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## Technical Memorandum

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**To:** Bill Rasmussen, City of Renton

**From:** Ali Wick, Anchor Environmental, L.L.C.

**Date:** May 24, 2006

**Re:** Gene Coulon Park Shoreline Habitat Monitoring – Baseline Survey

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Anchor Environmental, L.L.C. (Anchor) is assisting the City of Renton, Washington, in evaluating potential habitat effects at Gene Coulon Park associated with a plan by the neighboring Southport development to dock mid-sized boats nearby. A shore-based habitat survey was conducted to document existing conditions in the park. The survey collected information on beach slope, substrate size, aquatic vegetation, visual evidence of scour, and wildlife; this was completed by setting a series of transects waterward from the shoreline, as described below. A follow-up habitat survey will be conducted after completion of the planned actions at the adjacent development. This memorandum summarizes existing site conditions as documented in the baseline survey.

### **Survey Summary**

The survey was conducted on the morning of April 13, 2006, and weather conditions at the time were overcast with a moderate southwest wind and rain increasing during the site visit. Shoreline conditions at the park include extensive armoring along most of the shore, with an existing, vertical, concrete seawall, float (e.g., swim beach), or anchored logs that protect the shoreline from erosion. Thus, the survey focused on documenting conditions at the unarmored or lightly armored shoreline at and along the Nature Island Bird Sanctuary Feeding Area (Bird Island) at the southwest end of the park. Six transects were set along the shoreline in a clockwise manner beginning at the southwest corner of the park (Table 1; Figures 1 and 2). Information was collected along transects by attaching one end of the transect to a landmark on shore and extending a measuring tape into the water by wading in a drysuit. Data were collected at 10 foot intervals along the transect to the deepest point wadeable, or to 150 feet along the transect, whichever was greater. Depth information was collected using a stadia rod, slope was measured by stadia rod and clinometer, and bearing was measured with a hand

compass. The landmark and global positioning system (GPS) location of each transect start point was recorded (see Table 1).

**Table 1**  
**Habitat Monitoring Transect Locations**

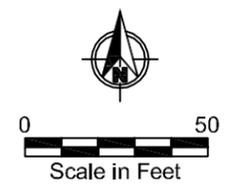
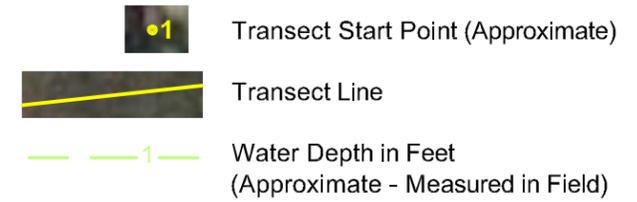
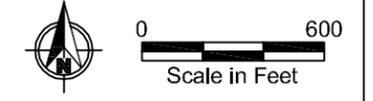
<b>Transect Number</b>	<b>GPS Point at Start of Transect (NAD 83)</b>	<b>Compass Bearing from Start to End of Transect</b>	<b>Landmark (also see Figure 1)</b>
1	N 47.46070 W 120.93594	**	Corner of seawall at southwest bridge footing
2	N 47.50438 W 122.20512	164°	Northwest bridge footing on Bird Island side
3	N 47.50441 W 122.20528	174°	Large tree just uphill and northeast of bluff on southwest side of Bird Island
4	N 47.50443 W 122.20549	194°	Large tree on northwest side of marsh on west side of Bird Island
5	N 47.50466 W 122.20552	268°	Large shrub growing in open area on north point of Bird Island
6	**	360°	Northeast corner of boardwalk footing on northeast side of Bird Island

**Notes:**

\*\* Not recorded

NAD North American Datum

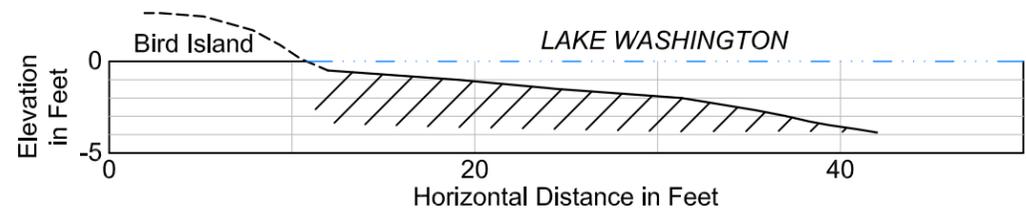
Apr 27, 2006 11:05am cdavidson K:\Jobs\060355-GENE\_COULON\_PARK\06033501\06033501-02.dwg FIG



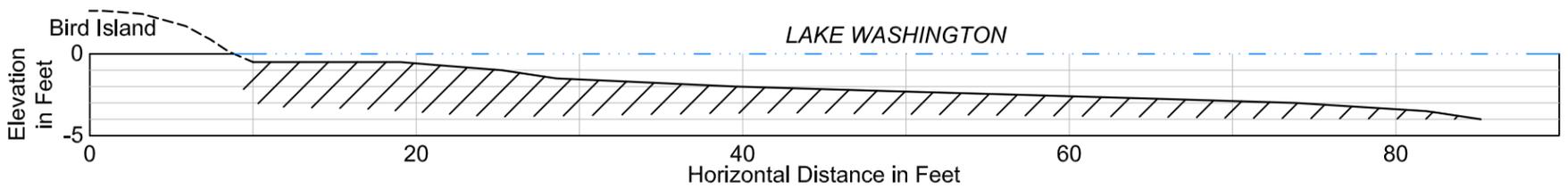
Notes:  
 1. Water level at time of survey was 21.9 feet (U.S. Army Corps Datum), which is 0.1 feet below highest water level (22 feet).  
 2. Aerial photo source: WAGDA Washington State Geospatial Data Archive.  
 3. Water depths as shown have been interpolated between actual transects to create an approximate depth contour for the site.

**Figure 1**  
 Gene Coulon Park Shoreline Habitat Monitoring  
 City of Renton

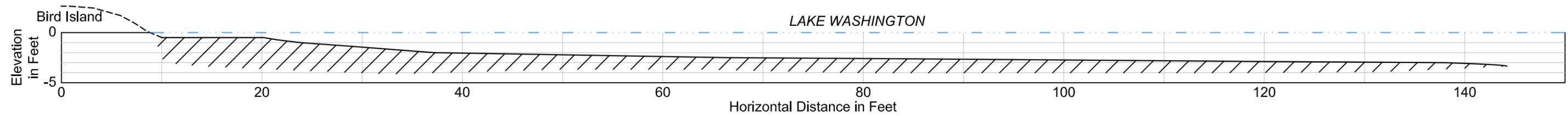
May 24, 2006 8:28am cdavidson K:\Jobs\060355-GENE\_COULON\_PARK\06033501\06033501-03.dwg FIG 2



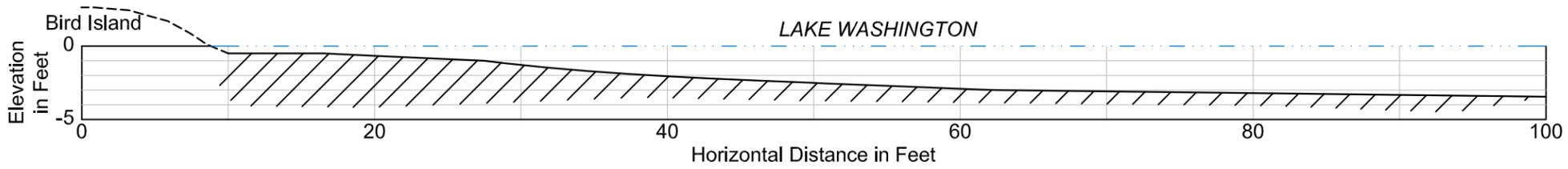
**Transect 2**



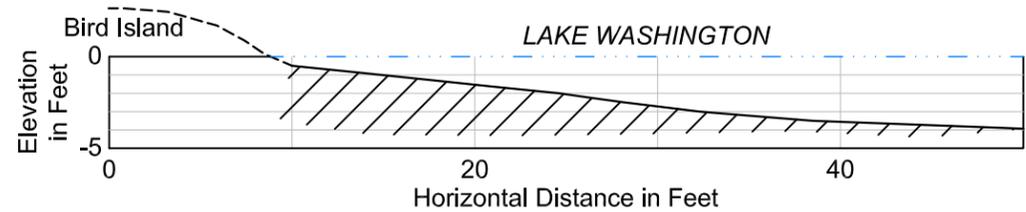
**Transect 3**



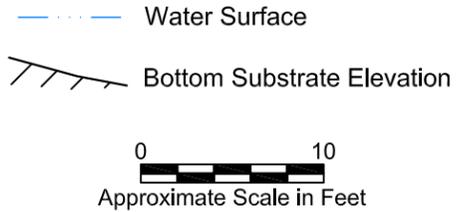
**Transect 4**



**Transect 5**



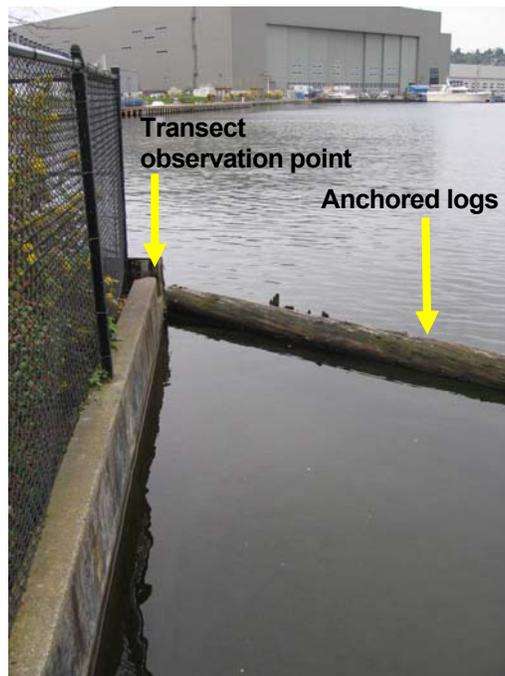
**Transect 6**



Notes:  
 1. Bottom Substrate Elevations are approximate between 10-ft transect marks.  
 2. Bottom Substrate Elevations as shown were measured using water depths as shown were measured using water depths at the time of field monitoring; no survey datum was used.

### ***Transect 1***

Transect 1 was different from the other transects in that it was not possible to set a true transect from the start location. Rather, the general area was characterized by recording visual and depth observations from a single observation point at the corner of the anchored logs and the seawall, because water depth was too great to wade waterward of the seawall (Photo 1). It is notable that the bridge crossing from the mainland to the bridge at Bird Island is armored with several anchored logs spanning the length of the bridge and extending from the seawall to the northwest bridge footing. Water depth as measured inside the anchored log at the southwest corner of the seawall/bridge was 7.2 feet with a fine (sand) substrate; outside the anchored logs, depth was 2.1 feet and the substrate was fines (sand) and gravel. Because the seawall and anchored logs adequately protect the shore from erosion in the area from the mainland to Bird Island, any erosion issues that may occur in this area in the future could potentially be expressed as evidence of coarser substrate and/or an undermining of the seawall (i.e., one would expect a greater water depth at the locations measured in this survey).



**Photo 1**  
**Deep water at observation point at**  
**Transect 1, looking southwest**

### ***Transect 2***

Transect 2 extended from the muddy area at the northwest Bird Island bridge footing out into the littoral zone toward the Southport development (Photo 2). This area has a small, protected cove near the bridge footing. Water depths ranged from 0 feet at the start of the transect to 4.1 feet at the end of the 42-foot-long transect. Substrate ranged from fines (sand) at the start of the transect to pebbles in the middle, transitioning to fines (muck) at the deepest end of the transect (Attachment A). Future erosion issues in this area could potentially be expressed as the disappearance of the muck and sand and/or replacement by a coarser substrate.



**Photo 2**  
**Shallow-water area at northwest Bird Island bridge footing, looking northeast**

### ***Transect 3***

Transect 3 extended waterward from a short, highly eroding escarpment bluff on the southwest side of Bird Island (Photo 3). The short bluff is already approximately 5 feet in height from the waterline to the top of the bank, and is actively eroding in large chunks (Photo 4). The area evidently receives heavy amounts of foot traffic, as it contains several informal bootpaths and displays compacted vegetation and soil. Water depths ranged from 0 feet to 5.4 feet at the end of the 90 foot long transect, and substrate ranged from fines (muck) at the end of the transect to gravel and pebble in the middle, to sand at the shoreline. In this area, future erosion could potentially be expressed as increased subsidence of the bluff, deepening of the offshore shelf waterward of this bluff, and/or more coarse offshore substrates.



**Photo 3**  
**Short bluffs at shore of southwest Bird Island, looking west**



**Photo 4**  
**Active erosion at shore of southwest Bird Island (with 4-foot-long stadia rod for scale)**

#### ***Transect 4***

Transect 4 extended waterward from a freshwater marsh (rushes, cattail, and reed canary grass) into the lake (Photo 5). Water depths ranged from 0 to 3.2 feet at the end of this 150 foot long transect, and substrate was mostly fines (sand) throughout the transect, with some occurrences of cobble and gravel. There was a small low/backwater area behind (east of) the marsh that likely floods at higher lake levels; this had standing water of several inches at the time of the site visit. Shoreline erosion in this area could potentially be expressed as disappearance of the existing fine substrates, shoreline retreat, and/or die-off of marsh vegetation as wave energy increases.



**Photo 5**  
**Freshwater marsh at northwest side of Bird Island,**  
**looking west**

#### ***Transect 5***

Transect 5 extended waterward from the northwest shore of Bird Island into the lake. Water depths ranged from 0 feet to 3.5 feet at the end of this 100-foot-long transect. The substrate was characterized by fines (sand/silt) at the deep end of the transect; to cobble, pebble, and concrete rubble near the shore. This area has an extended area of active erosion at the northern point of Bird Island (Photo 6), which exhibits scattered concrete rubble and angular rock (riprap) armoring that increases toward the east. Rounding the tip of Bird Island to the east, erosive banks have increasing height, from several inches at the west side, to more than 2 feet on the

eastern tip of the island, and are slightly undercut in several places (Photo 7). Shoreline erosion in this area could potentially be expressed as a marked increase in retreat of the shoreline above existing conditions.



**Photo 6**  
**Active erosion on northwest tip of Bird Island, looking southwest**



**Photo 7**  
**Concrete rubble, angular rock, and undercut banks at north east tip of Bird Island, looking northeast**

### ***Transect 6***

Transect 6 extended waterward from the northeast tip of the boardwalk footing, eastward into the lake. Water depths ranged from 0 feet to 3.9 feet at the end of this 50-foot-long transect. The substrate was characterized by fines (muck) at the deep end of the transect, to cobble, pebble and armoring rubble at the shore. The shore in this area does not appear to be eroding as actively as the rest of the park, as it receives some protection with angular rock, concrete rubble armoring, and the roots of shoreline vegetation (Photo 8). Future erosion issues in this area could be potentially expressed as a retreat of the vegetation, shoreline retreat, and an increase in the existing undercut banks.



**Photo 8**  
**Concrete rubble, angular rock, and undercut banks at northeast tip of Bird Island, looking northeast**

A variety of wildlife, mainly avian, was observed during the site visit, including the following:

- American Coots
- European starlings
- American robins
- Red-winged blackbirds
- Cliff swallows
- Common Mergansers
- Gulls
- Mallard ducks
- Ring-necked ducks
- Turtles
- Rabbits