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GEOSPECTRUM CONSULTANTS, INC.

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Geotechnical Engineering and Earth Sciences

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March 12, 1997

Mr. John Best
208 North 45th Street
Seattle, WA 98103

SUBJECT: GEOTECHNICAL EVALUATION
Proposed Best Townhomes
208 North 45th Street
Seattle, Washington
Project 97-105-01

Dear John,

This report presents the results of our geotechnical evaluation of your proposed townhome development. Our work was performed in accordance with the conditions of our proposal dated January 2, 1997. The purpose of our work was to investigate the subsurface conditions at the site and provide geotechnical recommendations for design of the proposed townhome development.

We were provided a copy of a site conditions and topography map prepared by Continental Engineering Co. dated 10-28-96 and a report by Dodds Geosciences Inc., dated November 15, 1996. These documents were used as references for our site evaluations.

Based on our discussions with you, we understand that the proposed townhome structure will be 78' by 40' in plan with one level of subterranean parking accessed from North 45th Street. The subterranean parking level is expected to be at about elevation 282 (based on the referenced topography map). There will be three stories of living area above grade on the east half of the structure and two stories on the west half.

Preliminary structural loading information provided by Ellisport Engineering, Inc. indicates that the wall loads will be in the range of about 2 to 4 kips per foot and that column loads will be 50 kips or less. If actual structural loads exceed the assumed values by more than 25% our office should be notified.

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PROJECT NR: 9702076
FLF (PS)
CN: 970414 LU: 970414
REV
REV
REV
AR
00208 N 45TH
JUN 8 & CLAUDIA J BEST
BUILDING ID 5
D DEMOLISH EXISTING SINGLE FAMILY RESIDENCE
EC ESTABLISH USE AS TOWNHOUSES
N CONSTRUCT NEW TOWNHOUSES AND OCCUPY PER PLANS

SCOPE OF WORK

Our geotechnical evaluation included site reconnaissance, subsurface explorations, engineering analyses and evaluations, consultations with you and Ellisport Engineering and the preparation of this report. The scope of work included the following specific tasks:

- o Performed a limited site reconnaissance to observe conditions on the site and on the property to the west.
- o Excavated three borings at the site using a power auger equipped for soil sampling. Approximate locations of the borings are shown on Figure 2 and logs of the borings are included in Appendix A.
- o Performed engineering evaluations of the observed site conditions and developed geotechnical recommendations for a pile foundation system.
- o Prepared this geotechnical report summarizing our findings and geotechnical recommendations for the proposed development.

OBSERVED SITE CONDITIONS

The site is located along the north side of North 45th Street at the top of a westerly facing slope as approximately shown on Figure 1. Current site development is limited to your existing house as shown on Figure 2. The existing house is a one-story wood frame structure with a basement.

Topography on the property is essentially flat to gently sloping as shown in Figure 2 and is bordered along the west side by a very steep west facing slope. A generalized cross section of the site is presented in Figure 3. The neighboring very steep slope to the west has a rockery facing which inclines at about 60 degrees for a vertical height ranging from about 13 to 19 feet down to a level bench adjacent to the neighboring apartment building. Based on our measurements, the lower level of the apartment building is about 40 feet in elevation below the top of the slope.

Vegetation on the site included lawn, a few shrubs and fruit trees. No ground cracks or scarps indicative of recent or ongoing instability were observed on the site.

Subsoils

Our evaluation of the subsurface conditions was based on our observations of the three borings made at the approximate locations shown on Figure 2 combined with a previously drilled boring by Dodds Geosciences Inc.. Our borings were drilled with a power auger equipped for soil sampling. More detailed descriptions of the subsurface conditions encountered at each of our borings is presented on the boring logs of Appendix A.

Fill soils were encountered in all of the borings to depths ranging from about 8 to 26 feet below the surface. Fill soils generally consisted of very loose to loose silty sand

CLOSURE

This report was prepared for specific application to this project and for the exclusive use of Mr. John Best and his representatives. The findings and conclusions of this report were prepared in accordance with the skill and care ordinarily exercised by local members of the geotechnical profession currently practicing under similar conditions. We make no other warranty, either express or implied.

Variations may exist in site conditions between those described in this report and actual conditions encountered during construction. Unanticipated subsurface conditions commonly occur and cannot be prevented by merely making explorations and performing reconnaissance. Such unexpected conditions frequently require additional expenditures to achieve a properly constructed project. If conditions encountered during construction appear to be different from those indicated in this report, our office should be notified.

Respectfully submitted,

GEOSPECTRUM CONSULTANTS, INC.

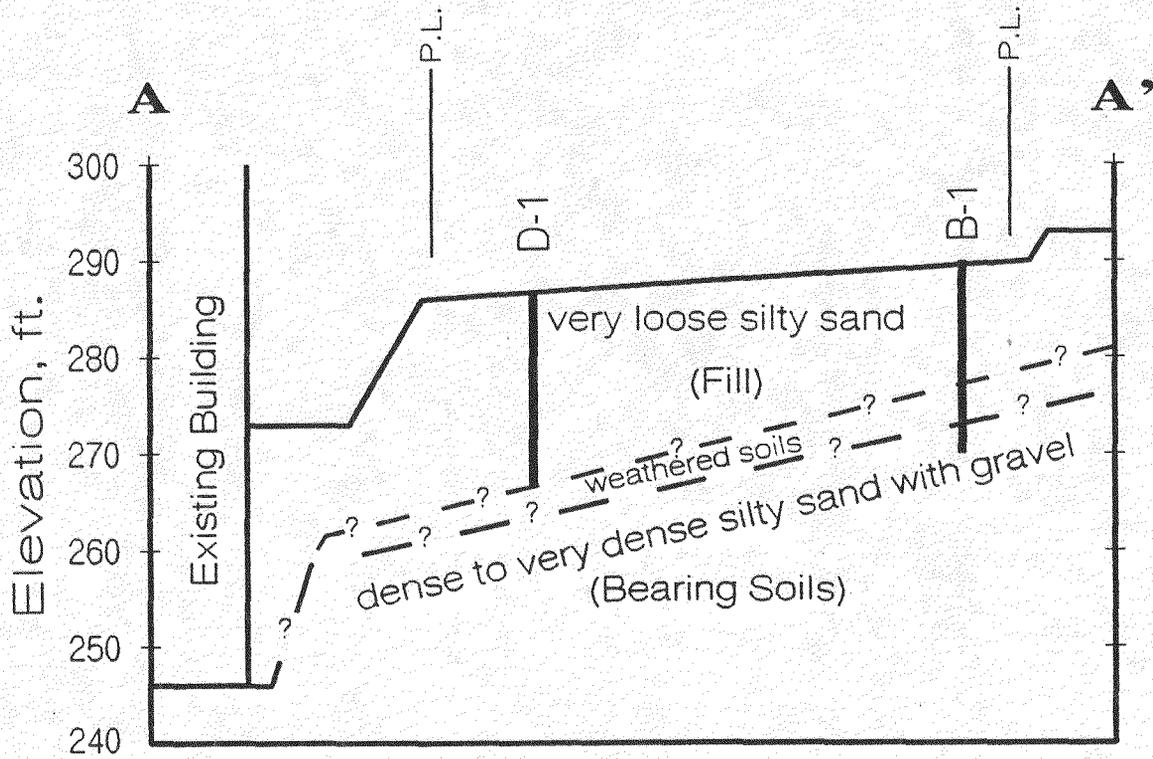
James A. Doolittle
James A. Doolittle
Principal Engineer

Encl: Figures 1 through 11
Appendix A

Dist: 3/Addressee
1/Ellisport Engineering Inc.



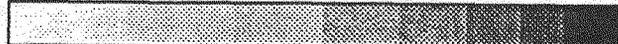
3/12/97



Scale: 1"=20'

GENERALIZED SITE CROSS-SECTION A-A'

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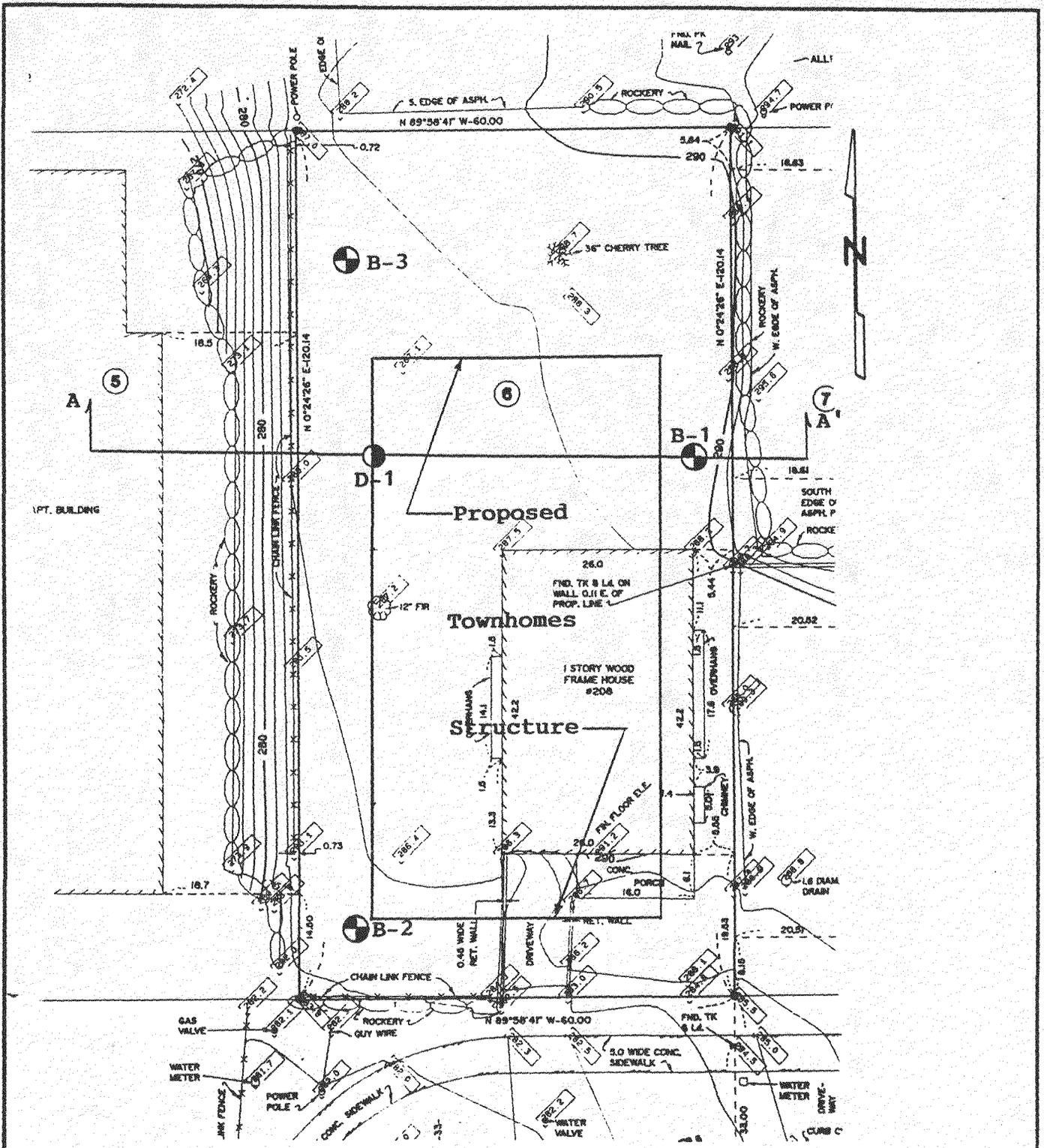
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Figure 3



ref: Existing Conditions Site Plan
 prepared by Continental Eng. Co.
 dated 10-28-96, reduced scale 1"=20'

SITE EXPLORATIONS PLAN

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APPENDIX A FIELD EXPLORATION

Our field exploration included a site reconnaissance and subsurface exploration program. During the site reconnaissance, the surface site conditions were noted, and the locations of the borings were approximately determined. Elevations of the borings were based on the referenced topographic map.

The borings were advanced using a power auger equipped for soil sampling. Soils were continuously logged and classified in the field by visual examination, in accordance with the ASTM Soil Classification system.

Standard Penetration Tests (SPT) were performed in the borings using a standard (1.4-inch inside diameter, 2-inch outside diameter) split spoon sampler and 140-pound driving hammer falling 30 inches. Blow counts for each 6-inches of penetration were recorded in the field. The number of blows required to advance the sampler from 6 inches to 18 inches of penetration is the "N" value of the SPT shown on the boring summary.

Logs of the borings are presented on Figures A-1, A-2 and A-3. The summaries include descriptions of the soils and pertinent field data. Soil consistency and moisture conditions indicated on the summaries are interpretations based on the conditions observed in the field and modified, where appropriate, to reflect laboratory test results. Boundaries between soil strata indicated on the summaries are approximate and actual transitions between strata may be gradual.

BORING NO. 1

Logged By JAD

Date 1/10/97

ELEV. 289.5±

Depth (ft.)	US CS	Soil Description				(N) Blows Ft.	W (%)	
0	SP	Sand	loose	moist	brown	15		FILL ↓
	SM	Silty Sand w/trace clay w/gravel to 1/2"	m. dense		gray-brown			
5			very loose		& red-brown	2	12.9	
10		drills gravelly & occ. organics			brown & black	3		
15		Silty Sand w/gravel to 1"						
			medium dense		gray & red-brn	15	11.8	drills
20			dense to v. dense		gray	50/1"		hard
25		Maximum Depth 20.1 ft. No ground water encountered.						
30								
35								

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BORING LOG
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Figure A-1

BORING NO. 2

Logged By JAD

Date 1/10/97

ELEV. 285±

Depth (ft.)	US CS	Soil Description				(N) Blows Ft.	W (%)	
0	SM	Silty f-m Sand w/occ gravel	loose	moist	brown & gray	7		FILL
5		w/rootlets & organics	very loose	very moist	dark brown & gray & black	2	14.8	↓
10		Silty f-m Sand w/trace clay & gravel to 1/2"	medium dense dense	wet moist	gray & brown gray	36	11.8	drills gravelly
15			very dense			62	11.0	drills hard
20		Maximum Depth 16.5 ft. No ground water encountered.						
25								
30								
35								

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BORING LOG

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Figure A-2

BORING NO. 3

Logged By JAD

Date 1/10/97

ELEV. 287±

Depth (ft.)	US CS	Soil Description	(N) Blows Ft.	W (%)	
0	SM	Silty f-m Sand w/gravel to 1"			FILL
5		w/rootlets & charcoal	3	13.1	
10		Silty fine Sand w/gravel to 1"	6		drills gravelly
15			6	14.0	drills gravelly
20		Silty f-m Sand w/gravel to 1½" & trace clay	6		
25	SM	Silty f-m Sand w/organics	6	10.9	cuttings wet
30		w/trace clay & gravel to ½"	48	13.6	drills hard
35			50/3"		
		Maximum Depth 33.5 ft No ground water encountered.			

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Figure A-3