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File No. (ID#1) 2A 8808351

(ID#2) _____

192nd St SE &

Site Address Bothell-Everett Highway

Date Copied 7-2-01 By Meek

Title page with the following information:

- Company (Author) name*
- Report date*
- Project Name*
- Company's job number*
- Site address*

Executive Summary / Introduction of the report

Table of contents

Project Location Map / Vicinity Map

Site / Exploration Plans, Boring Location Plans

Cross-sections / Subsurface profiles

Exploration Logs

Monitoring Well Logs

Cone Penetrometer Logs

Groundwater Elevation Tables / Data

Includes data from Previous Reports

No new data / data review

Missing Data / Illegible Data
Explanation _____

Comments: _____



CASCADE GEOTECHNICAL INC.
12911 N.E. 126TH PLACE
KIRKLAND, WASHINGTON 98034
(206) 821-5080
FAX (206) 820-6953

4075

July 11, 1991
Job No. 8801-03G



Metco Construction, Inc.
17018 15th Avenue N.E.
Seattle, Washington 98155

Attention: Rich Mietzner

Reference: Preliminary Soil and Ground Water Study
Silver Creek Estates
Snohomish County No. ZA 8808351
Bothell-Everett Highway and 186th St
Snohomish County, Washington

All three reports
reference same
logs

Dear Mr. Mietzner:

At your request, we have conducted our preliminary
and ground water study for the above site. This
summarizes our findings and offers preliminary
recommendations.

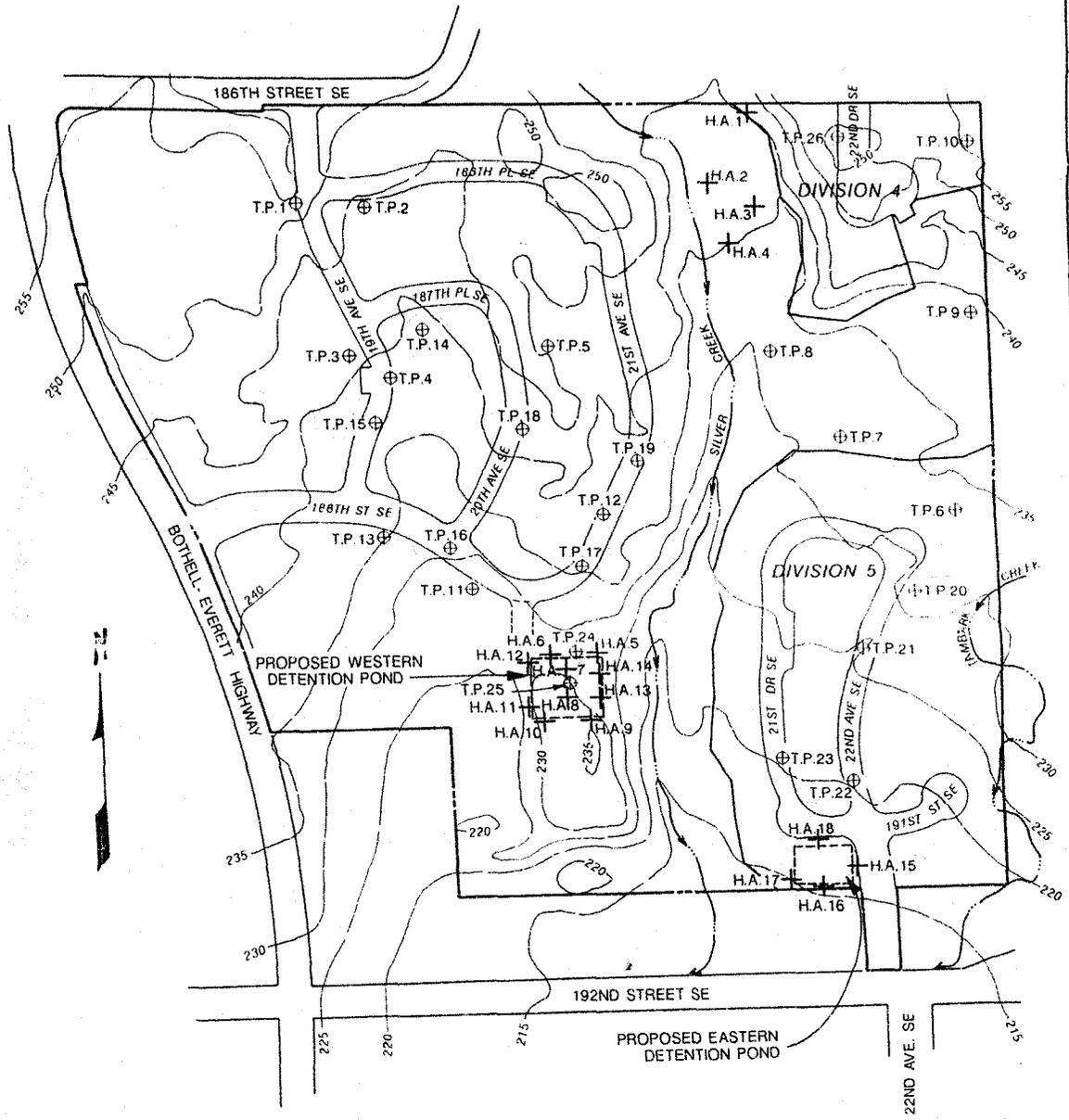
SCOPE

The scope of our work, as defined in our proposal of March 7, 1991,
consisted of the excavation of backhoe test pits, hand augers,
laboratory testing, permeabilities and the preparation of a soils
report. This report was prepared to address ground water concerns
raised by Snohomish County Community Development in their letter
dated January 16, 1991. That letter requested that the following
items be addressed:

- 1) Evaluate on-site ground water amounts, ground water flow rates
through the soils and any required mitigation for development.
- 2) Evaluate plat roadway location and design.
- 3) Evaluate ground water impacts on grading, construction and
storm systems.

SILVER CREEK ESTATES

TEST PIT & HAND AUGER LOCATION MAP



- ⊕ TEST PITS 1 - 13 (01/13/88)
- ⊕ TEST PITS 14 - 26 (05/13/91)
- + HAND AUGERS 1 - 4 (01/13/88)
- + HAND AUGERS 5 - 18 (05/03/91)

NOTE ROADWAYS WITHIN PROPERTY BOUNDARIES ARE PROPOSED

FROM PRELIMINARY PLAT BY GEODIMENSIONS
AND FROM LOCATION MAP BY CASCADE GEOTECHNICAL (01/13/88)

CASCADE GEOTECHNICAL INC <small>12911 N.E. 126TH PLACE KIRKLAND, WA 98033-9000 TEL: (206) 821-9000 FAX: (206) 821-0900</small>	Job No 8801-03G	SCALE : 1" = 200'
	LOCATIONS ARE APPROXIMATE	
Date 05/20/91	Dwn By HLA	Eng-Geol ES

186TH STREET SE

T.P.1

T.P.2

H.A.1

T.P.26

T.P.10

DIVISION 4

H.A.2

H.A.3

H.A.4

T.P.9

255

250

245

240

BOTHELL-EVERETT HIGHWAY

PROPOSED WESTERN DETENTION POND

235

230

187TH PL SE

T.P.3

T.P.14

T.P.4

T.P.15

T.P.18

T.P.5

T.P.19

188TH ST SE

T.P.13

T.P.16

T.P.11

T.P.12

T.P.17

H.A.6

T.P.24

H.A.5

H.A.12

H.A.7

H.A.14

T.P.25

H.A.11

H.A.18

H.A.13

H.A.10

H.A.9

230

235

220

220

SILVER CREEK

DIVISION 5

T.P.6

T.P.20

T.P.21

21ST DR SE

T.P.23

T.P.22

H.A.18

191ST ST SE

H.A.17

H.A.15

H.A.16

CREEK

T.P.2

230

225

220

Blow up
copy of
preceding
pages



T	Soil Description & Classification		Soil Description & Classification	
	<p>0 - 1' <u>TOPSOIL</u>: dark brown to black, silty organics with some sand & minor gravel, wet.</p> <p>1' - 3' <u>SAND</u>: gray, with some gravel, loose to medium dense, saturated. (SW)</p> <p>3' - 9' <u>SILTY SAND</u>: mottled reddish brown 3' - 4', mottled light brown to reddish brown to gray 4' - 9', with some gravel, medium dense, moist. (SM) (till)</p> <p>6' - becomes dense</p> <p>T.D. = 9.0'</p>			<p>0 - 2' <u>TOPSOIL</u>: dark brown to reddish brown to light brown, silty sand with some organics, moist.</p> <p>2' - 7' <u>SAND</u>: mottled light brown to reddish brown, with some gravel & minor silt, medium dense, saturated. (SM)</p> <p>7' - 9' <u>SILTY SAND</u>: gray, with some gravel, medium dense to dense, moist. (SM) (till)</p> <p>T.D. = 9.0'</p>
<p>Notes: Heavy water seepage from 0 - 3'. Moderate caving from 0 - 9'.</p>			<p>Notes: Moderate water seepage from 2' - 7'. Moderate caving from 0 - 7'.</p>	

Conditions shown represent our observations at the time and location of the field work, modifications based on lab tests, analysis, and geological and engineering judgement. These conditions may not exist at other times and locations, even in close proximity. This information was gathered as part of our investigation, and we are not responsible for any use or interpretation of the information by others.



CASCADE GEOTECHNICAL, INC.

TEST PIT LOG

Project

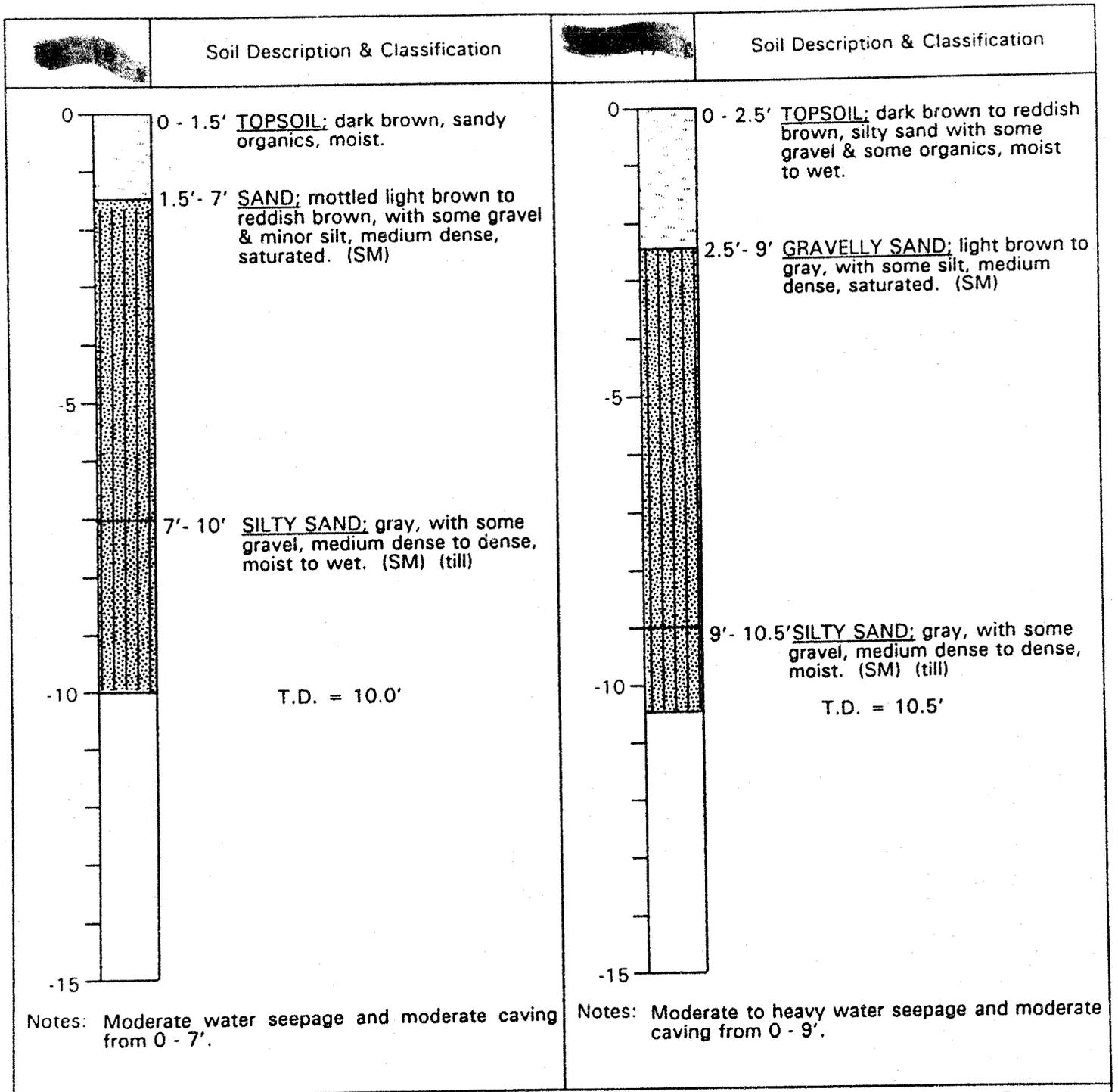
SILVER CREEK ESTATES

Date 03/13/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng WB



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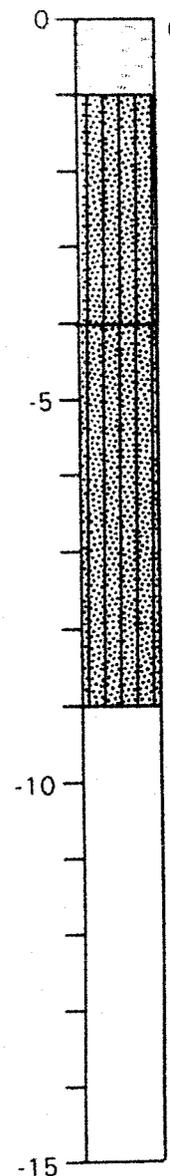
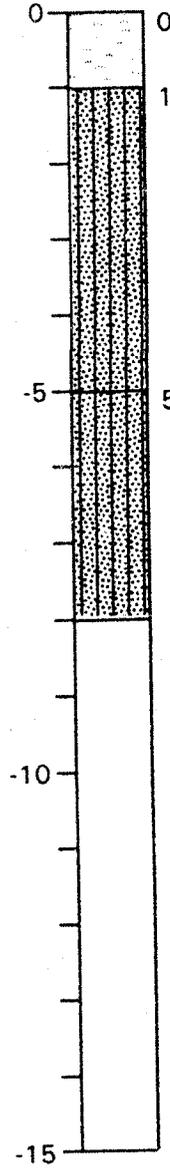


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TEST PIT LOG

Project **SILVER CREEK ESTATES**

Date 03/13/91	Job No. 8801-03G	Dwn. By HLA	Geo/Eng WB
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Soil Description & Classification	Soil Description & Classification
 <p>0 - 1' TOPSOIL; dark brown to reddish brown, silty sand, with some organics, moist to wet.</p> <p>1' - 4' SAND; reddish brown, with some gravel & minor silt, medium dense, moist. (SM)</p> <p>4' - 9' SILTY SAND; gray, with some gravel, medium dense to dense, moist. (SM) (till)</p> <p>T.D. = 9.0'</p> <p>Notes: Slight water seepage from 0 - 4'. Minor caving from 0 - 5'.</p>	 <p>0 - 1' TOPSOIL; dark brown to reddish brown, silty sand with some gravel & some organics, moist.</p> <p>1' - 5' GRAVELLY SAND; light brown to gray, with some silt, medium dense, saturated. (SM)</p> <p>5' - 8' SILTY SAND; gray, with some gravel, medium dense to dense, moist. (SM) (till)</p> <p>T.D. = 8.0'</p> <p>Notes: Moderate water seepage and slight to moderate caving from 0 - 5'.</p>

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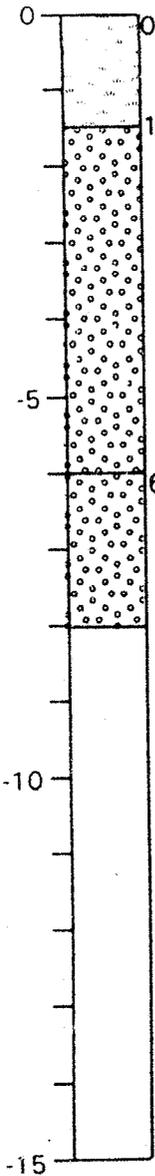
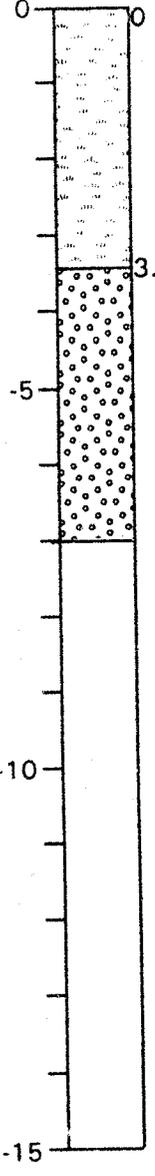


CASCADE GEOTECHNICAL, INC.

TEST PIT LOG

Project **SILVER CREEK ESTATES**

Date 03/13/91	Job No. 8801-03G	Dwn. By HLA	Geo/Eng WB
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T.P. #	Soil Description & Classification	T.P. #	Soil Description & Classification
 <p>0 - 1.5' <u>TOPSOIL</u>; dark brown to reddish brown, silty sand with some gravel & some organics, moist.</p> <p>1.5' - 6' <u>GRAVELLY SAND</u>; brown, medium dense, saturated. (SW)</p> <p>6' - 8' <u>GRAVELLY SAND</u>; gray, medium dense, saturated. (SW)</p> <p>T.D. = 8.0'</p>		 <p>0 - 3.5' <u>TOPSOIL</u>; dark brown to reddish brown, silty sand with some gravel & some organics, moist to wet.</p> <p>3.5' - 7' <u>GRAVELLY SAND</u>; gray to brown, medium dense, saturated. (SW)</p> <p>T.D. = 7.0'</p>	<p>Notes: Heavy water seepage below 3'. Moderate to heavy caving below 5'. Test pit terminated due to caving.</p>
<p>Notes: Heavy water seepage and heavy caving below surface. Test pit terminated due to caving.</p>			
<p>Conditions shown represent our observations at the time and location of the field work, modifications based on lab tests, analysis, and geological and engineering judgement. These conditions may not exist at other times and locations, even in close proximity. This information was gathered as part of our investigation, and we are not responsible for any use or interpretation of the information by others.</p>			



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TEST PIT LOG

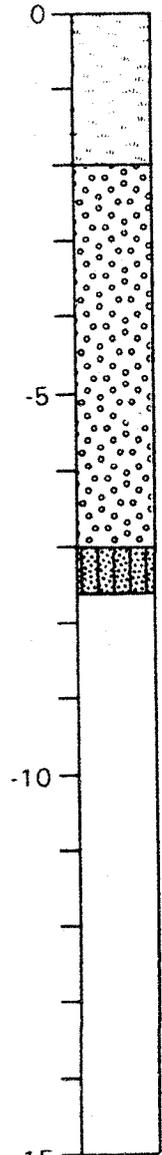
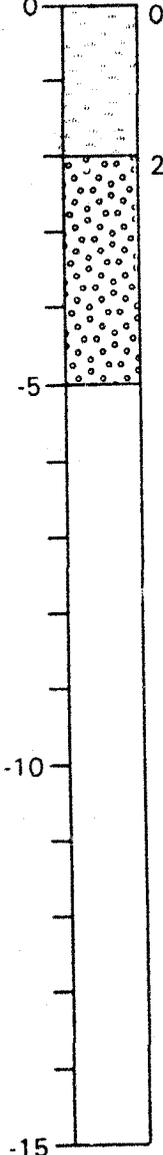
Project **SILVER CREEK ESTATES**

Date 03/13/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng WB

T.P.	Soil Description & Classification	T.P.	Soil Description & Classification
 <p>0 - 2' TOPSOIL; dark brown to reddish brown, silty sand with some gravel & some organics, moist.</p> <p>2' - 7' GRAVELLY SAND; gray to brown, medium dense, saturated. (SW)</p> <p>7' - 7.5' SILTY SAND; gray, with some gravel, medium dense, moist. (SM) (till) T.D. = 7.5'</p>		 <p>0 - 2' TOPSOIL; dark brown to reddish brown, silty sand with some gravel & some organics, moist to wet.</p> <p>2' - 5' GRAVELLY SAND; gray to brown, medium dense, saturated. (SW)</p> <p>T.D. = 5.0'</p>	
<p>Notes: Heavy water seepage and heavy caving from 2' - 7'. Test pit terminated due to caving.</p>		<p>Notes: Heavy water seepage and heavy caving below 2'. Test pit terminated due to caving.</p>	

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TEST PIT LOG

Project

SILVER CREEK ESTATES

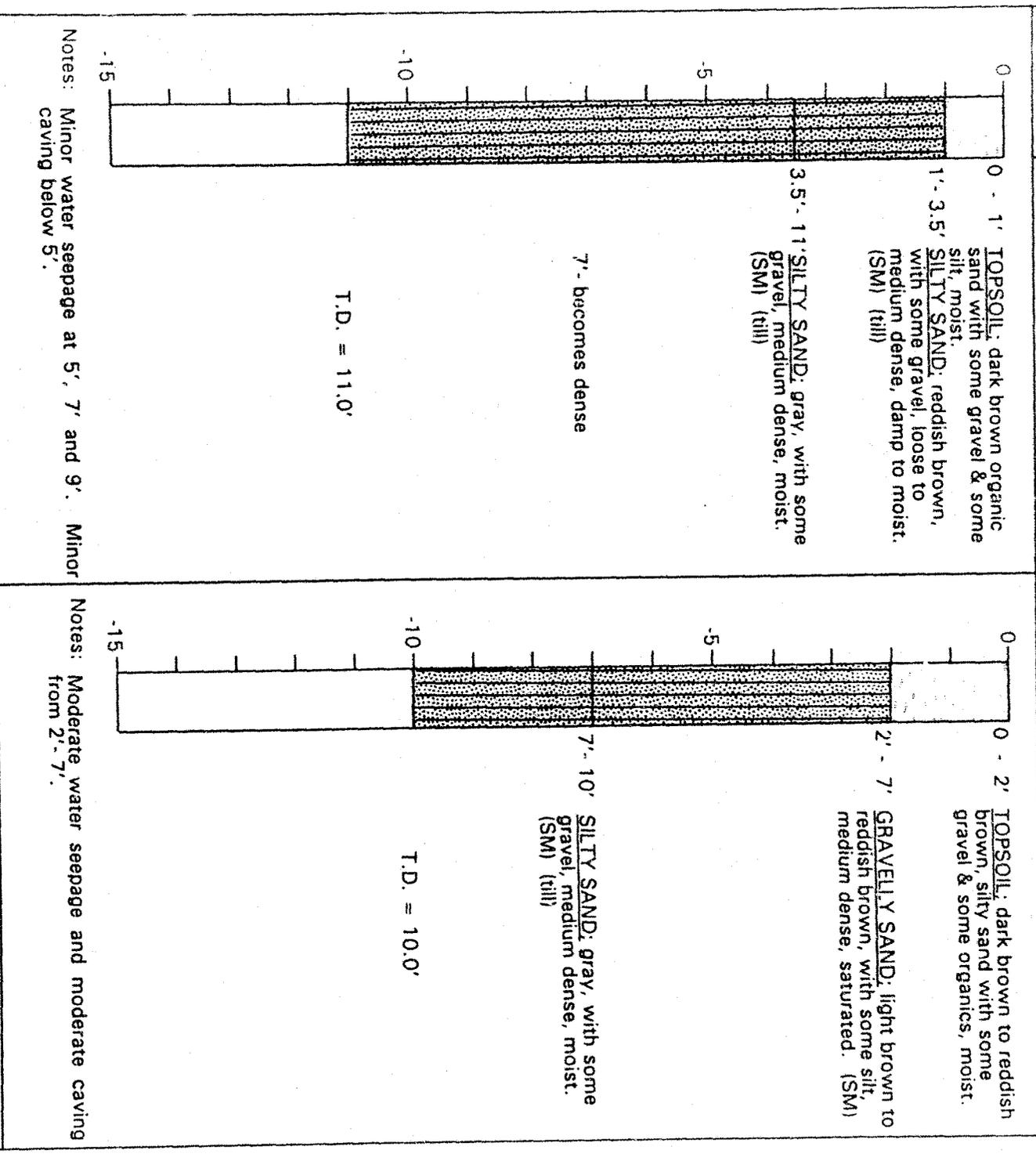
Date 03/13/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng WB

T.P.	Soil Description & Classification	T.P.	Soil Description & Classification
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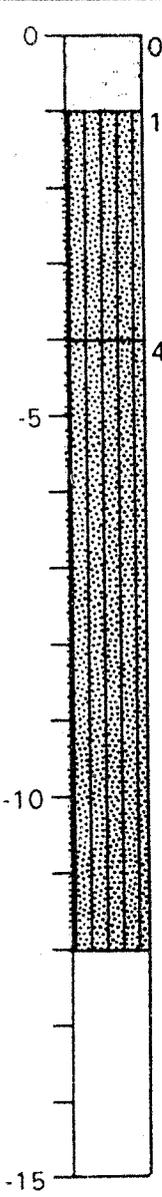
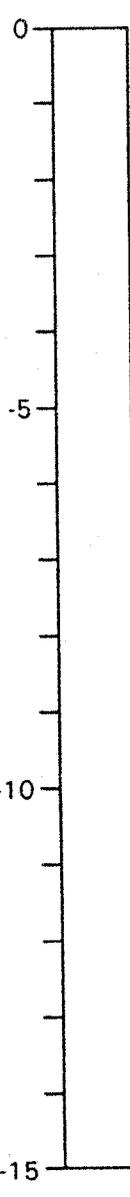


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TEST PIT LOG

Project SILVER CREEK ESTATES

Date 03/13/91	Job No. 8801-03G	Dwn. By HLA	Geo/Eng WB
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T.P.	Soil Description & Classification	T.P.	Soil Description & Classification
 <p>0 - 1' <u>TOPSOIL</u>: dark brown organic sand with some silt, moist.</p> <p>1' - 4' <u>SILTY SAND</u>: reddish brown, with some gravel, loose to medium dense, moist. (SM) (till)</p> <p>4' - 12' <u>SILTY SAND</u>: gray, with some gravel, medium dense, moist to wet. (SM) (till)</p> <p>T.D. = 12.0'</p>			
Notes: Slight water seepage and slight caving below 9'.		Notes:	

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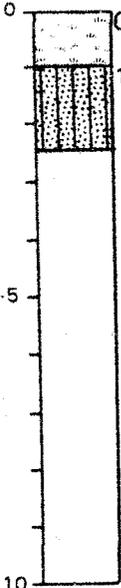
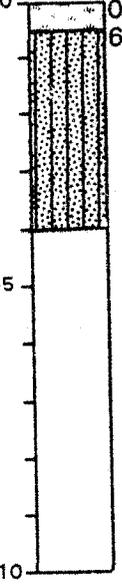
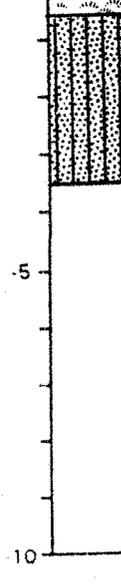
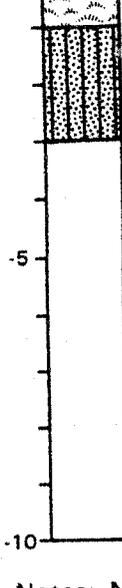
Project **SILVER CREEK ESTATES**

Date 03/13/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng WB

H.A. 5	Soil Description & Classification	H.A. 6	Soil Description & Classification
 <p>0 - 1' <u>TOPSOIL/DUFF</u> 1' - 2.5' <u>SILTY SAND</u>; with some gravel, rusty brown to brown, loose to medium dense, moist to wet, roots in top 2'. (SM) T.D. = 2.5'</p>		 <p>0 - 6" <u>TOPSOIL/DUFF</u> 6" - 4' <u>SILTY SAND</u>; with some gravel, rusty brown to brown, loose to medium dense, moist, roots in top 1.5'. (SM) T.D. = 4.0'</p>	
Notes: No ground water seepage.		Notes: No ground water seepage.	
H.A. 7	Soil Description & Classification	H.A. 8	Soil Description & Classification
 <p>0 - 6" <u>TOPSOIL/DUFF</u> 6" - 3.5' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, damp, roots in top 1.5'. (SM) T.D. = 3.5'</p>		 <p>0 - 1' <u>TOPSOIL/DUFF</u> 1' - 3' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, damp, roots in top 1.5'. (SM) T.D. = 3.0'</p>	
Notes: No ground water seepage.		Notes: No ground water seepage.	



CASCADE GEOTECHNICAL, INC.

HAND AUGER LOG

Project

SILVER CREEK ESTATES-WESTERN DETENTION POND

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Date 05/03/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng BK

H.A. 10	Soil Description & Classification	H.A. 10	Soil Description & Classification
	<p>0 - 1' <u>TOPSOIL/DUFF</u></p> <p>1' - 3' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, moist to wet, roots in top 1.5'. (SM) T.D. = 3.0'</p>		<p>0 - 1' <u>TOPSOIL/DUFF</u> old log at 6" below surface.</p> <p>1' - 3' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, moist, roots in top 1.5'. (SM) T.D. = 3.0'</p>
Notes: No ground water seepage.		Notes: No ground water seepage.	

H.A. 11	Soil Description & Classification	H.A. 12	Soil Description & Classification
	<p>0 - 6" <u>TOPSOIL/DUFF</u></p> <p>6" - 3' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, damp, roots in top 1.5'. (SM) T.D. = 3.0'</p>		<p>0 - 1.5' <u>TOPSOIL/DUFF</u></p> <p>1.5' - 3' <u>SILTY SAND</u>; with some gravel, loose to medium dense, rusty brown to brown, damp, roots in top 1.5'. (SM) T.D. = 3.0'</p>
Notes: No ground water seepage.		Notes: No ground water seepage.	



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HAND AUGER LOG

Project

SILVER CREEK ESTATES-WESTERN DETENTION POND

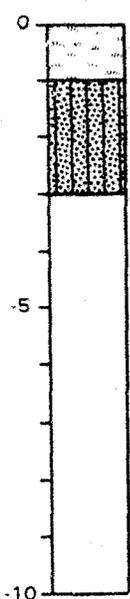
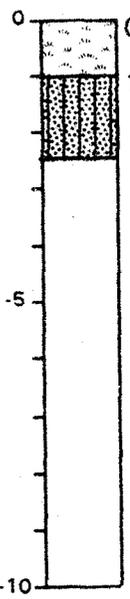
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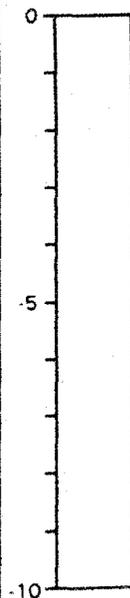
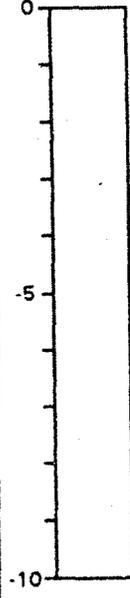
Date 05/03/91

Job No. 8801-03G

Dwn. By HLA

Geo/Eng BK

H.A.	Soil Description & Classification	H.A.	Soil Description & Classification
 <p>0 - 1' <u>TOPSOIL/DUFF</u> 1' - 3' <u>SILTY SAND</u>; with some gravel, rusty brown to brown, loose to medium dense, moist to wet at 2', roots in top 1'. (SM) T.D. = 3.0'</p>	 <p>0 - 1' <u>TOPSOIL/DUFF</u> 1' - 2.5' <u>SILTY SAND</u>; with some gravel, rusty brown to brown, loose to medium dense, moist to wet at 2', roots in top 1'. (SM) T.D. = 2.5'</p>		
Notes: No ground water seepage.	Notes: No ground water seepage.		

H.A.	Soil Description & Classification	H.A.	Soil Description & Classification
			
Notes:		Notes:	



CASCADE GEOTECHNICAL, INC.

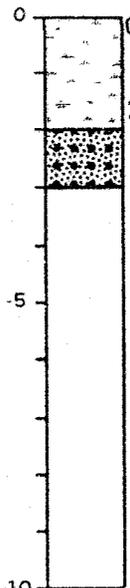
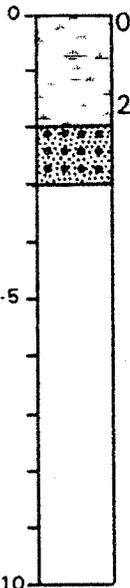
HAND AUGER LOG

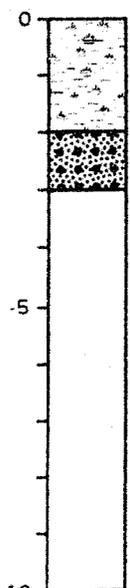
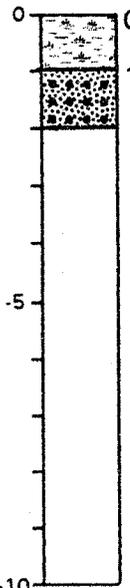
Project

SILVER CREEK ESTATES-WESTERN DETENTION POND

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Date	05/03/91	Job No.	8801-03G	Dwn. By	HLA	Geo/Eng	BK
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H.A. [REDACTED]	Soil Description & Classification	H.A. [REDACTED]	Soil Description & Classification
 <p>0 - 2' <u>PEAT</u>; black, organic rich material, wet to saturated. (PT) 2' - 3' <u>GRAVELLY SAND</u>; with minor silt and organics, dark brown, wet to saturated. (GP) T.D. = 3.0'</p>		 <p>0 - 2' <u>PEAT</u>; black, organic rich material, wet to saturated. (PT) 2' - 3' <u>GRAVELLY SAND</u>; with minor silt and organics, dark brown, wet to saturated. (GP) T.D. = 3.0'</p>	
Notes: Ground water seepage at 2'.		Notes: Ground water seepage at 2'.	

H.A. [REDACTED]	Soil Description & Classification	H.A. [REDACTED]	Soil Description & Classification
 <p>0 - 2' <u>PEAT</u>; black, organic rich material, wet to saturated. (PT) 2' - 3' <u>GRAVELLY SAND</u>; with minor silt and organics, dark brown, wet to saturated. (GP) T.D. = 3.0'</p>		 <p>0 - 1' <u>PEAT</u>; black, organic rich material, wet to saturated. (PT) 1' - 2' <u>GRAVELLY SAND</u>; with minor silt and organics, dark brown, wet to saturated. (GP) T.D. = 2.0'</p>	
Notes: Ground water seepage at 2'.		Notes: Ground water seepage at 1'.	



CASCADE GEOTECHNICAL, INC.

HAND AUGER LOG

Project

SILVER CREEK ESTATES-EASTERN DETENTION POND

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