



Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting
A Terracon Company

Project No. 81075075
22 October 2007

Paul Thomas Motorcycle Parks
11411 N.E. 116th Place
Kirkland, Washington 98034

Attention: Mr. Gary Strode

Subject: Summary of Laboratory Testing - Infiltration System Receptor Soils
Proposed Granite Falls Motocross Facility
Snohomish County, Washington

Dear Mr. Strode:

As per your 8 October 2007 authorization, Zipper Zeman Associates, Inc. (ZZA) has completed geotechnical laboratory tests on samples of prospective surface water infiltration system receptor soils and evaluated potential infiltration rates of the samples for the proposed Granite Falls Motocross Facility. Our scope of services included completion of mechanical grain size analysis for three samples provided by Paul Thomas Motorcycle Parks, evaluating the characteristics of the samples relative to their function as infiltration system receptor soils, and preparation of this letter. This letter has been prepared for the exclusive use of Paul Thomas Motorcycle Parks, and its agents, for specific application to the subject property and stated purpose.

BACKGROUND

It is our understanding that the preliminary design considers construction of surface water infiltration systems at the south end of the site near the Mountain Loop Highway entrance and also at the north end of the site. We were provided with three samples of soils excavated from the following locations:

- Sample S-1: Collected from the old gravel pit near the south site entrance
- Sample S-2: Collected from the proposed pond location at northern end of site.
- Sample S-3: Collected from the cut slope along the road that goes from the north end of the site down to Canyon Creek.

LABORATORY TESTING

Each of the samples was tested for moisture content and grain size analysis. The moisture content determinations were made in general accordance with the test procedures described in ASTM D 2216. The results are shown on the enclosed grain size distribution plots. A grain size analysis indicates the range in diameter of soil particles included in a particular sample. Grain size analyses were performed on each sample in general accordance with ASTM D 422. The



results of the grain size determinations for the samples were used in classification of the soils and are presented on the attached plots.

RESULTS

Soil Classification

Sample S-1 was classified as gravel with sand and trace silt, while samples S-2 and S-3 were classified as sandy gravel with trace silt. The soils are representative of the granular outwash soils described in our *Geotechnical Reconnaissance Report* dated 5 June 2007.

Recommended Infiltration Rate

Snohomish County uses the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology, 2005) as the guidance document for surface water management system design. Based upon the recommended values for Estimated Long-Term (Design) Infiltration Rates presented in Table 3.8, we recommend assigning an unfactored infiltration rate of 9 inches per hour for the soils tested in our laboratory. Please note that these rates are based upon correlations between observed infiltration rates and grain size analysis conducted in accordance with the ASTM D 422 testing procedure and do not include correction factors related to the site's subsurface conditions (such as site variability), the infiltration system design, or long-term maintenance.

Pond Liner Considerations


Flury-Wyrick & Associates, Inc. has indicated that the site will include a wet pond. The high permeability of the site's granular soils will likely necessitate lining the pond in order to prevent water loss due to infiltration. Compacted fine grained soils (soils with a large percentage of particles that pass the U.S. No. 200 sieve) are commonly used to construct a low permeability soil liner. The project site is mantled largely with permeable granular soils and we anticipate that it will be necessary to either import fine grained soils for wet pond liner construction, amend the site soils with an additive (such as bentonite) to reduce permeability, or to employ a synthetic liner (PVC or HDPE, for example). ZZA can assist Paul Thomas Motorcycle Parks with the geotechnical aspects of surface water management pond design, if requested.

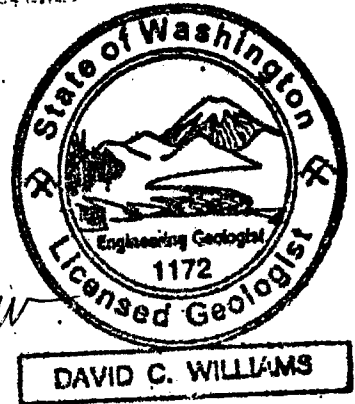


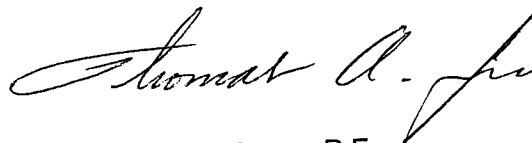
CLOSURE

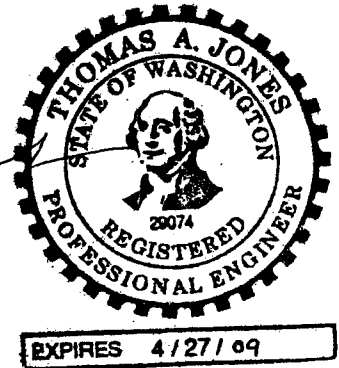
We hope this letter meets your current needs. Please do not hesitate to contact us should you have any questions.

Respectfully submitted,
ZIPPER ZEMAN ASSOCIATES, INC.


David C. Williams, L.E.G.
Associate




Thomas A. Jones, P.E.
Principal



Enclosures: Grain size distribution curves for Samples S-1, S-2, and S-3

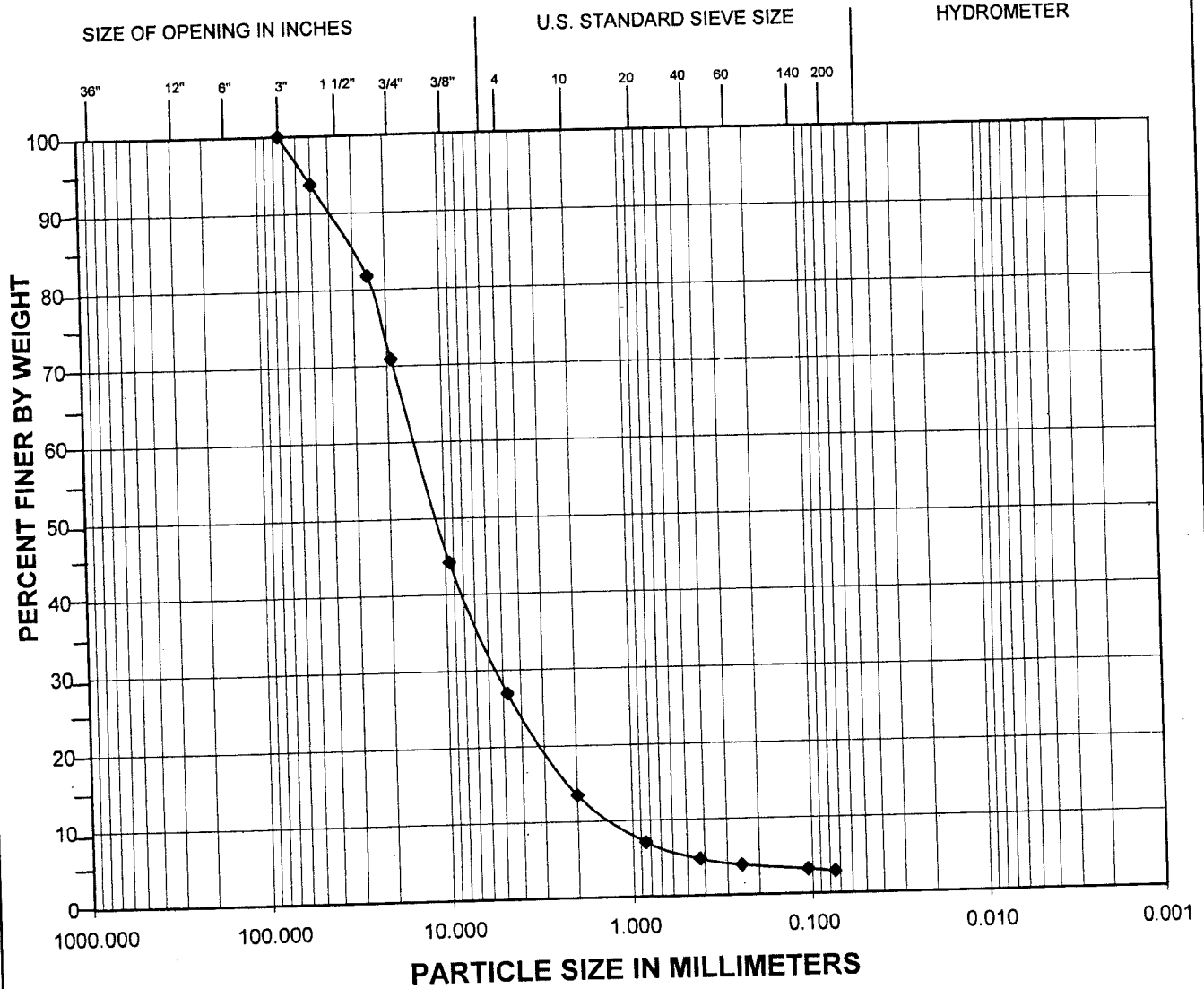
Distribution: Addressee (2)

Flury-Wyrick & Associates, Inc. (1)
3409 McDougall Avenue, Suite 102
Everett, Washington 98201
Attention: Mr. R. Mark Flury, P.E.

GRAIN SIZE ANALYSIS

Test Results Summary


ASTM D 422



BOULDERS	COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		GRAVEL		SAND			FINE GRAINED	

Comments:

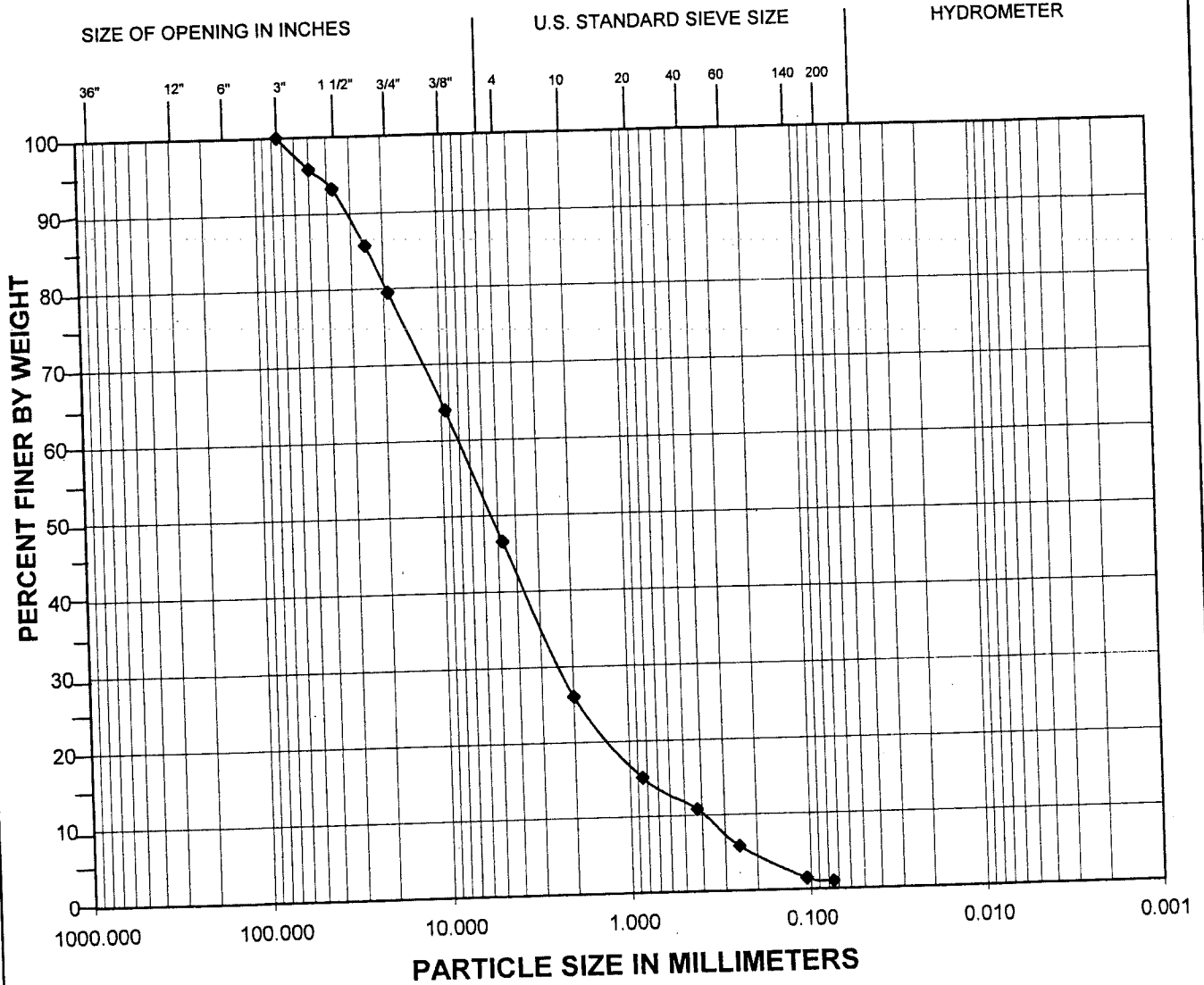
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
Site Entrance	S-1	grab	8	2.8	GRAVEL with sand, trace silt

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Test Results Summary


ASTM D 422



BOULDERS	COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		GRAVEL		SAND			FINE GRAINED	

Comments:

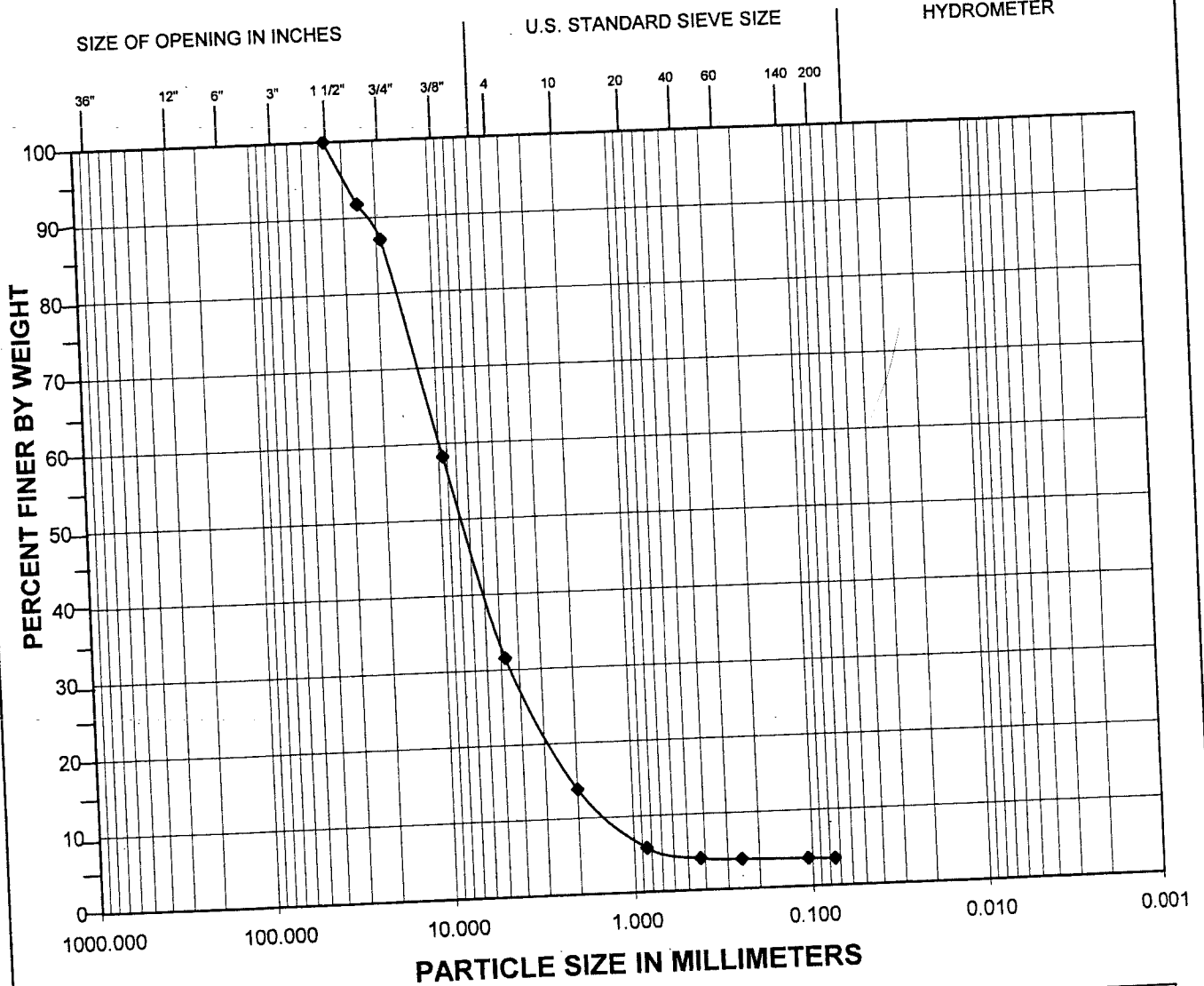
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
Pond	S-2	grab	8	1.0	sandy GRAVEL, trace silt

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GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



BOULDERS	COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		GRAVEL		SAND			FINE GRAINED	

Comments:

Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
North slope	S-3	grab	5	3.5	sandy GRAVEL, trace silt



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