Foundation Engineering, Inc.
Professional Geotechnical Services

Dennis Pahlisch, President
Pahlisch Nielson Homes, LLC
515 SW Western Blvd.
Corvallis, Oregon 97333

November 5, 2002

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Willamette Landing-Phase II
Earthwork for Residential Lot Construction
Permit No. EXC 02-00001
Corvallis, Oregon

Project 2021039

Dear Mr. Pahlisch:

At your request, we have completed the construction observation and testing during earthwork for residential lots within the Willamette Landing-Phase II development in Corvallis, Oregon. This letter summarizes our observations and testing.

BACKGROUND

Foundation Engineering, Inc. (FEI) conducted a geotechnical investigation of the site and presented our findings in a report dated January 18, 2002. General recommendations for site grading, residential site preparation and foundation design were included in the report. FEI was retained by Pahlisch Nielson Homes, LLC to provide engineering consultation and testing during the construction phase.

The development includes Lots 65 through 133 and is located south of SE Centerpointe Drive, west of the Willamette River and east of SE Summerfield Drive. The site layout is shown on Figure 1. Our work on-site was coordinated with OTAK, who is providing civil engineering services for the project.

LABORATORY AND FIELD TESTING

The laboratory work included moisture-density relationships for fill generated from the cut areas. The on-site borrow soils used in grading included silt, clayey silt and silt with some sand. Moisture density relationships for the on-site materials are shown on Figures 2 through 4. Results of these tests suggest the maximum dry density varies from 96.7 to 101.5 pcf with optimum moisture contents ranging from ±20 to 21%.

Field density testing was conducted on individual lifts of fill during rough site grading. The results of our field density tests FD-72 through FD-289, are attached. The field density testing includes fill that was placed and compacted in lots, as well as the roadways and utility trenches. Fills constructed in lots had greater than 95% relative compaction (according to ASTM D 698).

CONSTRUCTION OBSERVATIONS

Fill Placement and Compaction

The lots and other areas to be graded were stripped to remove the upper topsoil layer containing the bulk of the organics. The exposed subgrade was typically proof-rolled prior to placing fill. In areas of moderately sloping ground, a bench was constructed in the slope prior to constructing fills. Native material (silt, clayey silt and silt with some sand) was used for on-site fill.

The fill was typically placed in ±12-inch lifts. The material from cut areas had moisture contents greater than optimum throughout the earthwork. Therefore, the fill was typically spread, blended and allowed to dry prior to compacting with a padfoot roller. The surface of the compacted on-site fill was periodically proof-rolled using a scraper or other heavy piece of construction equipment to identify any soft areas or pumping subgrade.

A final proof-roll of Willamette Landing-Phase II was conducted using heavy construction equipment on all of the fill lots and lots disturbed by construction traffic. We observed no pumping and negligible deflections on all of the lots with the exception of Lots 88, 89, 107, 108, and 112 through 116. Pumping and deformations exceeding ± ½ inch were observed in these locations. The upper ±12 inches of these lots were scarified and allowed to dry to near optimum moisture and subsequently recompacted. These areas were proof rolled again and no pumping and negligible deflections were observed on the remaining lots.

Rockery Wall

One rockery wall was constructed near the back of lots 78 through 81 as part of the development. The fill slope where the rockery wall is located was overbuilt prior to excavating to subgrade, thus allowing for proper compaction of the underlying wall line fill material. This wall was designed to retain lot fills in landscape areas and is not designed to support foundation loads adjacent to the wall.

CONCLUSIONS

Our observations and test results suggest the allowable bearing pressure (2,000 psf) and other recommendations presented in our geotechnical report are appropriate for foundations constructed on the compacted fill.

We have concluded, based on the results of our construction observations and field and laboratory testing, that the fill intended to support house foundations meets the requirements of UBC Appendix 33, Section 3313 (as adopted by the City of Corvallis). Therefore, the lots are approved for residential construction provided any soil that becomes soft or loose at the surface is removed prior to footing construction. We believe that the bulk of the deeper fill will not be adversely affected by wet weather. However, the surface of the fill is expected to soften when wet and should be re-evaluated immediately prior to construction.

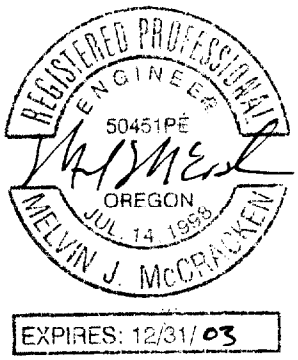
It has been a pleasure assisting you with this phase of your project. Please do not hesitate to call if you have any questions or if we can be of further assistance.

Sincerely,

FOUNDATION ENGINEERING, INC.

John M. Meier
Staff Engineer

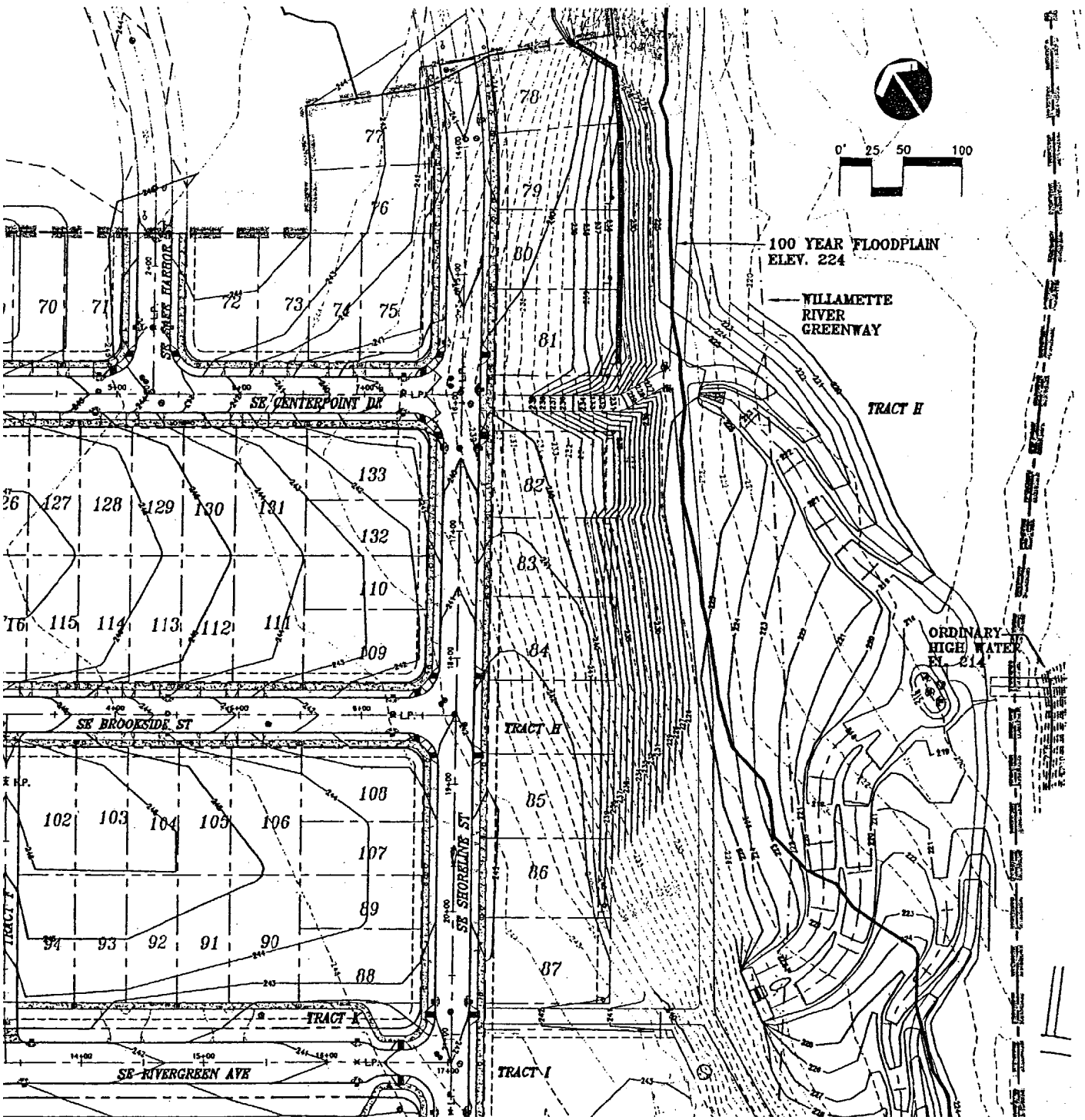
Mel McCracken, P.E.
Project Manager



JMM/MJM/cs
enclosures

cc: Fares Kekhia, P.E., OTAK (Lake Oswego)
Jasmin Barnes, OTAK (Corvallis)

TO BE MICROFILMED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