GeoEngineers

Appendix E
WSDOT Notes Related to High Groundwater

I-405 Geotech info:
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1. SR518 eastbound ramp to northbound I-405:
Excessive groundwater and poor subgrades, partially mitigated under paving and underdrain contract approx. 1998? Any reconstruction in this vicinity will have similar problems.

2. SR181 I/C, C4269:
Uneven sandstone formations and ledges, underlain by basalt. Topography of sandstone surface highly unpredictable, caused claims on this project.
Sandstone contains abundant fossils which were investigated during construction. Fossils were ruled "common" and allowed construction to proceed. There is a buried soldier pile tieback shoring wall behind the west abutment of the Southcenter Boulevard bridge over the Green River. Similar buried wall exists behind the north abutment of the ramp bridge over the Green River.

3. "S" – Curves, C4052:
High sandstone formations in this area. Most drainage south of the Cedar River was installed with a specialty trenching machine in solid sandstone.
There is a buried shoring soil nail wall behind the south abutments of the Cedar River bridge (fairly deep).
High groundwater table vicinity of 3rd avenue overcrossing, required a concrete seal to be poured to install the spread footing under the south abutment. Same groundwater caused ground sloughing problems along the toe of the west wall north of this same bridge during subsequent landscape contract (C4779).

4. Park Ave, C4756:
Soldier pile tieback wall northeast of this bridge was 2' too short, slopes above are oversteeepend. Local sloughing above wall filled with quarry spalls. Extreme amounts of groundwater issuing under pressure from seams behind this wall, numerous sinkholes developed in gutter behind wall top.

5. 44th Ave, C4756 & later maintenance repair:
Old staging yard accessed off frontage road northwest of this interchange, currently filled with waste material for a noise berm. Saturated clay seam under mainline north of interchange, partially mitigated under C4756, destabilized again during Nisqually earthquake and additional
emergency repairs performed. Possible shallow fault line extended east up the hill and across the surface street after the quake.

6. 112th Ave, C4756:
Waste berm constructed southwest of interchange. Sand material under berm was mined for borrow at least 50 feet down, cut nearly vertical adjacent to I-405 and backfilled with muck prior to waste berm construction. C4756

7. Between 112th and 44th, C4756
Waste berm constructed west edge of mainline. Sand material under berm was mined for unknown depth, cut nearly vertical adjacent to I-405 and backfilled with muck prior to waste berm construction.

8. Coal Creek, C4756
Northbound onramp, repair of large pavement failure due to groundwater traveling through CSBC on top of hardpan, unable to determine water source. Underdrain installed under ramp that outfalls into gore ditch (not marked in field). Pavement currently has a noticeable ripple in the surface at entrance to underdrain pipe in middle of ramp.