
TO: CITY MANAGER **DATE:** 2006 June 22

FROM: DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

SUBJECT: **ROBERT BURNABY PARK - RAMSAY CREEK INSTREAM AND RIPARIAN HABITAT REHABILITATION AND ENHANCEMENT PLAN**

PURPOSE: To request approval for the detailed design plan, the instream and riparian habitat rehabilitation and environmental enhancement works for Ramsay Creek.

RECOMMENDATIONS:

1. **THAT** the detailed design plan submitted by Embassy Development Corporation for the instream and riparian habitat rehabilitation and environmental enhancement compensation works at Ramsay Creek within Robert Burnaby Park be approved.
2. **THAT** the instream and riparian habitat rehabilitation and environmental enhancement works at the Ramsay Creek site be approved for implementation by Embassy Development Corporation during the 2006 instream fisheries construction window under the terms and conditions outlined in the attached report.
3. **THAT** a copy of this report be forwarded to the Environment Committee for information purposes.

REPORT

At its 'Open' meeting of 2006 June 21, the Parks, Recreation and Culture Commission received the above noted report and adopted the four recommendations contained therein.



Kate Friars
DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

KF:tc

Attachment

PK- ROBERT BURNABY PARK - RAMSAY CREEK

Copied to: Director Planning and Building
Director Engineering
City Solicitor
Risk Manager

TO: CHAIR AND MEMBERS
PARKS, RECREATION & CULTURE COMMISSION

FROM: DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

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2. **THAT** the instream and riparian habitat rehabilitation and environmental enhancement works at the Ramsay Creek site be approved for implementation by Embassy Development Corporation during the 2006 instream fisheries construction window under the terms and conditions outlined in this report.
3. **THAT** a copy of this report be forwarded to the Environment Committee for information purposes.
4. **THAT** Council be requested to concur.

REPORT**INTRODUCTION**

At their respective meetings of 2005 November 16 and 28, the Parks, Recreation and Culture Commission and Council gave approval in principle to the use of a portion of Ramsay Creek flowing through Robert Burnaby Park for proposed habitat restoration and environmental enhancement works to be funded and carried out by Embassy Development Corporation (Embassy) in 2006 as compensation for impacts to riparian and channel habitat associated with a proposed new development at 5640 Lougheed Highway (Rezoning Reference # 03-38). The approval in principle was subject to future submission of a detailed design for the instream and riparian habitat rehabilitation and enhancement works by Embassy to the Parks, Recreation and Culture Commission for approval. A final design has now been submitted for consideration by Commission and Council.

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SITE DESCRIPTION

A portion of Ramsay Creek flowing through Robert Burnaby Park has been identified as having potential opportunities for aquatic habitat restoration works. The location of the site is illustrated in the attached plan of Robert Burnaby Park (Attachment #1). The creek has good fish habitat potential, within Robert Burnaby Park, but the habitat is inaccessible to fish, due to instream barriers at the tributary confluences in the lower part of the park. The proposed habitat compensation site extends approximately 150 m upstream from the lower northern-most pedestrian footbridge to a concrete culvert running under the existing trail. Two tributaries join the mainstem within this section. Tributary 1 joins on the right bank (relative to downstream flow) immediately upstream of the footbridge. This channel is narrow and steep and does not appear to contain high-quality fish habitat. Tributary 2 enters on the left bank and is of a similar size to the mainstem channel with good potential fish habitat. Habitat compensation works will benefit both the mainstem and Tributary 2. Shortly upstream of the Tributary 2 confluence, the channel narrows somewhat. The upper section of the channel extends upstream to a culvert under the existing trail.

A hydrologic assessment of the Ramsay Creek site was conducted by Northwest Hydraulic Consultants (NHC) at the request of NEXT Environmental Inc. (NEXT) Embassy's environmental consultant. According to NHC's assessment, the condition of the channel through Robert Burnaby Park is consistent with watershed processes whose physical manifestation is a narrower deeper channel, steep eroding or undercut banks, and large drops at any 'hard points' in the profile such as culverts, pipe crossings, or grade-control structures. In the lower section, large boulders have been used to protect the bed and banks and the channel has been modified by landscaping activities rather than natural processes. In many places the boulders in the banks have been undermined and have shifted into the channel. Boulder lines controlling the channel grade have become perched through degradation of the channel on the downstream side creating a fish barrier at medium to low flows. This section of Ramsay Creek is also in the vicinity of the designated off-leash site at the park and frequent use by dogs has had a negative impact on the riparian vegetation as well as the ongoing detrimental stirring up of sediment, particularly during low-flow conditions. The upper section of the proposed work site has experienced less human modification but the ongoing watershed processes have had an impact here as well. The channel is generally lacking in habitat complexity such as pools and stable gravel. The culvert at the upstream end of the reach is perched above the bed and has been damaged by overflows and water running down the trail.

Clearly there is a need for instream rehabilitation and riparian enhancement at Ramsay Creek and hence the site is considered a suitable alternative for environmental enhancement works.

INSTREAM AND RIPARIAN HABITAT REHABILITATION PLAN

Upon approval in principle from the Parks, Recreation and Culture Commission to the use of the site at Ramsay Creek, Embassy applied to the Department of Fisheries and Oceans for approval to use Ramsay Creek as compensation for enclosure and infilling of Sunken Engine Creek at

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Holdom Avenue. A hydrological assessment of the Ramsay Creek site by NHC was also commissioned by NEXT to assist in the design of the instream rehabilitation works. The resulting plan for the instream and riparian habitat rehabilitation and environmental enhancement works was submitted to and approved by the City Environmental Review Committee (ERC) in March 2006.

An overview of the final design plan prepared for Embassy by NEXT and NHC is provided as Attachment #2. The following works are proposed to be performed by Embassy based on the final design. Embassy Development Corporation will:

- Replace the existing damaged and fish-inaccessible concrete culvert and trail area upstream of the confluence of the tributaries with a fish-accessible culvert capable of accommodating light vehicles to the design requirement of the City of Burnaby;
- Incorporate structures in consultation with NHC that would serve to control bed degradation while improving fish migration through the site;
- In consultation with NHC install potential spawning habitat and rock rifles to the streambed and banks. This will serve to raise the channel profile at key locations over time therein improving potential spawning locations;
- Rehabilitate denuded vegetation along the banks of Ramsay Creek at the confluence and along the west side of the main channel of Ramsay Creek to the existing concrete culvert;
- Install temporary fencing, as prescribed by the City of Burnaby, to restrict access to the immediate riparian areas and channel until such time as the vegetation has established to restrict access to the riparian areas of the creek; and
- Implement a 5-year monitoring and maintenance strategy to ensure the success of the above identified works, including control of invasive non-native vegetation.

Embassy is to be responsible for funding and construction of the instream and riparian habitat rehabilitation and environmental enhancement works at the Ramsay Creek site. The instream works are estimated to cost \$12,300 (excluding GST). The riparian habitat rehabilitation work, including plant material, soil, tree staking, fencing, hydroseeding, watering and a five year maintenance period is estimated to cost \$110,400 (excluding GST). Bonding for the works is to be submitted to the Department of Fisheries and Oceans.

The instream works are to be completed during the 2006 instream fisheries construction window. The planting of the riparian area will be performed in the early fall of 2006. The result of such works will:

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1. Over time allow upstream fish migration from Burnaby Lake to the Ramsay Creek tributaries;
2. Improve Tributary 2 and mainstem spawning and overwintering habitat;
3. Restrict access by people and dogs to the confluence of Ramsay Creek mainstem and Tributaries 1 and 2. Additionally, it will reduce sediment transport to downstream habitat of the creek;
4. Replace existing damaged concrete culvert and trail area upstream of the confluence of the tributaries with a fish-accessible culvert;
5. Be monitored to and maintained for 5 years to ensure the success of the works.

NEXT STEPS

Staff will continue to work with Embassy and its consultants through the construction stage and five year maintenance period. Embassy will continue to coordinate approvals for the work with the City ERC Committee, Department of Fisheries and Oceans, the Ministry of Water Land and Air Protection and all other relevant agencies. Before commencement of any construction on the City park land, Embassy will be required to enter into a temporary construction access agreement with the City and to schedule all work in advance to the approval of the City.

Instream works are to be completed using the best management practices developed for instream works in and about a fish-bearing stream. NEXT is required to develop a Habitat Mitigation Plan to ensure that best management practices are observed during the construction of the habitat compensation works, including details of site access and material disposal.

An engineer or geomorphologist who is familiar with instream habitat construction is to be present during construction to aid in interpreting the plan and to direct key components of the works. In addition, a qualified environmental monitor is to be on site to ensure that construction best management practices are followed to avoid undue environmental damage.

The works have been designed with input from Park Planning, Parks Design, Parks Operations, Planning and Engineering staff and will become the responsibility of the City after the construction warranty and monitoring period end.

Concurrent to these instream improvements, staff are reviewing the off-leash dog activity that occurs in this area. Particular attention will be given to identify strategic improvements at the Robert Burnaby off-leash dog area to better manage dog activity in the vicinity of this sensitive riparian area.

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CONCLUSION

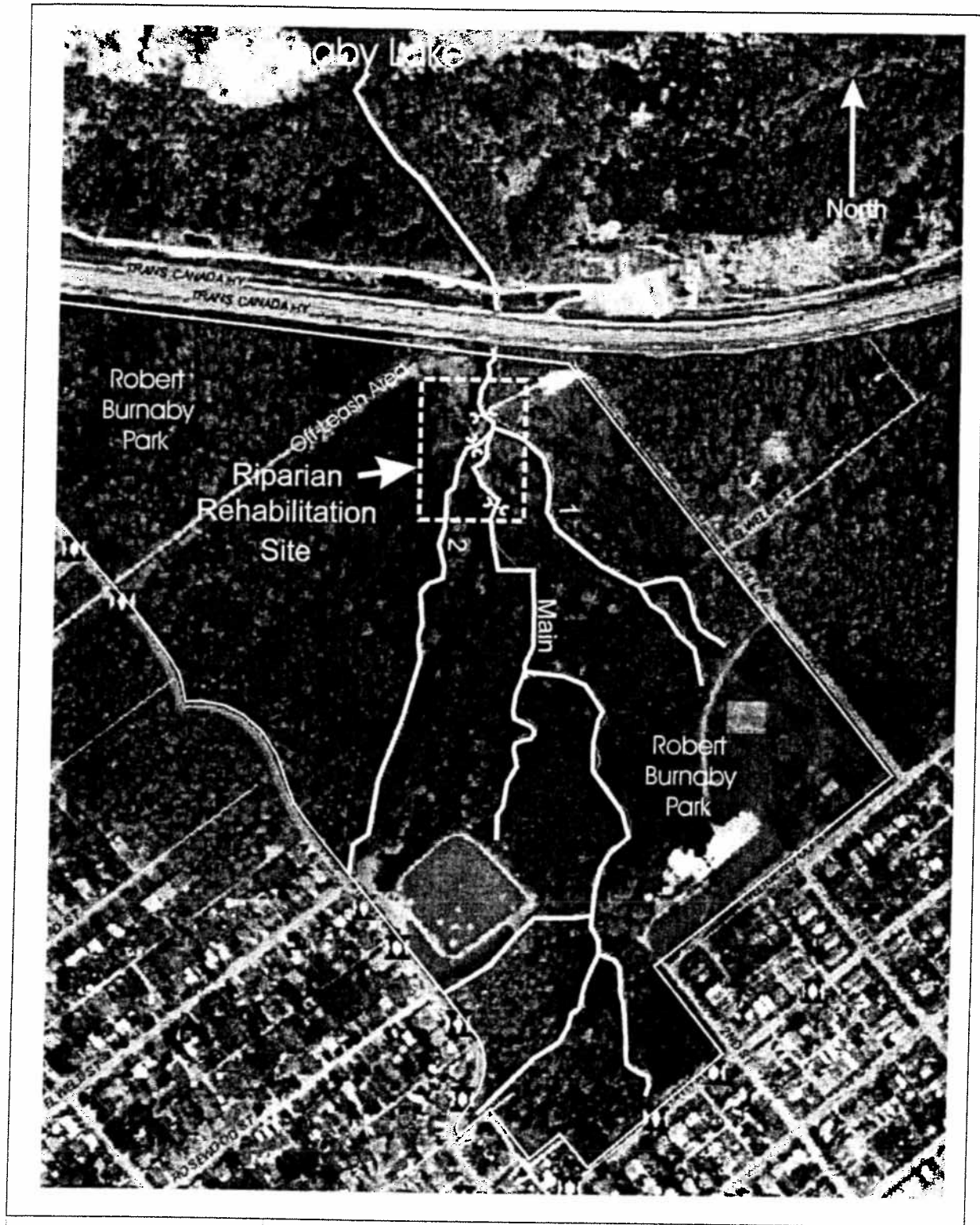
Commission and Council gave approval in principle to the use of a portion of Ramsay Creek flowing through Robert Burnaby Park for proposed habitat restoration and environmental enhancement works to be funded and carried out by Embassy in 2006 as compensation for impacts to riparian and channel habitat associated with a proposed new development at 5640 Lougheed Highway. Embassy has now submitted the DFO and City ERC approved, detailed design for the proposed instream and riparian habitat rehabilitation works to the Commission for approval and is seeking authorization to proceed with implementation of the works this summer. The proposed works are compatible with recreational use of the area, will enhance the riparian setting, and will benefit fish and other wildlife at no cost to the City. Staff therefore, recommend that Commission and Council approve the design plan and authorize the implementation of the plan by Embassy Development Corporation.



Kate Friars
DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

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Attachments (2)
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Copied to: Director Planning and Building
Director Engineering
City Solicitor
Risk Manager



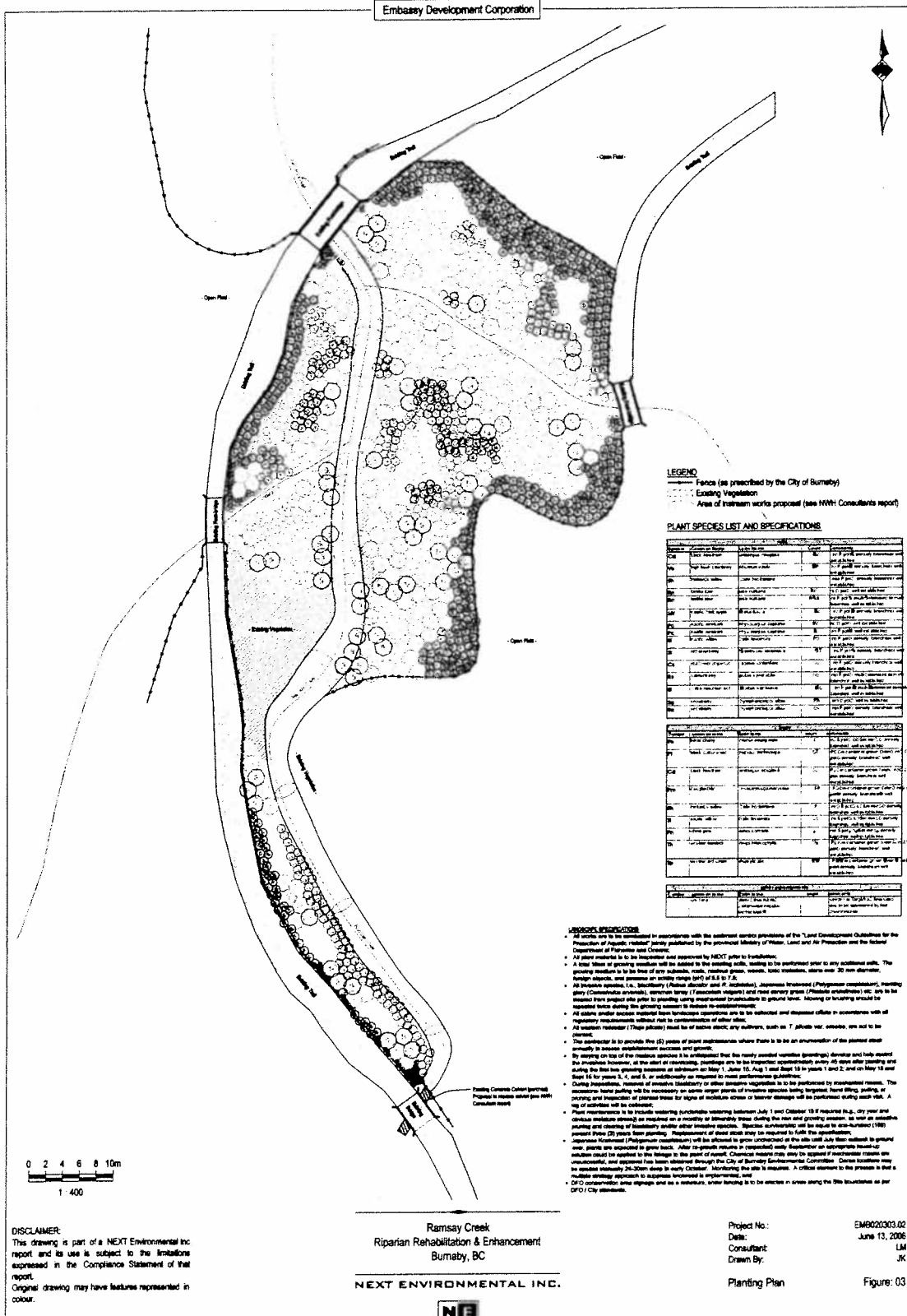
City of
Burnaby
Parks, Recreation
& Cultural Services

*Ramsay Creek
Instream Riparian Habitat
Rehabilitation Site
At Robert Burnaby Park*

Dwg.# RB 06-01
Date: June, 2006

Prepared By: DD

Attachment # 1



ROBERT BURNABY PARK - Ramsay Creek Instream & Riparian Habitat Rehabilitation and Enhancement Design Plan

Attachment # 2