Washington State Department of Transportation

Memorandum

Date: March 5, 2007

TO: Chris Damitio
Project Office, NB82-55

FROM: Tony Allen/Pete Palmerson
E&EP Geotechnical Division, 47365

SUBJECT: SR-548, MP 6.29 to MP 6.41
XL-2703
Terrell Creek-Major Drainage
Construction Recommendations

The memorandum presents our construction recommendations for the SR-548 Terrell Creek Project. These recommendations supersede those made in Golder Associates report titled *Geotechnical Investigation and Recommendations for SR-548 XL2703 Terrell Creek Major Drainage Whatcom County, Washington* dated December 1, 2006. Specifically, these recommendations only apply to the embankment construction, staging, preloading and instrumentation aspects of the project. These recommendations are being provided to insure the construction can be completed in one construction season. All other geotechnical recommendations made in the Golder report should remain in force.

After clearing and grubbing and removal of the existing box culvert, but prior to any fill placement the WSDOT Geotechnical Division will place instrumentation to measure pore water pressure during construction.

We recommend that a Construction Geotextile for Soil Stabilization conforming to *Section 9-33* of the *2006 Standard Specifications* be placed under the new fill.

We recommend the new embankment be constructed with Gravel Borrow conforming to *Section 9-03.14(1) of the 2006 Standard Specifications* with no internal reinforcement. In order to reduce the tendency for rill erosion and gullying in the slope, we recommend the use of a biaxial geogrid as a compaction aid at the face of the slope. The grid should have a minimum four feet of embedment from the face of the slope and have a minimum of one foot of vertical spacing. We have included a detail of the proposed compaction aid geometry with this memorandum. It is our understanding based on the cross sections provided to our Office and conversations with the Project Office that the slope ratios for the new fill is 1.5(H):1(V) or flatter. Due to the relatively steep inclination of these slopes, measures should be taken to minimize erosion prior to the establishment of vegetation. If necessary, the slope protection can be mechanically connected to the compaction aid.

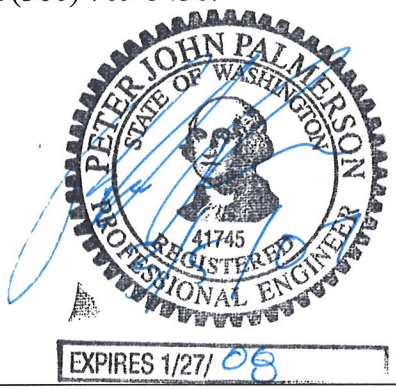
Due to a relatively weak clay layer beneath the existing and proposed embankment, our Office recommends that the fill be built up in two stages. The first stage can be constructed to elevation 94 feet after which a delay period should be observed. Delay periods can be variable and unpredictable. It is anticipated that approximately 30 days will be required after completion of Stage I prior to placing the

remaining fill. Upon completion of the delay period the embankment can be constructed to the full height with subgrade preparation immediately afterward. This construction sequence will allow the foundation soils to gain strength, while minimizing impacts to the construction schedule and traveling public. The Geotechnical Division will be monitoring the instrumentation during construction to insure pore water pressures are dissipating as expected. Actual delay periods will be determined by our Office based on our interpretation of the results from the piezometers.

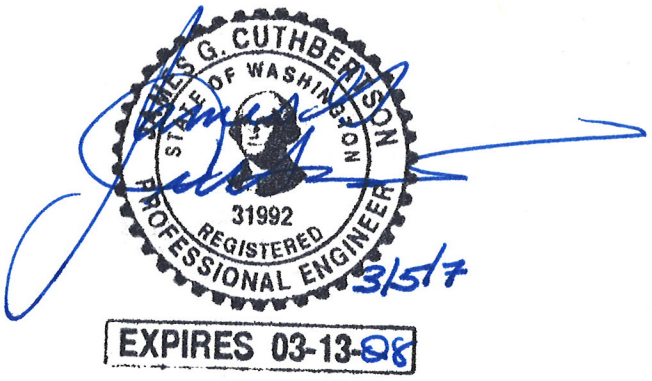
Special provisions will be needed for inclusion into the contract. Our Office will assist you in preparing these special provisions

Finally, of concern, is the existing, steep (~1:1) slope on the east side of the roadway approximately between Station 318+00 and Station 318+45. Cross sections show that portions of the new fill would be supported by this slope. We recommend constructing the new fill below the base of this steep slope and terraced into the existing slope in accordance with *Section 2-033(14)* of the *2006 Standard Specifications.*

If you have questions or require further information, please contact Pete Palmerson at (360) 709-5418 or Tony Allen (360) 709-5430.



Prepared By: Pete Palmerson
Geotechnical Engineer



Reviewed By: Jim Cuthbertson
Chief Foundation Engineer

Agency Approving Authority: Tony Allen
State Geotechnical Engineer

TMA/pjp
cc: Chris Johnson NB82-29
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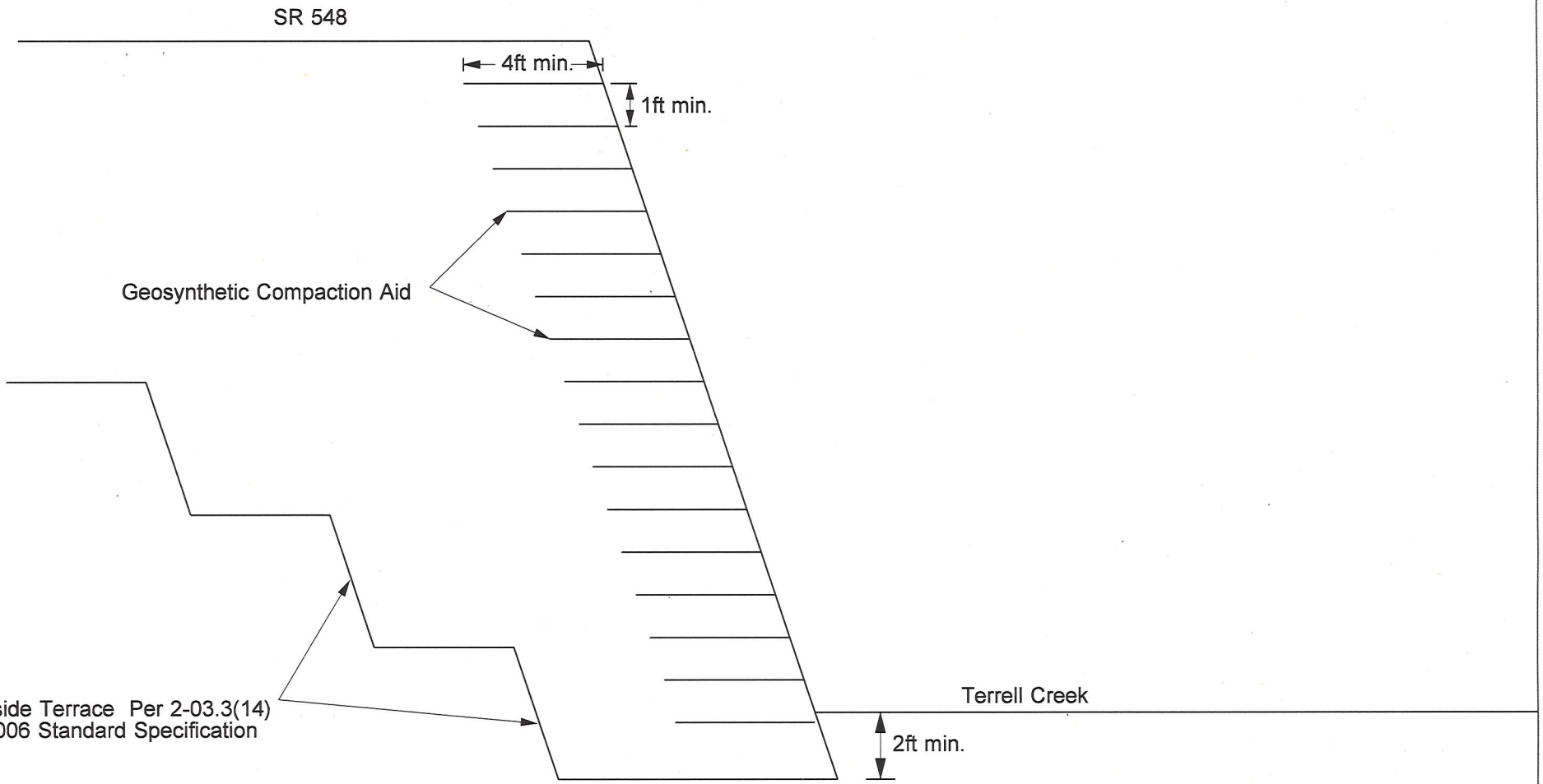

JOB XL-2703 S.R. 548

Terrell Creek Compaction Aid

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL DIVISION

DATE 3/2007

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