

MEMORANDUM

TO	Lynn Sullivan, Project Manager	DATE	November 29, 2006
	Seattle Parks and Recreation	PROJECT No	200607
	800 Maynard Avenue South, 3 <sup>rd</sup> Floor	PROJECT	(WC2281)
	Seattle, Washington 98134		Lake Washington
CC			Boulevard South Drainage
SUBJECT	Drainage Assessment and Conceptual Design	FROM	Mike DeLilla, P.E.
	Vicinity: S Dose Terrace & 34 <sup>th</sup> Avenue S	PAGE	1 OF 3



The project site is located approximately 200-feet east of the intersection of S. Dose Terrace and 34<sup>th</sup> Avenue S. At the end of the roadway (S. Dose Terrace), a stairway provides pedestrian access down to Lake Washington Boulevard South. See Figure 1. An existing 8 inch clay pipe conveys flows from this location and parallels the stairway alignment. Due to the age of the system, various breaks in the pipe were reported by the Seattle Parks Department. The largest break is located between the top of the stairway and the first landing down slope of the S. Dose Terrace intersection. This break has eroded the soil at that location and likely caused settlement in a portion of the stairway. See Figure 2 and 3.

A temporary 8-inch flexible pipe system has been installed by the Seattle Parks Department on the north side of the stairway and connects to the existing pipe at the large break location. This temporary pipe currently acts as an at grade bypass for the existing system. The bypass discharges at the bottom of the stairway in a lawn area near the short retaining wall located on the west side of Lake Washington Boulevard South. Flows then continue overland flowing west to the west curb of Lake Washington Blvd and enter a storm drain inlet. See Figure 4.

The City of Seattle Parks Department would like bury this conveyance system so that it will not be subject to damage and vandalism. In order to address the current situation, a new tight lined system from the upstream storm manhole on S. Dose Terrace to a catch basin on the west side of Lake Washington Boulevard South is proposed.

The existing upstream manhole is a brick structure that has three inlets and one outlet. The outlet is covered by a metal gate and the purpose for the gate is currently unknown. See Figure 5. This manhole should be cleaned and inspected prior to final design for cracks and overall condition. The structure may be related to the movement encountered in the stairway. Depending on the condition, the manhole will be either replaced or rebuilt.

The current alignment encounters three significant (6" diameter min.) trees as well as smaller tree clusters within in 5-feet of the stairway. Hand trenching may save the trees from being removed, but have been assumed to be removed in the cost opinion. Cleanouts spaced at every other landing (approximately four cleanouts) will allow the pipe to be buried shallow and provide maintenance access. An additional cleanout at the bottom of the stairs will need to be installed to deflect the pipe towards the existing catch basin.

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The structural design of the staircase is unknown. The soils should be inspected by a geotechnical engineer to further investigate the slope stability.

The estimated cost opinion for this described improvement is \$52,900. Conceptual design and general contingencies have been estimated at 20% and 15% respectively. See the appendix of this report itemized breakdown.



Figure 1. S. Dose Stairway

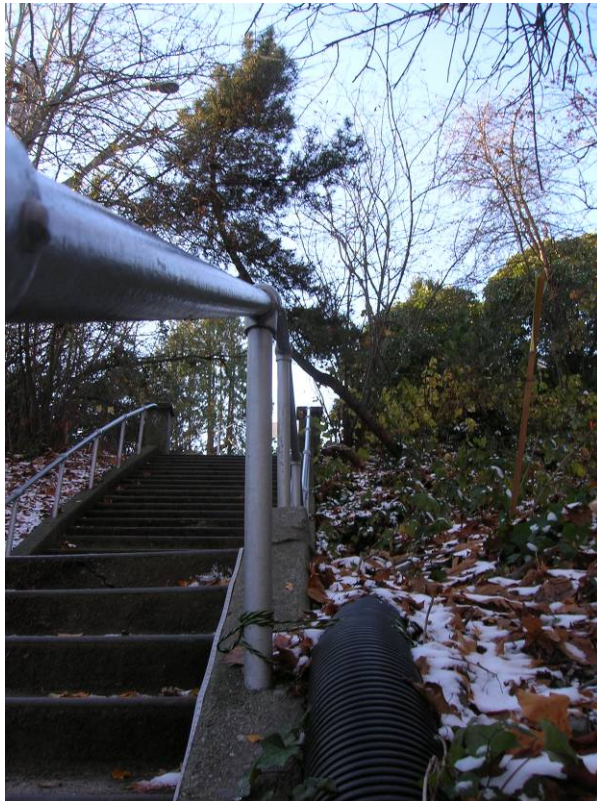


Figure 2. Temporary pipe along the north side of the stairway

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Figure 3. Cracking in the stairway



Figure 4. Outfall to temporary pipe on west side of roadway



Figure 5. Outlet to upstream manhole