

**ENVIRONMENT COMMITTEE**

*HIS WORSHIP, THE MAYOR  
AND COUNCILLORS*

**SUBJECT: SOUTHPOINT RAINWATER MANAGEMENT AMENITY**

**RECOMMENDATIONS:**

1. THAT Council authorize staff to proceed with the implementation of a rainwater management amenity project on the 6500 block Southpoint Drive as outlined in this report.
2. THAT Council allocate \$200,000 from the Gaming Fund to provide the funding required for the project.
3. THAT a copy of this report be sent to the Parks, Recreation and Culture Commission and the Byrne Creek Streamkeepers.

**REPORT**

The Environment Committee, at its meeting held on 2009 May 19, received and adopted the *attached* report seeking Council's approval to design and construct rainwater management amenity on the 6500 block Southpoint Drive road right-of-way.

The Southpoint RMA project offers significant value to City residents. Important environmental, engineering, parks, recreational, and public educational benefits will develop through this initiative. Opportunities to positively engage the community, local school children, and developers are clearly present.

Respectfully submitted,

Councillor D. Johnston  
Chair

Councillor S. Dhaliwal  
Vice Chair

Councillor A. Kang  
Member

Copied to:	City Manager Director Finance Director Planning & Building Director Engineering Director Parks, Recr. & Cult. Services
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**TO:** CHAIR AND MEMBERS  
ENVIRONMENT COMMITTEE

**DATE:** 2009 May 14

**FROM:** DIRECTOR ENGINEERING  
DIRECTOR PARKS, RECREATION &  
CULTURAL SERVICES  
DIRECTOR PLANNING & BUILDING

**SUBJECT:** SOUTHPOINT RAINWATER MANAGEMENT AMENITY

**PURPOSE:** To obtain approval from the Committee and Council to design and construct rainwater management amenity on the 6500 block Southpoint Drive road right-of-way.

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**RECOMMENDATION:**

1. **THAT** the Committee recommend Council to:
  - a. Authorize staff to proceed with the implementation of a rainwater management amenity project on the 6500 block Southpoint Drive as outlined in this report;
  - b. Allocate \$200,000 from the Gaming Fund to provide the funding required for the project; and,
  - c. Send a copy of this report to the Parks, Recreation and Culture Commission and the Byrne Creek Streamkeepers.

**REPORT**

## 1.0 INTRODUCTION

Southpoint Drive is situated within the environmentally sensitive Byrne Creek watershed in south Burnaby. The 6500 block of Southpoint Drive ends in a cul-de-sac which has been unused and blocked off with concrete barriers to prevent illegal dumping of waste materials and other activities. Immediately below the cul-de-sac is approximately 1,200 m<sup>2</sup> of unused road right-of-way (formerly Stride Avenue).

Given the City's significant investment in improving the watershed health over a number of years, this potential unused area of 2,300 m<sup>2</sup> appears to be an excellent site for a rainwater management facility that can serve to improve the environment, provide an aesthetically pleasing bridge between existing parks and recreational activities and

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From: Director Engineering  
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provide value to the community as an educational and interactive resource. Furthermore, the potential of this unused road area as a project site was brought to the City's attention by the community Byrne Creek Streamkeepers group and so the project has substantial local support.

## 2.0 SOUTHPOINT DRIVE RAINWATER AMENITY PROJECT

The subject site is located adjacent to the recently developed Taylor Park to the east and the Byrne Creek Ravine Park which is situated to the immediate west. At present, there is no continuity between the two parks as the unopened road ROW and blocked off cul-de-sac of Southpoint Drive serve to segregate the two parks. In addition, with the recent multi-family development in the immediate area, there is a need to enhance the appearance of the area to make it more inviting to local residents to use. Street lighting, a separated sidewalk and an asphalt paved pathway presently exist along the west boundary of the subject site. Implementation of the rainwater management amenity (RMA) project would significantly improve the appearance of the area and provide the parkland continuity that is needed.

The project site is subject to erosion and sedimentation problems. The steep slope of Southpoint Drive upstream of the cul-de-sac allows rainfall runoff to rush down the street causing the undercutting of existing sidewalk features. Eroded materials have been flowing further downslope and onto the urban trail along Southridge Drive. Recent sampling of "first flush" urban runoff in Burnaby indicated contaminant concentrations that exceeded guideline levels.

Unlike much of Burnaby which is underlain with relatively low permeable till soils, the near surface soils in this southeast portion of Burnaby consist of sand and gravel sediments. These sediments allow large volumes of water to pass through and infiltrate into the groundwater below. This movement allows contaminants to be filtered out and removed from the water stream and be captured by the surrounding soil media. As such, rainwater management systems such as that proposed at this site, can effectively capture and filter out first flush contaminants thereby improving water quality. The proposed RMA facility is expected to achieve reductions in total suspended solids, metals and other chemical constituents in the range of 70 to 90%.

### a) Scope of work – Conceptual Design;

In 2008, the City retained Associated Engineering (AE) to complete a study that assessed the technical feasibility of the proposed project concept. AE confirmed that water quality and quantity benefits could be achieved by the proposed RMA facility. The proposed RMA facility, 0.23 ha in area, makes up only 1.5% of the entire service area yet can increase the infiltration volume by 21% over existing conditions. This indicates a high degree of effectiveness for a facility of this size.

AE also developed a preliminary conceptual design of the facility (see Figure 1). The proposed concept included the following design elements:

- a modified upstream manhole that would daylight (i.e., bring to the surface) drainage flowing through the local storm sewer up to the 2 year return period rainfall event or 340 L/s; any flows greater than this would return to the storm sewer system in order to prevent excessive channel erosion and downstream flooding
- a pond and meandering stream system that would allow the daylighted flows to travel in an aesthetically pleasing channel that would be complementary to the surrounding park environment;
- an outlet back into the existing storm sewer system to prevent any impact to Southridge Drive.

In addition to engineering design, a significant landscape architecture and interpretive art component will be incorporated into the project.

The landscape design of the proposed channel or swale and surroundings will be inviting and educational to the public, without interrupting the efficacy or maintenance aspects of the system. To this end with input and assistance from Planning and Parks Departments, creative approaches will be employed to observe, interpret, and engage the community including the Byrne Creek streamkeeper group, and nearby Taylor Park Elementary School students.

The landscape design elements will create a sense of a gateway and/or threshold into the space. Interpretive and ephemeral elements will be integrated into the design and may include sculptural coarse woody debris, interpretive markings set into the path pavement, weirs with water depth measurements, and/or a floating rain gauge, etc. Simple vandal resistant signage will be employed and native plantings will be used that encourage a diversity of wildlife habitat opportunities and seasonal colour. The fact that the site is somewhat isolated may limit some of the opportunities due to potential vandalism, however, safe and durable ways to engage the community as described will be explored during the design process.

A separated sidewalk and an asphalt pathway are present along the west boundary of the project area. As part of the site design, these features will be upgraded to a 3 to 4 m wide pedestrian-bicycle trail to improve public accessibility.

b) Project Benefits

Aesthetic Appeal – This project will drastically improve the aesthetic appeal of existing site conditions. It will transform an otherwise unusable and unimproved space, into a visually pleasing environment which will be inviting to the public and encourage community engagement. The unused gravel ROW and blocked off cul-de-sac provides minimal value to Burnaby residents at present. However, upon completion of this project, this site will be transformed into a public amenity.

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Environmental - Up to 340 L/s of storm sewer flow, which would have otherwise remained in the pipe until reaching the downstream Byrne Creek sediment pond, will now be daylighted and treated through the infiltration basin and the vegetated swales. Significant improvement will result in water quality of the drainage flows before being reintroduced into the aquatic environment of Byrne Creek. Through increased in-ground infiltration, baseflows to Byrne Creek will be improved which will help to sustain creek flows during dry weather periods in the summer. New habitat will be created particularly in the meandering channel section which will not only foster new biotic communities but will also provide food and nutrient value to downstream fish species in the Byrne Creek system.

Flood Protection – By daylighting a portion of the storm sewer and allowing for in-ground infiltration, peak flow rates will be attenuated thereby reducing risk of downstream flooding.

Park Connectivity – The recently constructed Taylor Park and Byrne Creek Ravine Park are present to the east and west of the site, respectively, and are physically separated by the unopened road ROW of Southpoint Dr. This project will significantly improve the continuity and value of the two parks by providing a “bridge” or new link. The RMA project will not only improve the site on which it will be constructed but will synergistically improve the value of all three public sites thereby yielding maximum value to the Burnaby resident.

Trail Continuity – The RMA project will enhance the existing sidewalk and asphalt trail that passes through the site to improve accessibility to the public.

Community Engagement – With significant recent multi-family residential development in the immediate area as well as the new Taylor Park Elementary School, there are opportunities to positively engage the community. Early public participation through the design process will ensure community acceptance and ownership of the project. Interpretative community art will help the project site to draw residents into the area and invite engagement. These will serve to further reduce opportunities for vandalism and other illicit activities. The local Byrne Creek Streamkeepers group have expressed their support for this initiative.

Education – Through community engagement, the City will have the opportunity to use this project to educate residents and school children on the value and importance of environmental and habitat management. The RMA project will serve as a pilot project that effectively demonstrates the benefits of source control concepts in rainwater management. The alternative street design project was recently curtailed from implementation on Clinton Street due to lack of public support and understanding of the project benefits. This RMA project will help to overcome such difficulties in the future.

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c) Design and construction timelines;

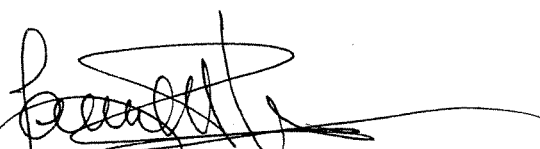
Pending approval from Council to proceed with this project, staff anticipate site design to occur from May to July 2009 with construction commencing in the Fall of 2009 and completion in early Spring 2010.

d) Funding

The estimated cost of the project is \$200,000.00 and it is recommended that the Gaming Fund be used to provide the project funding required. The project is included in the 2009 5-Year Capital Budget Plan. An offer of support had been received from the local development community including a financial contribution of \$10,000 towards the project. Staff will also explore other funding opportunities from the Province and from FCM under Green initiatives.

3.0 CONCLUSION

The Southpoint RMA project offers significant value to City residents. Important environmental, engineering, parks, recreational, and public educational benefits will develop through this initiative. Opportunities to positively engage the community, local school children, and developers are clearly present.



Lambert Chu, P.Eng  
DIRECTOR ENGINEERING



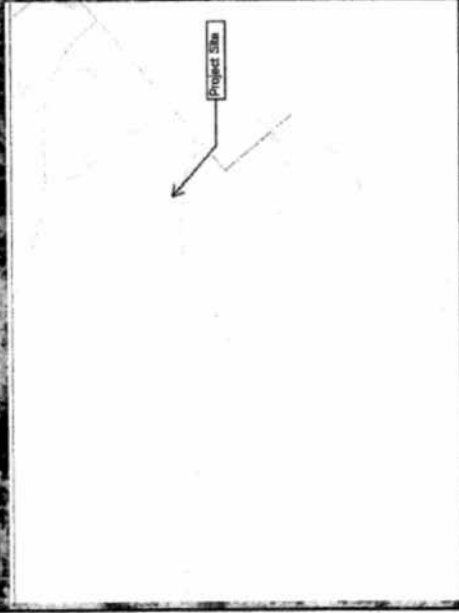
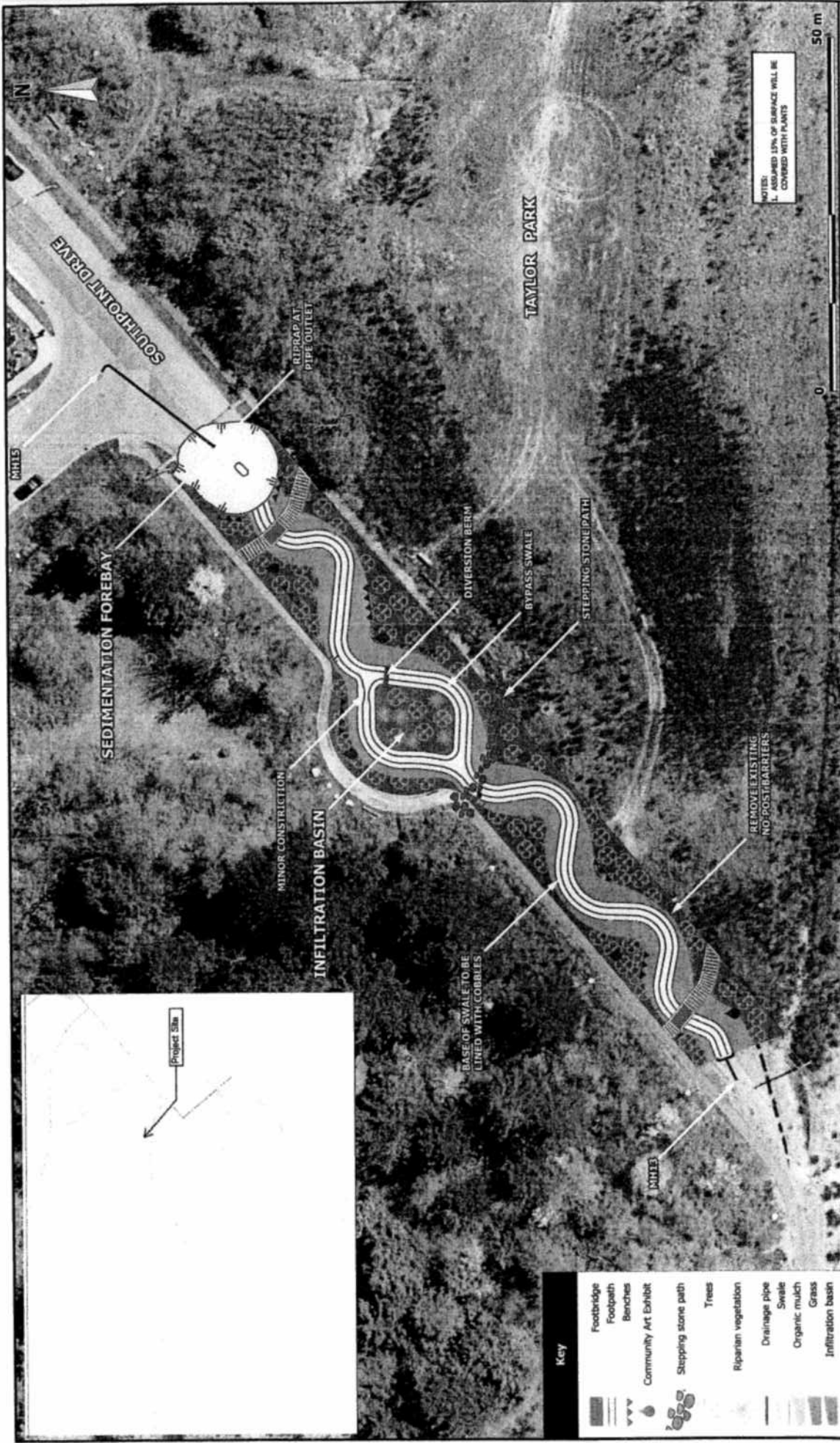
Basil Luksun  
DIRECTOR PLANNING & BUILDING



Dave Ellenwood  
DIRECTOR PARKS, RECREATION & CULTURAL SERVICES

JR/DD:

Copied to: City Manager  
Director Finance



Key	
	Footbridge
	Footpath
	Benches
	Community Art Exhibit
	Stepping stone path
	Trees
	Riparian vegetation
	Drainage pipe
	Swale
	Organic mulch
	Grass
	Infiltration basin

PROJECT No: 20082220  
 SCALE: 1:500  
 DRAWN: P.L.  
 CHECKED: M.J.M.  
 DATE: May 12, 2009

**FIGURE 1 - SOUTHPOINT DRIVE  
 RMA - DESIGN & CONSTRUCTION**

