



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** August 22, 2018
From: Milton Chan, P. Eng.
Acting Director, Engineering **File:** 10-6050-01/2018-Vol 01
Re: **No. 7 Road South Drainage Pump Station Design Concept**

Staff Recommendation

That the design concept for the No. 7 Road South Drainage Pump Station, as detailed in Attachment 1 of the staff report titled “No. 7 Road South Drainage Pump Station Design Concept” and dated August 22, 2018, from the Acting Director, Engineering be endorsed.

Milton Chan, P. Eng.
Acting Director, Engineering
(604) 276-4377

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Parks Services Sewer and Drainage	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

The No. 7 Road South Drainage Pump Station was constructed in the 1960's. Council approved an upgrade to this drainage pump station as part of the 2016 Capital Program. Staff have advanced the design to the point whereby the general layout and architectural features been identified.

The purpose of this report is to provide Council information regarding the intended pump station layout, including potential architectural features.

This report supports Council's 2014-2018 Term Goal #6 Quality Infrastructure Networks:

Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.

Analysis

The City's extensive flood protection and drainage system includes 49 kilometres of dikes, a series of ditches/canals, underground pipe and 41 drainage pump stations. The drainage system is designed to prevent the City from flooding during up to a 1:10 year rainfall event.

The existing No. 7 Road South Drainage Pump station services the area approximately bounded by the midpoint between No. 6 Road and No. 7 Road to the west, the midpoint between No. 7 Road and No. 8 Road to the east, the midpoint between Highway 91 and Westminster Highway to the north, and the Dyke Road to the south. This station was constructed in the 1960's and contains old, antiqued equipment that is in need of replacement to bring pumping capacity levels to current flood protection standards.

Design of the upgraded No. 7 Road South Drainage Pump Station has advanced to a point whereby the general layout and architectural features have been identified (Attachment 1).

The architecture reflects the function of the building. As the location is remote (see Location Map in Attachment 1) and not often visited by the general public, architectural features were designed to allow for low maintenance in response to potential vandalism. The proposed architectural materials include precast concrete panels, perforated metal panels, metal railings and metal doors thus minimizing construction and maintenance costs.

The station is also incorporated into the existing and future dike trail system along the south dike. Accordingly, the pump station maintenance accesses will be appealing and complimentary to the existing and future trails while at the same time providing the necessary means for pump station operation and maintenance activities. It is also proposed that short sections of the adjacent dike be raised to 4.7 meters, which is consistent with the City's Long Term Flood Management Strategy to address sea level rise. The pump station components will be designed to accommodate future dike raising to 5.5 meters. The current elevation of the dike is approximately 4.0 meters.

It is anticipated that design will be completed by Fall 2018, with construction to follow thereafter.

Financial Impact

None

Funding to complete the No. 7 Road South Drainage Pump Station upgrades has been approved by Council as part of the 2016 Capital Program.

This project of \$5,800,000 is included in the 2016 Flood Protection Program. The Province of British Columbia is providing the City with \$16.6M for the replacement of 4 drainage pump stations and approximately 1.2km of dike upgrades. The provincial funding is based on a 2/3 to 1/3 provincial to municipal share of eligible costs.

Conclusion

The No. 7 Road South Drainage Pump Station has been approved in the 2016 Capital Program. Design has progressed to the point where the general layout and architectural features/opportunities have been identified. Subject to Council's support, the design concept will be advanced to a full detailed design.



Mike Maxwell
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Eric Sparolin, P. Eng.
Acting Manager, Engineering Design & Construction
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Att. 1: No. 7 Road South Drainage Pump Station Design Concept

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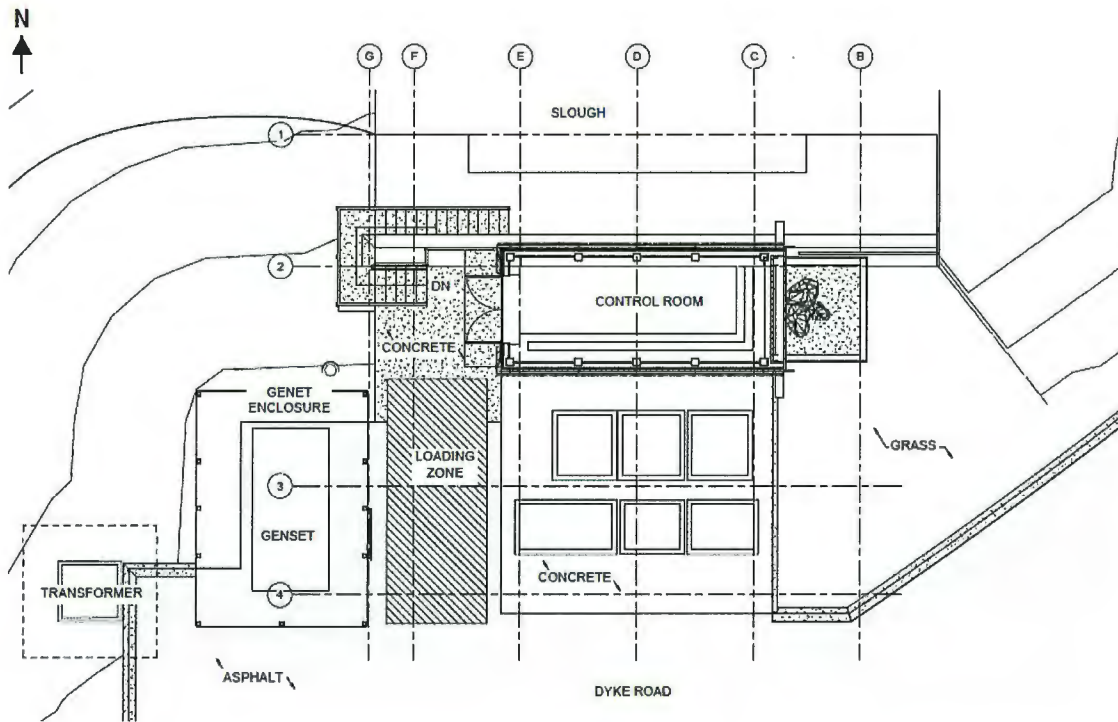
1. 3D Rendering – Looking North West



2. 3D Rendering – Looking South West



3. Plan View



4. Location Map

