Engineering Services Policy & Procedure

Subject:	Geotechnical Testing for storm water design		
Index:	PW ENGINEERING SERVICES DIVISION	Page 1 of 2 pages	Number: ENG 22-01
Approved by:	DocuSigned by: Hans Hunger City Engineer 1D7EB0CED63645D...		Supersedes: ENG 17-04
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1. **PURPOSE:**
   To provide a geotechnical testing policy for single family "infill" lots that encapsulates the unique variations of Puyallup soils and is an appropriate nexus for the burden of infiltration tests to homeowners. For the purposes of this policy, "infill" lots are individual parcels which were legally created before the effective date of this policy and comprised of a singular single family residence, duplex, or triplex project. Any conditions of approval associated with the platting of the parcel shall still apply. When new and replaced impervious surfaces within ROW or shared access tracts exceeds 2000sf the use of this policy will need to be approved by the City Engineer. The City will also allow section 4.2.3 to be applied to commercial properties that meet the criteria listed within that section.
2. **ORGANIZATIONS AFFECTED:**
   Engineering Services Department
3. **REFERENCES:**
   3.1. 2012 Stormwater Management Manual for Western Washington, as amended in December 2014.
   3.2. Pierce County Stormwater & Site Development Manual, effective Dec. 5, 2015.
4. **POLICY:**
   4.1. The City of Puyallup hereby adopts the Pierce County procedure as described in the Stormwater and Site Development Manual (rev. December 2015) for falling head percolation test. This test may be used to determine the infiltration rate of the soils for infill lots, and may be performed at any time during the year. This test shall not be used to prove infeasibility of infiltration due to low percolation rates.
   4.2. The City of Puyallup requires seasonal high groundwater monitoring to be performed between December 21st and March 21st as described in the Stormwater Management Manual for Western Washington, if infiltration practices are feasible. At the discretion of the City Review Engineer, the building or civil permit may be approved in lieu of this monitoring under the procedures described in section 4.2.1, 4.2.2, 4.2.3, or 4.2.4 below.
      4.2.1. **Post Building Permit Approval, High Groundwater Monitoring**
      The applicant must have an approved preliminary stormwater management plan that contains the infiltration testing described in Section 4.1 above. In addition, as part of the preliminary stormwater plan the applicant shall submit a feasible alternative to the primary stormwater facility design, that addresses high ground water. This alternative

shall meet the SMMWW guidelines and function in the case that a high groundwater elevation makes the primary stormwater facility design infeasible.
Groundwater monitoring will be performed at the next winter testing period, Dec 21st – March 21st. The City Review Engineer shall be given a copy of the ground water monitoring test results and the final proposed stormwater facility design for review, prior to construction of the proposed final stormwater facility. These test results will be used to confirm the seasonal groundwater elevation assumptions made with the primary stormwater facility. If those assumptions aren't confirmed the alterative design will be constructed. The City Review Engineer will need to give their approval of the proposed final storm facility design and it shall be constructed prior to final building inspection and/or occupancy.

4.2.2. **Redundant System In-Lieu of Seasonal High Groundwater Determination**
Following the order of implementation as the SMMWW lays out, the applicant may design a stormwater facility that can function per the requirements of the 2014 SMMWW in both the case that groundwater is at the required depth below the infiltration facility or nearer to the surface. (I.E. an infiltration trench that as a back up has been designed to disperse per the manual, with proper length of trench and length run out.)

4.2.3. **Special site conditions not requiring seasonal high groundwater monitoring.**
If each of the following conditions exist on a given site, seasonal high ground water monitoring will not be required.

- The site is mapped as an NRCS soil type that is a recessional outwash soil, such as the Everett, Neilton and Indianola series. These soil types additionally are not conducive to having relatively shallow layers of till that result in perched groundwater levels.
- The site is a half-acre or less in size.
- Multiple test pits have been dug on site with at least one at the location of each proposed stormwater BMP. The test pits must be dug by a geotechnical professional and demonstrate no groundwater evidence and verify the soil type per the NRCS soils map.
- The general geographic location is on South Hill. (The valley soils and the soils on the transition slope between the valley and South Hill are known to have significant variability.)
- The site is not located in a drainage pothole and has an identifiable drainage path away from the site that will not impact a neighboring property.

If during design or construction it is noted that high ground water conditions do exist and that groundwater separation has not been achieved for the designed BMPS as required by the Manual, a building or Civil final will not be given until the stormwater features are redesigned, constructed and functioning with the required separation to groundwater achieved.

4.2.4. If a test pit dug in the non-wet weather season exposes actual seasonal high groundwater (not perched) at a shallow depth, the site will be considered infeasible for infiltration, and therefore further seasonal high groundwater monitoring will not be required.