SCJ ALLIANCE
CONSULTING SERVICES

TECHNICAL MEMORANDUM

TO:	Rachael Brown, City of Puyallup
FROM:	Lisa Palazzi, CPSS, PWS, SCJ Alliance
DATE:	March 10, 2020
PROJECT #:	727.07, Task 20: P 19-0074 Kessler Center
SUBJECT:	Sitts and Hill SW report: Potential impact on SW Wetland

1.0 PROJECT DESCRIPTION

This Technical Memo provides feedback related to review of a Stormwater Site Plan prepared by Sitts and Hill Engineers, dated December 2019. The intent of the review is to assess potential stormwater management impacts to the hydroperiod of an offsite Cat. IV wetland located near the SW Project Site corner. The Project Site (TPN 0419043117, 18.35 acres) is on a partially developed Puyallup School district property, located at 1501 39th Avenue SW (Figure 1). The proposed improvements will be mostly located in the southern portion of the Parcel.

Figure 1. Site location map, showing project site parcel, and Cat IV wetland offsite to the SW.

It is proposed to construct a new building, to be called the Kessler Center. The new building will include classrooms, meeting rooms, and district staff offices. In addition, the project includes new storm drainage, sanitary sewer, water utility improvements, paving, curb and sidewalk, and landscaping.

2.0 Results and Discussion

According to the Sitts and Hill (S&H) report, the project area is within the Black Hole Swamp drainage basin – an internally draining area in the southwest corner of the City which experiences periodic flooding due to have no natural surface overflow (Fig. 2). This part of the City includes the northern edge of "the Pothole Basin", which contains many glacial kettle potholes with no natural surface overflows.

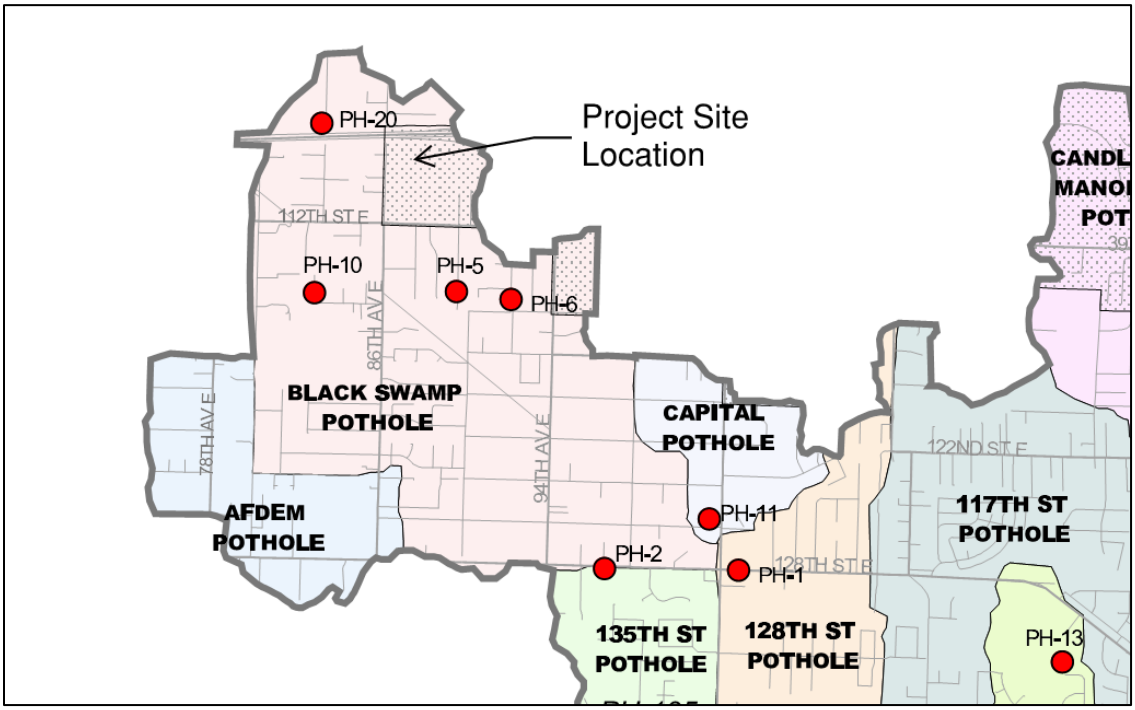

Figure 2. Showing Project location in Black Swamp Pothole Basin.

A small kettle wetland (Southwest Wetland) is located on a separate parcel southwest of the Project Site, near intersection of 112th Street East and 86th Avenue East. This wetland has been described in the past in a Habitat Technologies report, and is reevaluated by Grette and Associates in this report with similar results.

In Section 1.3.2 of the S&H report, the wetland and project impacts are described as follows: a "*Category IV wetland located in the southwest portion of the parcel [with]… a buffer zone of 50 ft. All proposed project improvements are located outside of the wetland and buffer zone.*"

Assessment of potential impacts from the proposed stormwater management system to the hydroperiod of that wetland is the primary purpose of this review.

Proposed stormwater management system

"*Stormwater runoff from pollution generating impervious surfaces will be collected, conveyed and treated by a bioretention facility and then conveyed to infiltration trenches for disposal. Building roof stormwater runoff will be collected and conveyed directly to infiltration.*"

Figure 5 in the S&H report (adapted and provided below in Figure 3) indicates that a portion of the pre-development basin for the Southwest Wetland will be used for an infiltration facility – changing the predeveloped pervious surface area from 5.91 acres to 5.28 acres. Appendix D indicates that 0.07 acres will be converted to impervious "roof surface", and Figure 3 below shows that an infiltration facility will be sited in the southeast upslope edge of the kettle basin.

However, most relatively undeveloped kettles like this one are mostly groundwater-fed, and under current conditions, surface flow contributions in the highly permeable pre-developed condition are not expected to be significant in any case. Therefore, this change in surface conditions in combination with addition of an infiltration facility southeast of the kettle wetland is not expected to have a significant impact on the wetland hydroperiod. The water infiltrated in this design would most likely have infiltrated in the predeveloped condition, and thus would drain to groundwater, and then to the wetland within about the same annual time period.

This expectation is supported by modeling results provided in Appendix D, which indicate that the wetland hydrology will after development will be within 10% of the predeveloped condition – considered to be an acceptable variation in hydroperiod.

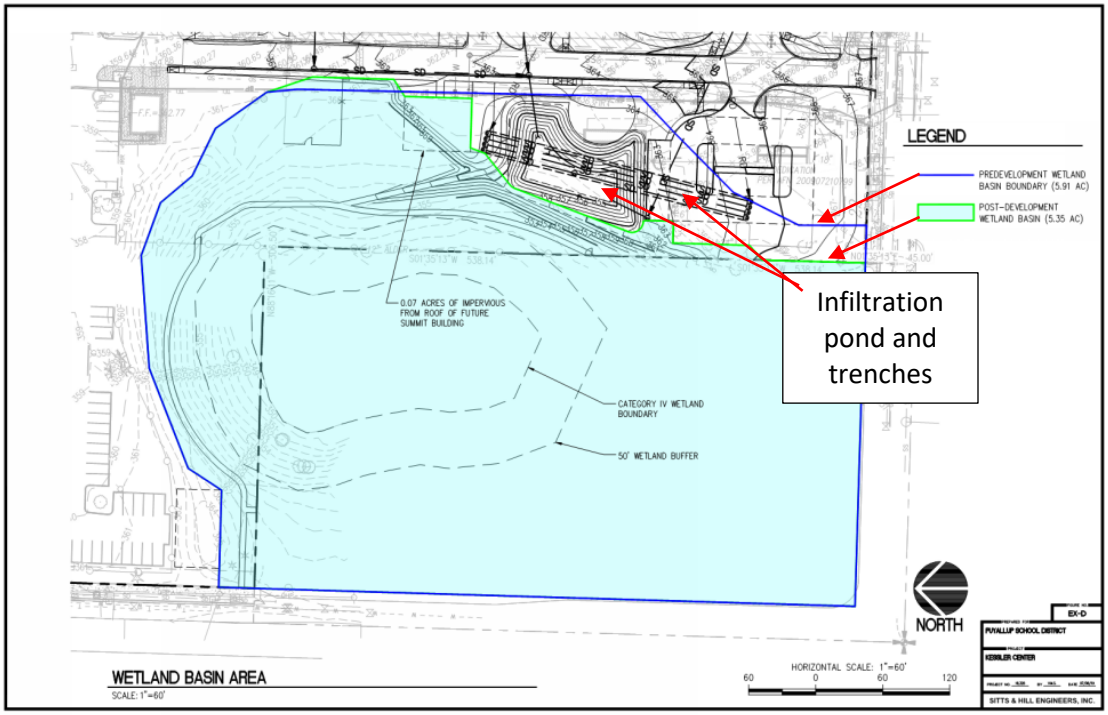

Figure 3. Adapted from S&H Report Figure 5 – Wetland Basin Area.

3.0 SUMMARY

SCJ Alliance reviewed the S&H report and the proposed stormwater management plan, and did not find any information that indicated potential for adverse impacts to the wetland hydrology or hydroperiod.