

## **Bowker Creek at Oak Bay High school**

### **Phase 1 - Rough Grading – Scope of Work**

#### **SCOPE OF WORK**

The restoration of Bowker Creek (see attached engineering preliminary rough grading plans and orthophoto map, defining the “Bowker Creek Restoration Zone”) on SD61 Oak Bay High School site will take place in two separate and distinct phases: Bowker Creek Phase 1 – Rough Grading; and Bowker Creek Phase 2 – Creek Restoration. The scope of work included in the SD61 Design/Build contract only includes the Bowker Creek Phase 1 – Rough Grading. The Bowker Creek Phase 1 work is required to commence no earlier than June 15, 2015 and is required to be completed by July 15, 2015. The attached preliminary engineering rough grading plans may be modified once the final creek restoration plans are completed in 2014. All of the following work undertaken in Phase 1- Rough Grading within the Bowker Creek Restoration Zone including all costs for mobilization/demobilization and other contract costs (bonding, insurance, etc.) are to be included in the overall SD61 Design/Build contract.

The scope of work for the Bowker Creek Project Phase 1 – Preliminary Rough Grading includes site preparation and supply of all equipment, labour and materials to excavate and dispose of materials, as to the design lines shown on the Kerr Wood Leidal Associate Phase 1 – Preliminary Rough Grading drawings SW-1 and SW-2, dated November 14, 2012, including:

1. Excavation layout survey for rough grading is to be based off SD61 site survey and KWL Phase 1 – Preliminary Rough Grading SW1 and SW2 final drawings (attached are the preliminary, dated November 14, 2012), followed by an on-site meeting with the representatives of BCI, the environmental monitor, SD61 site supervisor and the Contractor. No clearing of Creek Restoration Zone may commence before sign-off by all above mentioned parties;
2. The removal, capping, relocation installation and hook-up all existing and new water and drainage utilities will be determined and included in the SD 61 final Design/Build;
3. Environmental protection of Bowker Creek including erosion and sediment control and water control, as required;
4. Clearing and Grubbing within construction limits;
5. Removal and disposal of existing chain link fences;
6. Excavation and Rough Grading
7. Off-site Disposal of Organics;
8. Off-site Disposal of Excavated Materials;
9. Installation of temporary erosion and sediment control works.
10. Construction Inspection, Final completion and sign-off.

#### **DETAILED SCOPE**

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#### 1. Excavation Site Layout Survey

Excavation site layout based on SD61 site survey and KWL Phase 1 - Rough Grading drawings shall include cost for all labour, materials and equipment to prepare and layout final for construction. Survey layout shall provide all locations, grades, elevations required to construct the rough grade to within +/- 1 cm horizontal and vertical accuracy. A digital copy (DWG Format) of the rough grading design will be provided for layout. The attached preliminary engineering rough grading plans may be modified once the final creek restoration plans are completed in 2014.

#### 2. Final Design of Relocation and Hook-up of Existing Services

Final Design of Relocation and Hook-up of Existing Services shall include cost for final design for impacted services including confirmation of existing service locations and materials, specification of new utility sizes, materials, locations and grades, reconnection details, etc. The removal, capping, relocation and hook-up all existing and new water and drainage utilities will be determined and included in the SD 61 final Design/Build Design of services shall be in accordance with most recent standards (Master Municipal Construction Documents (MMCD) or approved equivalent). The detailed design is to be reviewed and approved by District of Oak Bay and School District 61.

#### 3. Environmental Protection

Environmental protection shall include all labour, equipment and materials to implement sediment and erosion control, water control and other environmental protection measures outlined in the Environmental Protection Section and applicable Guidelines and Regulations.

#### 4. Clearing and Grubbing

Clearing and grubbing shall include all labour and equipment to clear and remove of all organic material (trees, shrubs, stumps, roots, etc.) within the limits of work defined in the drawings. Contractor is required to submit a removal plan for vegetation along the creek bank to the Environmental Monitor for approval.

#### 5. Removal and Disposal of Existing Chain Link Fence

This item shall include cost for all labour, and equipment to remove and dispose of existing Chain Link Fence within the limits of work. Removed chain link fence shall be hauled to an approved disposal or recycle facility.

#### 6. Excavation and Rough Grading

This item shall include cost for all labour, equipment, and materials to excavate, rough grading and rough surface preparation in accordance with approved final design.

#### 7. Off-site Disposal of Organics

This item shall include cost for all labour, equipment, materials and fees to remove, haul and dispose of stripped and grubbed organic material (trees, shrubs, stumps, roots, etc.). All cleared organic material shall be hauled and disposed at off-site disposal area approved by SD61.

#### 8. Off-site Disposal of Excavated Materials;

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This item shall include cost for all labour, equipment, materials and fees to remove, haul and dispose of excavated mineral soil. All cleared mineral soil shall be hauled and disposed at off-site disposal area approved by SD61. Any materials identified as being over acceptable contamination limits shall be hauled to an approved disposal facility.

#### **9. Installation of temporary erosion and sediment control works.**

This item includes all labour, equipment and materials to install temporary erosion and sediment control works within the limits of construction in accordance with the Environmental Protection Plan. This includes placement of temporary bio-degradable erosion control matting and/or spreading of straw on the exposed soils and slopes, installation of silt fencing. Responsible for erosion and sediment control within the Creek Restoration Zone until final completion and sign-off.

#### **10. Construction Inspection, Final completion and sign-off.**

This item shall include all professional fees to complete construction inspection to confirm construction in general accordance with the design. This shall include project close-out and sign-off by Bowker Creek Initiative (BCI), Oak Bay and SD61. Once approved by all parties, this site will then be turned over to BCI and Oak Bay to commence creek restoration works.

### **WORK SCHEDULE**

In order to meet the overall project schedule, Phase 1 Rough Grading must be completed during the period between June 15 and July 15, inclusive.

All work under the Phase 1 contract shall be completed on or before July 15. The contractor shall be responsible for maintenance of all environmental protection measures as outlined below for the period up to and including July 15<sup>th</sup>. Responsibility for environmental protection shall be transferred to either the Phase 2 contractor or the School District on July 15<sup>th</sup> at 5:00 pm, local time.

### **ENVIRONMENTAL PROTECTION**

#### **Introduction**

Bowker Creek is a fisheries resource, and the Contractor is responsible for ensuring that construction activities do not result in any detrimental impacts on this resource. This includes, but is not limited to, preventing the discharge of silt-laden water.

The Contractor shall furnish all materials and be responsible for the design, placement, maintenance, and subsequent removal of any temporary works necessary to prevent surface water flow from impacting on construction operations.

The Contractor shall be responsible for, and make good at his own expense, any damage caused by water, failure of any part of the water control works, failure of equipment, inadequacy of equipment, omissions or commissions in his performance of the work.

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#### **Applicable Legislation**

The Contractor, and all personnel engaged by or through the Contractor, must conduct all activities and operations in such a way as to minimize the impact on the environment, and must comply with the environmental requirements of all authorities having jurisdiction, including environmental legislation, regulations, permits, licenses, and agreements that apply to the work under this contract:

Applicable legislation, regulations and other documentation may include the following:

- Fisheries Act;
- Canadian Environmental Protection Act;
- Canadian Environmental Assessment Act;
- Migratory Birds Convention Act;
- BC Water Act;
- BC Wildlife Act;
- BC Environmental Management Act;
- Heritage Conservation Act;
- CCME Water Quality Guidelines for the Protection of Aquatic Life;
- BC Water Quality Guidelines for the Protection of Aquatic Life.
- Land Development Guidelines for the Protection of Aquatic Habitat (FOC 1993);
- Standards and Best Management Practices for Instream Works (MOE 2004);
- Develop with Care 2012: Environmental Guidelines for Urban and Rural Development in British Columbia (MOE 2012); and
- Any other regulations, environmental assessment conditions or permits required as part of the Gas Tax Funding Grant program.

The District of Oak Bay and BCI will be responsible for acquiring all required permitting for the project.

#### **Environmental Monitor**

A qualified Environmental Monitor, retained by District of Oak Bay, will be present on site during construction. The Environmental Monitor has authority to stop or suspend operations should conditions warrant.

The Environmental Monitor is responsible for ensuring that prior approval pursuant to the Fisheries Act and the Water Act (or other applicable regulations) is adhered to for work in and about the creek.

All conditions of such approvals will be relayed to the Contractor, and the Contractor shall abide by them and take on the responsibility for environmental protection during the work.

Contractor is responsible for ensuring communications with Environmental Monitor, such as informing of scheduled activities (i.e. vegetation removal directly adjacent to creek) so the Environmental Monitor can be on site. Care shall be exercised during all phases of the work to minimize siltation of the creek, and to eliminate the release of raw concrete, concrete leachate, and any other debris or deleterious substances. Wherever possible, work shall be carried out in isolation of the stream flow.

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#### **Environmental Permits**

Obtaining all permits required for the work will be the responsibility of the District of Oak Bay via the Bowker Creek Initiative

#### **Fisheries Considerations**

The Bowker Creek is fish-bearing stream. Therefore, protection of water quality at all stages of construction is essential.

The Contractor shall follow all environmental regulations, guidelines, and procedures as required by environmental agencies. Pertinent operations shall be altered or suspended immediately at the request of Fisheries and Oceans Canada or the B.C. Ministry of Environment or Ministry of Forest, Land and Natural Resource Operations should the operations be considered detrimental to the fisheries resource.

Any in-stream work shall be carried out within the applicable fisheries window period for Bowker Creek as legislated by DFO and Ministry of Environment.

#### **Erosion, Sediment and Dust Control**

Adequate precautions shall be taken to prevent silt and other pollutants from discharging directly or indirectly into the creek.

A sediment and erosion control plan shall be prepared by the contractor, the contractor shall be responsible for furnishing all labour, equipment and materials to complete the project in accordance with the requirements outlined in the sediment and erosion control plan. The plan must be approved by the Environmental Monitor and shall address erosion control with best management practices including but not limited to the following:

##### **Erosion Control**

- Where possible, conduct work during days without precipitation
- Minimize runoff volumes wherever possible by directing runoff from adjacent upslope areas away from the construction site;
- Divert runoff away from more erodible materials (e.g., silty and loamy soils) and steep slopes, where possible. An earthen berm and/or silt fence may be placed at the top of any exposed banks to prevent site water runoff from causing erosion or sloughing of the slopes;
- Compact exposed soils where possible and cover all exposed banks with polyethylene sheeting, geotextile fabric, erosion control matting, organic mulch, or rocks (or a combination of these measures) until the slopes can be covered with filter rock and/or vegetation is established;
- Divert/bypass runoff through the site in pipes, channels or ditches that are carefully constructed to resist the erosive energy of flowing water;
- Install gravel check dams or other materials (e.g., sandbags, geotextile fabric, rock, etc.) in ditches to reduce water velocities and help dissipate the energy of surface flow;
- Apply temporary cover to exposed mineral soils, including temporary stockpiles of topsoil or slopes, through use of polyethylene sheeting, geotextile fabric, erosion control matting, blown straw, organic mulch, or rock (or a combination of these measures);
- There shall be no stockpile sites near watercourses and drainage ditches to avoid erosion and discharge of sediment-laden water; and

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- Limit the amount of vegetation removal wherever possible. Riparian areas should be clearly marked off with flagging, snow fencing or similar demarcations to avoid intrusion by workers and equipment in these sensitive zones.

#### Sediment Control

- Protect catch basins within the project drainage basin with filtercloth, or equivalent, and catch basin inserts (and berms where applicable) to prevent sediment-laden water from entering storm drainage systems. Inspect and clean/replace all catch basin inserts regularly;
- Conduct work from the top of bank and above/away from the riparian buffer vegetation zone as shown on the drawings. No machinery is to be allowed to work within Bowker Creek or along its slopes during construction activities. If access to opposite banks/sides of drainage ditches is required, existing roadway crossings are to be utilized to limit any additional impacts to the ditches that may convey sediment-laden water to Bowker Creek;
- Install silt fencing in susceptible areas at the project site such as at the top of exposed banks, in areas where exposed soils have the potential to drain toward Bowker Creek, and adjacent to existing stream crossings that may be used by construction equipment and vehicles. Silt fencing or straw filled sediment log type products should be installed with the toe dug in to existing soils to avoid shortcutting of surface flows that may contain sediment; and
- Regular inspections of silt fencing and other sedimentation control measures and structures should be conducted throughout the construction period. Adjustments to these features should be conducted as needed to facilitate appropriate coverage and containment of sediment-laden water.

#### Dust Control

- Spray water on stockpiles and access roads as appropriate during periods of dry weather to reduce the amount of airborne dust generation with appropriate measures taken that runoff does not enter the creek or storm drains;
- Ensure that dust-suppression systems are in place and operational during construction operations;
- Cover truckloads of materials in transport with tarpaulins if there is potential for dust generation; and
- Monitor and mitigate any excessive dust from soil deposited on roads during transport; and visually monitor dust generation and cease works until mitigative measures are in place to reduce potential adverse impacts on air quality and environmental receptors within and adjacent to the work area.

#### Fuel and Oil Spill Control

All heavy equipment working within or near the Bowker Creek channel should be clean and well maintained. The environmental agencies may require equipment be fitted with biodegradable hydraulic fluid. Spill kits should be available at the site to contain any accidental spills. Any fueling and oiling of machinery should be carried out at least 30 m away from the creek channel. It should be noted that except for excavator no other liquid fuel powered equipment shall be allowed in the channel, this includes pumps. Any spills shall be reported immediately to the environmental monitor. Any spills over 100 L shall be immediately reported to the Provincial Emergency Program.

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#### **Potential Effects on Heritage**

Should archaeological remains or artefacts be identified in the project area, all work will cease in that area and the Archaeology Branch of the Ministry of Natural Resource Operations will be contacted by the site Environmental Monitor to provide further guidance.

#### **Monitoring and Reporting**

The Site Superintendent shall be responsible for maintaining a construction log and recording field activities as they relate to environmental protection (notes, photographs, etc.). The construction log and records are to be reported daily to the Environmental Monitor retained by District of Oak Bay. Any modifications or deviations from the plan need prior approval from BCI and shall be recorded along with the reasons for the alteration. All final construction records as they relate to environmental protection shall be submitted to the Environmental Monitor within 15 days of completion of the project for submission to the regulatory agencies as part of the environmental monitoring report.