LIBRARIES
UNIVERSITY OF WISCONSIN–MADISON

Geotechnical review: Crandon Project waste disposal system: addendum 1. v. 2, supplement 1982

Atlanta, Georgia: Golder Associates, Inc., 1982

https://digital.library.wisc.edu/1711.dl/Q3K3676FYR47F8B

http://rightsstatements.org/vocab/InC/1.0/

For information on re-use see:
http://digital.library.wisc.edu/1711.dl/Copyright

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

728 State Street | Madison, Wisconsin 53706 | library.wisc.edu

ADDENDUM NO. 1
GEOTECHNICAL REVIEW
CRANDON PROJECT
WASTE DISPOSAL SYSTEM

STATE DOCUMENTS
DEPOSITORY
SEP 17 1984
University of Wisconsin, LRC
Stevens Point, Wisconsin

TD
194.66
.W62
C716
1981
v. 2
suppl.

UNIVERSITY LIBRARY
UW-STEVENS POINT

COPY NO. 1

Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

Report on

ADDENDUM NO. 1
GEOTECHNICAL REVIEW
CRANDON PROJECT
WASTE DISPOSAL SYSTEM

Submitted to:

Exxon Minerals Company
P. O. Box 813
Rhinelander, Wisconsin 54501

DISTRIBUTION:

16 copies - Exxon Minerals Company
4 copies - Golder Associates

April, 1982 814-1296

GOLDER ASSOCIATES, INC. • 5125 PEACHTREE ROAD, ATLANTA, GEORGIA 30341, U.S.A. • TELEPHONE (404) 458-9686 • TELEX 700523

OFFICES IN UNITED STATES • CANADA • UNITED KINGDOM • AUSTRALIA

TD
194.66
.W62
C716
1981
v.2
Suppl.

Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

April 12, 1982

814-1296
786085 F/N 173.5

Exxon Minerals Company
P. O. Box 813
Rhinelander, Wisconsin 54501

Attn: Mr. C. E. Fowler

RE: EXXON CRANDON PROJECT
WASTE DISPOSAL SYSTEM
CRANDON, WISCONSIN

Gentlemen:

Submitted herewith are copies of test boring logs and laboratory test results, consisting of grain size distribution and Atterberg Limit test results, for nineteen test borings performed from December 1981 to February 1982 under Golder Associates supervision.

These test borings supplemented and confirmed results of previous test boring exploration in the proposed waste disposal area. These logs and test results are an addendum to Golder Associates report "Geotechnical Review, Crandon Project Waste Disposal System, Project Report 2", October 1981. The locations of these test borings are highlighted on the enclosed BORING LOCATION PLAN.

Should there be any questions regarding this information, please call.

Very truly yours,

GOLDER ASSOCIATES

Gary H. Collison

Gary H. Collison, P.E.
Associate

GHC:dap

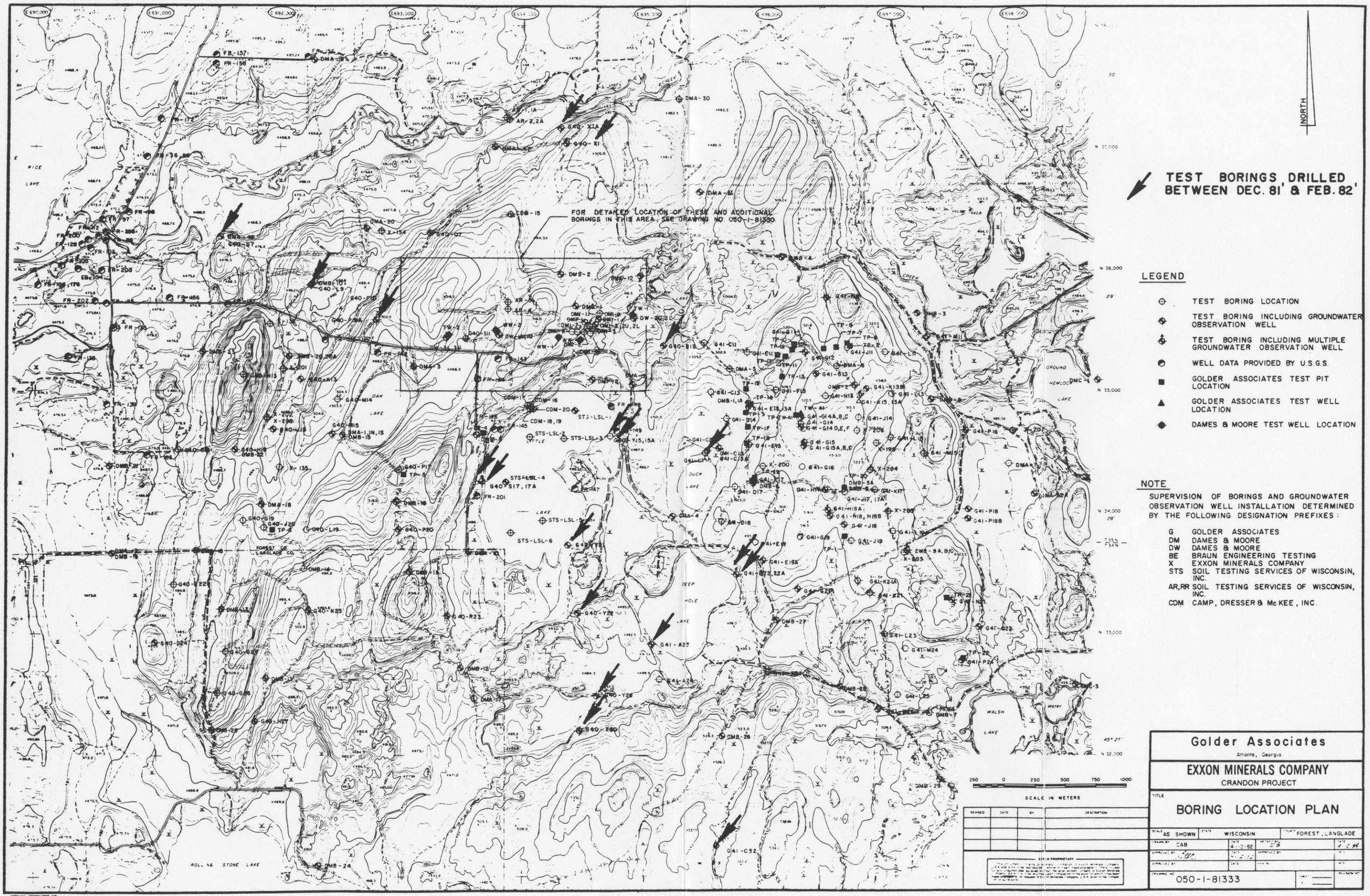

NORTH
TEST BORINGS DRILLED BETWEEN DEC. 81' & FEB. 82'
FOR DETAILED LOCATION OF THESE AND ADDITIONAL BORINGS IN THIS AREA, SEE DRAWING NO. 050-1-81330
LEGEND
TEST BORING LOCATION
TEST BORING INCLUDING GROUNDWATER OBSERVATION WELL
TEST BORING INCLUDING MULTIPLE GROUNDWATER OBSERVATION WELL
WELL DATA PROVIDED BY U.S.G.S.
GOLDER ASSOCIATES TEST PIT LOCATION
GOLDER ASSOCIATES TEST WELL LOCATION
DAMES & MOORE TEST WELL LOCATION
NOTE
SUPERVISION OF BORINGS AND GROUNDWATER OBSERVATION WELL INSTALLATION DETERMINED BY THE FOLLOWING DESIGNATION PREFIXES:
G GOLDER ASSOCIATES
DM DAMES & MOORE
DW DAMES & MOORE
BE BRAUN ENGINEERING TESTING
X EXXON MINERALS COMPANY
STS SOIL TESTING SERVICES OF WISCONSIN, INC.
AR,RR SOIL TESTING SERVICES OF WISCONSIN, INC.
CDM CAMP, DRESSER & McKEE, INC.
250 0 250 500 750 1000
SCALE IN METERS
Golder Associates
Atlanta, Georgia
EXXON MINERALS COMPANY
CRANDON PROJECT
TITLE
BORING LOCATION PLAN
SCALE AS SHOWN
STATE WISCONSIN
COUNTY FOREST, LANGLADE
DRAWN BY CAB
DATE 4-2-82
DRAWING NO. 050-1-81333
REVISED
DATE
BY
DESCRIPTION
EXXON PROPRIETARY

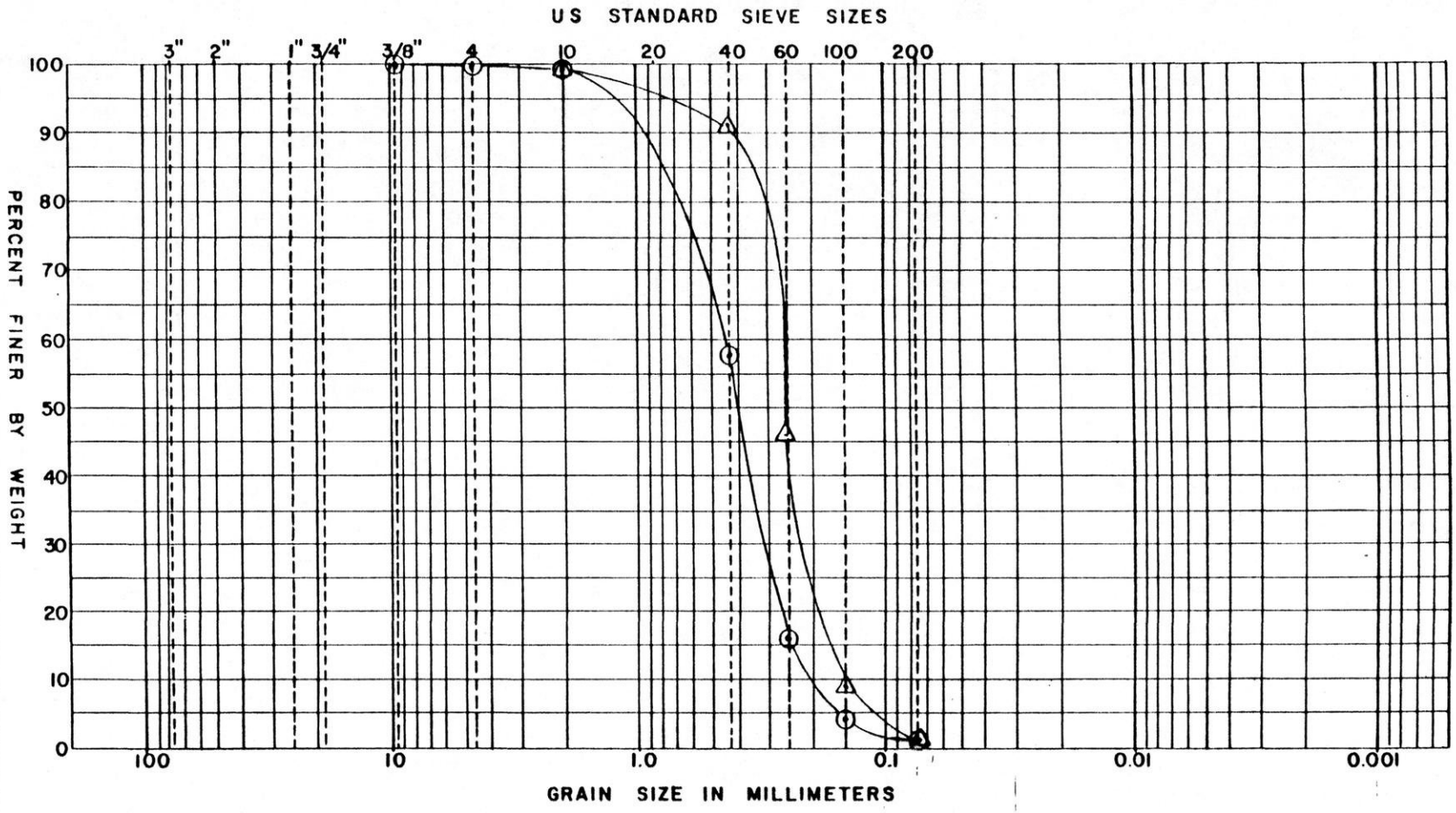
TABLE OF CONTENTS

The test boring logs are included in the following order:

G40-G7
G40-L9
G40-P10A
G40-S17
G40-S17A
G40-T30
G40-X1
G40-X1A
G40-Y15
G40-Y15A
G40-Y21
G40-Y22
G40-Y26
G41-A23
G41-B12
G41-C15C
G41-C32
G41-E22
G41-E22A

The grain size distribution curves for the samples tested are included on Figures A-1 through A-20 which follow the boring logs.

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-G7 SA-2 —⊙—	40.5'-42.5' (12.34m-12.95m)	16.2	-	-	-	Brown, fine to medium SAND (SP)
SA-5 —△—	70.0'-71.5' (21.34m-21.79m)	19.6	-	-	-	Brown, fine to medium SAND (SP)

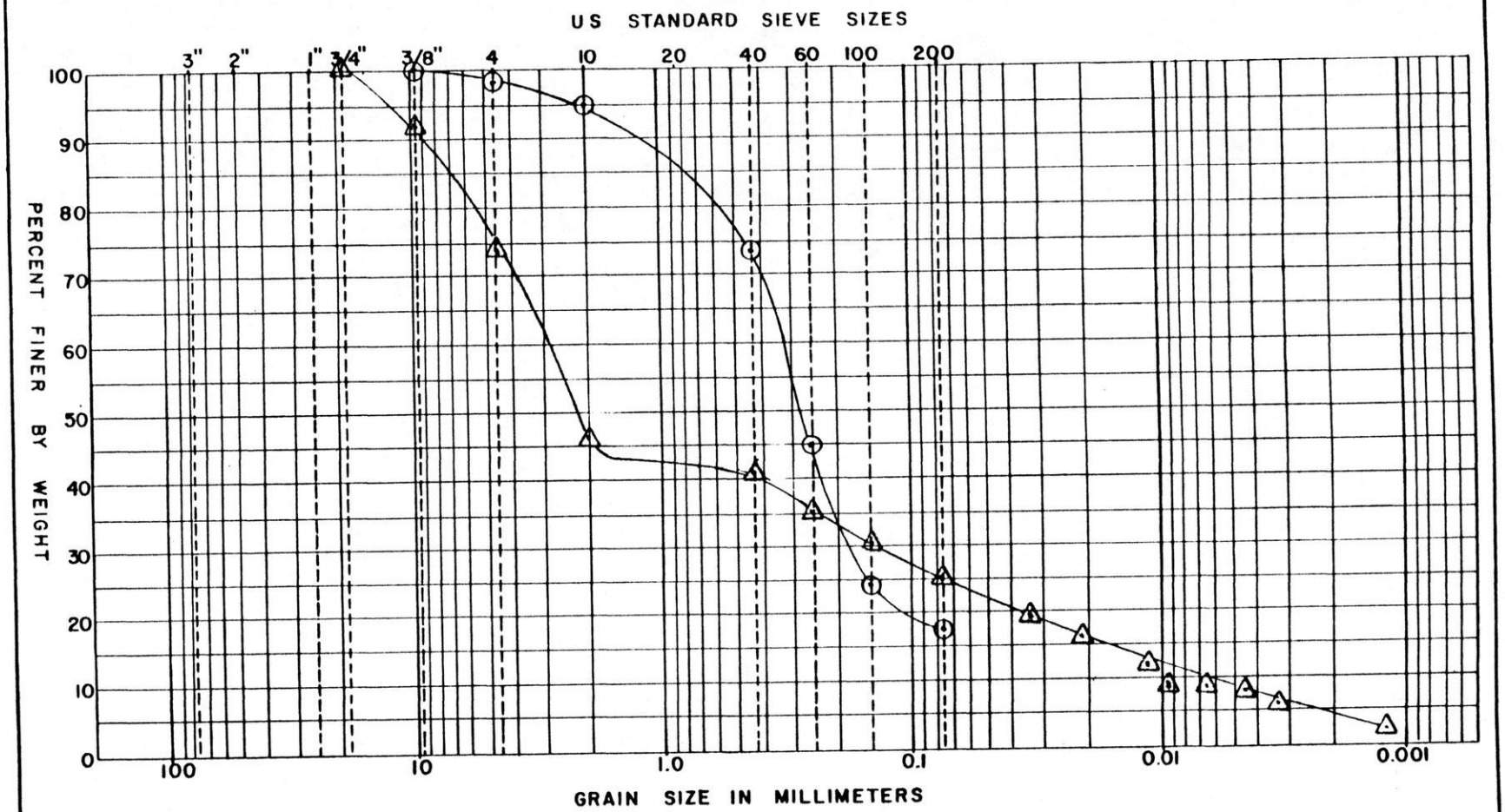
Date 1/15/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A -1

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-L9 SA-7 —⊙—	160.0'-160.5' (48.77m-48.92m)	17.5	-	-	-	Brown, fine to coarse SAND, some silt (SM)
SA-11A —△—	204.0'-205.0' (62.18m-62.48m)	11.6	-	-	-	Brown, gravelly, coarse to fine SAND, some silt, trace clay (SM)

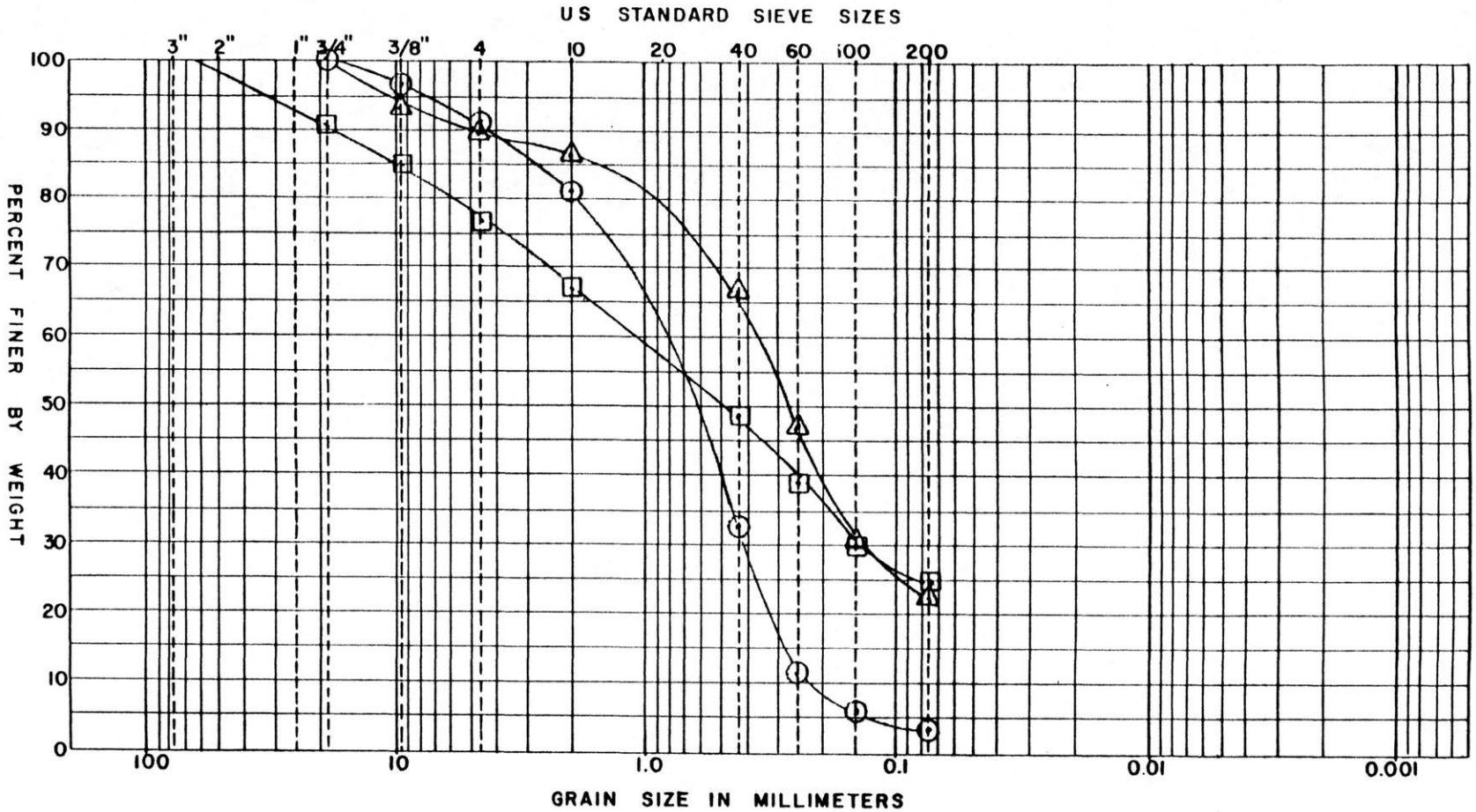
FIGURE A-2

Golder Associates

Date 1/18/82
Job No. 814-1295

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-P10A						
SA-3 ⊙	90.0'-91.5' (27.48m-27.89m)	15.3	-	-	-	Brown, fine to coarse SAND, trace fine gravel, trace silt (SP)
SA-6 △	120.0'-121.5' (36.58m-37.03m)	9.9	-	-	-	Tan, fine to coarse SAND, some silt, trace fine gravel, trace clay (SM)
SA-9 ⊡	150.0'-151.5' (45.72m-46.18m)	8.2	-	-	-	Fine to coarse gravelly, fine to coarse SAND, some silt, trace clay (SM)

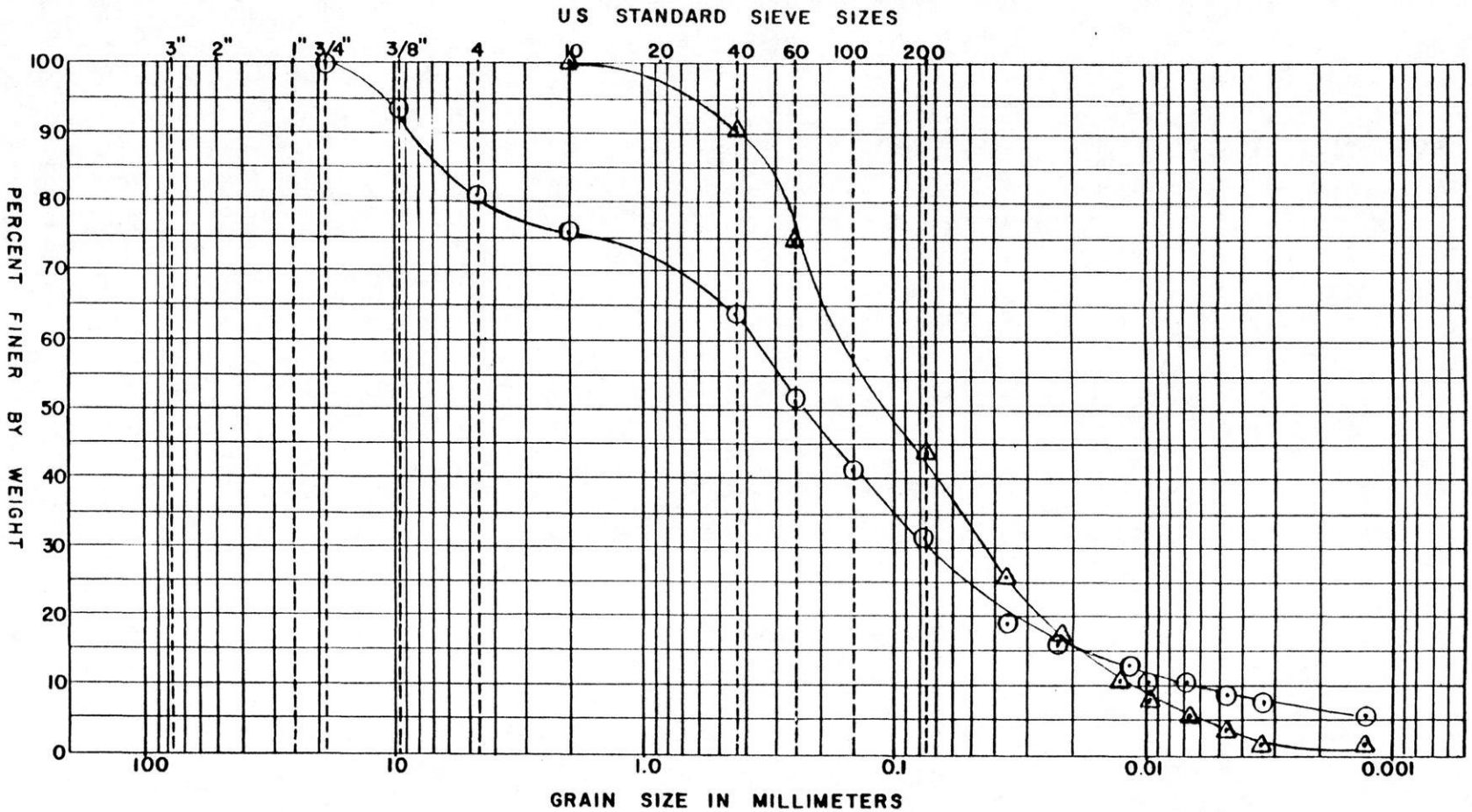
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-3

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-S17 SA-10 ⊙	100.0'-101.5' (30.48m-30.94m)	7.6	-	-	-	Red-brown, fine to coarse silty SAND, some fine gravel (SM)
SA-12 △	120.0'-121.5' (36.58m-37.03m)	13.0	-	-	-	Brown, fine to medium SAND and SILT (SM)

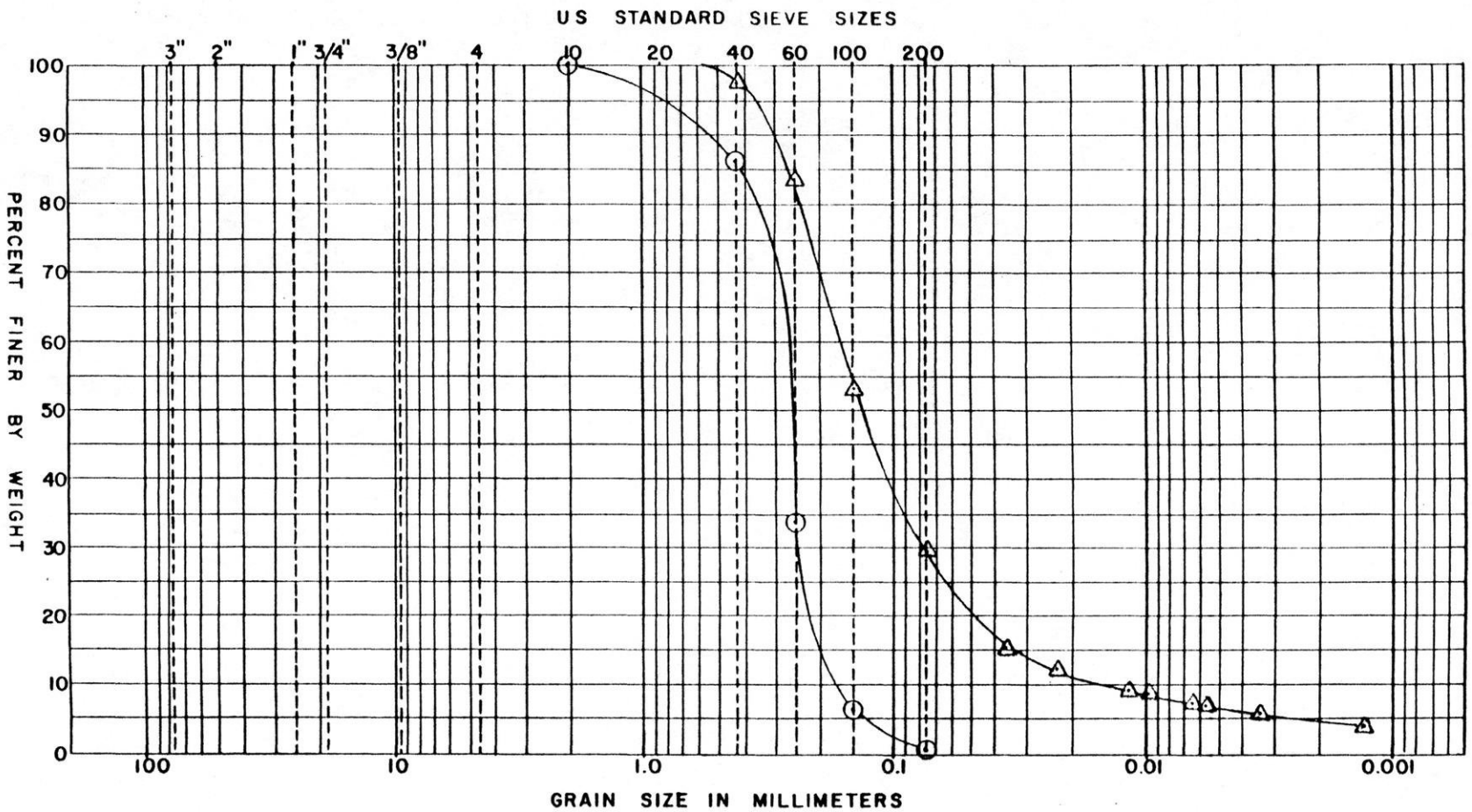
FIGURE A-4

Date 1-21-82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked RTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-T30 —⊙— SA-12	111.5'-113.3' (33.99m-34.53m)	17.8	-	-	-	Tan, fine to medium SAND, trace silt (SP)
—△— SA-9	81.0'-82.0' (24.69m-24.99m)	19.0	-	-	-	Tan, silty fine SAND, trace clay (SM)

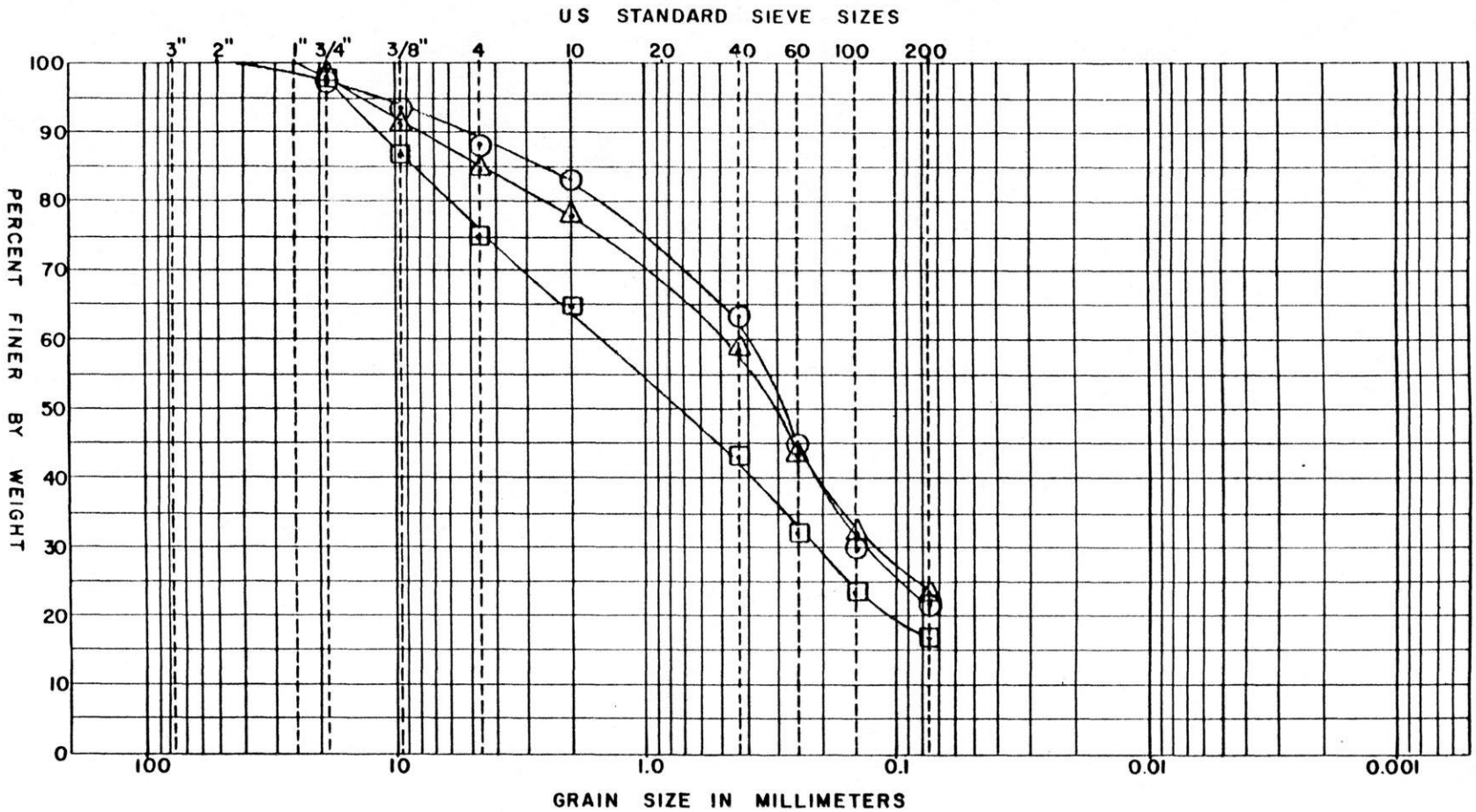
FIGURE A-5

Golder Associates

Date 2-11-82
Job No. 814-1296

Drawn J. Fish
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-X1						
SA-8 ⊙	72.3'-73.5' (22.04m-22.40m)	9.7	-	-	-	Brown, fine to coarse SAND, some silt, some fine to coarse gravel, trace clay (SM)
SA-9 △	81.5'-83.0' (24.84m-25.30m)	8.8	-	-	-	Brown, fine to coarse SAND, some silt, some fine gravel, trace clay (SM)
SA-10 ⊡	91.5'-93.3' (27.89m-28.44m)	8.9	-	-	-	Brown, fine to coarse gravelly, fine to coarse SAND, some silt, trace clay (SM)

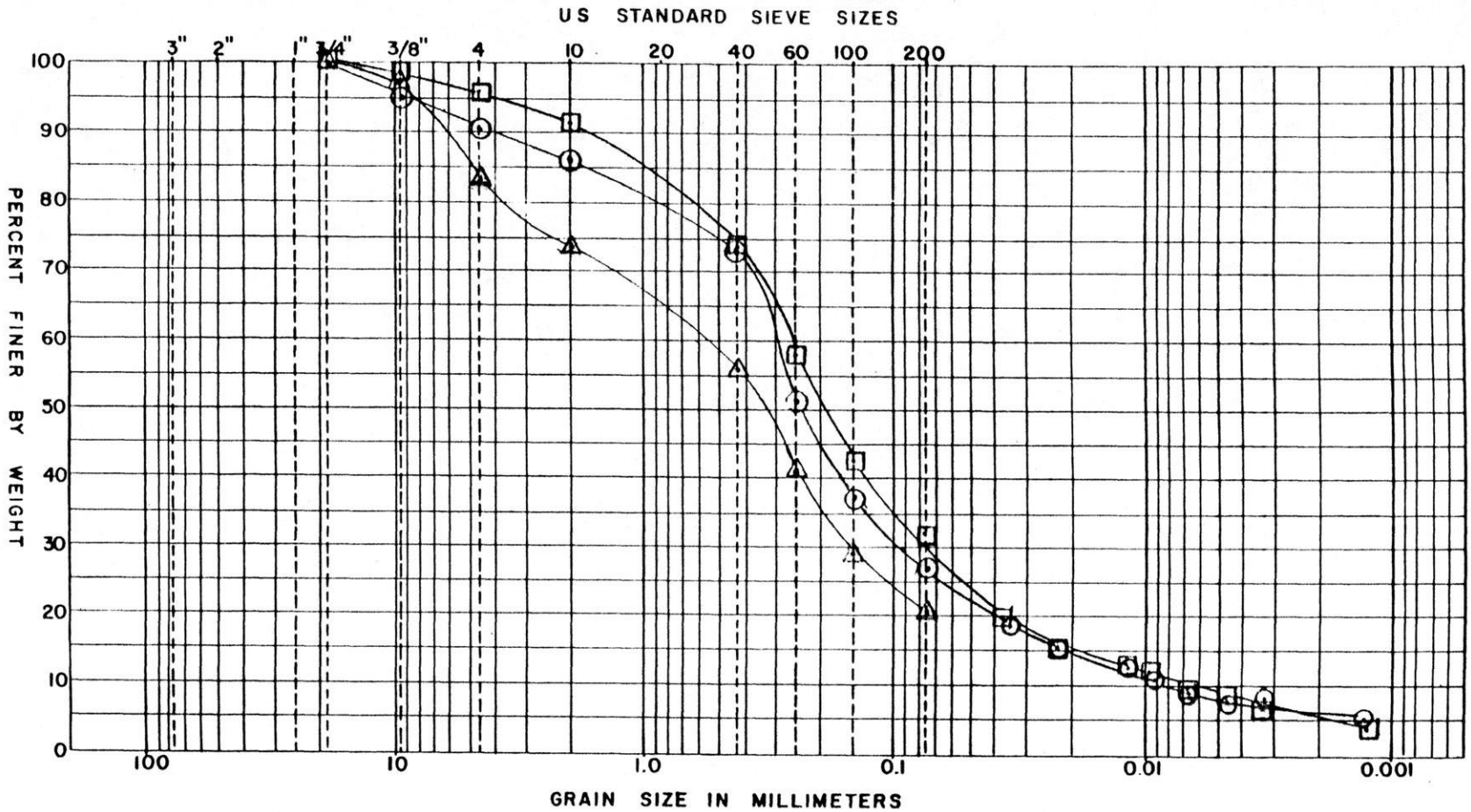
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-6

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-X1A						
SA-5 —⊙—	40.0'-41.5' (12.19m-12.65m)	10.5	-	-	-	Brown, silty, fine to coarse SAND, trace fine gravel, trace clay (SM)
SA-6 —△—	51.0'-52.7' (15.54m-16.06m)	10.6	-	-	-	Reddish brown fine to coarse SAND, some silt, some fine gravel (SM)
SA-7 —⊡—	60.5'-62.2' (18.44m-18.96m)	11.4	-	-	-	Reddish brown, silty, fine to coarse SAND, trace fine gravel, trace clay (SM)

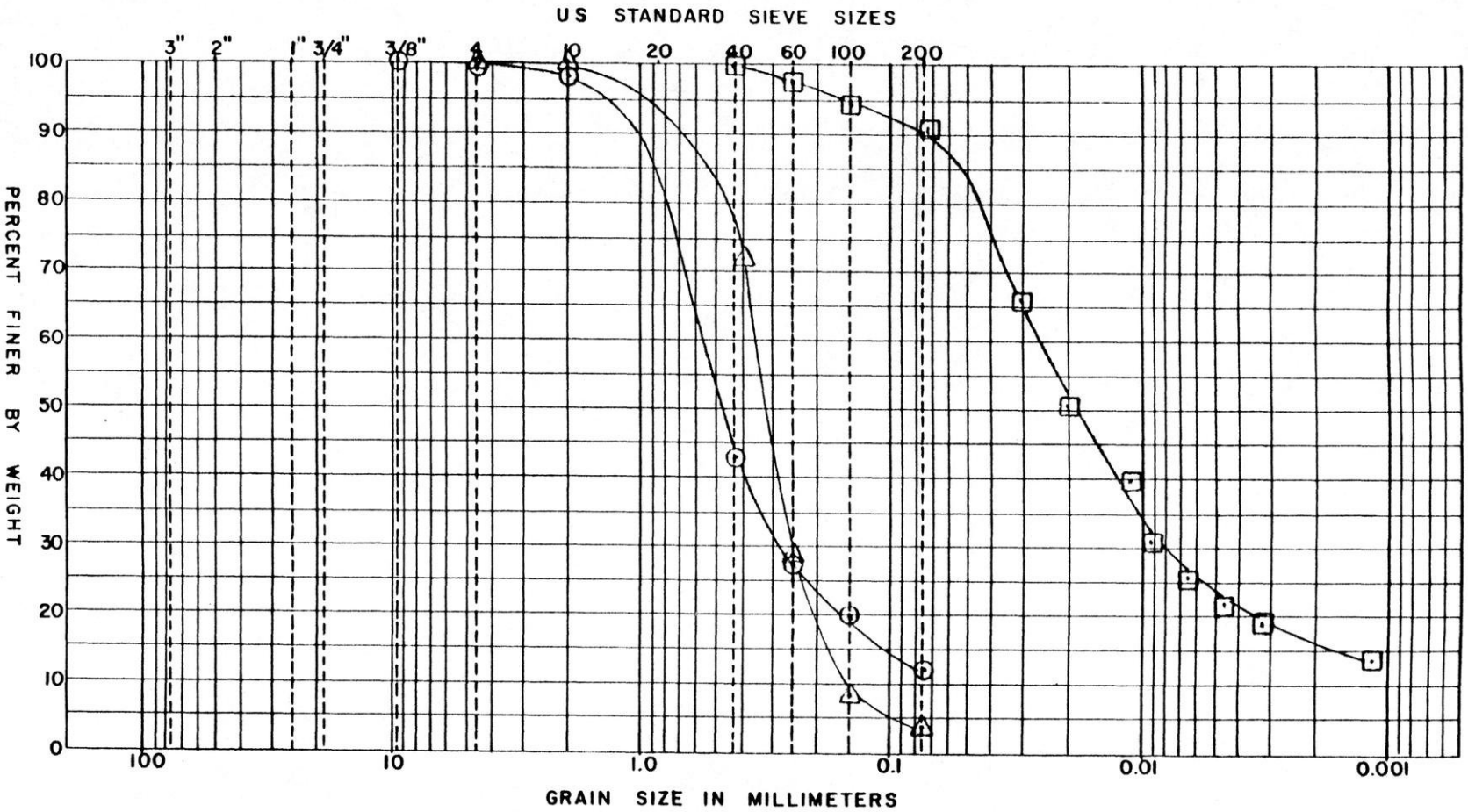
FIGURE A-7

Golder Associates

Date 1/29/82
Job No. 814-1296

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-Y15						
SA-3 —⊡—	20.0'-24.0' (6.10m-7.32m)	37.4	32	22	10	Brown-gray, CLAYEY SILT, trace fine sand (CL)
SA-10 —△—	90.5'-91.8' (27.58m-27.98m)	17.3	-	-	-	Brown, fine to medium SAND, trace silt (SP)
SA-17 —⊙—	160.0'-162.0' (48.77m-49.38m)	12.7	-	-	-	Yellow brown, fine to coarse SAND, some silt (SM)

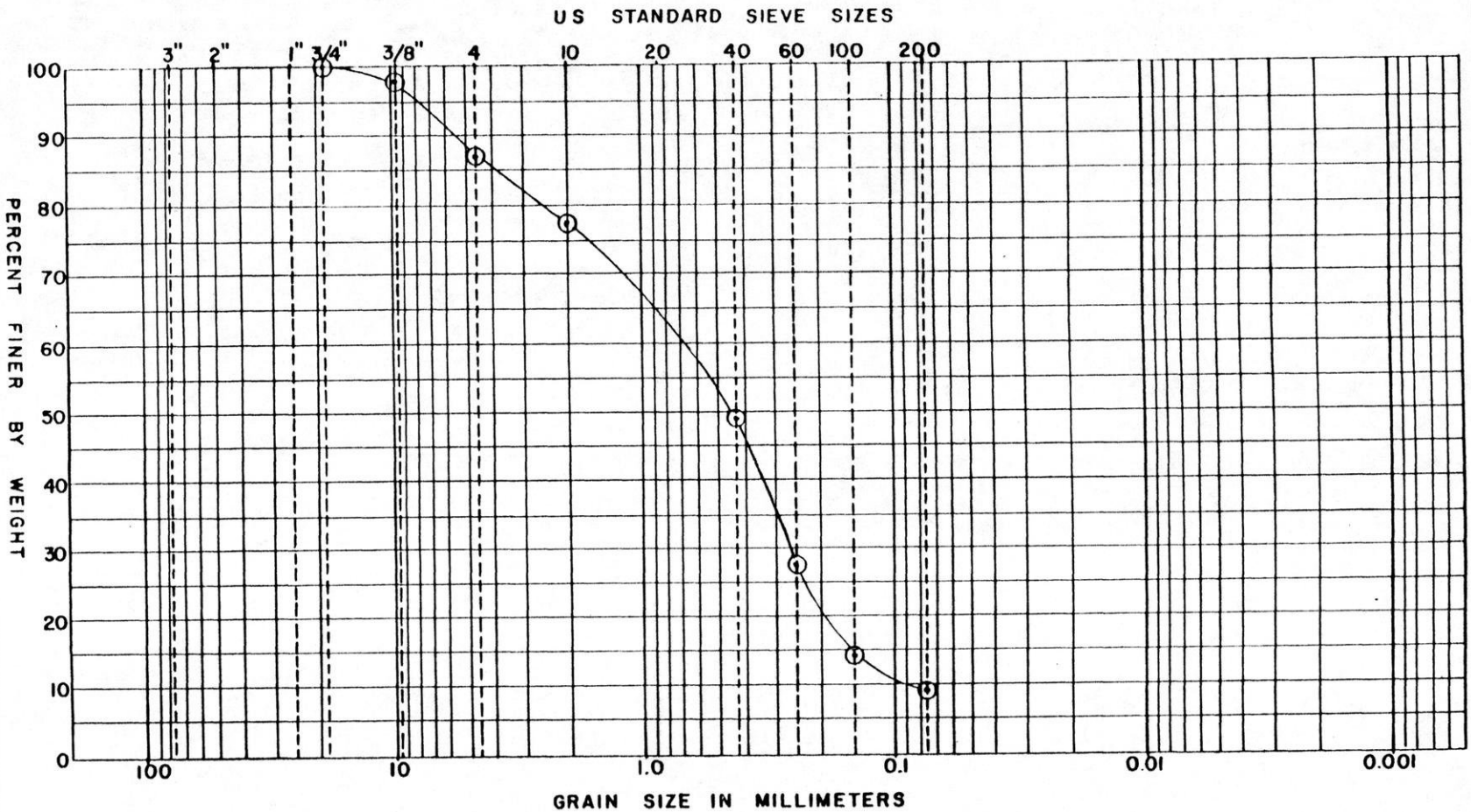
FIGURE A-8

Golder Associates

Date 1/29/82
Job No. 814-1296

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-Y21 SA-4	15.0'-18.0' (4.57m-5.49m)	16.5	-	-	-	Brown, fine to coarse SAND, some fine gravel, trace silt (SW-SM)

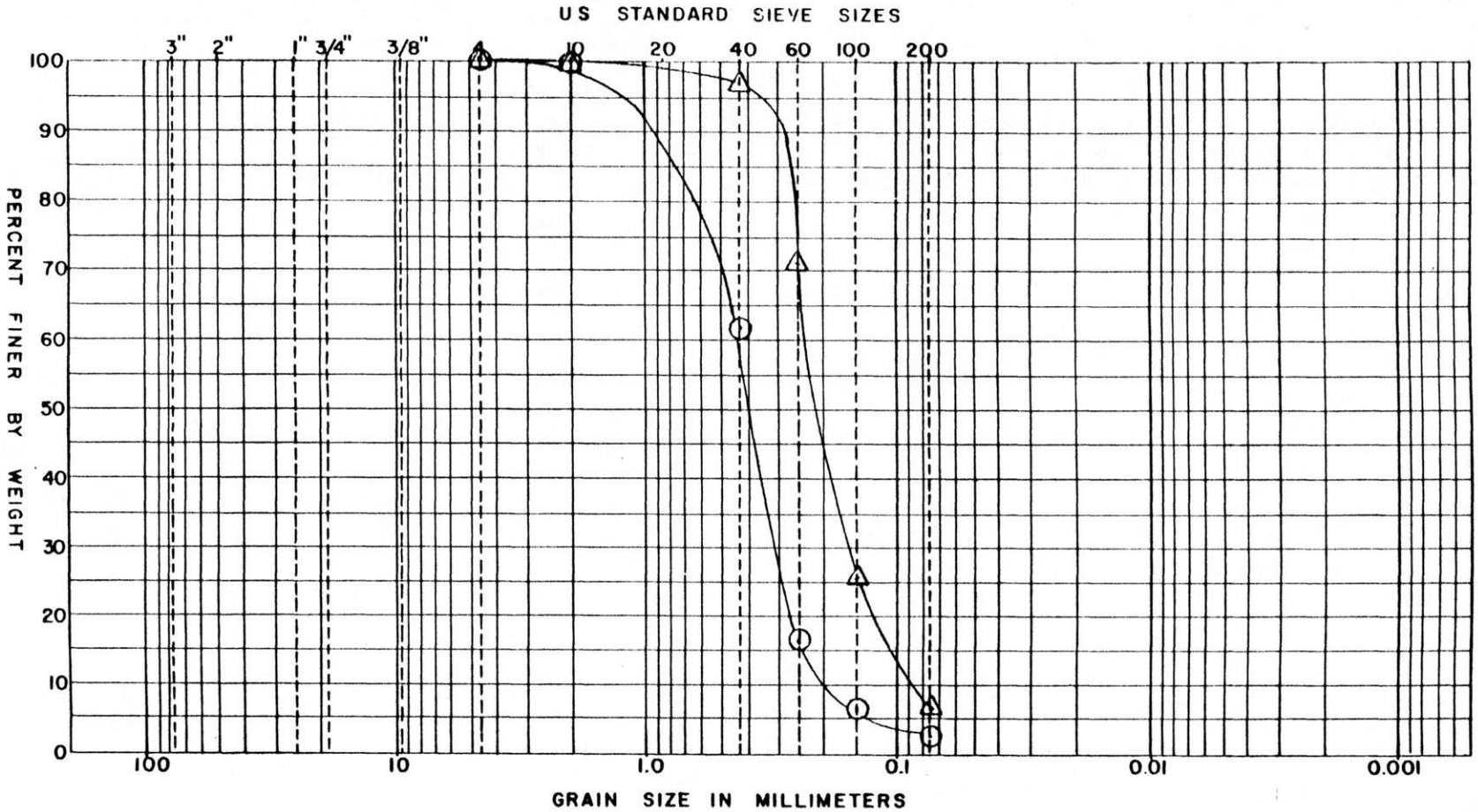
FIGURE A-9

Golder Associates

Date 1/4/82
Job No. 814-1296

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-Y22						
SA-4 —⊙—	30.0'-32.0' (9.14m-9.75m)	20.8	-	-	-	Tan, fine to medium SAND (SP)
SA-8 —△—	71.0'-73.0' (21.64m-22.25m)	20.3	-	-	-	Brown, fine SAND, trace silt (SP-SM)

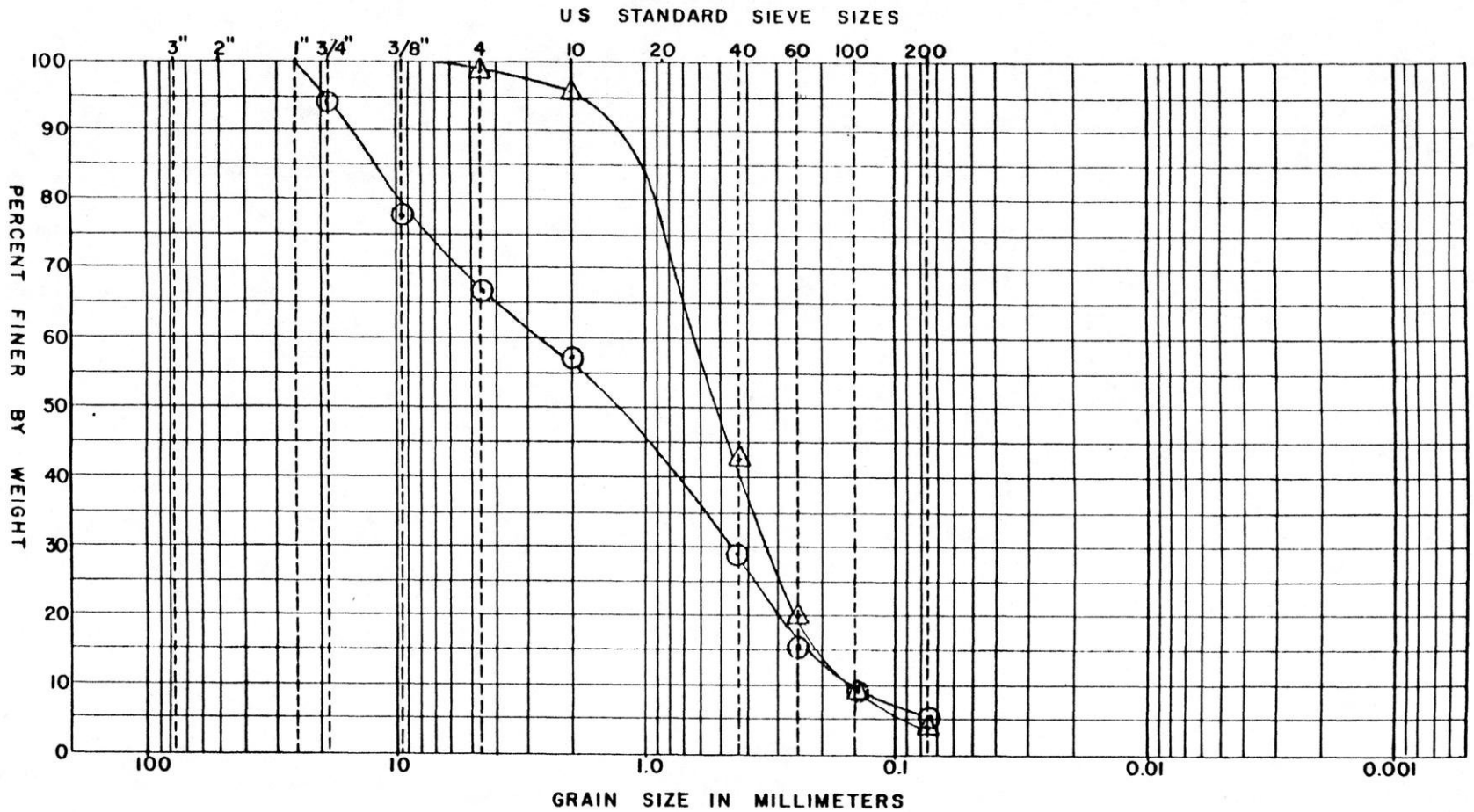
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-10

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G40-Y22						
SA-17 —⊙—	163.5'-165.5' (49.83m-50.44m)	8.6	-	-	-	Brown, fine to coarse, gravelly, fine to coarse SAND, trace silt (SP)
SA-18 —△—	174.0'-175.8' (53.04m-53.58m)	15.2	-	-	-	Brown, fine to coarse SAND, trace silt (SP)

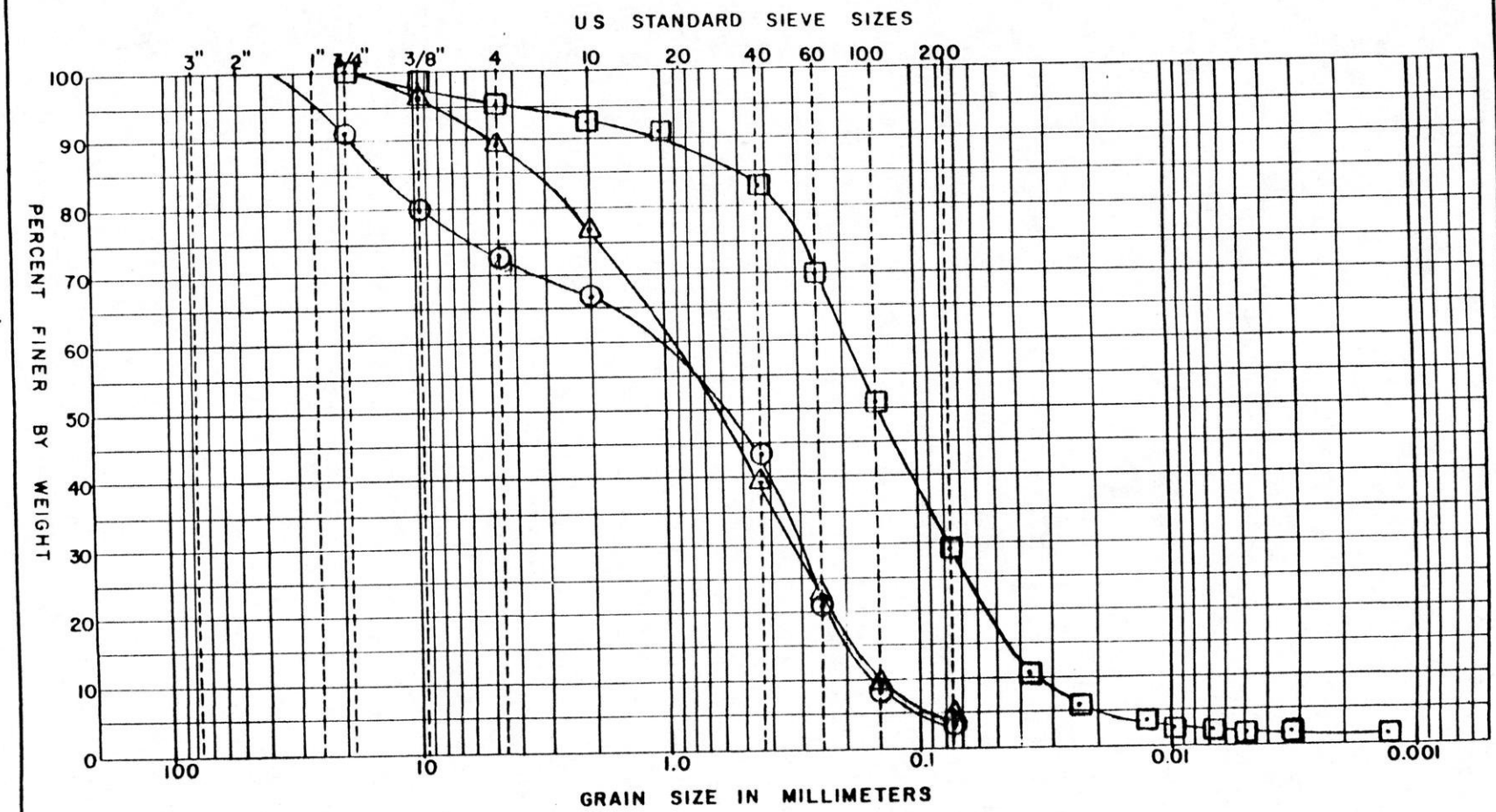
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-11

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G40-Y26						
SA-7 —⊙—	61.0'-62.5' (18.59m-19.05m)	9.7	-	-	-	Brown, fine to coarse, gravelly, fine to coarse SAND, trace silt (SP)
SA-9 —⊡—	80.0'-81.5' (24.38m-24.84m)	12.9	-	-	-	Tan, silty, fine to coarse SAND, trace fine gravel (SM)
SA-11 —△—	100.0'-101.5' (30.48m-30.94m)	12.9	-	-	-	Tan, fine to coarse SAND, some fine gravel, trace silt (SP)

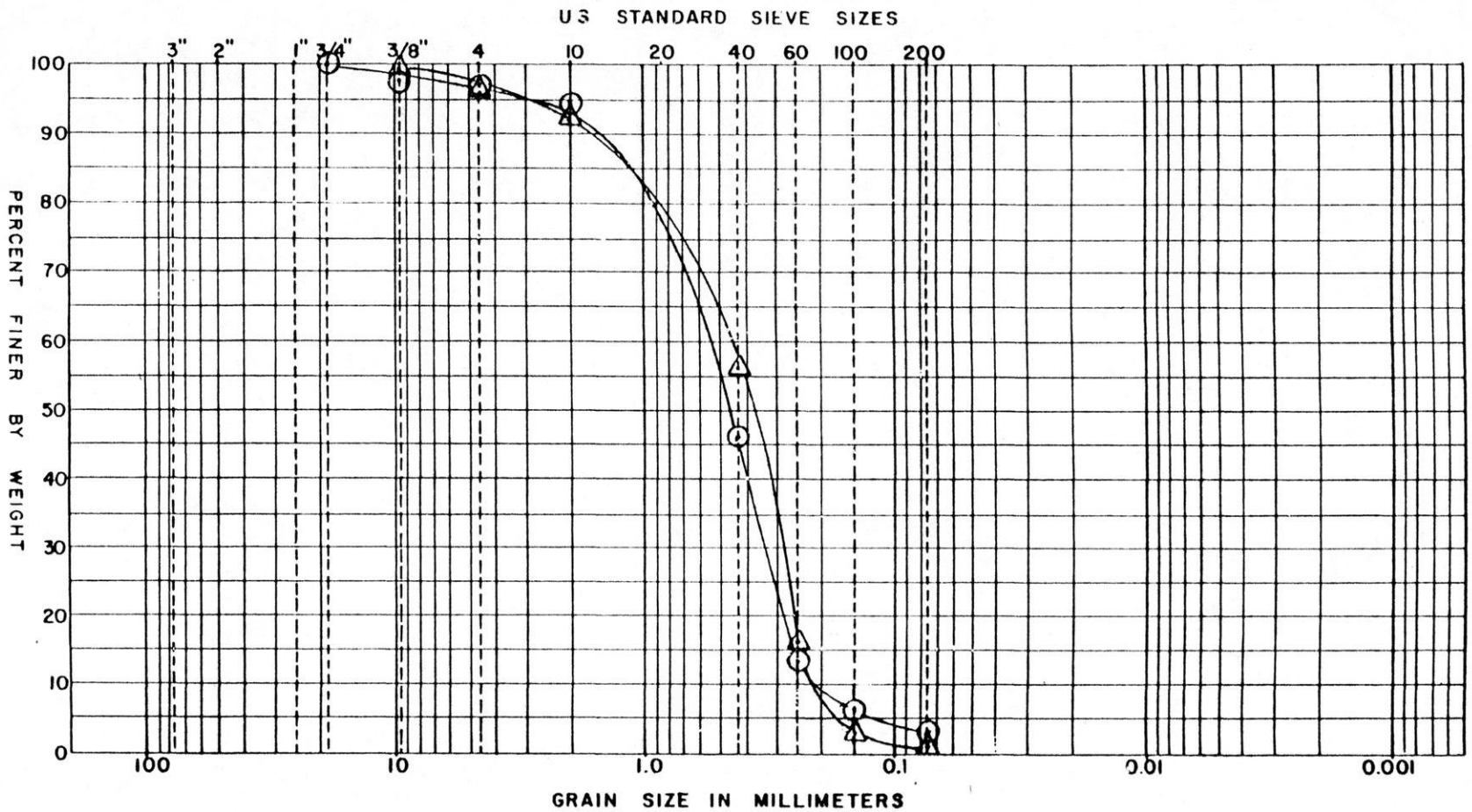
FIGURE A-12

Golder Associates

Date 1-29-82
Job No. 814-1296

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G41-A23 SA-7 —⊙—	30.0'-31.6' (9.14m-9.63m)	21.6	-	-	-	Brown, fine to coarse SAND, trace fine gravel, trace silt (SP)
SA-9 —△—	40.0'-42.0' (12.19m-12.80m)	22.0	-	-	-	Brown, fine to coarse SAND, trace fine gravel, trace silt (SP)

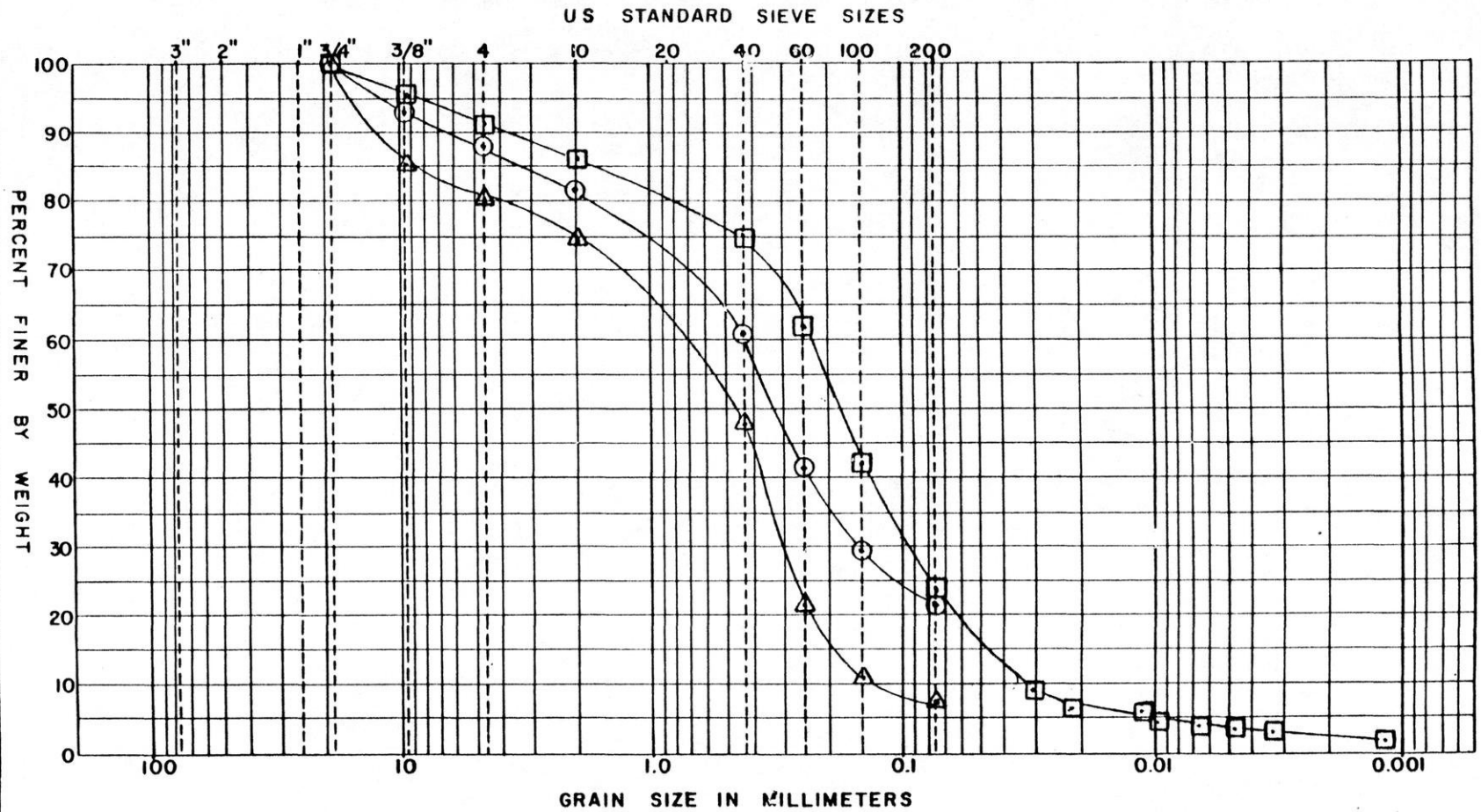
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-13

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G41-B12 SA-5 ⊙	40.0'-41.5' (12.19m-12.65m)	8.4	-	-	-	Brown, fine to coarse SAND, some fine gravel, some silt, trace clay (SM)
SA-9 △	80.0'-81.9' (24.38m-24.96m)	12.5	-	-	-	Brown, fine to coarse SAND, some fine gravel, trace silt (SP-SM)
SA-12 ⊡	110.0'-111.0' (33.53m-33.83m)	14.2	-	-	-	Red-brown, silty, fine to coarse SAND, trace fine gravel (SM)

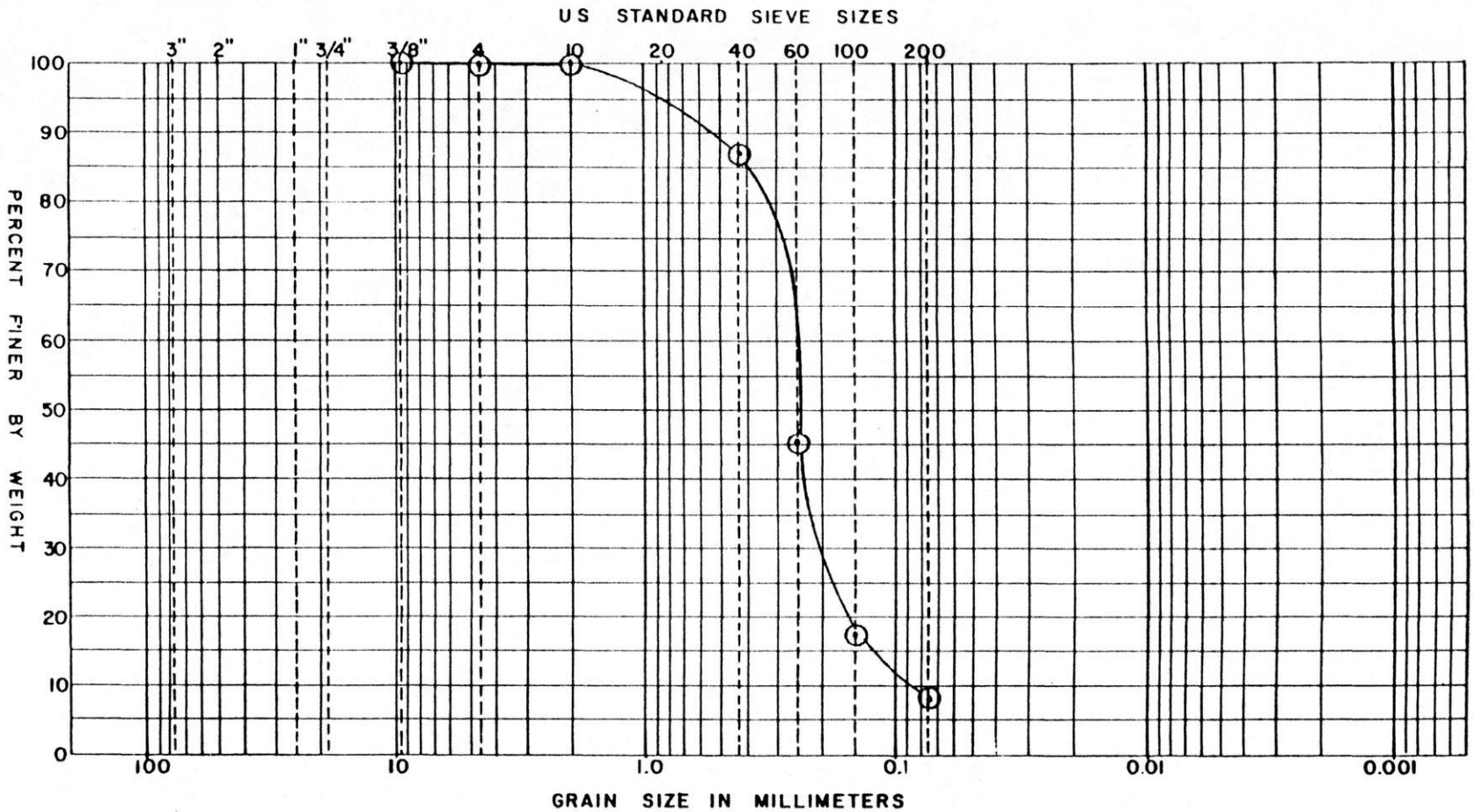
FIGURE A-14

Date 1/4/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G41-C15C						
SA-2 —⊙—	15.0'-17.0' (4.57m-5.18m)	-	-	-	-	Gray-brown, fine to medium SAND, trace silt (SP-SM)

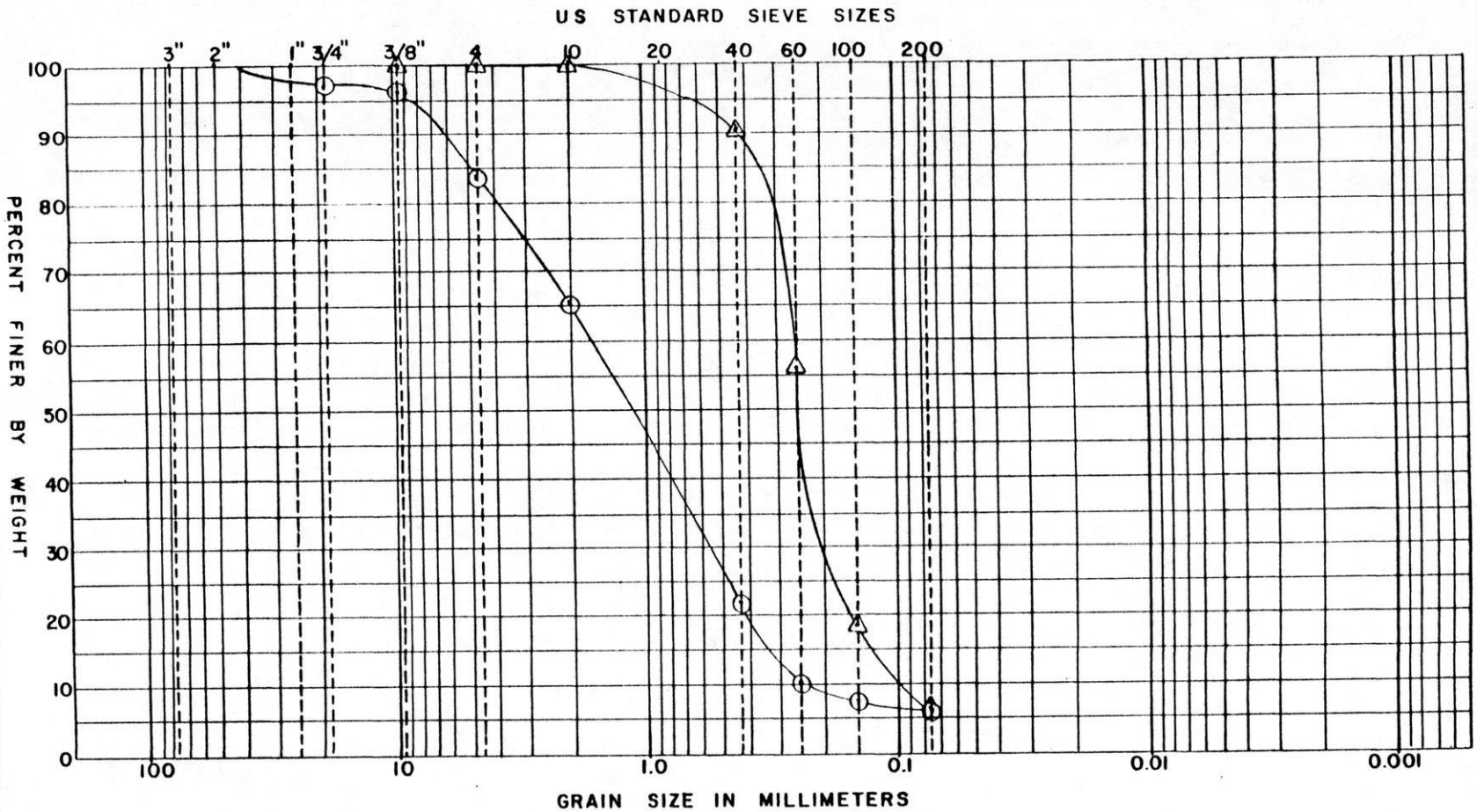
Date 1/29/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-15

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G41-C32 —⊙— SA 13	120.0 - 121.5 (36.58m-37.03m)	10.0	-	-	-	Brown, fine to coarse SAND, some fine to coarse gravel, trace silt (SP-SM)
—△— SA 18	172.5 - 173.5 (52.58m-52.88m)	18.2	-	-	-	Tan, fine to medium SAND, trace silt (SP-SM)

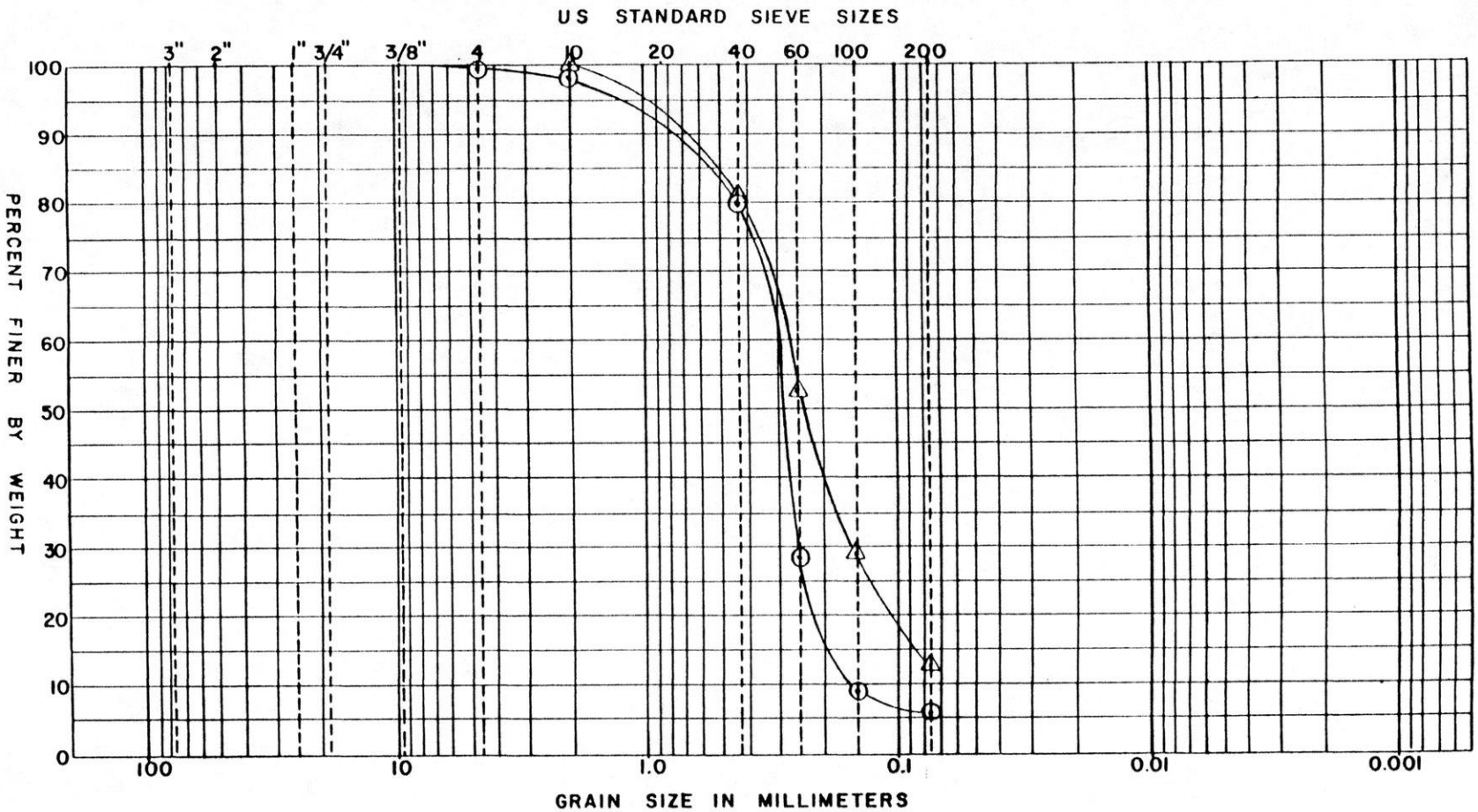
Date 2-10-82
Job No. 814-1296

Golder Associates

Drawn J. Fish
Checked MTF
Reviewed

FIGURE A-16

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_P	I_P	DESCRIPTION OR CLASSIFICATION
G41-C32 —⊙— SA-21	205.0 - 206.0 (62.48m-62.79m)	18.9	-	-	-	Tan, medium to fine SAND, trace silt (SP-SM)
—△— SA-23	223.0 - 224.5 (67.97m-68.43m)	15.9	-	-	-	Tan, fine to medium SAND, some silt (SM)

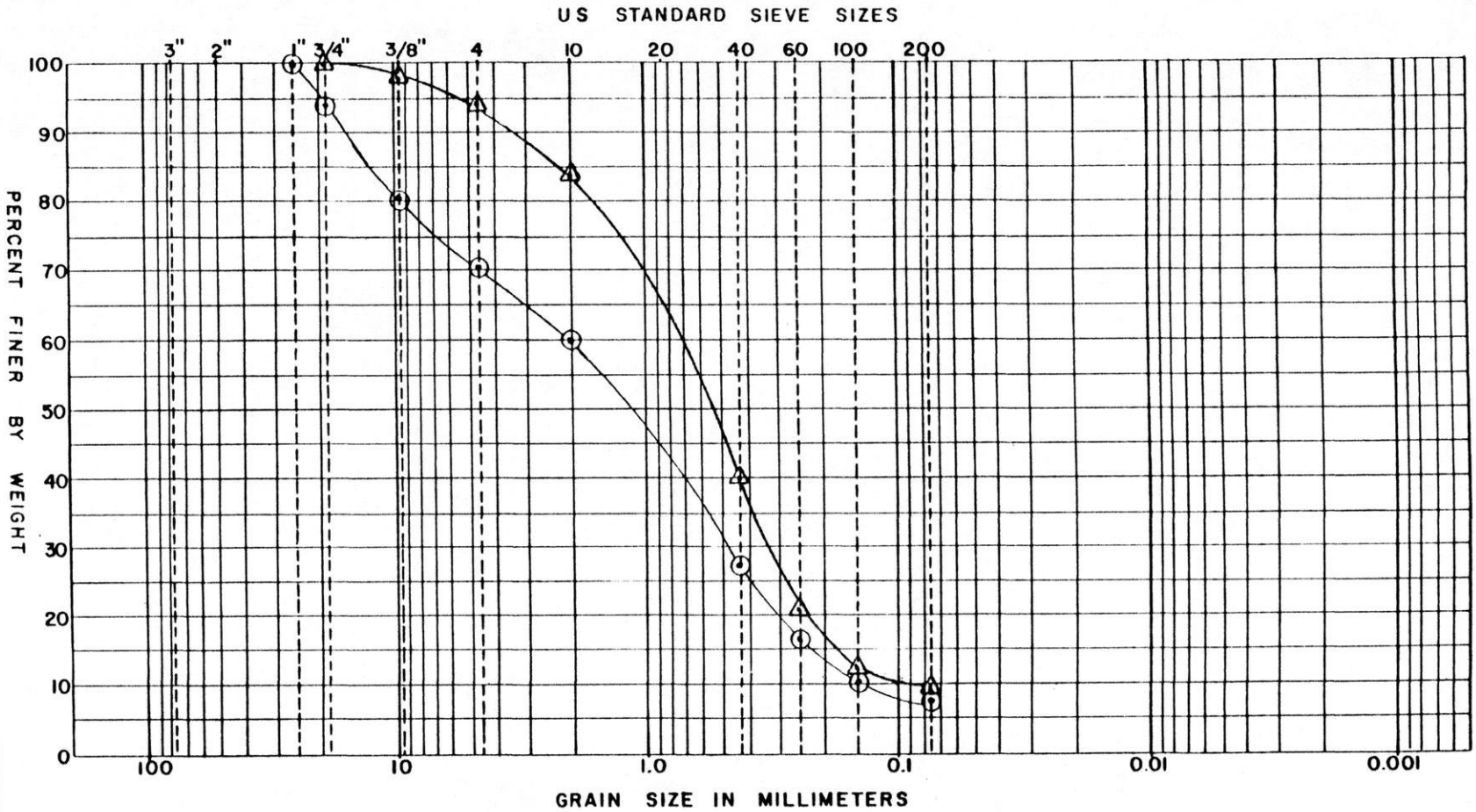
FIGURE A-17

Golder Associates

Date 2-10-82
Job No. 814-1296

Drawn J. Fish
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G41-E22 SA-6 —⊙—	30.5'-31.7' (9.30m-9.66m)	10.6	-	-	-	Brown, fine to coarse SAND, some fine to coarse gravel, trace silt (SP-SM)
SA-10 —△—	70.0'-71.5' (21.34m-21.79m)	13.4	-	-	-	Brown, fine to coarse SAND, trace fine gravel, trace silt (SP-SM)

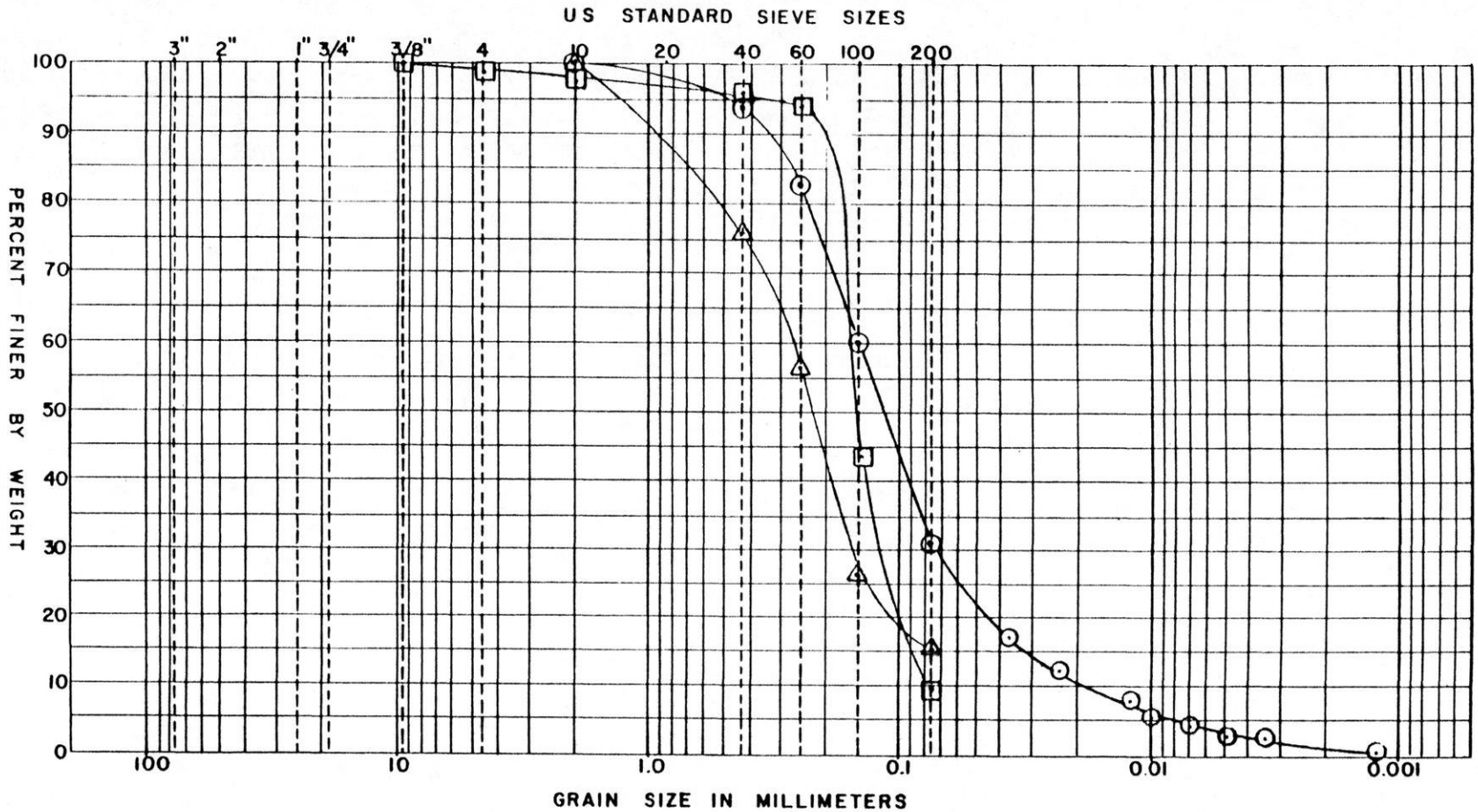
FIGURE A-18

Golder Associates

Date 1/17/82
Job No. 814-1296

Drawn CAB
Checked MTF
Reviewed

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G41-E22						
SA-12 —⊙—	90.0'-91.5' (27.43m-27.98m)	17.6	-	-	-	Brown, silty, fine to medium SAND (SM)
SA-15 —△—	120.0'-121.5' (36.58m-37.03m)	15.6	-	-	-	Brown, fine to medium SAND, some silt (SM)
SA-19 —⊡—	160.0'-160.9' (48.77m-49.04m)	19.7	-	-	-	Brown, fine to medium SAND, trace silt (SP-SM)

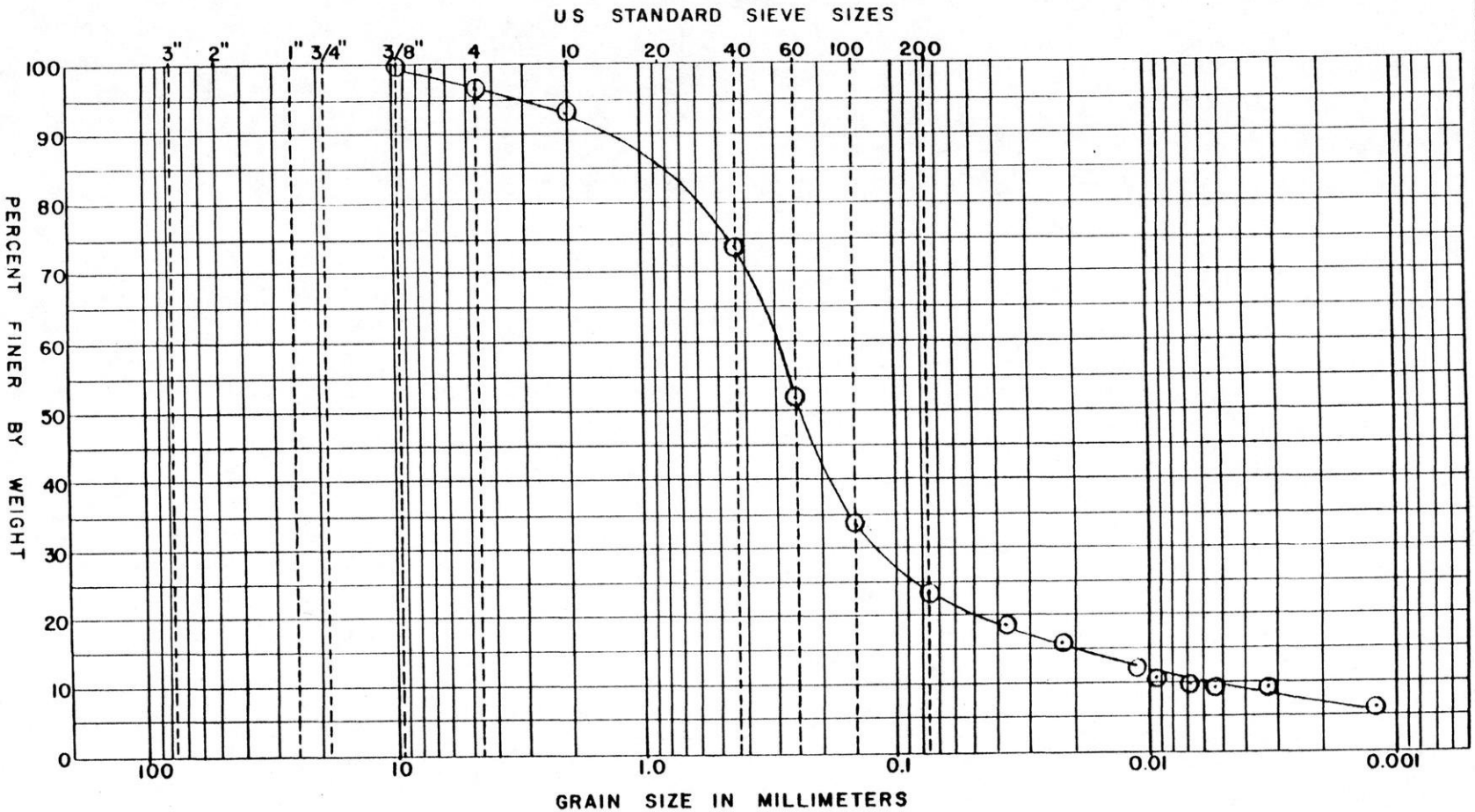
Date 1/4/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-19

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	W_n	W_L	W_p	I_p	DESCRIPTION OR CLASSIFICATION
G41-E22A SA-4 —⊙—	35.0'-36.5' (10.67m-11.13m)	9.7	-	-	-	Brown, fine to coarse SAND, some silt, trace clay, trace fine gravel (SM)

Date 1/12/82
Job No. 814-1296

Golder Associates

Drawn CAB
Checked MTF
Reviewed

FIGURE A-20

COOR. N118955 ft. (N36257m)
E2268700 ft. (E691500m)

BORING LOG G40-G7

SHEET 1 OF 3

SURFACE ELEV. 1548.4 ft. (471.94m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/12/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
9.14		Refer to boring DMA-48 for stratigraphy between 0-30 feet							
30.0		Compact, brown, fine to coarse SAND, some gravel, trace silt	SP-SM	-	1	DO	AIR HAMMER	20/20	
				-	2	DO	AIR HAMMER	20/24	
				-	3	DO	AIR HAMMER	18/18	
17.53									
57.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N118955 ft. (N36257m)
E2268700 ft. (E691500m)

BORING LOG G40-G7

SHEET 2 OF 3

SURFACE ELEV. 1548.4 ft. (471.94m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/12/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
17.53		CONTINUED							
57.5		Compact, brown, fine to coarse SAND, some gravel, trace silt	SP-SM						
18.81				-	4	DO	AIR HAMMER	20/20	
61.7		Dense, brown, fine to medium SAND, trace silt	SP	-	5	DO	AIR HAMMER	18/18	
24.38									
80.0 / 24.90		Stiff, brown SILT	ML	-	6	DO	AIR HAMMER	17/21	
81.7		Brown, fine to coarse, gravelly SAND, trace silt	SP						
26.67									
87.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N118955 ft. (N36257m)
E2268700 ft. (E691500m)

BORING LOG G40-G7

SHEET 3 OF 3

SURFACE ELEV. 1548.4 ft. (471.94m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/12/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
26.67		CONTINUED							
87.5									
				-	7	DO	AIR HAMMER	20/24	
		Brown, fine to coarse, gravelly SAND, trace silt	SP						
				-	8	DO	AIR HAMMER	5/11	
				-	9	DO	AIR HAMMER	-	
35.66									
117.0 / 36.27		Top of weathered rock, very dense, green bedrock	-	-	10	WO	-	-	
119.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N117745 ft. (N35888m)
E2271185 ft. (E692258m)

BORING LOG G40-L9

SHEET 1 OF 4

SURFACE ELEV. 1621.0 ft. (494.08m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/5/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
30.48		Refer to boring DMB-10 for stratigraphy between 0-100 feet							
100.0				-	1	DO	AIR HAMMER	3/8	
32.00		Very dense, brown, fine to coarse SAND, some silt, some fine to coarse gravel	SM						
105.0									
35.05		Very dense, brown, fine to medium SAND	SP	-	2	DO	AIR HAMMER	8/12	
115.0									
38.10		Very dense, brown, fine to coarse SAND, some silt, some fine to coarse gravel	SM	-	3	DO	AIR HAMMER	5/5	
125.0									
38.86		Very dense, orange-brown, fine to coarse SAND, trace silt, trace fine gravel	SP						
127.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N117745 ft. (N35888m)
E2271185 ft. (E692258m)

BORING LOG G40-L9

SHEET 2 OF 4

SURFACE ELEV. 1621.0 ft. (494.08m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/5/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
38.86		CONTINUED							
127.5		Very dense, orange-brown, fine to coarse SAND, trace silt, trace fine gravel	SP	-	4	DO	AIR HAMMER	18/18	
41.15									
135.0		Very dense, brown, fine to coarse SAND, trace to some fine to coarse gravel with lens of gray clayey silt and fine to medium sand at 150.0'	SM	-	5	DO	AIR HAMMER	14/18	
				-	6	DO	AIR HAMMER	8/8	
47.24									
155.0		Very dense, brown, fine to coarse SAND, some silt	SM	-	7	DO	AIR HAMMER	6/6	
49.23									
161.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N117745 ft. (N35888m)
E2271185 ft. (E692258m)

BORING LOG G40-L9

SHEET 3 OF 4

SURFACE ELEV. 1621.0 ft. (494.08m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/5/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
49.23		CONTINUED							
161.5 / 50.29		Very dense, brown, fine to coarse SAND, some silt	SM						
165.0		Very dense, brown, silty, fine to coarse SAND, trace fine gravel, trace clay to fine to coarse SAND, some silt, trace clay	SM	-	8	DO	AIR HAMMER	6/8	
				-	9	DO	AIR HAMMER	12/12	
56.39									
185.0		Very dense, brown, fine to coarse SAND, some silt, trace fine gravel	SM	-	10	DO	AIR HAMMER	4/4	
59.44									
195.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N117745 ft. (N35888m)
E2271185 ft. (E692258m)

BORING LOG G40-L9

SHEET 4 OF 4

SURFACE ELEV. 1621.0 ft. (494.08m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/5/82 DATE COMPLETED 1/13/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	REMARKS
59.44		CONTINUED							
195.0 / 60.20		Very dense, brown, fine to coarse SAND, some silt, trace fine gravel	SM						
197.5		Very dense, brown, fine to medium SAND, trace silt to fine sand and silt	SM	-	11	DO	AIR HAMMER	0/6	
				-	11A	DO	AIR HAMMER	12/12	
62.79									
206.0 / 64.01		Green weathered bedrock							
210.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116745 ft. (N35584m)
E2272895 ft. (E692779m)

BORING LOG G40-P10A

SHEET 1 OF 4

SURFACE ELEV. 1651.4 ft. (503.33m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.34		Drilled to depth of 70 feet before sampling							
70.0				-	1	DO	AIR HAMMER	15/18	Grout (to surface); 2" Solid PVC Pipe (to surface); 23.77 / 78.0 Bentonite Clay Seal; 24.38 / 80.0
				-	2	DO	AIR HAMMER	18/18	Pea Gravel; 26.21 / 86.0
		Dense to very dense, brown, fine to coarse SAND, trace silt, trace to some fine to coarse gravel	SP-SM						2" Slotted PVC Pipe; Pea Gravel; 29.26 / 96.0
				-	3	DO	AIR HAMMER	15/18	
30.18 / 99.0		CONTINUED							Pea Gravel; CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116745 ft. (N35584m)
E2272895 ft. (E692779m)

BORING LOG G40-P10A

SHEET 2 OF 4

SURFACE ELEV. 1651.4 ft. (503.33m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
30.18		CONTINUED							CONTINUED
99.0		Dense to very dense, brown, fine to coarse SAND, trace silt, trace to some fine to coarse gravel	SP-SM	-	4	DO	AIR HAMMER	18/18	Pea Gravel
				-	5	DO	AIR HAMMER	18/18	
35.05									
115.0		Very dense, red-brown, fine to coarse SAND, some silt, some fine to coarse gravel, trace clay	SM	-	6	DO	AIR HAMMER	0/18	
38.71									
127.0		Very dense, red-brown, silty, fine to coarse gravelly fine to coarse SAND to silty, fine to coarse SAND and GRAVEL	SM	-	7	DO	AIR HAMMER	7/7	
40.84									
134.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116745 ft. (N35584m)
E2272895 ft. (E692779m)

BORING LOG G40-P10A

SHEET 3 OF 4

SURFACE ELEV. 1651.4 ft. (503.33m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
40.84		CONTINUED							CONTINUED
134.0		Very dense, red-brown, silty, fine to coarse gravelly, fine to coarse SAND to silty, fine to coarse SAND and GRAVEL	SM	-	8	DO	AIR HAMMER	7/18	Pea Gravel
44.20									
145.0		Very dense, brown, silty, fine to coarse gravelly fine to coarse SAND	SM	-	9	DO	AIR HAMMER	18/18	
46.94									
154.0		Green, weathered bedrock			10	WO	DRILL CUTTINGS	-	
48.77									
160.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116745 ft. (N35584m)
E2272895 ft. (E692779m)

BORING LOG G40-P10A

SURFACE ELEV. 1651.4 ft. (503.33m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1656.3 ft. (504.85m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/22/82	2/5/82	2/23/82				
DEPTH (M)	24.96	24.84	24.99				
DEPTH (ft.)	81.9	81.5	82.0				

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N112295 ft. (N34227m)
E2275770 ft. (E693656m)

BORING LOG G40-S17

SHEET 1 OF 5

SURFACE ELEV. 1595.7 ft. (486.36m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0									
				-	1	DO	Air Hammer	4/18	
		Brown, fine to coarse SAND, some silt, some fine gravel and cobbles	SM						
				-	2	DO	Air Hammer	0/18	
9.14 / 30.0				-	3	DO	Air Hammer	12/18	
		Brown fine to coarse SAND and GRAVEL, trace silt	SP-SM						
11.13 / 36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N112295 ft. (N34227m)
E2275770 ft. (E693656m)

BORING LOG G40-S17

SHEET 2 OF 5

SURFACE ELEV. 1595.7 ft. (486.36m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
		CONTINUED							
11.43 / 37.5		Brown fine to coarse SAND and GRAVEL, trace silt							
				-	4	DO	AIR HAMMER	14/18	
		Multicolored fine to coarse GRAVEL some fine to coarse SAND, trace silt to brown GRAVEL and fine to coarse sand, trace silt	GP to GM						
				-	5	DO	AIR HAMMER	18/18	
18.29 / 60.0				-	6	DO	AIR HAMMER	18/18	
		Tan fine SAND, some fine gravel, some silt	SM						
21.03 / 69.0		CONTINUED							

Job No. 814-1296
Scale 1" = 5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N112295 ft. (N34227m)
E2275770 ft. (E693656m)

BORING LOG G40-S17

SURFACE ELEV. 1595.7 ft. (486.36m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.03 / 69.0		CONTINUED							
		Tan fine SAND, some fine gravel, some silt	SM	-	7	DO	AIR HAMMER	4/18	
24.38 / 80.0				-	8	DO	AIR HAMMER	18/18	
		Tan, fine to medium SAND, some fine gravel, trace silt	SP	-	9	DO	AIR HAMMER	18/18	2" Solid PVC Pipe (to surface); Grout (to surface)
28.65 / 94.0		Red brown fine to coarse sand, some fine gravel, some silt	SM	-	10	DO	AIR HAMMER	18/18	
31.70 / 104.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N112295 ft. (N34227m)
E2275770 ft. (E693656m)

BORING LOG G40-S17

SHEET 4 OF 5

SURFACE ELEV. 1595.7 ft. (486.36m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC/ATT.	GROUNDWATER OBSERVATION WELL
31.70		CONTINUED							CONTINUED
104.0		Red brown fine to coarse sand, some fine gravel, some silt	SM	-	11	DO	AIR HAMMER	18/18	Grout; 32.22; Bentonite Clay Seal 109.0–33.83; 2" Solid PVC Pipe; 111.0; Pea Gravel; 35.36
35.81									
117.5		Tan, fine to medium SAND and SILT	SM	-	12	DO	AIR HAMMER	18/18	116.0; Pea Gravel; 2" Slotted PVC Pipe; 38.41
37.34									
122.5		Brown to red brown fine to coarse SAND, some silt, some fine gravel	SM	-	13	DO	AIR HAMMER	6/6	126.0; Pea Gravel
42.37									
139.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N112295 ft. (N34227m)
E2275770 ft. (E693656m)

BORING LOG G40-S17

SHEET 5 OF 5

SURFACE ELEV. 1595.7 ft. (486.36m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
42.37		CONTINUED							
139.0				-	14	DO	AIR HAMMER	6/6	
		Brown to red brown fine to coarse SAND, some silt, some fine gravel	SM						Pea Gravel
				-	15	DO	AIR HAMMER	8/8	
45.93 / 150.7									45.93 / 150.7

END OF BORING

NOTES:

1. Elevation of top of protector pipe, 1598.7 ft. (487.29m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/11/82	2/23/82					
DEPTH (M)	5.65	5.96					
DEPTH (ft.)	18.6	19.6					

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N112335 ft. (N34240m)
E2275790 ft. (E693662m)

BORING LOG G40-S17A

SHEET 1 OF 2

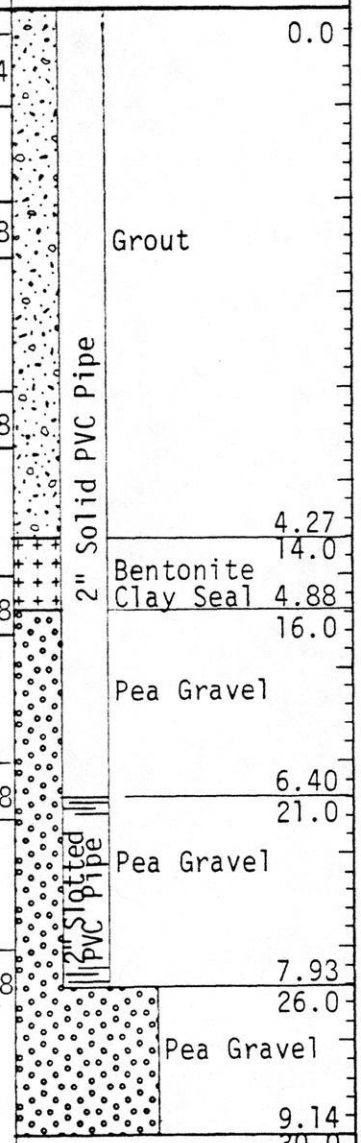
SURFACE ELEV. 1595.9 ft. (486.43m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/18/81 DATE COMPLETED 12/18/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Air and Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.
0.0		Red brown, fine to coarse SAND, little fine to coarse gravel, some silt	SM	-	1	DO	Air Hammer	24/24
				-	2	DO	P.H.	18/18
				-	3	DO	P.H.	18/18
				-	4	DO	P.H.	16/18
				-	5	DO	P.H.	12/18
				-	6	DO	P.H.	18/18
9.14								
30.0		END OF BORING						

GROUNDWATER OBSERVATION WELL



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked MTF

COOR. N112335 ft. (N34240m)
E2275790 ft. (E693662m)

BORING LOG G40-S17A

SURFACE ELEV. 1595.9 ft. (486.43m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/18/81 DATE COMPLETED 12/18/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Air and Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1599.7 ft. (487.59m).*

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/11/82	2/23/82					
DEPTH (M)	5.65	5.76					
DEPTH (ft.)	18.6	18.9					

*The protector pipe was not set in grout due to snow. If this is to be accomplished later on, the protector pipe elevation may change.

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

SHEET 1 OF 6

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0		Dense, tan, fine SAND, with ½" lenses of gray clay	SP	-	1	DO	P.H.	24/24	
2.29									
7.5		Dense, brown, fine to coarse SAND, trace fine gravel, trace silt	SP	-	2	DO	P.H.	20/24	
4.57									
15.0		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt to fine to coarse gravel, trace silt	SM	-	3	DO	P.H.	12/24	
				-	4	DO	P.H.	5/10	
11.13									
36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							
36.5		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt to fine to coarse gravel, trace silt	SM	-	5	DO	AIR HAMMER	22/24	
13.72									
45.0				-	6	DO	AIR HAMMER	12/12	
		Very dense, tan, fine to coarse SAND to silty, fine SAND, generally finer with depth	SP to SM	-	7	DO	AIR HAMMER	19/24	
21.34									
70.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

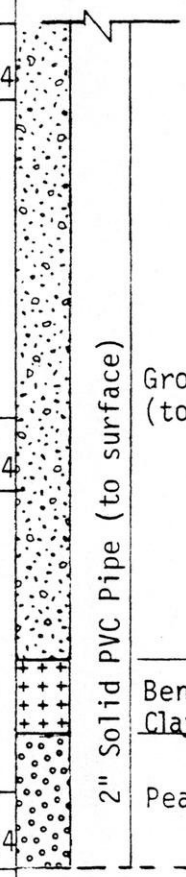
SHEET 3 OF 6

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.34		CONTINUED							
70.0				-	8	DO	AIR HAMMER	24/24	
				-	9	DO	AIR HAMMER	20/24	
		Very dense, tan, fine to coarse SAND to silty, fine SAND, generally finer with depth	SP to SM						
				-	10	DO	AIR HAMMER	19/24	
31.55				-	11	DO	AIR HAMMER	18/24	
103.5		CONTINUED							CONTINUED



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

SHEET 4 OF 6

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
31.55 / 103.5		CONTINUED							CONTINUED
		Very dense, tan, fine to coarse SAND to silty, fine SAND, generally finer with depth	SP to SM	-	12	DO	AIR HAMMER	21/22	32.00 / 105.0; 2" Solid PVC Pipe; Pea Gravel; 35.05 / 115.0
				-	13	DO	AIR HAMMER	24/24	Pea Gravel (to bottom of boring)
				-	14	DO	AIR HAMMER	18/18	
42.37 / 139.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

SHEET 5 OF 6

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
42.37		CONTINUED							
139.0		Very dense, tan, fine to coarse SAND, to silty, fine SAND, generally finer with depth	SP to SM	-	15	DO	AIR HAMMER	24/24	
45.42									
149.0		Very dense, brown, silty, fine to coarse SAND, some fine to coarse gravel	SM	-	16	DO	AIR HAMMER	14/18	
47.55									
156.0		Green weathered bedrock							
49.38									
162.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N105765 ft. (N32238m)
E2278410 ft. (E694461m)

BORING LOG G40-T30

SURFACE ELEV. 1590.4 ft. (484.75m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 2/9/82 DATE COMPLETED 2/11/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1593.3 ft. (485.64m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/23/82						
DEPTH (M)	3.77						
DEPTH (ft.)	12.4						

COOR. N121515 ft. (N37038m)
E2277990 ft. (E694332m)

BORING LOG G40-X1

SHEET 1 OF 5

SURFACE ELEV. 1616.6 ft. (492.73m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0									
				-	1	DO	AIR HAMMER	15/24	
				-	2	DO	AIR HAMMER	10/10	
		Dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM						
				-	3	DO	AIR HAMMER	10/10	
				-	4	DO	AIR HAMMER	5/5	
11.13 / 36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121515 ft. (N37038m)
E2277990 ft. (E694332m)

BORING LOG G40-X1

SHEET 2 OF 5

SURFACE ELEV. 1616.6 ft. (492.73m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							
36.5		Dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM	-	5	DO	AIR HAMMER	24/24	
15.55									
51.0		Dense, fine to coarse SAND, some clay, some gravel, trace silt	SC	-	6	DO	AIR HAMMER	11/11	2" Solid PVC Pipe (to surface); Grout (to surface); 20.42; Bentonite Clay Seal; 67.0; 21.03; 69.0; Pea Gravel
					7	DO	AIR HAMMER	2/2	
21.79									
71.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121515 ft. (N37038m)
E2277990 ft. (E694332m)

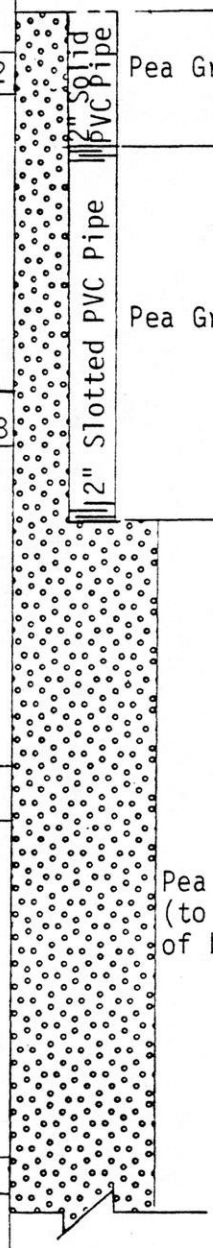
BORING LOG G40-X1

SURFACE ELEV. 1616.6 ft. (492.73m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.79		CONTINUED							
71.5 / 23.77		Dense, fine to coarse SAND, some silt, some fine to coarse gravel, trace clay	SM	-	8	DO	AIR HAMMER	12/12	
78.0 / 25.30		Dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM	-	9	DO	AIR HAMMER	18/18	
83.0 / 29.72		Dense, red-brown, fine to medium SAND, some clay to brown, fine to coarse SAND, some gravel, trace silt	SM	-	10	DO	AIR HAMMER	17/21	
97.5 / 32.46		Dense, fine to coarse SAND, some gravel, trace silt	SP-SM	-	11	DO	AIR HAMMER		
106.5		CONTINUED							



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121515 ft. (N37038m)
E2277990 ft. (E694332m)

BORING LOG G40-X1

SHEET 4 OF 5

SURFACE ELEV. 1616.6 ft. (492.73m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
32.46		CONTINUED							
106.5 / 33.53		Dense, fine to coarse SAND, some gravel, trace silt	SP-SM						
110.0		Dense, red-brown, fine to coarse, silty SAND, some gravel, trace clay	SM	-	12	DO	AIR HAMMER	-	
				-	13	DO	AIR HAMMER	-	
40.08									
131.5 / 41.15		Weathered rock, dark green, highly weathered bedrock							
135.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121515 ft. (N37038m)
E2277990 ft. (E694332m)

BORING LOG G40-X1

SHEET 5 OF 5

SURFACE ELEV. 1616.6 ft. (492.73m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/14/82 DATE COMPLETED 1/15/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
41.15		CONTINUED							
135.0		Weathered rock, dark green, highly weathered bedrock							
43.59				-	14	DO	-	-	
143.0		END OF BORING							

NOTES:

1. Elevation of top of protector pipe, 1619.7 ft. (493.68m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/22/82	2/5/82	2/23/82				
DEPTH (M)	10.05	10.00	10.14				
DEPTH (ft.)	33.0	32.8	33.3				

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121930 ft. (N37164m)
E2277830 ft. (E694283m)

BORING LOG G40-X1A

SHEET 1 OF 3

SURFACE ELEV. 1578.9 ft. (481.25m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/13/82 DATE COMPLETED 1/14/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0		Loose, brown, fine SAND, some silt, some to trace clay	SM	-	1	DO	AIR HAMMER	20/24	
				-	2	DO	AIR HAMMER	22/24	
4.57									
15.0		Compact, brown and red-brown, fine to coarse SAND, trace to some fine gravel, trace to some clay, trace silt	SM to SC	-	3	DO	AIR HAMMER	18/24	2" Solid PVC Pipe (to surface); Grout (to surface)
				-	4	DO	AIR HAMMER	5/6	
11.13									
36.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121930 ft. (N37164m)
E2277830 ft. (E694283m)

BORING LOG G40-X1A

SHEET 2 OF 3

SURFACE ELEV. 1578.9 ft. (481.25m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/13/82 DATE COMPLETED 1/14/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							CONTINUED
36.5		Compact, brown and red-brown, fine to coarse SAND, trace to some fine gravel, trace some clay, trace silt	SM to SC	-	5	DO	AIR HAMMER	18/18	Grout 11.89; Bentonite Clay Seal 39.0–12.50; 2" Solid PVC Pipe; Pea Gravel 41.0–15.24
15.55									
51.0		Loose, reddish brown fine to coarse SAND, some silt, trace to some fine gravel, trace clay	SM	-	6	DO	AIR HAMMER	19/21	2" Slotted PVC Pipe; Pea Gravel 50.0–18.29
19.20				-	7	DO	AIR HAMMER	21/21	
63.0		Decomposed rock							Pea Gravel 60.0
20.73									
68.0		Weathered rock							
21.03									
69.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N121930 ft. (N37164m)
E2277830 ft. (E694283m)

BORING LOG G40-X1A

SHEET 3 OF 3

SURFACE ELEV. 1578.9 ft. (481.25m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/13/82 DATE COMPLETED 1/14/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.03		CONTINUED							CONTINUED
69.0		Weathered rock, very dense, green bedrock		-	8	WO	-	-	Pea Gravel
22.86 / 75.0		END OF BORING							

NOTES:

1. Elevation of top of protector pipe, 1581.7 ft. (482.11m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/22/82	2/5/82	2/23/82				
DEPTH (M)	1.58	2.32	1.59				
DEPTH (ft.)	5.2	4.8	5.2				

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

SHEET 1 OF 6

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0 / 0.46		Brown, fine to medium SAND, some silt (Fill material)	SM						
1.5 / 0.61		Dark brown peat, woody	Pt						
2.0		Dense, gray green fine to medium SAND, trace to some silt	SP-SM						
3.2 / 10.5		Dark gray green organic silty clay, both color darkens and silt content decreases with depth	CL	-	2	DO	AIR HAMMER	24/24	
				-	3	DO	AIR HAMMER	21/48	
8.67 / 28.5		Brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM	-	4	DO	AIR HAMMER	12/24	
10.36 / 34.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

SHEET 2 OF 6

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
10.36		CONTINUED							
34.0 / 12.19		Brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM						
40.0 / 13.72		Dense, multicolored, fine to coarse GRAVEL and cobbles, trace silt	GP	-	5	DO	AIR HAMMER	18/30	
45.0 / 16.76		Tan, clayey, silty fine to medium SAND	SM-ML	-	6	DO	AIR HAMMER	6/30	
55.0 / 21.03		Yellow brown, fine to coarse SAND, trace fine gravel, trace silt	SP	-	7	DO	AIR HAMMER	24/24	2" Solid PVC Pipe (to surface); Grout (to surface)
69.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

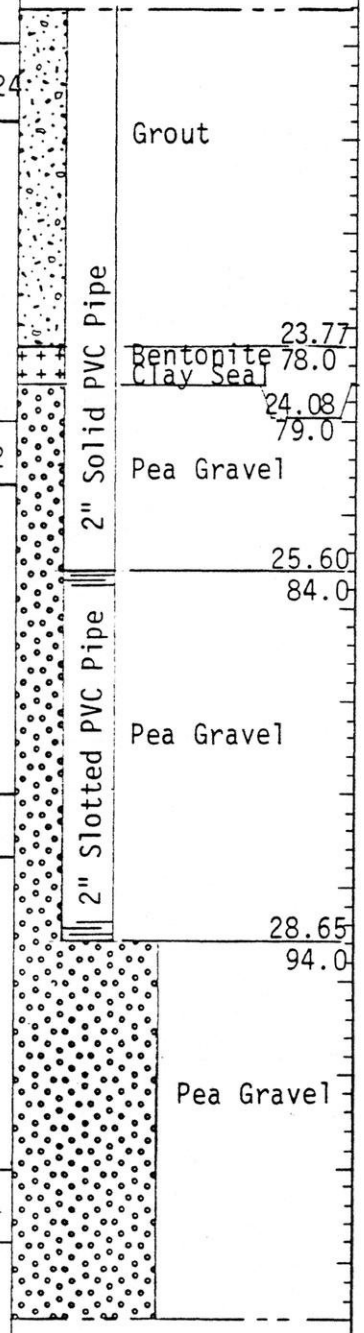
SHEET 3 OF 6

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.03		CONTINUED							CONTINUED
69.0									
				-	8	DO		24/24	
				-	9	DO	AIR HAMMER	22/22	
		Yellow brown, fine to coarse SAND, trace fine gravel, trace silt	SP	-	10	DO	AIR HAMMER	20/21	
				-	11	DO	AIR HAMMER	24/24	
31.70									
104.0		CONTINUED							CONTINUED



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

SHEET 4 OF 6

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
		CONTINUED							CONTINUED
31.70 / 104.0		Yellow brown, fine to coarse SAND, trace fine gravel, trace silt	SP	-	12	DO	AIR HAMMER	20/20	Pea Gravel (to bottom of boring)
				-	13	DO	AIR HAMMER	18/18	
				-	14	DO	AIR HAMMER	18/18	
42.37 / 139.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

SHEET 5 OF 6

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
42.37		CONTINUED							
139.0									
				-	15	DO	AIR HAMMER	24/27	
				-	16	DO	AIR HAMMER	24/24	
		Yellow brown, fine to coarse SAND, trace fine gravel, trace silt	SP						
				-	17	DO	AIR HAMMER	24/24	
51.21									
168.0		Dark green, competent TUFF		-	-	-	DRILL CUTTINGS	-	
53.34									
175.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N113655 ft. (N34643m)
E2279180 ft. (E694695m)

BORING LOG G40-Y15

SURFACE ELEV. 1593.4 ft. (485.68m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/14/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1596.9 ft. (486.74m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/7/82	1/22/82	2/5/82	2/23/82			
DEPTH (M)	2.37	2.24	2.16	2.38			
DEPTH (ft.)	7.8	7.4	7.1	7.8			

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N113665 ft. (N34645m)
E2279170 ft. (E694692m)

BORING LOG G40-Y15A

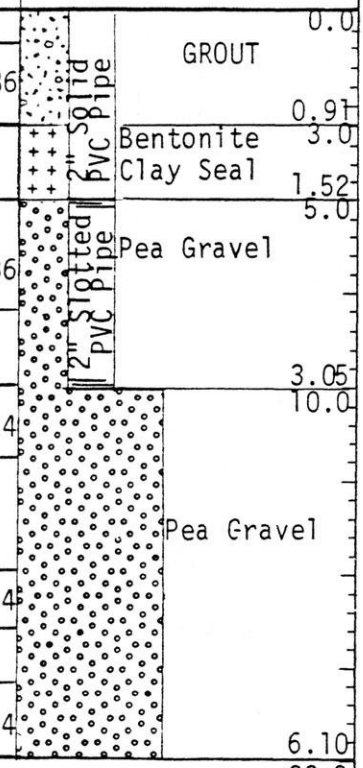
SHEET 1 OF 1

SURFACE ELEV. 1593.7 ft. (485.77m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/17/81 DATE COMPLETED 12/17/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Air Rotary to 8', clean water rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0 / 0.58		Brown, fine to medium SAND, some silt (Fill material)	SM						
				-	1	AS	PRESSURE HYDRAULIC	18/36	
1.92 / 2.29		Dark brown peat	Pt						
				-	2	DO	PRESSURE HYDRAULIC	18/36	
7.5 / 3.81		Grey green fine to medium SAND, trace to some silt	SP-SM						
				-	3	DO	LOST SAMPLE	0/24	
12.5 / 6.1		Dark gray green organic silty clay	OL						
				-	4	DO	P.H.	23/24	
				-	5	DO	P.H.	22/24	
20.0									



END OF BORING

NOTES:

1. Elevation of top of protector pipe, 1596.6 ft. (486.63m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/7/82	1/22/82	2/5/82				
DEPTH (M)	0.56	0.47	0.32				
DEPTH (ft.)	1.9	1.5	1.1				

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn SKB
Checked JVK

COOR. N110730 ft. (N33750m)
E2278040 ft. (E694349m)

BORING LOG G40-Y21

SHEET 1 OF 1

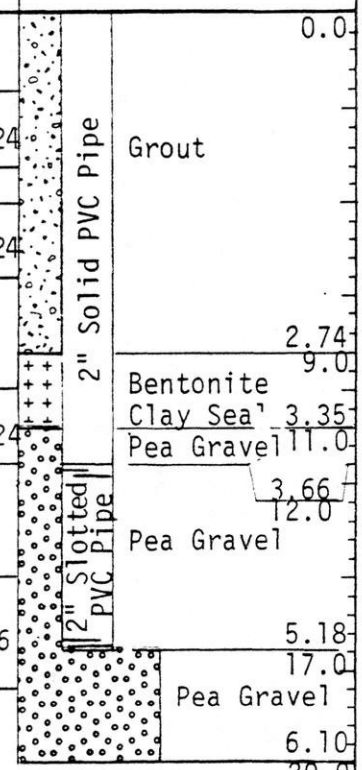
SURFACE ELEV. 1592.8 ft. (485.48m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/28/81 DATE COMPLETED 12/28/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Air Hammer

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.
0.0		Brown, fine to coarse SAND, some fine gravel, trace silt	SW-SM	-	1	DO	AIR HAMMER	20/24
				-	2	DO	AIR HAMMER	18/24
				-	3	DO	AIR HAMMER	24/24
				-	4	DO	P.H.	6/36
6.10								

GROUNDWATER OBSERVATION WELL



20.0

END OF BORING

NOTES:

1. Elevation of top of protector pipe, 1596.5 ft. (486.62m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/7/82	1/22/82	2/10/82	2/23/82			
DEPTH (M)	3.33	3.33	3.04	3.21			
DEPTH (ft.)	10.9	10.9	10.0	10.5			

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SHEET 1 OF 7

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0		Compact, brown, fine to medium SAND, some silt, occasional gravel	SM	-	1	DO	P.H.	24/24	
1.52									
5.0		Compact, brown, sandy GRAVEL, trace silt	GP						
3.66				-	2	DO	P.H.	14/24	
12.0		Dense, brown, fine to coarse SAND, trace silt	SP						
				-	3	DO	P.H.	24/24	
				-	4	DO	P.H.	24/24	
10.67									
35.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
10.67		CONTINUED							
35.0									
				-	5	DO	P.H.	15/24	
		Dense, brown, fine to coarse SAND, trace silt	SP						
				-	6	DO	P.H.	18/24	
17.68									
58.0									
		Dense, brown, fine SAND, trace silt	SP	-	7	DO	AIR HAMMER	16/24	
20.57									
67.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SHEET 3 OF 7

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
20.57		CONTINUED							
67.5		Dense, brown, fine SAND, trace silt	SP	-	8	DO	AIR HAMMER	17/24	
24.38									
80.0		Very dense, sandy GRAVEL, some clay	GC	-	9	DO	AIR HAMMER	11/14	
26.67									
87.5		Very dense, brown, fine to coarse SAND, trace silt	SP-SM	-	10	DO	AIR HAMMER	15/19	
30.48									
100.0 / 30.94		Dense, brown, fine to medium SAND, trace silt	SP						
101.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
30.94		CONTINUED							
101.5				-	11	DO	AIR HAMMER	14/14	
		Dense, brown, fine to medium SAND, trace silt	SP	-	12	DO	AIR HAMMER	16/20	
				-	13	DO	AIR HAMMER	17/18	
39.93 / 131.0		Dense, brown, fine to coarse SAND, trace silt to fine SAND, trace silt with occasional fine gravel	SP	-	14	DO	AIR HAMMER	18/18	
41.61 / 136.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

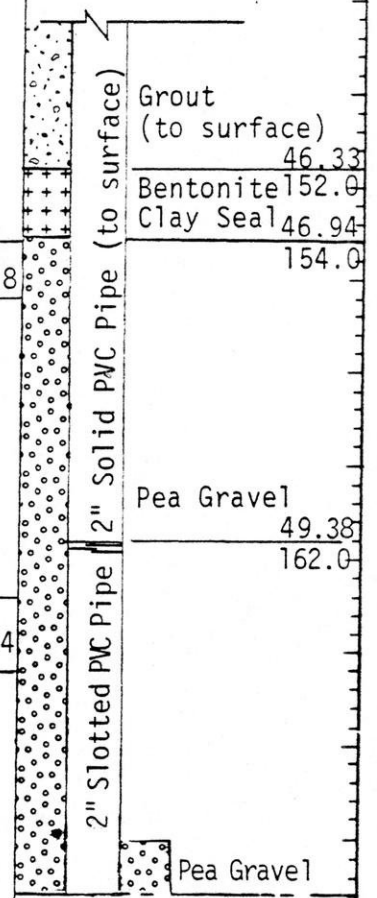
SHEET 5 OF 7

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
41.61		CONTINUED							
136.5		Dense, brown, fine to coarse SAND, trace silt to fine SAND, trace silt with occasional fine gravel	SP	-	15	DO	AIR HAMMER	18/18	
46.63									
153.0		Dense, brown, fine to coarse SAND, some gravel, trace clay to fine to medium SAND, trace silt	SP	-	16	DO	AIR HAMMER	18/18	
48.77									
160.0		Very dense, brown, fine to coarse gravelly, fine to coarse SAND, trace silt, with areas free of the gravel	SP	-	17	DO	AIR HAMMER	20/24	
52.27									
171.5		CONTINUED							CONTINUED



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SHEET 6 OF 7

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
52.27		CONTINUED							52.43
171.5									172.0
				-	18	DO	AIR HAMMER	18/21	
		Very dense, brown, fine to coarse gravelly, fine to coarse SAND, trace silt, with areas free of the gravel	SP						Pea Gravel
57.94				-	19	DO	AIR HAMMER	14/14	
190.1		Green, weathered rock							
59.74									
196.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108880 ft. (N33187m)
E2278310 ft. (E694431m)

BORING LOG G40-Y22

SURFACE ELEV. 1609.1 ft. (490.46m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/19/82 DATE COMPLETED 1/22/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1612.7 ft. (491.55m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/5/82	2/23/82					
DEPTH (M)	9.94	10.11					
DEPTH (ft.)	32.6	33.2					

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N106680 ft. (N32516m)
E2278800 ft. (E694580m)

BORING LOG G40-Y26

SHEET 1 OF 4

SURFACE ELEV. 1590.7 ft. (484.85m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/20/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0		Dense, tan, silty fine to medium SAND	SM	-	1	DO	P.H.	13/18	
1.52									
5.0		Dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt to very dense, fine to coarse gravelly fine to coarse SAND, trace silt	SP	-	2	DO	P.H.	11/18	
				-	3	DO	AIR HAMMER	12/18	
7.62									
25.0		Very dense, brown, fine to coarse SAND, some silt, some fine to coarse gravel	SM	-	4	DO	P.H.	0/18	
10.67									
35.0		Very dense, brown, fine to coarse SAND, trace fine gravel, trace silt	SP						
11.28									
37.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N106680 ft. (N32516m)
E2278800 ft. (E694580m)

BORING LOG G40-Y26

SHEET 2 OF 4

SURFACE ELEV. 1590.7 ft. (484.85m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/20/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.28		CONTINUED							
37.0		Very dense, brown, fine to coarse SAND, trace fine gravel, trace silt	SP	-	5	DO	AIR HAMMER	18/18	
13.72									
45.0		Very dense, brown, fine to coarse SAND, some silt, trace fine gravel	SM	-	6	DO	AIR HAMMER	12/12	
16.76									
55.0		Very dense, brown, gravelly, fine to coarse SAND, trace silt to fine to coarse SAND, some silt, trace fine gravel	SP to SM	-	7	DO	AIR HAMMER	18/18	2" Solid PVC Pipe (to surface); Grout (to surface)
21.79				-	8	DO	AIR HAMMER	15/18	
71.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N106680 ft. (N32516m)
E2278800 ft. (E694580m)

BORING LOG G40-Y26

SHEET 3 OF 4

SURFACE ELEV. 1590.7 ft. (484.85m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/20/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.79		CONTINUED							CONTINUED
71.5 / 25.91		Very dense, brown, gravelly, fine to coarse SAND, trace silt, to fine to coarse SAND, some silt, trace fine gravel	SP to SM	-	9	DO	AIR HAMMER	12/18	Grout; 2" Solid PVC Pipe; 26.21; Bentonite Clay Seal 86.0; 26.82
85.0 / 28.96		Very dense, tan, fine to medium SAND, trace silt	SP	-	10	DO	AIR HAMMER	16/16	88.0; Pea Gravel; 28.35; 93.0; Sand and gravel cave-in; 2" Slotted PVC Pipe
95.0 / 32.46		Very dense, brown, fine to coarse SAND, trace silt, trace fine gravel, to tan, fine to coarse SAND	SP	-	11	DO	AIR HAMMER	18/18	31.39; 103.0; Sand and gravel cave-in
106.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N106680 ft. (N32516m)
E2278800 ft. (E694580m)

BORING LOG G40-Y26

SURFACE ELEV. 1590.7 ft. (484.85m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/20/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
32.46		CONTINUED							CONTINUED
106.5		Very dense, brown, fine to coarse SAND, trace silt, trace fine gravel, to tan, fine to coarse SAND	SP	-	12	DO	AIR HAMMER	4/6	Sand and gravel cave-in
35.66 / 117.0		Very dense, red-brown, fine to coarse SAND, some silt, trace fine gravel, trace clay	SM	-	13	DO	AIR HAMMER	18/18	
38.10 / 125.0		Green weathered bedrock							
39.01 / 128.0									

END OF BORING

NOTES:

1. Elevation of top of protector pipe, 1593.6 ft. (485.73m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/5/82	2/23/82					
DEPTH (M)	2.91	3.09					
DEPTH (ft.)	9.6	10.1					

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108070 ft. (N32940m)
E2280288 ft. (E695033m)

BORING LOG G41-A23

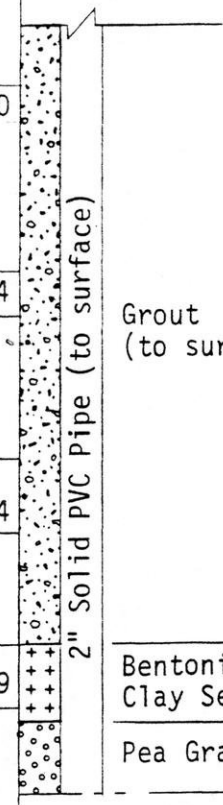
SHEET 1 OF 2

SURFACE ELEV. 1608.0 ft. (490.11m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/18/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Air & Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC/ATT.	GROUNDWATER OBSERVATION WELL
0.0		Compact, brown, clayey SILT	ML	-	1	DO	P.H.	24/24	
1.52									
5.0		Compact to dense, brown, fine to coarse SAND, trace silt, occasional gravel	SP	-	2	DO	P.H.	18/24	
				-	3	DO	P.H.	16/24	
				-	4	DO	P.H.	10/10	
				-	5	DO	P.H.	14/14	
				-	6	DO	P.H.	22/24	
				-	7	DO	P.H.	13/19	
10.36									
34.0		CONTINUED							CONTINUED



Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N108070 ft. (N32940m)
E2280288 ft. (E695033m)

BORING LOG G41-A23

SHEET 2 OF 2

SURFACE ELEV. 1608.0 ft. (490.11m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/18/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Air & Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
10.36		CONTINUED							CONTINUED
34.0		Compact to dense, brown, fine to coarse SAND, trace silt, occasional gravel	SP	-	8	DO	P.H.	11/24	Pea Gravel 11.43
				-	9	DO	P.H.	11/24	37.5 Pea Gravel 13.11 43.0
14.63				-	10	DO	P.H.	10/24	Pea Gravel
48.0		END OF BORING							

1 1/2" Slotted 1 1/2" Solid PVC Pipe

NOTES:

1. Elevation of top of protector pipe, 1611.4 ft. (491.16m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/5/82	2/23/82					
DEPTH (M)	7.35	7.52					
DEPTH (ft.)	24.1	24.7					

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116120 ft. (N35393m)
E2280610 ft. (E695131m)

BORING LOG G41-B12

SHEET 1 OF 4

SURFACE ELEV. 1610.7 ft. (490.92m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/28/81 DATE COMPLETED 12/31/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0		Compact, brown, silty, fine to medium SAND	SM	–	1	DO	AIR HAMMER	4/12	
1.52									
5.0		Compact, brown, fine to coarse SAND and fine to coarse GRAVEL, some silt, trace clay	SP	–	2	DO	P.H.	14/18	
5.33									
17.5		Very dense, multi-colored, fine to coarse GRAVEL, some fine to coarse sand to fine to coarse sandy, fine to coarse GRAVEL, trace silt, trace clay	GP-GC	–	3	DO	AIR HAMMER	0/19	
				–	4	DO	AIR HAMMER	6/12	
10.67									
35.0 / 11.13									
36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116120 ft. (N35393m)
E2280610 ft. (E695131m)

BORING LOG G41-B12

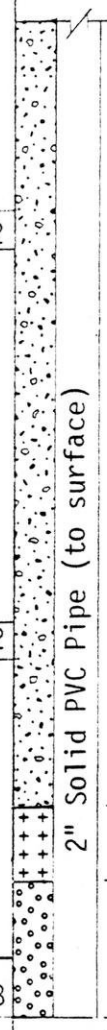
SHEET 2 OF 4

SURFACE ELEV. 1610.7 ft. (490.92m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/28/81 DATE COMPLETED 12/31/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							
36.5									
				-	5	DO	AIR HAMMER	18/18	
		Dense to very dense, fine to coarse SAND, some fine to coarse gravel, some silt, trace clay	SM	-	6	DO	AIR HAMMER	12/12	
				-	7	DO	AIR HAMMER	8/12	
21.79				-	8	DO	AIR HAMMER	18/18	
71.5		CONTINUED							CONTINUED



Grout (to surface)

20.12

Bentonite Clay Seal 66.0 – 20.73

68.0

Pea Gravel

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116120 ft. (N35393m)
E2280610 ft. (E695131m)

BORING LOG G41-B12

SHEET 3 OF 4

SURFACE ELEV. 1610.7 ft. (490.92m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/28/81 DATE COMPLETED 12/31/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.79		CONTINUED							CONTINUED
71.5		Dense to very dense, fine to coarse SAND, some fine to coarse gravel, some silt, trace clay	SP-SM	-	9	DO	AIR HAMMER	9/12	Pea Gravel; 2" Solid PVC Pipe; 22.86; 75.0; Pea Gravel; 2" Slotted PVC Pipe; 25.91; 85.0; Pea Gravel
				-	10	DO	AIR HAMMER	0/12	
28.96									
95.0		Very dense, brown to red, fine to coarse SAND, some to trace silt, trace fine gravel	SM	-	11	DO	AIR HAMMER	18/18	
32.00									
105.0 / 32.46		Very dense, red-brown silty fine to coarse SAND, trace fine gravel							
106.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N116120 ft. (N35393m)
E2280610 ft. (E695131m)

BORING LOG G41-B12

SHEET 4 OF 4

SURFACE ELEV. 1610.7 ft. (490.92m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/28/81 DATE COMPLETED 12/31/81

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
32.46		CONTINUED							CONTINUED
106.5		Very dense, red-brown, silty fine to coarse SAND, trace fine gravel	SM	-	12	DO	AIR HAMMER	11/12	Pea Gravel
34.44									
113.0		Green and brown, severely weathered rock		-	13	DO	AIR HAMMER	3/3	
38.40									
126.0		END OF BORING							

NOTES:

1. Elevation of top of protector pipe, 1614.0 ft. (491.93m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/7/82	1/22/82	2/5/82	2/23/82			
DEPTH (M)	5.53	5.65	5.61	5.85			
DEPTH (ft.)	18.2	18.6	18.4	19.2			

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N113160 ft. (N34491m)
E2281790 ft. (E695490m)

BORING LOG G41-C15C

SHEET 1 OF 1

SURFACE ELEV. 1611.4 ft. (491.14m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/18/82 DATE COMPLETED 1/18/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Air Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0 – 2.44		Very loose, dark brown, organic SILT, trace clay	OL						Grout
8.0 – 6.71		Loose, gray-brown, fine to medium SAND, trace silt	SP-SM	-	1	DO	P.H.	11/24	
				-	2	DO	P.H.	12/24	
				-	3	DO	P.H.	10/24	
22.0		END OF BORING							

Grout 0.0 – 2.59
2" Solid PVC Pipe
Bentonite Clay Seal 2.59 – 8.5
Pea Gravel 8.5 – 10.5
2" Slotted PVC Pipe
Pea Gravel 10.5 – 13.0
2" Solid PVC Pipe
Pea Gravel 13.0 – 18.0

NOTES:

1. Elevation of top of PVC observation well pipe, 1613.9 ft. (491.92m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/22/82	2/5/82	2/23/82				
DEPTH (M)	1.70	1.26	1.44				
DEPTH (ft.)	5.6	4.2	4.7				

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0				-	1	DO	P.H.	24/24	
				-	2	DO	P.H.	17/18	
		Dense brown, fine to coarse SAND, trace fine to coarse gravel, trace silt to fine to coarse SAND, some silt, trace fine to coarse gravel with red-brown, fine to medium SAND, trace fine gravel at approximately 10.0'-15.0'	SM	-	3	DO	P.H.	20/24	
				-	4	DO	P.H.	18/18	
10.67									
35.0 / 11.13		See Sheet 2 for description							
36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							
36.5									
				-	5	DO	AIR HAMMER	18/18	
		Very dense, light brown to tan, fine to coarse SAND, trace to some fine gravel, trace silt with a lens of fine to medium SAND at 50.0'-50.9'	SP						
				-	6	DO	AIR HAMMER	13/16	
16.76									
55.0									
				-	7	DO	AIR HAMMER	3/3	
		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt, to fine to coarse, gravelly, fine to coarse SAND, some silt	SM						
				-	8	DO	AIR HAMMER	3/6	
21.79									
71.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SHEET 3 OF 9

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.79		CONTINUED							
71.5 / 22.86		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt to fine to coarse, gravelly, fine to coarse SAND, some silt	SM						
75.0 / 25.91		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	SP	-	9	DO	AIR HAMMER	8/10	
85.0 / 28.96		Very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt	SM	-	10	DO	AIR HAMMER	4/4	
95.0 / 32.00		Very dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace silt to fine to coarse SAND, trace fine gravel, trace silt	SP-SM	-	11	DO	AIR HAMMER	6/6	
105.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
32.00		CONTINUED							
105.0				-	12	DO	AIR HAMMER	3/8	
		Very dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace silt to fine to coarse SAND, trace fine gravel, trace silt	SP-SM	-	13	DO	AIR HAMMER	18/18	
				-	14	DO	AIR HAMMER	15/18	
41.91									
137.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m)
PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM
DATUM USGS MSL
DATE STARTED 1/29/82
DATE COMPLETED 2/9/82
DRILL RIG Schramm Rotadrill
DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
41.91		CONTINUED							
137.5		Very dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace silt to fine to coarse SAND, trace fine gravel, trace silt	SP SM	-	15	DO	AIR HAMMER	6/6	
44.96									
147.5		Very dense, tan to yellow, fine to coarse SAND, trace silt	SP	-	16	DO	AIR HAMMER	8/12	
48.01									
157.5		Dense, red, fine to coarse SAND, some silt, some fine to coarse gravel, some clay	SM	-	17	DO	P.H.	0/18	
51.05									
167.5		Very dense, tan, fine to coarse SAND, trace silt	SP						
51.82									
170.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
51.82		CONTINUED							
170.0		Very dense, tan, fine to coarse SAND, trace silt	SP-SM	-	18	DO	AIR HAMMER	8/12	
54.10									
177.5				-	19	DO	AIR HAMMER	18/24	
		Very dense, tan, fine to coarse SAND, trace to some fine to coarse gravel with red-brown gravel approximately 194.0'-196.0', trace silt	SP	-	20	DO	AIR HAMMER	16/18	Grout (to surface) 60.35; 2" Solid PVC Pipe (to surface); Bentonite Clay Seal 198.0–60.96; Pea Gravel 200.0
60.96									
200.0		Very dense, tan, fine to medium SAND, trace silt	SP						
61.72									
202.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SHEET 7 OF 9

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
61.72		CONTINUED							CONTINUED
202.5				-	21	DO	AIR HAMMER	12/12	2" Solid PVC Pipe; Pea Gravel; 64.92
				-	22	DO	AIR HAMMER	18/18	213.0; 2" Slotted PVC Pipe; Pea Gravel; 67.97
		Very dense, tan, fine to medium SAND, trace silt	SP	-	23	DO	AIR HAMMER	18/18	223.0
69.34									
227.5									Pea Gravel (to bottom of boring)
		Very dense, brown, fine to coarse SAND, some silt, some fine gravel	SM	-	24	DO	AIR HAMMER	12/18	
72.09									
236.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
72.09		CONTINUED							
236.5		Very dense, brown, fine to coarse SAND, some silt, some fine gravel	SM						
73.46									
241.0				-	25	DO	AIR HAMMER	12/12	
		Green and tan severely weathered ROCK							
79.86									
262.0		END OF BORING							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N102500 ft. (N31243m)
E2282115 ft. (E695590m)

BORING LOG G41-C32

SURFACE ELEV. 1739.8 ft. (530.30m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/29/82 DATE COMPLETED 2/9/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

NOTES:

1. Elevation of top of protector pipe, 1744.1 ft. (531.61m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	2/23/82						
DEPTH (M)	47.20						
DEPTH (ft.)	154.9						

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SHEET 1 OF 7

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
0.0									
				-	1	DO	AIR HAMMER	-	
				-	2	DO	AIR HAMMER	-	
				-	3	DO	AIR HAMMER	14/24	
		Brown, fine to coarse SAND, some silt, some fine to coarse gravel	SP-SM						
				-	4	DO	AIR HAMMER	12/12	
				-	5	DO	P.H.	15/24	
				-	6	DO	AIR HAMMER	12/14	
10.06									
33.0		Very dense to dense, brown, fine to coarse SAND, some clay, some fine to medium gravel	SC						
11.13									
36.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SHEET 2 OF 7

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							
36.5									
				-	7	DO	AIR HAMMER	17/17	
		Very dense to dense, brown, fine to coarse SAND, some clay, some fine to medium gravel	SC	-	8	DO	AIR HAMMER	15/15	
				-	9	DO	AIR HAMMER	6/6	
21.03									
69.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SHEET 3 OF 7

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
21.03		CONTINUED							
69.0		Very dense to dense, brown, fine to coarse SAND, trace fine gravel, trace silt, some clay, some fine to medium gravel	SP-SM	-	10	DO	AIR HAMMER	12/12	
22.86									
75.0		Compact, brown, fine SAND, trace to some silt	SP to SM	-	11	DO	AIR HAMMER	22/22	
				-	12	DO	AIR HAMMER	18/18	2" Solid PVC Pipe (to surface); Grout (to surface)
				-	13	DO	AIR HAMMER	16/16	
31.70									
104.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SHEET 4 OF 7

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
31.70		CONTINUED							
104.0		Compact, brown, fine SAND, trace to some silt	SP to SM	-	14	DO	AIR HAMMER	16/17	Grout; 32.92; Bentonite Clay Seal; 108.0; 33.53; 110.0; 2" Solid PVC Pipe; Pea Gravel; 35.05; 115.0; 2" Slotted PVC Pipe; Pea Gravel
				-	15	DO	AIR HAMMER	18/18	38.10; 125.0
				-	16	DO	AIR HAMMER	15/15	Pea Gravel
42.37									
139.0		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SHEET 5 OF 7

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
42.37		CONTINUED							CONTINUED
139.0									
				-	17	DO	AIR HAMMER		Pea Gravel (to bottom of boring)
				-	18	DO	AIR HAMMER	14/15	
		Compact, brown, fine SAND, trace to some silt	SP to SM						
				-	19	DO	AIR HAMMER	10/10	
				-	20	DO	AIR HAMMER	9/20	
53.04									
174.0		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
53.04		CONTINUED							
174.0									
				-	21	DO	AIR HAMMER	10/15	
		Compact, brown, fine SAND, trace to some silt	SP to SM	-	22	DO	AIR HAMMER	11/15	
				-	23	DO	AIR HAMMER	13/18	
62.94									
206.5		CONTINUED							

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109970 ft. (N33519m)
E2282570 ft. (E695729m)

BORING LOG G41-E22

SURFACE ELEV. 1609.8 ft. (490.66m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 12/29/81 DATE COMPLETED 1/4/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
62.94		CONTINUED							
206.5				-	24	DO	AIR HAMMER	11/11	
		Compact, brown, fine SAND, trace to some silt	SP to SM						
66.53									
215.0		Fine to coarse SAND, some silt	SM						
66.45									
218.0		Green, moderately weathered bedrock							
68.28				-	25	DO	AIR HAMMER	10/10	
224.0		END OF BORING							

NOTES:

1. Elevation of top of protector pipe, 1612.7 ft. (491.54m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/12/82	1/22/82	2/5/82	2/23/82			
DEPTH (M)	6.61	6.35	6.29	6.45			
DEPTH (ft.)	21.7	20.8	20.7	21.2			

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked JVK

COOR. N109955 ft. (N33514m)
E2282590 ft. (E695735m)

BORING LOG G41-E22A

SHEET 1 OF 2

SURFACE ELEV. 1609.5 ft. (490.57m) PROJECT EXXON CRANDON TAILINGS DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/6/82 DATE COMPLETED 1/6/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Air & Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC/ATT.	GROUNDWATER OBSERVATION WELL
0.0 / 1.07		Compact, brown SILT, some fine to coarse gravel, some fine to coarse sand	ML	-	1	DO	P.H.	17/21	0.0
3.5 / 10.06		Compact, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	SP-SM	-	2	DO	AIR HAMMER	15/21	Grout
				-	3	DO	AIR HAMMER	12/12	2" Solid PVC Pipe; 7.93; Bentonite Clay Seal 26.0–8.53; 28.0; Pea Gravel; 10.06
33.0 / 11.13		Very dense, brown, fine to coarse SAND, some silt, trace clay, trace fine gravel	SM	-	4	DO	AIR HAMMER	18/18	See Note 1; 33.0; Pea Gravel
36.5		CONTINUED							CONTINUED

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

COOR. N109955 ft. (N33514m)
E2282590 ft. (E695735m)

BORING LOG G41-E22A

SHEET 2 OF 2

SURFACE ELEV. 1609.5 ft. (490.57m) PROJECT EXXON CRANDON TAILINGS-DISPOSAL SYSTEM

DATUM USGS MSL DATE STARTED 1/6/82 DATE COMPLETED 1/6/82

DRILL RIG Schramm Rotadrill DRILLING METHOD Air & Mud Rotary

DEPTH METERS / FEET	STRAT. PLOT	DESCRIPTION	UNIFIED CLASS.	BLOWS / FOOT	SAMPLES NUMBER	TYPE	HAMMER BLOWS PER 6IN.	REC./ATT.	GROUNDWATER OBSERVATION WELL
11.13		CONTINUED							CONTINUED
36.5		Very dense, brown, fine to coarse SAND, some silt, trace clay, trace fine gravel	SM						Pea Gravel 11.58 / 38.0 / Pea Gravel
12.83				-	5	DO	AIR HAMMER	13/13	12.83
42.1									42.1

END OF BORING

NOTES:

1. 2" Slotted PVC Pipe from 33.0 - 38.0 feet.

2. Elevation of top of protector pipe, 1613.7 ft. (491.86m).

Table of Water Level Readings by Date. Readings Indicate Depth Below Ground Surface.

DATE	1/12/82	1/22/82	2/5/82	2/23/82			
DEPTH (M)	6.23	5.75	5.68	5.87			
DEPTH (ft.)	20.5	18.9	18.7	19.3			

Job No. 814-1296
Scale 1"=5'

Golder Associates

Drawn CAB
Checked MTF

UW-STEVENS POINT
3 1775 620573 9