (2) species of native shrubs will be present by the end of the monitoring period within the buffer enhancement area.	**Yes** – 4 species present
3b. A minimum of 80% survival of planted shrub species in Year 1 within the buffer enhancement area.	**Yes** – 80%
3c. A minimum of 10% aerial coverage of native shrubs after Year 1 within the wetland buffer enhancement area.	**Yes** – 15%

Table 2. 2015 Mortality Survey Results

Enhancement Area	2015 Survey Results		Assorted Plant Totals	Assessment Standard	Survival Percentage
	Alive	Dead			
Wetland	44	19	63	50[1]	88%
Wetland Buffer	63	16	79	79	80%

[1] Per the approved contingency actions (Grette Associates 2015), the assessment standard was reduced to 50 species.

Wildlife observations were also recorded during Year 1 monitoring. A bald eagle (*Haliaeetus leucocephalus*) and Canada geese (*Branta canadensis)* were observed near the general vicinity of the enhancement areas and likely use these habitats regularly. In addition, Grette Associates observed recent sign that deer regularly use the enhancement areas for foraging.

4 DISCUSSION

As presented in Table 1, the site has largely met the required performance standards for Year 1. With the exception of performance standard 2c, the site is meeting the targeted shrub diversity and survival rates within the enhancement areas. Performance standard 2c requires that the wetland enhancement area have a minimum of 10 percent aerial coverage of shrubs by Year 1. Results show that the wetland enhancement area has approximately seven (7) percent aerial coverage of shrubs in Year 1. Earlier in 2015 (Year 1), contingency measures were implemented to address the poor survival rate observed during the as-built inspection. As discussed in the as-built report (Grette Associates 2014), a majority of the wetland is relatively steep and transitions to upland in a moderately short distance. As a result, there is a narrow area where groundwater and salt water meet and brackish conditions exist. Based on these conditions, replanting the species in the general location where they did not survive was not recommended. The contingency actions that were implemented in early 2015 included substituting 15 of the shrubs that were observed to have died with an assortment of emergent species (Grette Associates 2015). The substitution of 15 shrubs with 120 assorted emergent species reduced the shrub population by 24 percent, which reduced the opportunity for the wetland enhancement area to meet performance standard 2c.

5 RECOMMENDATIONS

In order to meet future performance standards established for the site, Grette Associates recommends that performance standard 2c be revised to reflect the shrub substitutions within the wetland enhancement area. Specifically, Grette Associates recommends that the minimum aerial coverage requirements outlined in performance standard 2c be reduced. As a result, the wetland enhancement area would be required to have a minimum of 15 percent coverage after Year 2 and 25 percent coverage after Year 3 and through the end of the monitoring period.

Additionally, although the wetland and wetland buffer enhancement areas meet the survival standards outlined in performance standards 2b and 3b, respectively, Grette Associates recommends that the dead vegetation observed in Year 1 be replaced to ensure that future survival standards are met. Table 3 presented below provides the recommended replanting schedule for the wetland and wetland buffer enhancement areas.

Table 3. Proposed replanting schedule

Enhancement Area	Common Name	*Scientific Name*	Quantity
Wetland	Sweet gale	*Myrica gale*	15
Wetland Buffer	Nootka rose	*Rosa nutkana*	7
	Oceanspray	*Holodiscus discolor*	2
	Scouler's willow	*Salix scouleriana*	7

If you have any questions on the site assessment observations or stewardship recommendations, please contact me at (253) 573-9300, or by email at chadw@gretteassociates.com.

Regards,

Chad Wallin
Biologist

References:

Grette Associates, LLC. 2014. Cornet Bay Marina – Cornet Bay Marina Mitigation Plan: Model Toxic Control Act (MTCA) Cleanup. Prepared for Kennedy/Jenks Consultants, Inc. July 2013.

Grette Associates, LLC. 2015. Cornet Bay Marina Model Toxic Control Act Cleanup Mitigation Plan: Contingency Action Compliance Report. Prepared for Kennedy/Jenks Consultants, Inc. March 17, 2015.

Washington State Department of Transportation (WSDOT). 2008. WSDOT Wetland Mitigation Site Monitoring Methods. Guidance Memorandum. Updated June 12, 2008.

Attachment A.

Figure 1. Transect 1 facing northwest.

Figure 2. Transect 1 facing southeast.

Figure 3. Transect 2 facing southwest.

Figure 4. Transect 2 facing northeast.

Figure 5. Transect 3 facing southwest.

Figure 6. Transect 3 facing northeast.

Figure 7. Planted emergent area.

Figure 8. Planted emergent area.