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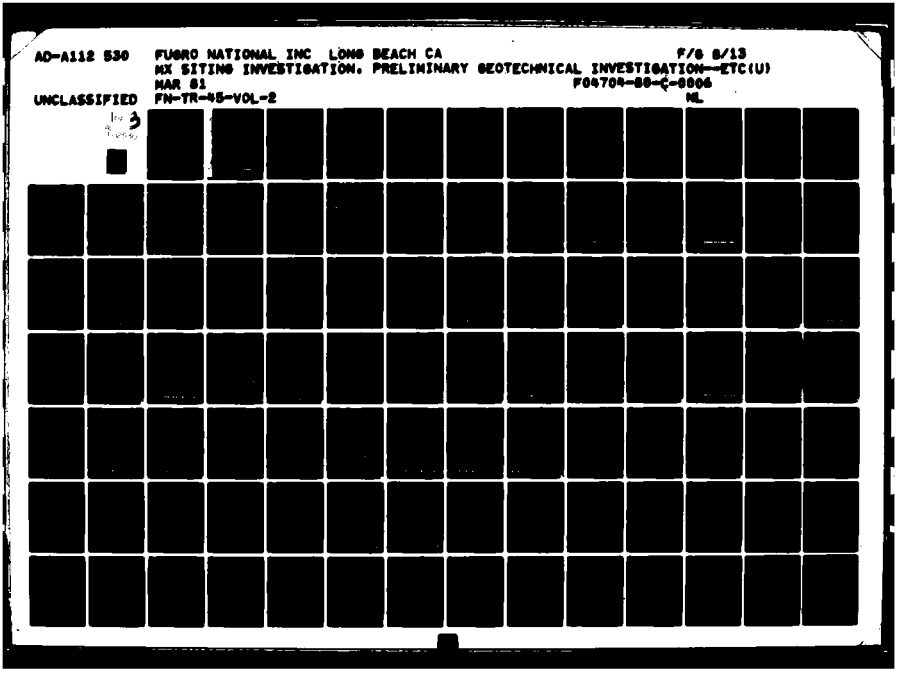

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MX SITING INVESTIGATION
GEOTECHNICAL EVALUATION

PRELIMINARY GEOTECHNICAL INVESTIGATION PROPOSED OPERATIONAL BASE SITE BERYL, UTAH

VOLUME II - GEOTECHNICAL DATA

PREPARED FOR
BALLISTIC MISSILE OFFICE (BMO)
NORTON AIR FORCE BASE, CALIFORNIA

FUGRO NATIONAL, INC.
Consulting Engineers and Geologists

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~~Exploration~~ Boring, Trench, Test Pit logs, ~~lab test results~~, cone penetrometer ~~data~~, seismic refraction ~~data~~, electrical resistivity ~~data~~, triaxial compression, [illegible], grain size, California Bearing Ratio, Soil

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report contains maps of boring, Trench and test pit logs locations. Seismic-refraction data and electrical resistivity data for the Beryl, Utah, operating base location described in Volume I of this report.

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FN-TR-45

MX SITING INVESTIGATION
GEOTECHNICAL EVALUATION

PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED OPERATIONAL BASE SITE
BERYL, UTAH

VOLUME II - GEOTECHNICAL DATA

Prepared for:

U.S. Department of the Air Force
Ballistic Missile Office
Norton Air Force Base, California 92409

Prepared by:

Fugro National, Inc.
3777 Long Beach Boulevard
Long Beach, California 90807

20 March 1981

FOREWORD

This volume of geotechnical data was compiled for the Department of the Air Force, Ballistic Missile Office (BMO), in compliance with Contract No. F04704-80-C-0006, CDRL Item 004A6. It contains the field data and laboratory test results from the investigation of the proposed Operational Base Site, Beryl, Utah. A synthesis of these data is available in Volume I.

The data in each section of this volume are preceded by an explanation of the format and terms used in the compilation.

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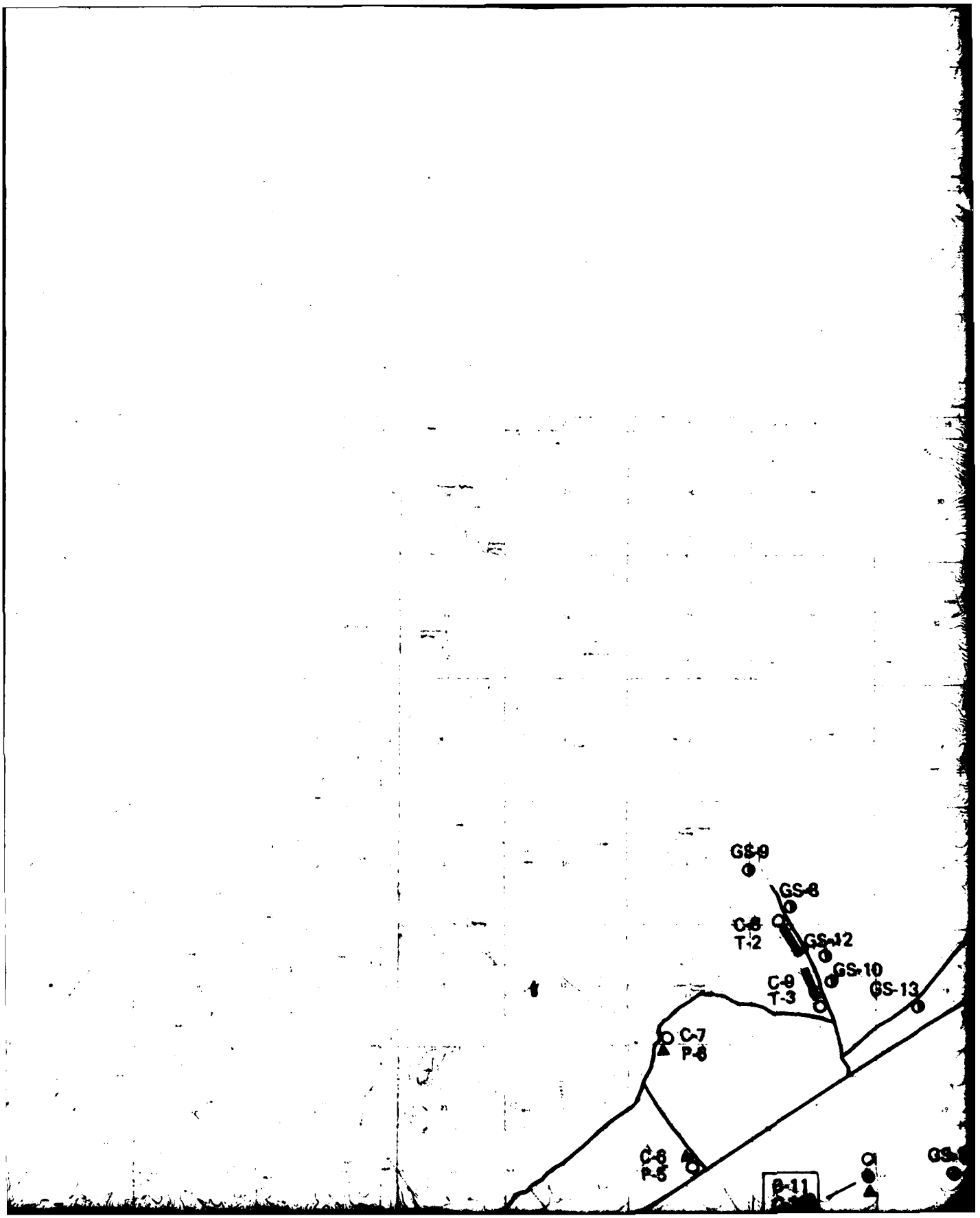
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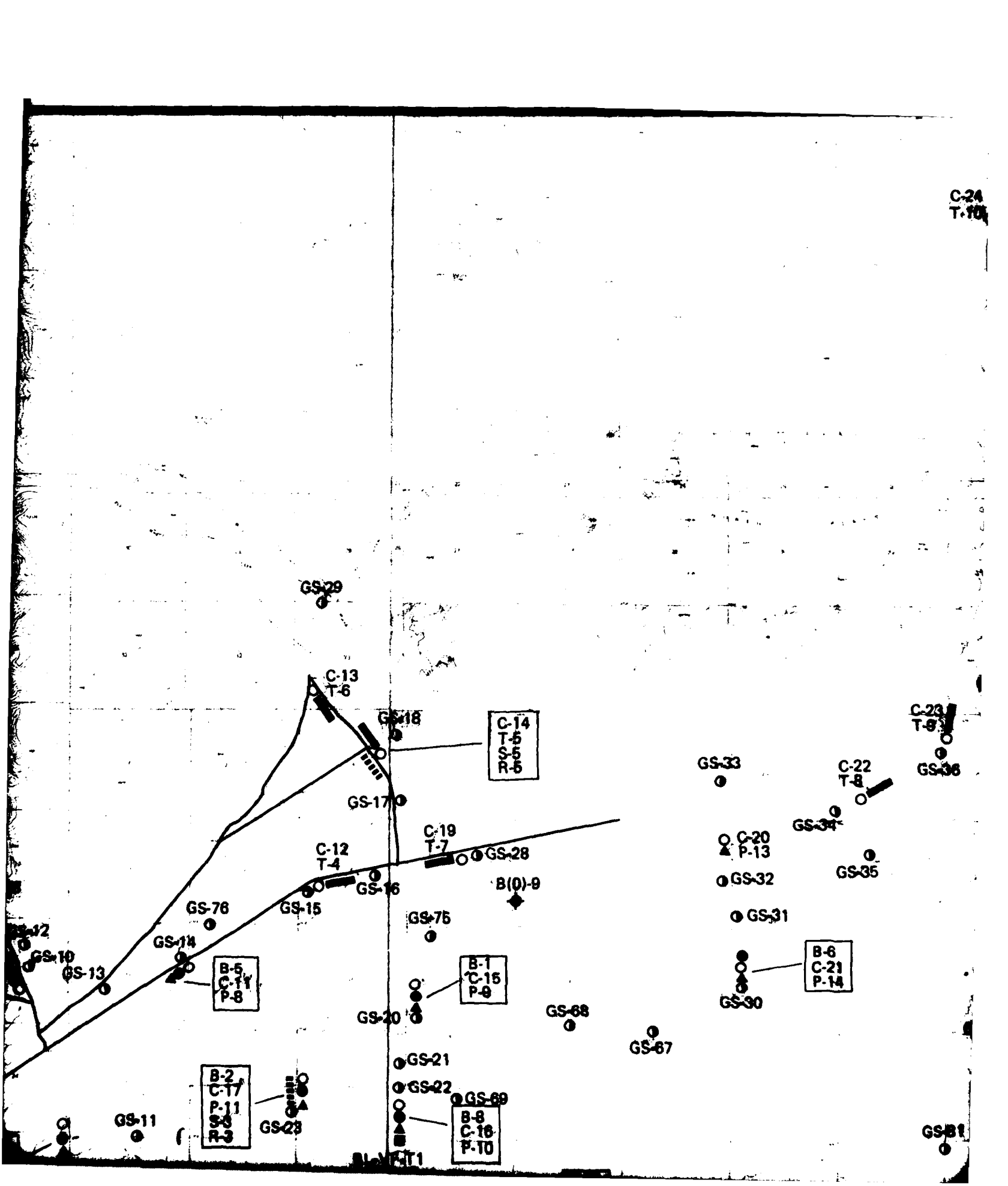
GS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C-15
P-9
GS-20
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GS-67
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GS-22
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C-16
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B-2
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T-1
GS-33
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T-8
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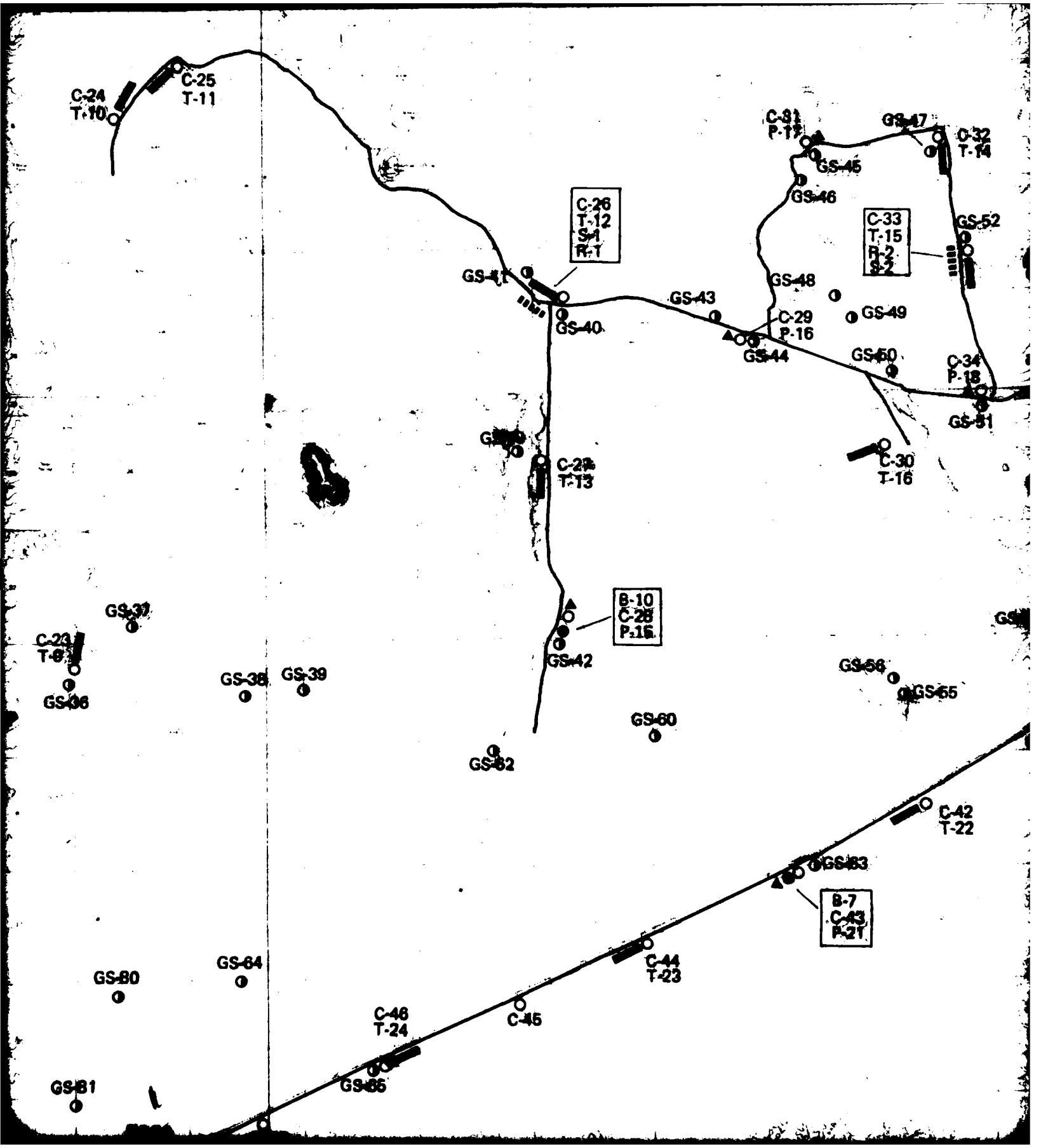
GS-30
GS-81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S-2
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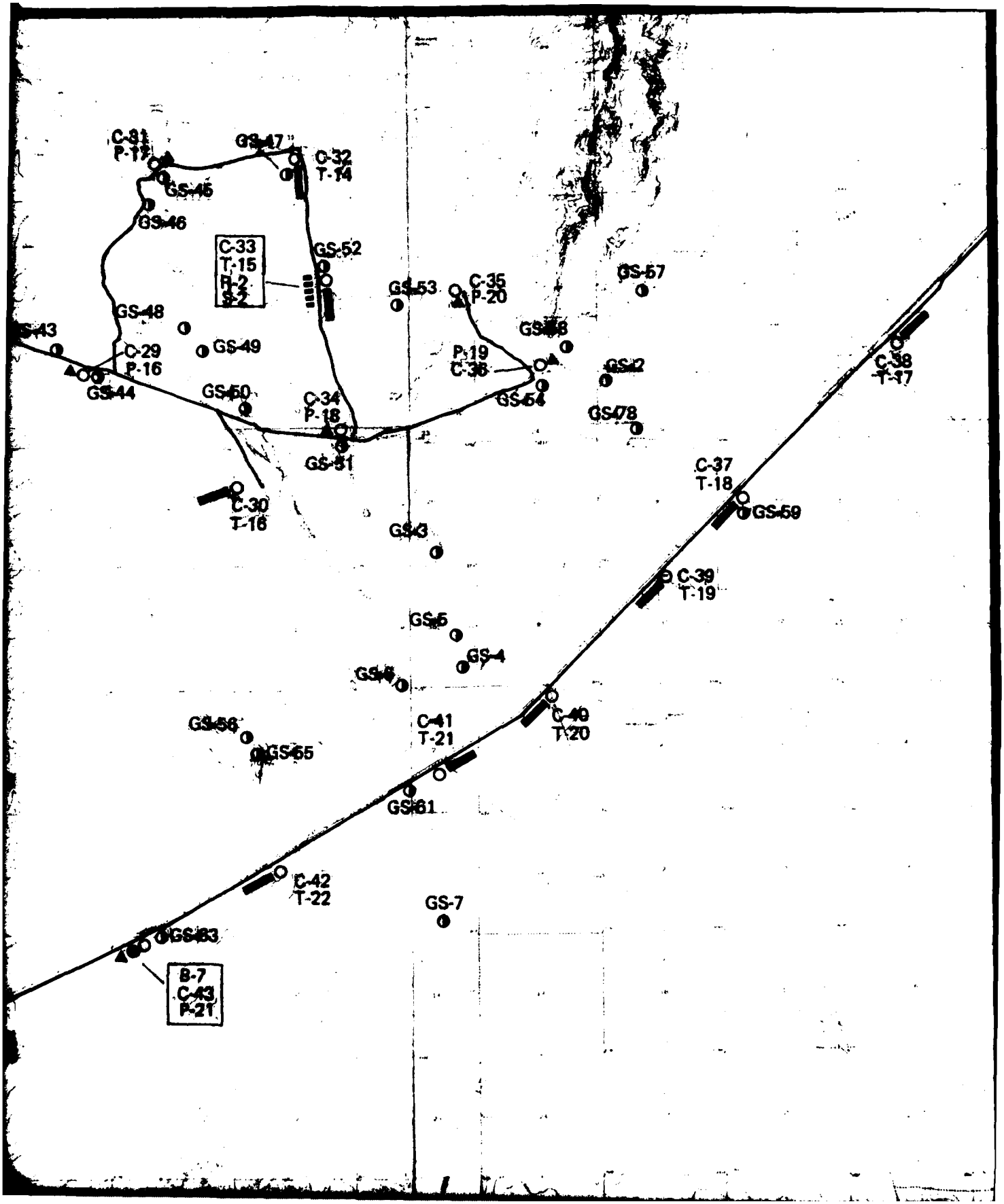
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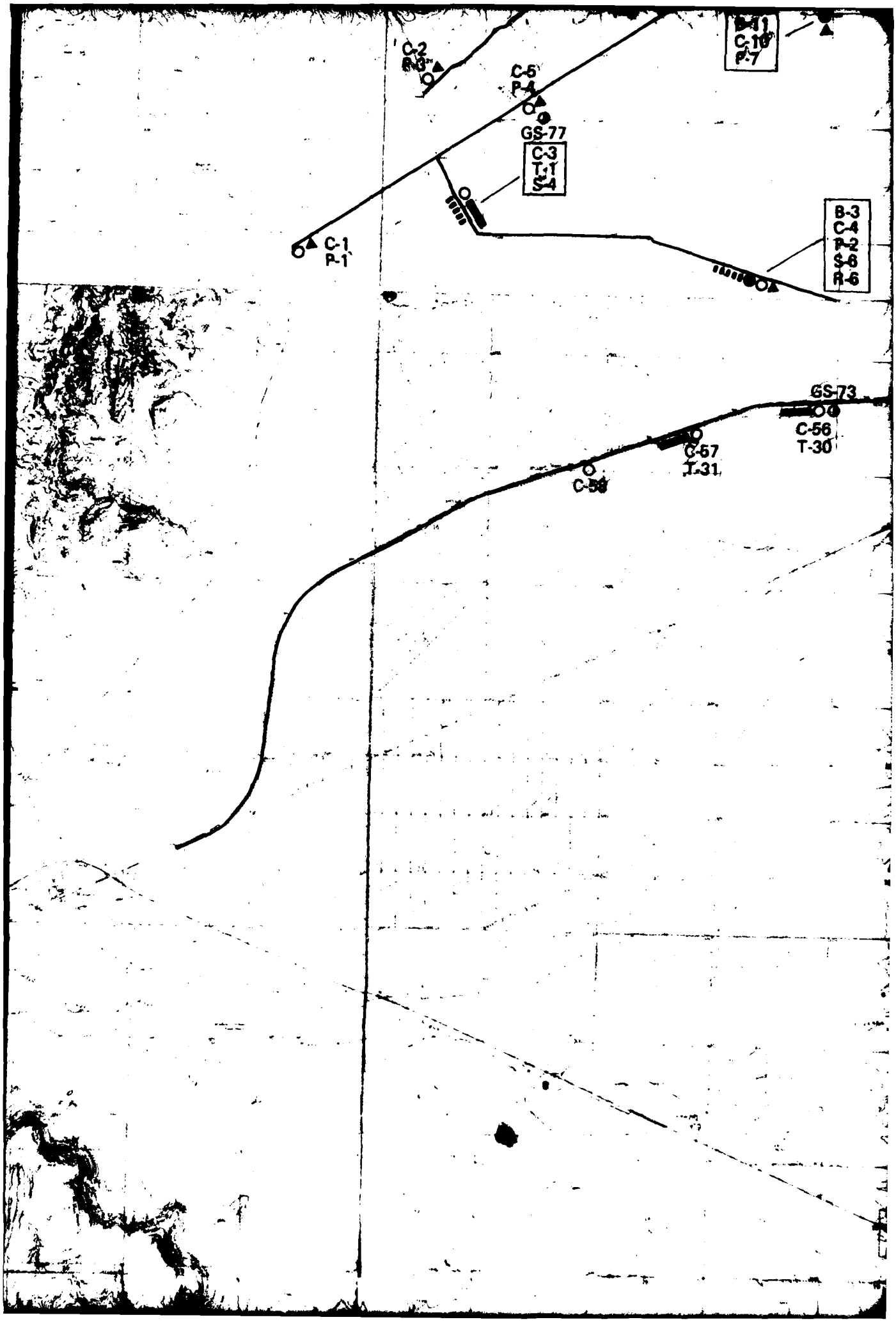
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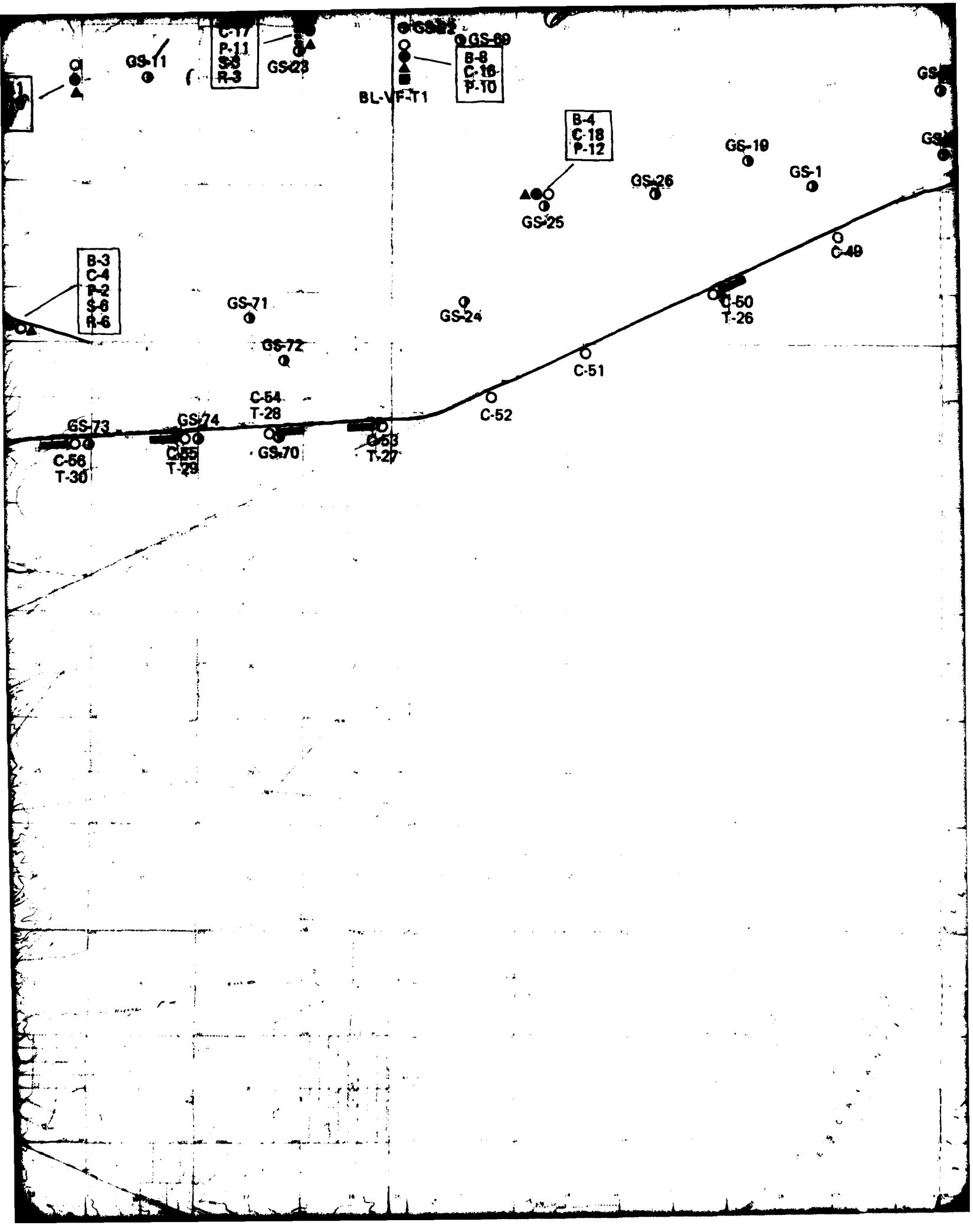
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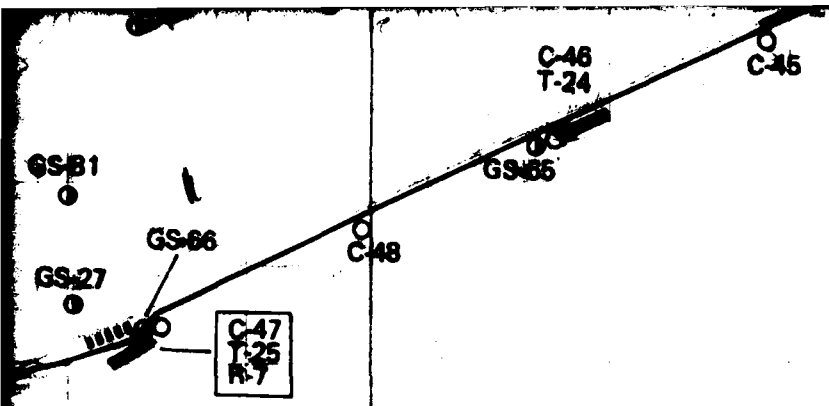
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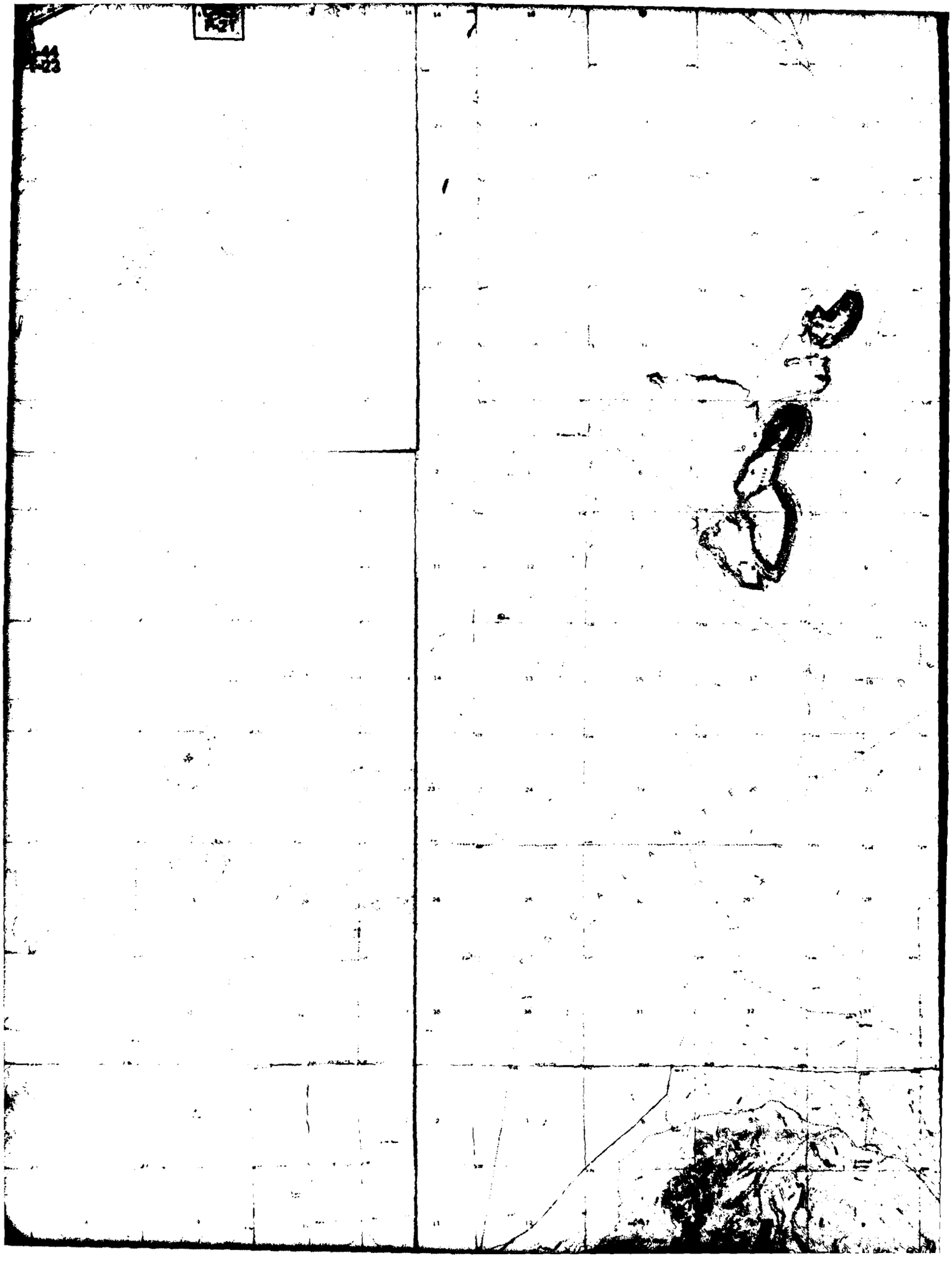
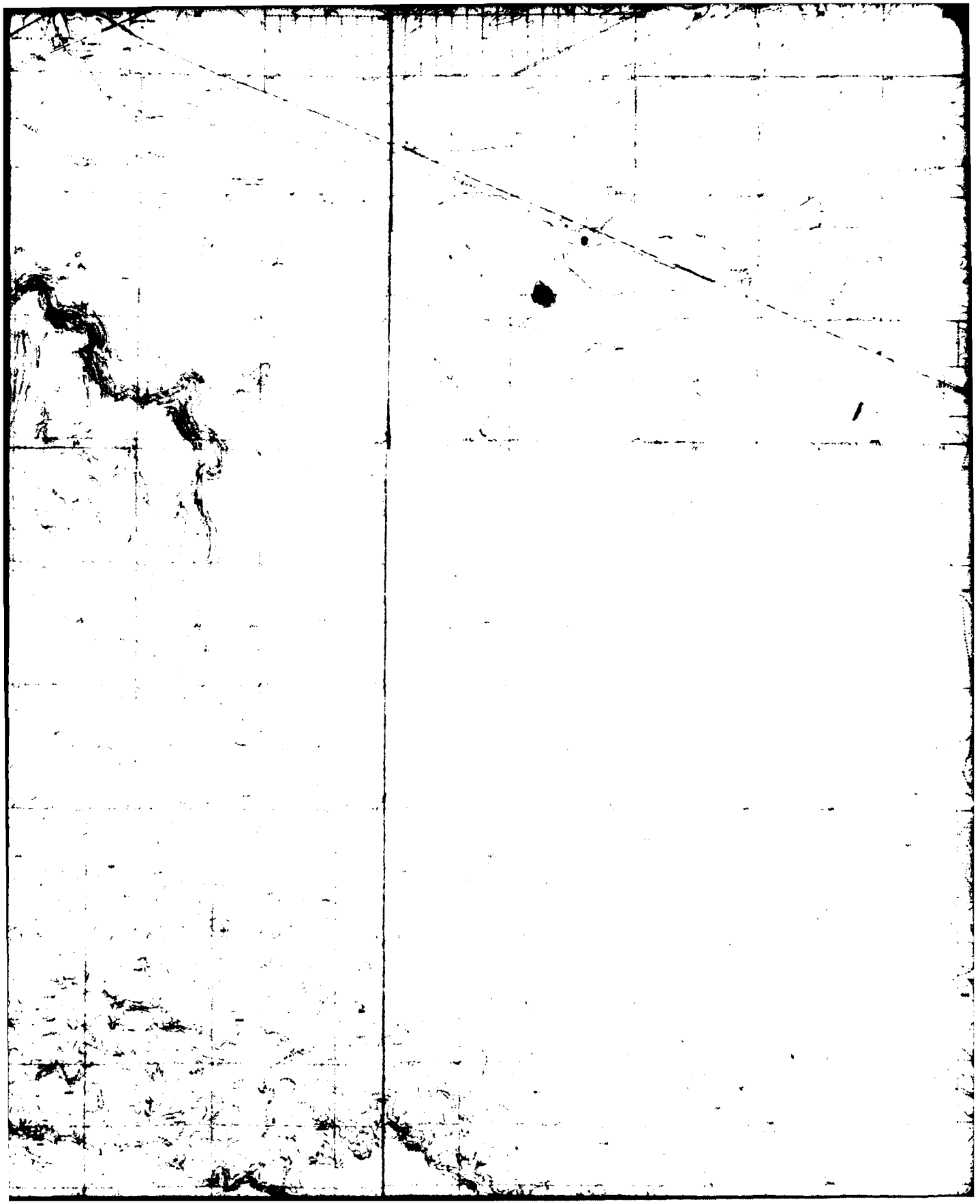
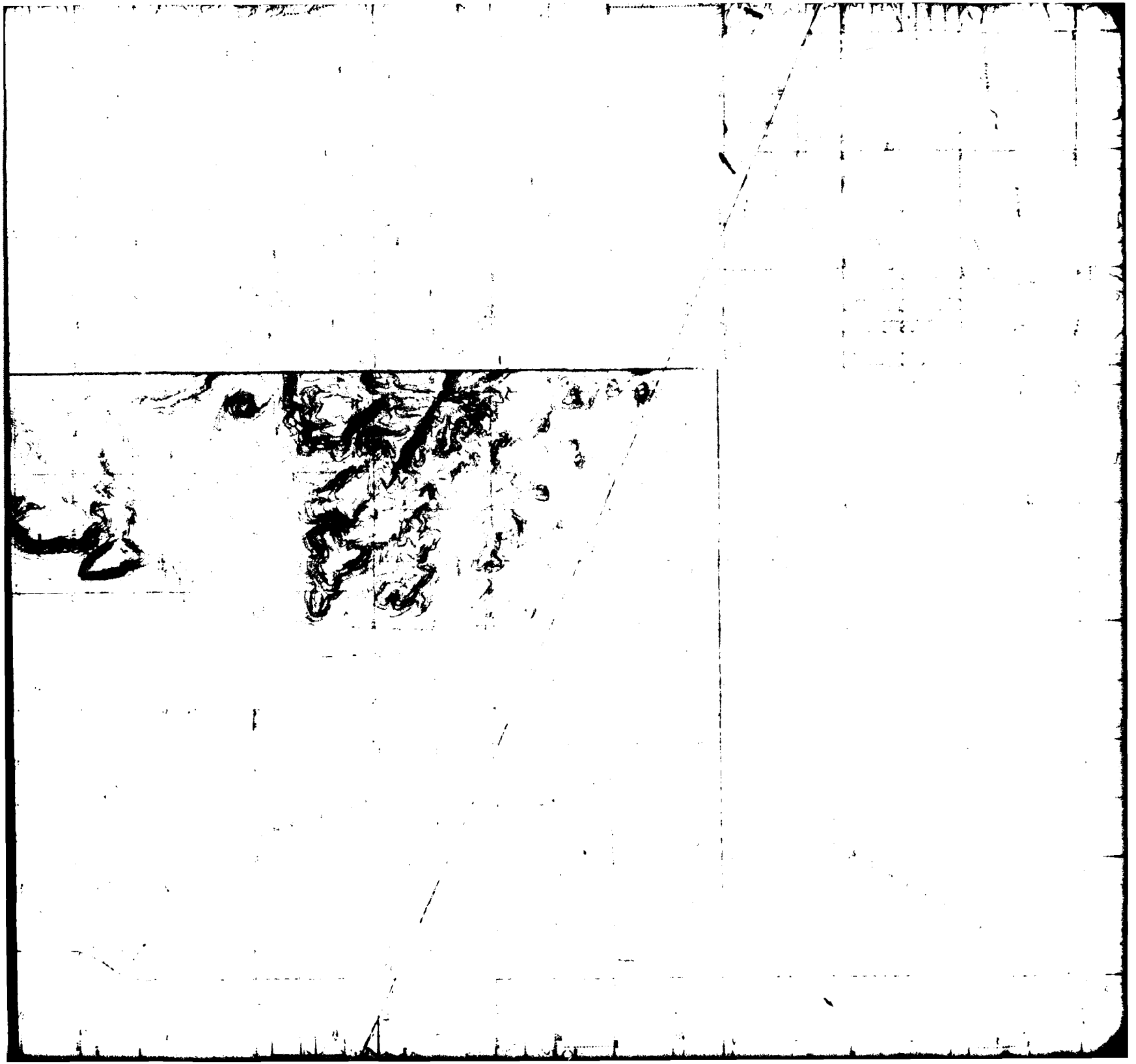
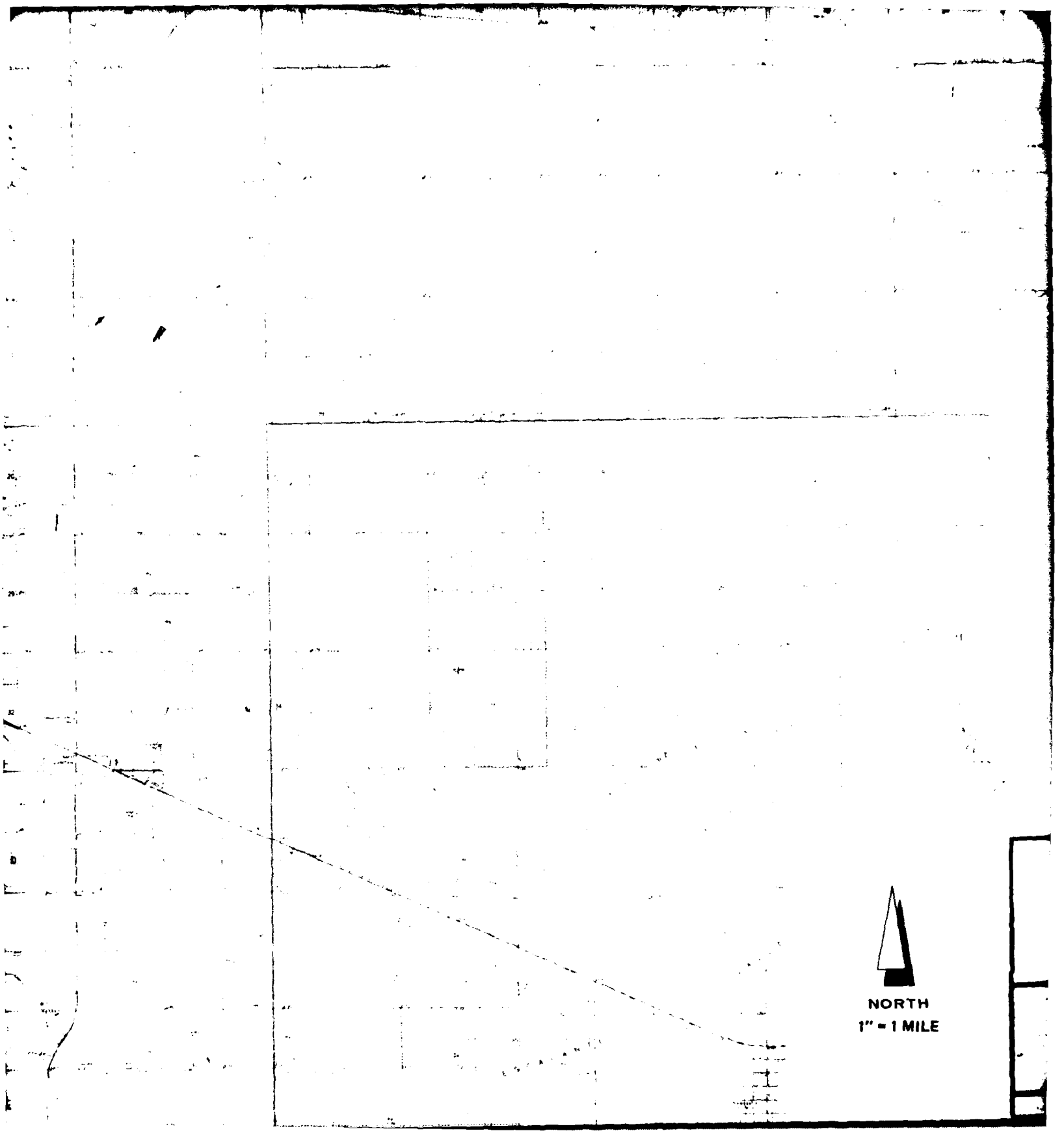
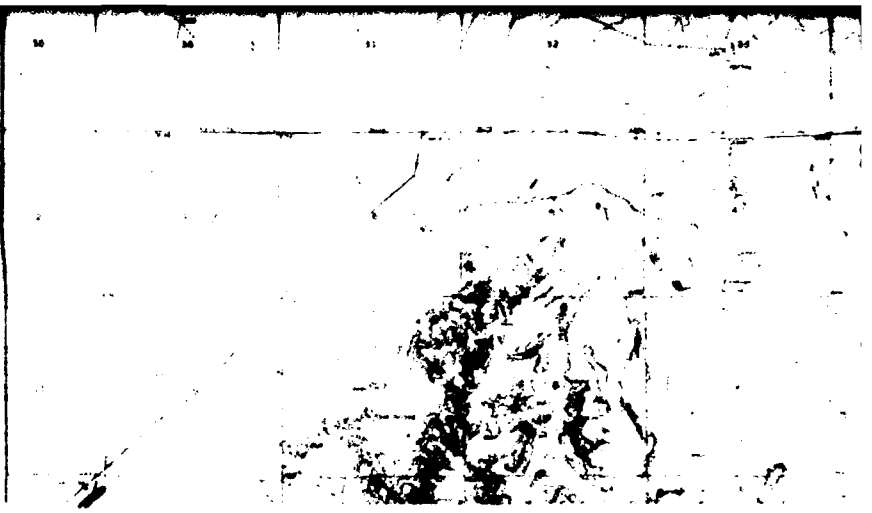







NORTH
1" = 1 MILE



EXPLANATION

◑	GS-1	GEOLOGIC STATION
◆	B(0)-1	BORING WITH OBSERVATION WELL
●	B-1	BORING
○	C-1	CONE PENETROMETER TEST (CPT)
▬	T-1	TRENCH
▲	P-1	TEST PIT
▮▮▮▮▮	S-1	SEISMIC REFRACTION LINE
	R-1	ELECTRICAL RESISTIVITY LINE
■	BL-VF-T1	FUGRO WATER RESOURCES WELL

NOTE: Due to the exaggeration of the map symbols, the exact location of any combination of activities is where either the boring (1st) or the CPT (2nd) is situated. Single activities are most securely located nearest the center of the symbol.

NORTH
1" = 1 MILE

ACTIVITY LOCATION MAP
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE – BMO

DRAWING
II-1-1

FUGRO NATIONAL, INC.

SECTION 2.0

EXPLANATION OF BORING, TRENCH, AND TEST PIT LOGS

2.0 EXPLANATION OF BORING, TRENCH, AND TEST PIT LOGS

All data from borings, trenches, and test pits are presented on standard Fugro National logs in Sections 2.0, 3.0, and 4.0. Explanations of the column headings on the logs are as follows:

A. Designations - Borings, trenches, and test pits are identified as follows:

BL-B-1
BL - abbreviation for the site (e.g., BL-Beryl)
B - abbreviation for activity (e.g., B-boring, T-trench, P-test pit)
1 - number of activity

B. Sample Type - Different sampling techniques were used and the symbols are explained at the bottom of the boring logs. For details of sampling techniques, see Section A4.0 of Appendix in Volume I. Horizontal lines, to scale, indicate the depth where sampling was attempted.

C. Percent Recovery - The numbers shown represent the ratio (in percent) of the soil sample recovered in the sampler to the full penetration of the sampler.

D. N Value - Corresponds to standard penetration resistance which is the number of blows required to drive a standard split-spoon sampler for the second and third of three 6-inch (15-cm) increments with a 140-pound (63.5-kg) hammer falling 30 inches (76 cm) (ASTM D 1586-67).

E. Depth - Corresponds to depth below ground surface in meters and feet.

F. Lithology - Graphic representation of the soil and rock types.

G. USCS - Unified Soil Classification System symbols (see Table II-2-1 for complete details).

H. Soil Description - Except in cases where samples were classified based on laboratory test data, the descriptions are based on visual classification. The procedures outlined in ASTM D 2487-69, Classification of Soils for Engineering Purposes, and D 2488-69, Description of Soils (Visual-Manual Procedure), were followed. Solid lines across the column indicate known change in strata at the depth shown.

Definitions of some of the terms and criteria to describe soils and conditions encountered during the exploration follow.

Gradation : A coarse-grained soil is well graded if it has a wide range in grain size and substantial amounts of most intermediate particle sizes.

Poorly graded indicates that the soil consists predominantly of one size (uniformly graded) or has a wide range of sizes with some intermediate sizes obviously missing (gap-graded).

Moisture :

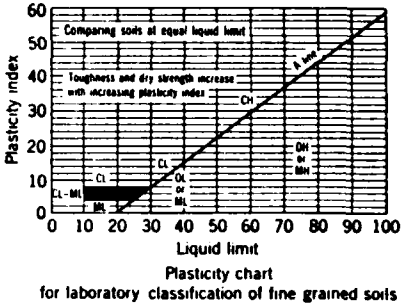
Dry	- no feel of moisture
Slightly Moist	- much less than normal moisture
Moist	- normal moisture for soil
Very Moist	- much greater than normal moisture
Wet	- for soils below the water table

UNIFIED SOIL CLASSIFICATION SYSTEM

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SAMSO

TABLE II-2-1

Field Identification Procedures (Excluding particles larger than 3 in. and basing fractions on estimated weights)						Group Symbols [a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than No. 200 sieve size [b]	Gravels More than half of coarse fraction is larger than No. 4 sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes			*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel, maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles ½-in maximum size, rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength, well compacted and moist in place, alluvial sand; (*SM*)	Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than No. 200 sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline* cases requiring use of dual symbols	$C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing			*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for *GW*
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)			*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures		Atterberg limits below "A" line, or *PI* less than 4 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures		Atterberg limits above "A" line, with *PI* greater than 7
	Sands More than half of coarse fraction is smaller than No. 4 sieve size (For visual classification, the ¼ in. size may be used as equivalent to the No. 4 sieve size)	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes			*SW*	Well graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing			*SP*	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for *SW*
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)			*SM*	Silty sands, poorly graded sand-silt mixtures		Atterberg limits below "A" line or *PI* less than 4 / Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			*SC*	Clayey sands, poorly graded sand-clay mixtures		Atterberg limits below "A" line with *PI* greater than 7
Fine-grained soils More than half of material is *smaller* than No. 200 sieve size (The No. 200 sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than No. 40 Sieve Size							Use grain size curve in identifying the fractions as given under field identification	
	Silts and clays liquid limit less than 50		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)				
			None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand, numerous vertical root holes, firm and dry in place, loess, (*ML*)	
			Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity		
	Silts and clays liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays		
			Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity		
Highly Organic Soils			Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils		



Plasticity chart
for laboratory classification of fine grained soils

From Wagner, 1957.

[a] *Boundary classifications.* Soils possessing characteristics of two groups are designated by combinations of group symbols. For example *GW-GC*, well graded gravel-sand mixture with clay binder.

[b] All sieve sizes on this chart are U.S. standard.

Field Identification Procedure for Fine Grained Soils or Fractions

These procedures are to be performed on the minus No. 40 sieve size particles, approximately ½₆ in. For field classification purposes, screening is not intended, simply remove by hand the coarse particles that interfere with the tests.

Dilatancy (Reaction to shaking):

After removing particles larger than No. 40 sieve size, prepare a pat of moist soil with a volume of about one-half cubic inch. Add enough water if necessary to make the *soil soft but not* sticky.

Place the pat in the open palm of one hand and shake horizontally, striking vigorously against the other hand several times. A positive reaction consists of the appearance of water on the surface of the pat which changes to a livery consistency and becomes glossy. When the sample is squeezed between the fingers, the water and gloss disappear from the surface, the pat stiffens and finally it cracks or crumbles. The rapidity of appearance of water during shaking and of its disappearance during squeezing assist in identifying the character of the fines in a soil.

Very fine clean sands give the quickest and most distinct reaction whereas a plastic clay has no reaction. Inorganic silts, such as a typical rock flour, show a moderately quick reaction.

Dry Strength (Crushing characteristics):

After removing particles larger than No. 40 sieve size, mould a pat of soil to the consistency of putty, adding water if necessary. Allow the pat to *dry completely* by oven, sun or air drying, and then test its strength by breaking and crumbling between the fingers. This strength is a measure of the character and quantity of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.

High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sands and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.

Toughness (Consistency near plastic limit):

After removing particles larger than the No. 40 sieve size, a specimen of soil about one-half inch cube in size, is moulded to the consistency of putty. If too dry, water must be added and if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface or between the palms into a thread about one-eight inch in diameter. The thread is then folded and re-rolled repeatedly. During this manipulation the moisture content is gradually reduced and the specimen stiffens, finally loses its plasticity, and crumbles when the plastic limit is reached.

After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.

The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more potent is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay of low plasticity, or materials such as kaolin-type clays and organic clays which occur below the A-line.

Highly organic clays have a very weak and spongy feel at the plastic limit.

Consistency: Consistency descriptions of coarse-grained soils (GW, GP, GM, GC, SW, SP, SM, SC) are as follows.

Consistency	N Value (ASTM D 1586-67)
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

Consistency descriptions of fine-grained soils (ML, CL, MH, CH,) are as follows:

Consistency	Shear Strength (ksf)	Shear Strength (kN/m^2)	Field Guide
Very Soft	0.25	12	Sample with height equal to twice the diameter, sags under own weight
Soft	0.25-0.50	12 - 24	Can be squeezed between thumb and forefinger
Firm	0.50-1.00	24-48	Can be molded easily with fingers
Stiff	1.00-2.00	48-96	Can be imprinted with slight pressure from fingers
Very Stiff	2.00-4.00	96-192	Can be imprinted with considerable pressure from fingers
Hard	over 4.00	over 192	Cannot be imprinted by fingers

Grain Shape: Angular - particles have sharp edges and relatively plane sides with unpolished surfaces.

Subangular - particles are similar to angular but have somewhat rounded edges.

Subrounded - particles exhibit nearly plane sides but have well-rounded corners and edges.

Rounded - particles have smoothly curved sides and no edges.

Plasticity : Plasticity index is the range of water content, expressed as a percentage of the weight of the oven-dried soil, through which the soil is plastic. It is defined as the liquid limit minus the plastic limit. Descriptive ranges used on the logs include:

Nonplastic	(PI, 0 - 4)
Slightly Plastic	(PI, 4 - 15)
Medium Plastic	(PI, 15 - 30)
Highly Plastic	(PI, >30)

Cobbles and Boulders : A cobble is a rock fragment, usually rounded by weathering or abrasion, with an average diameter ranging between 3 and 12 inches (8 and 30 cm).

A boulder is a rock fragment, usually rounded by weathering or abrasion, with an average diameter of 12 inches (30 cm) or more.

I. Remarks - This column was provided on boring and trench logs for comments regarding drilling difficulty, number and size of cobbles or boulders encountered, loss of drilling fluid in the boring, trench wall stability, and other conditions encountered during drilling and excavations.

J. Dry Density and Moisture Content - The boring logs include a graphical display of laboratory test results for dry density (ASTM D 2937-71) in pounds per cubic foot and kilograms per cubic meter and moisture content (ASTM D 2216-71) in percent from representative samples taken during drilling. The symbols are explained at the bottom of the boring logs.

K. Sieve Analysis - The numbers represent the percentage by dry weight (ASTM D 422-63) of each of the following soil components:

GR - Gravel, rock particles that will pass a 3-inch (76-mm) sieve and are retained on No. 4 (4.75 mm) sieve.

SA - Sand, soil particles passing No. 4 sieve and retained on No. 200 (0.075 mm) sieve.

FI - Fines, silt or clay, soil particles passing No. 200 sieve.

L. Atterberg Limits (LL and PI) -

LL - Liquid Limit, the water content corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).

PL - Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).

PI - Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soil-water mixture is plastic.

NP - Nonplastic.

M. Miscellaneous Information -

Elevations - indicated elevations on the logs are estimated from topographic maps of the study area, within an accuracy of half the contour interval.

Surficial Geologic Unit - indicates the surficial geologic unit in which the activity is located.

Date Drilled - indicates the period from beginning to completion of the activity.

Drilling Method - signifies the type of drilling procedure used such as rotary wash.

Hole Diameter - nominal size of boring drilled.

Water Level - indicates depth from ground surface to water table where encountered.

Trench Length - length at ground surface of final trench excavation.

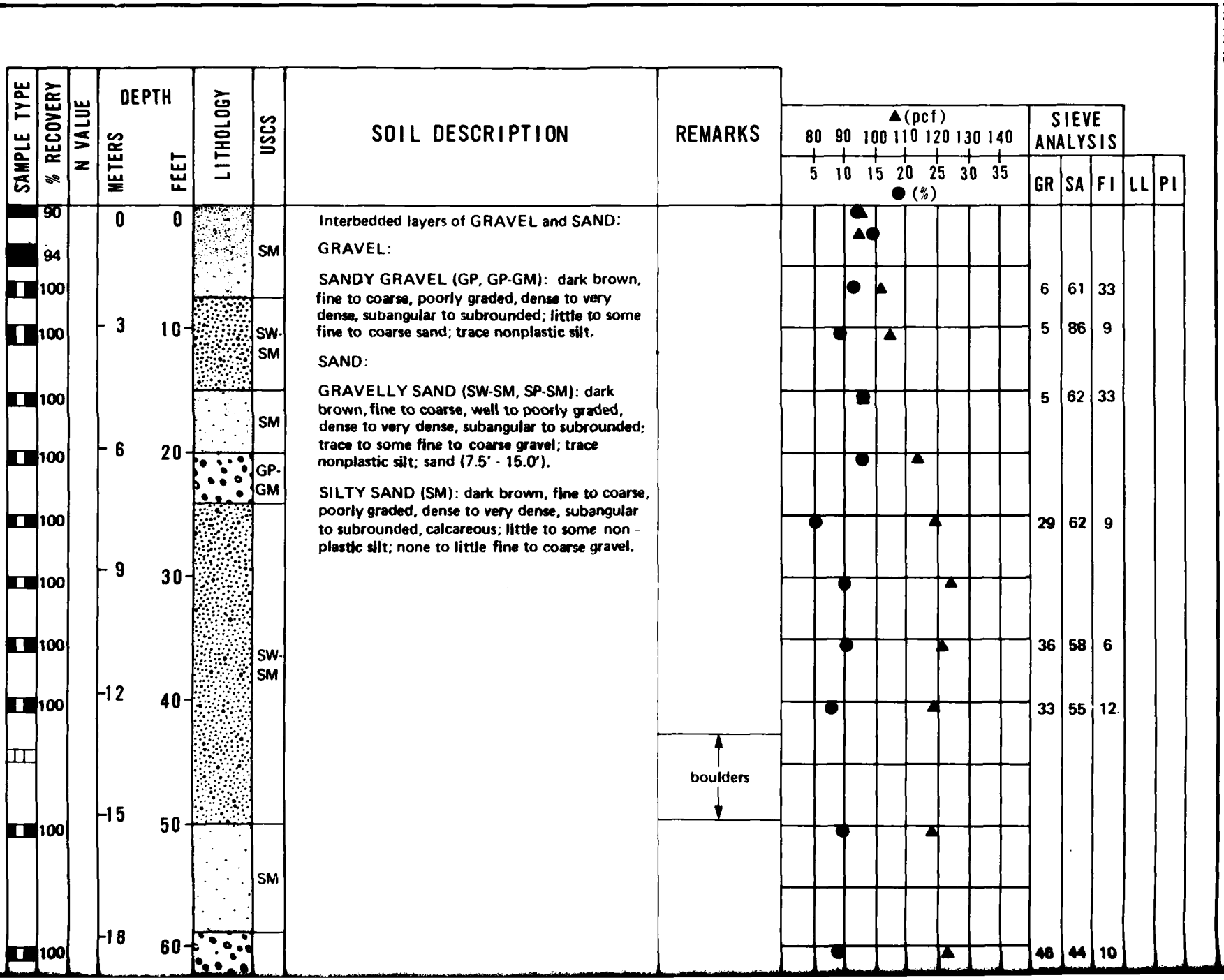
Trench Orientation - bearing of longitudinal trench centerline.

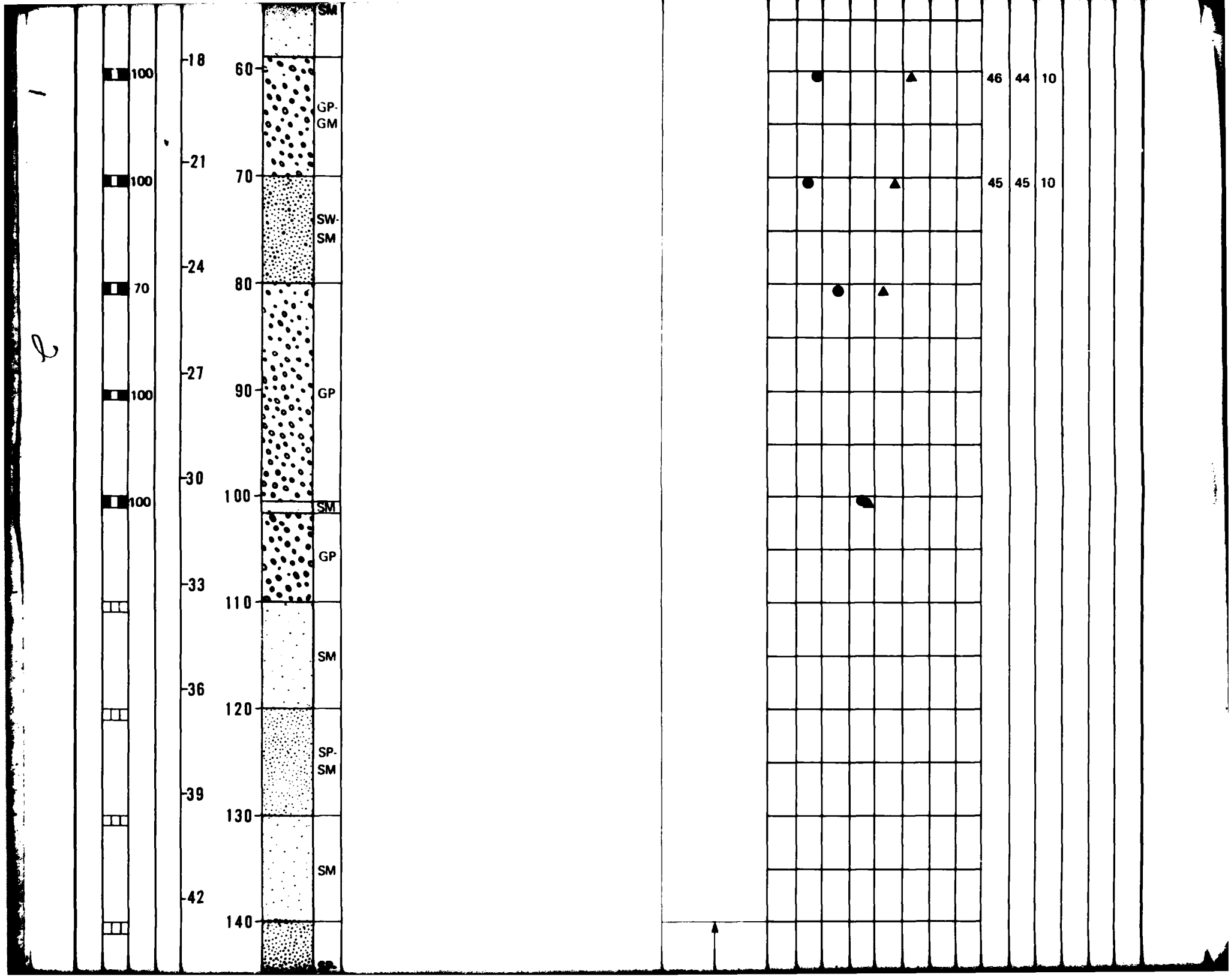
SECTION 3.0

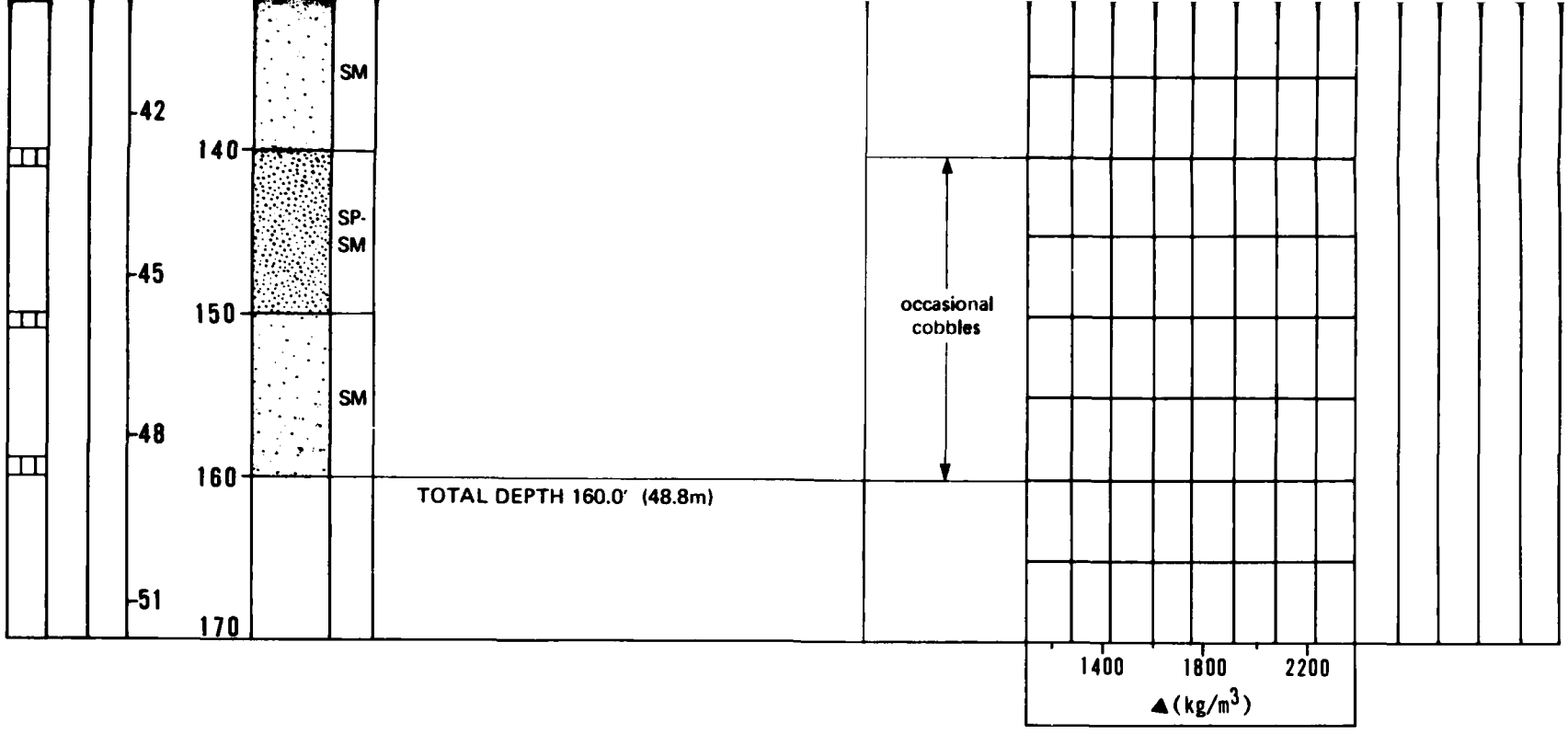
EXPLANATION OF TRENCH LOGS

20 MAR 81

FN-TR-45




100
100
70
100
100
18
21
24
27
30
33
36
39
42
60
70
80
90
100
110
120
130
140
SM
GP-GM
SW-SM
GP
SM
GP
SM
SP-SM
SM
SP
46 44 10
45 45 10



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5440' (1658m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 31 October 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

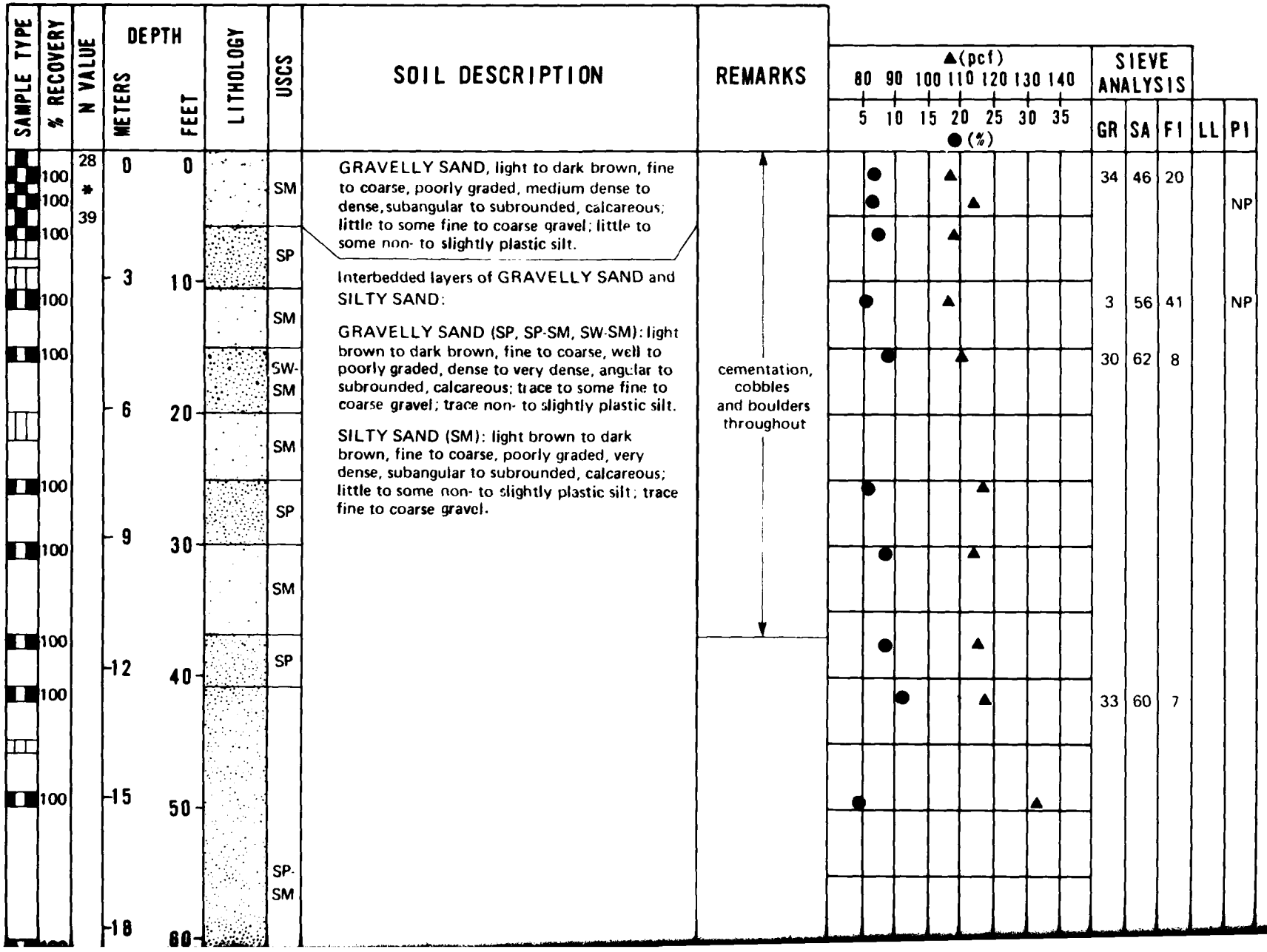
FIGURE II-2-1

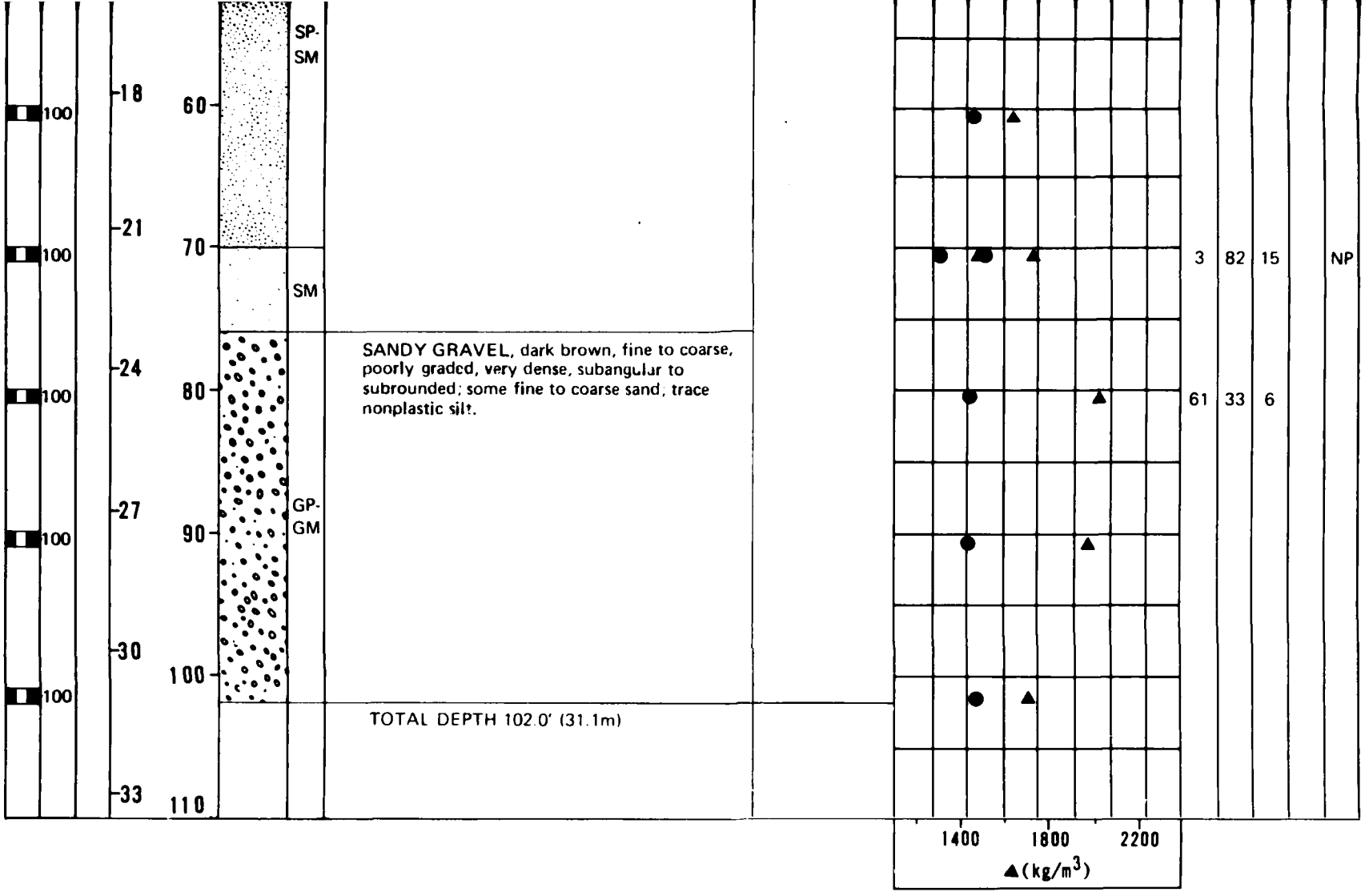
LOG OF BORING BL-8-1
OPERATIONAL BASE SITE
BERYL, UTAH

AFV-08

20 MAR 81

FN-TR-45





EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE

N - STANDARD PENETRATION RESISTANCE

▲ - DRY UNIT WEIGHT (ASTM: D 2937-71)

BORING DETAILS

ELEVATION	: 5360' (1634m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 1 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

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LOG OF BORING
OPERATIONAL BA
BERYL, UTA

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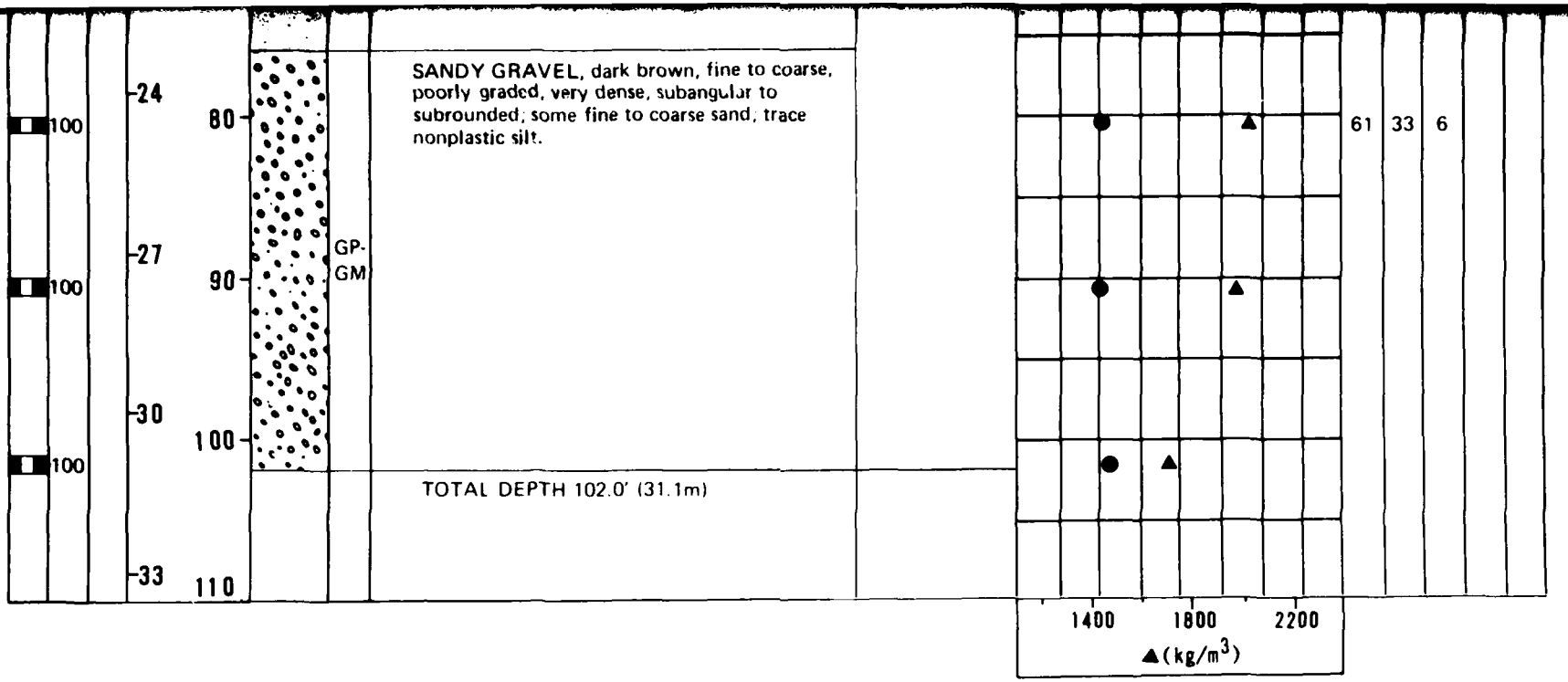
DEPARTMENT OF THE AIR FORCE



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N - STANDARD PENETRATION RESISTANCE
- ▲ - DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● - MOISTURE CONTENT (ASTM: D-2216-71)
- NR - NO RECOVERY
- * - N Value > 100

BORING DETAILS

ELEVATION	: 5360' (1634m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 1 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

LOG OF BORING BL-B-2
OPERATIONAL BASE SITE
BERYL, UTAH

FIGURE II-2-2

AFV-06

20 MAR 81

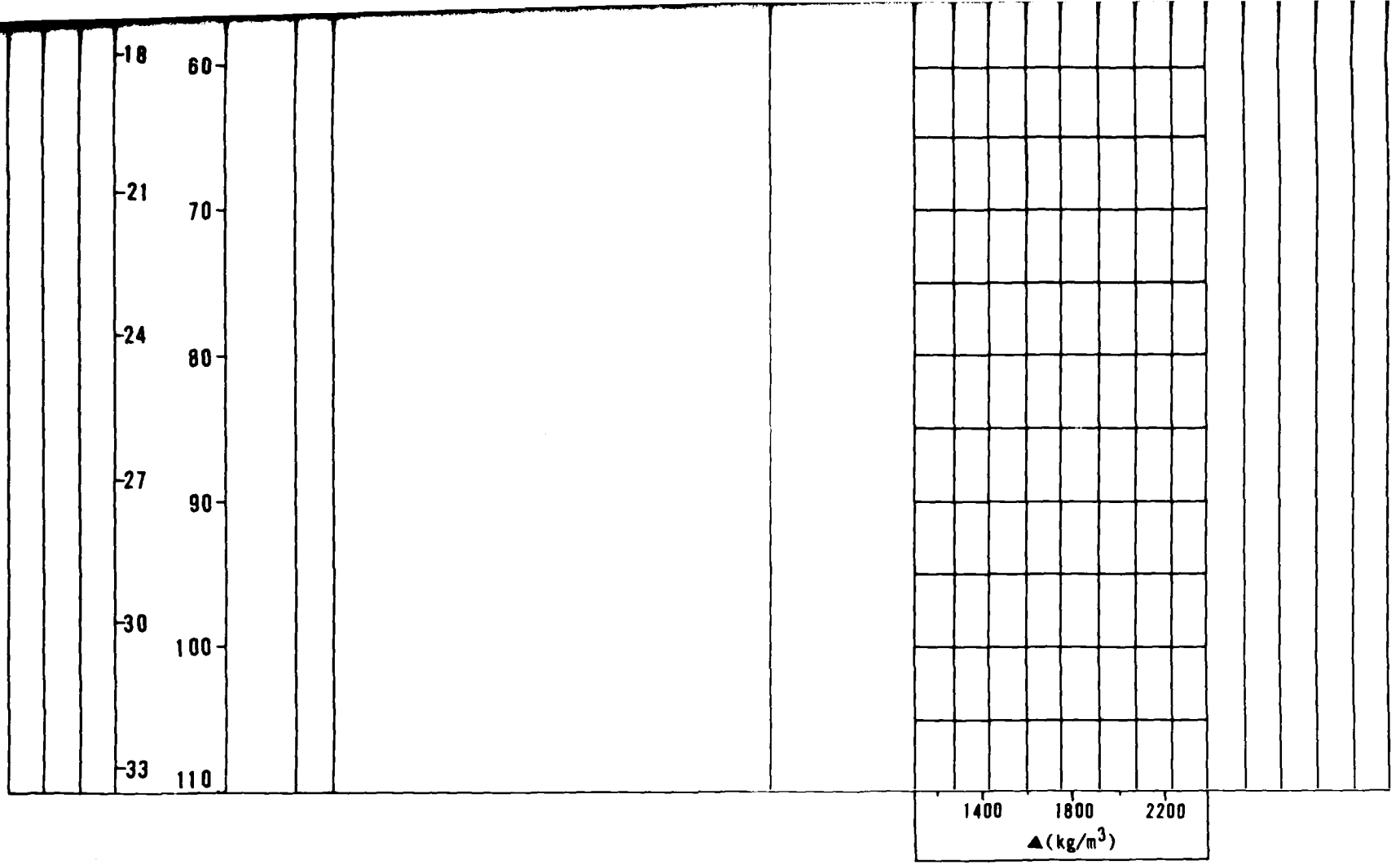
FN: TH-45

SAMPLE TYPE	% RECOVERY	N VALUE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	SOIL DESCRIPTION	REMARKS
		10	0	0		SM	Interbedded layers of GRAVEL, SAND, and FINES:	
		19				SP		
	100						GRAVEL:	
		77						
	100	28				GP	SANDY GRAVEL (GP, GM): brown to dark brown, fine to coarse, poorly graded, very dense, angular to subangular, calcareous; some fine to coarse sand; trace to little nonplastic silt.	
			3	10				
	100					CL	SAND:	
							GRAVELLY SAND (SP): dark brown, fine to coarse, poorly graded, very dense, subangular to subrounded, calcareous; some fine to coarse sand; trace nonplastic silt.	
	100		6	20		MH		
							SILTY SAND (SM): light brown to brown, fine to coarse, poorly graded, very dense, subangular to subrounded, calcareous; little to some nonplastic silt, trace fine gravel; sand (29.0' - 35.0').	
	100					GM		
	82		9	30		SW-SM	FINES:	
							SANDY SILT (MH, ML): light brown to brown, hard, non- to medium plastic, calcareous; some fine subangular to subrounded sand; silt (48.0' - 50.0').	
	95					ML		
			12	40				
	100					SM	SANDY CLAY (CL): dark brown, stiff, slightly to medium plastic, calcareous, trace to some fine to medium subangular to subrounded sand.	
						GP		
	67		15	50		ML		
							TOTAL DEPTH 50.0 (15.2m)	
			18	60				

▲(pcf) 80 90 100 110 120 130 140

● (%) 5 10 15 20 25 30 35

SIEVE ANALYSIS				
GR	SA	FI	LL	PI
0	49	51	34	12
0	12	88	41	20
0	16	84	52	20
8	80	12		
1	32	67	32	8
7	67	26		NP
0	11	89		NP



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N - STANDARD PENETRATION RESISTANCE
- ▲ - DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● - MOISTURE CONTENT (ASTM: D-2216-71)

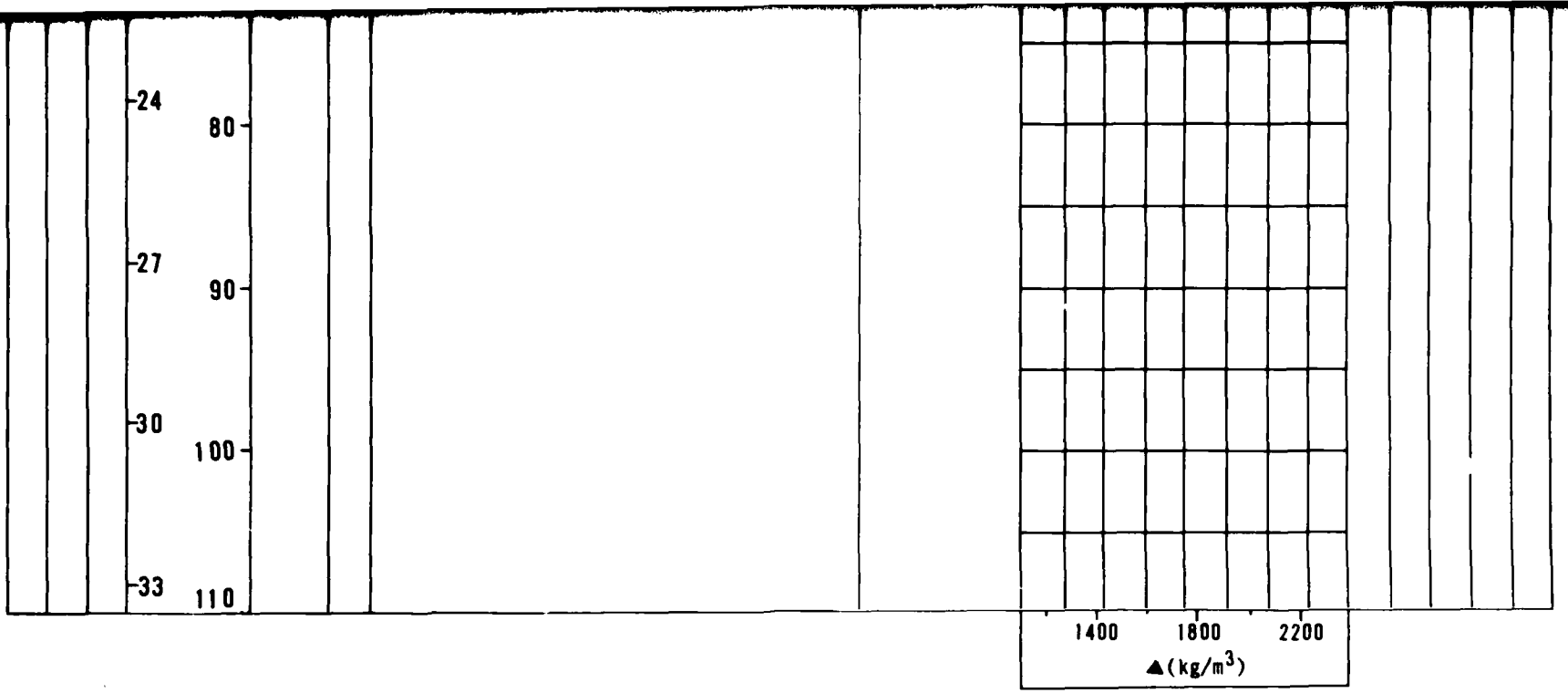
BORING DETAILS

ELEVATION	: 5300' (1615m)
SURFICIAL GEOLOGIC UNIT	: A5i/A5y
DATE DRILLED	: 2 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL

LOG OF BORING BL-B-3
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5300' (1615m)
SURFICIAL GEOLOGIC UNIT	: A5i/A5y
DATE DRILLED	: 2 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

LOG OF BORING BL-B-3
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II-2-3

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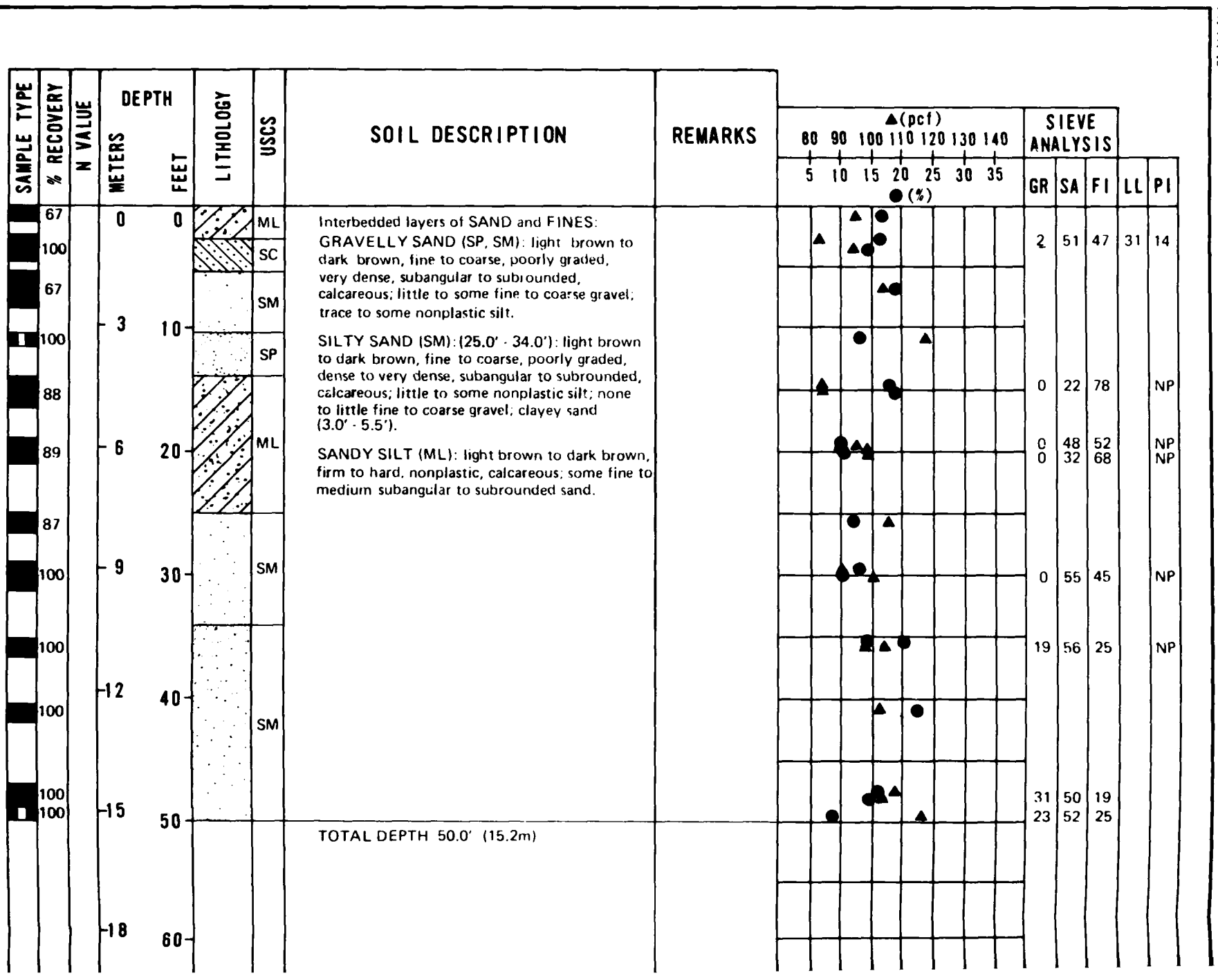
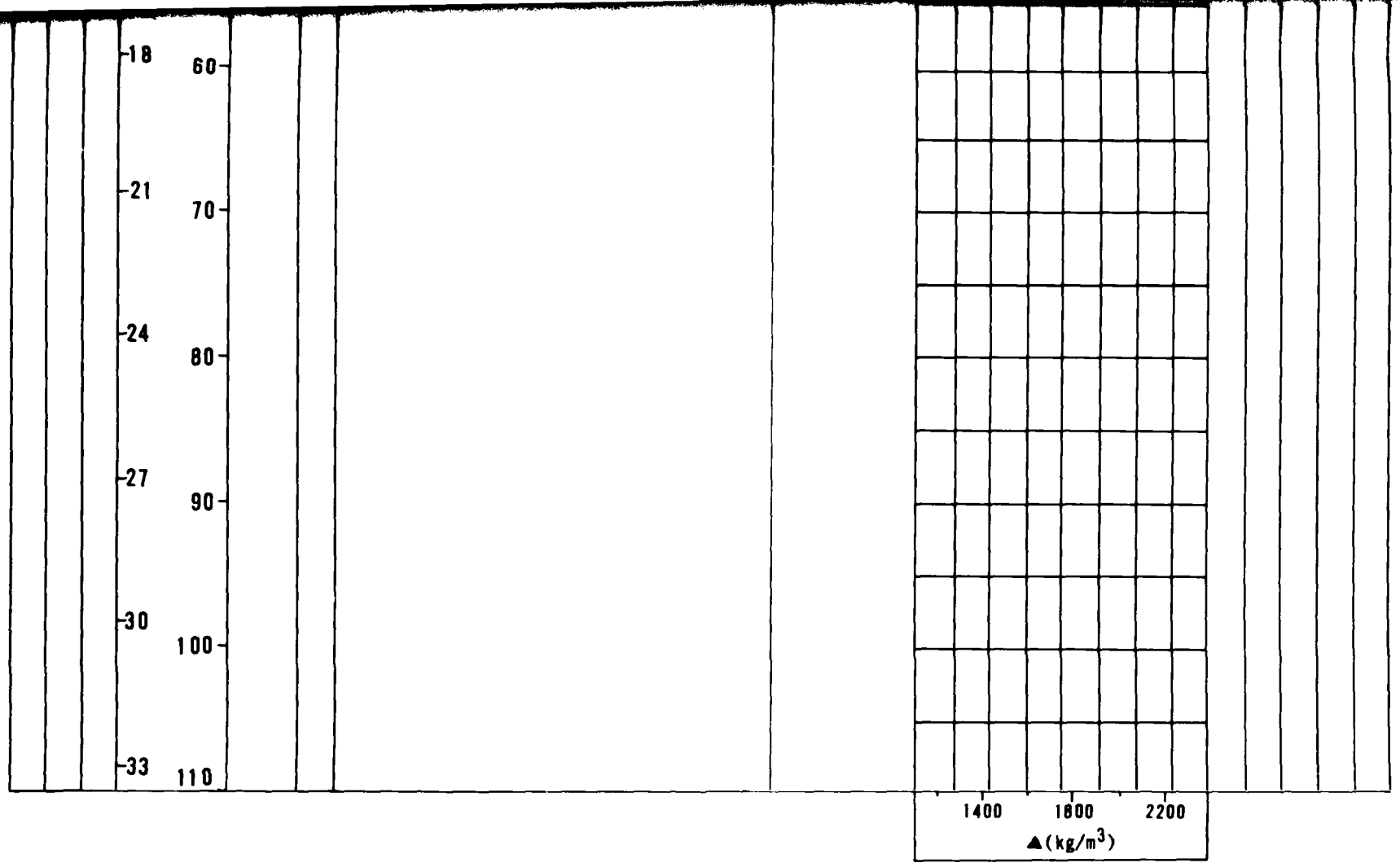
20 MAR 81

FN-TR-45





EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N - STANDARD PENETRATION RESISTANCE
- ▲ - DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● - MOISTURE CONTENT (ASTM: D-2216-71)

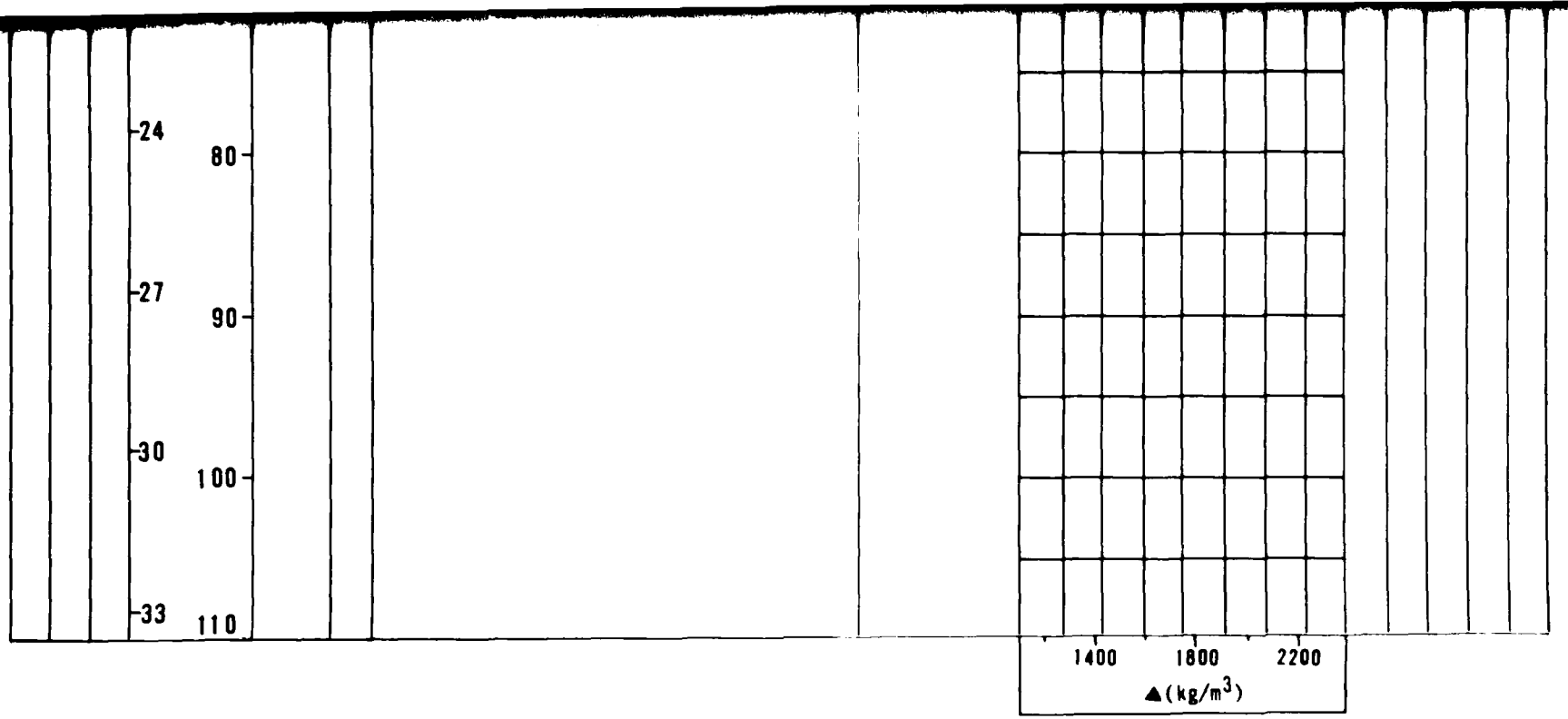
BORING DETAILS

ELEVATION	: 5210' (1588m)
SURFICIAL GEOLOGIC UNIT	: A3
DATE DRILLED	: 2 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONA

LOG OF BORING BL-B-4
OPERA TIONAL BASE SI
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5210' (1588m)
SURFICIAL GEOLOGIC UNIT	: A3
DATE DRILLED	: 2 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

LOG OF BORING BL-B-4
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-2-4

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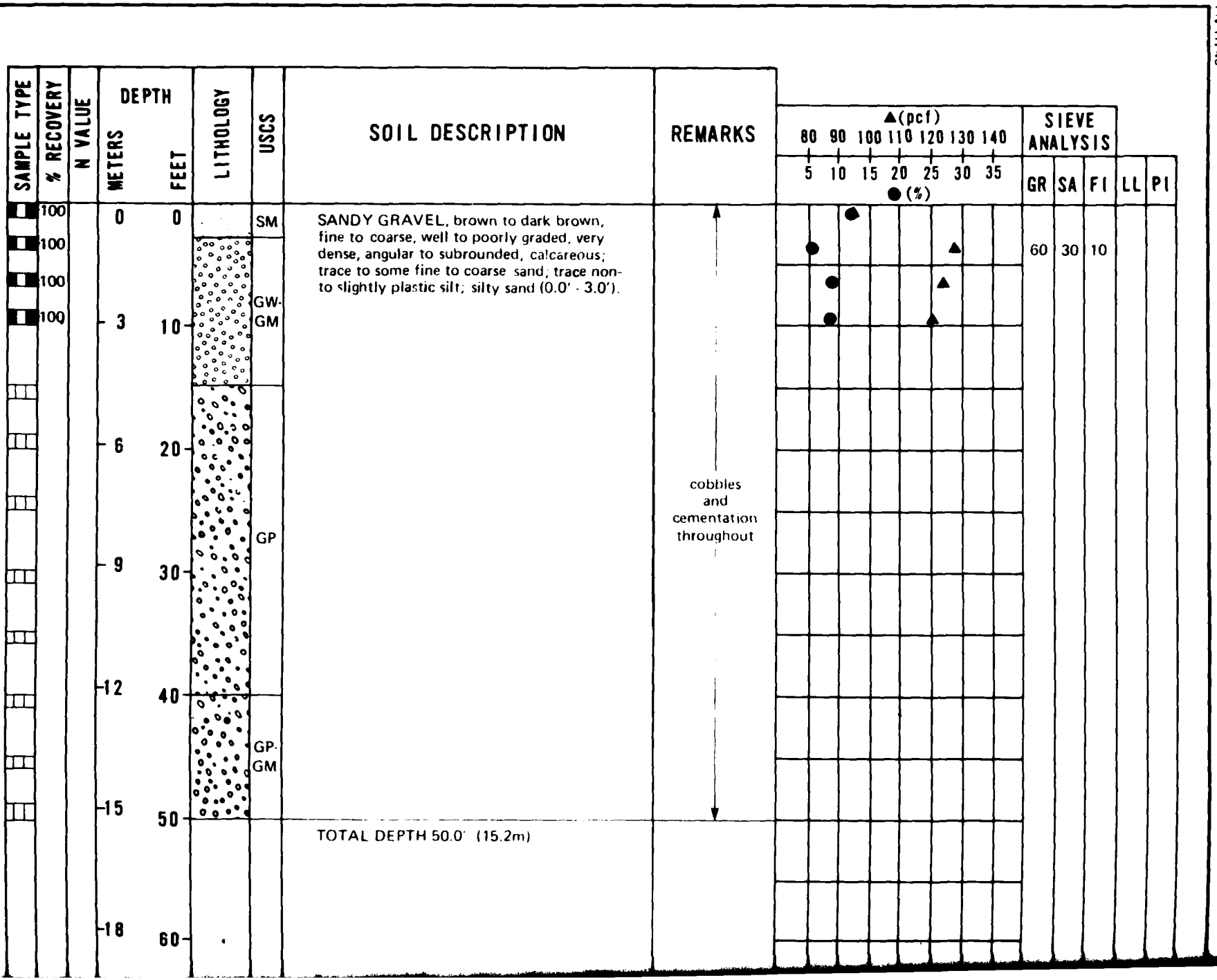

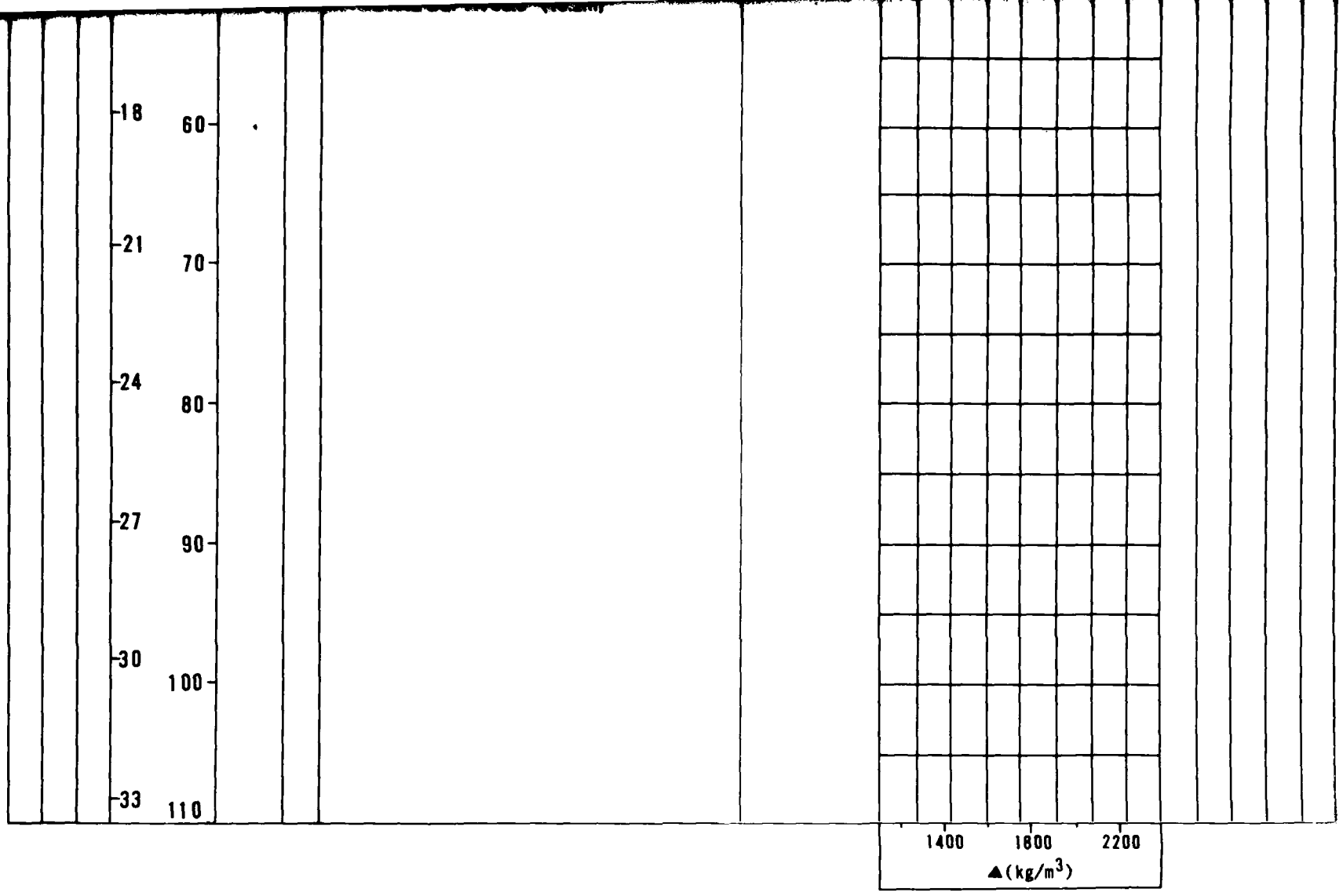

EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE

N – STANDARD PENETRATION RESISTANCE

BORING DETAILS

ELEVATION	: 5480' (1670m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 3 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIO

LOG OF BORING
OPERATIONAL B
BERYL, UT

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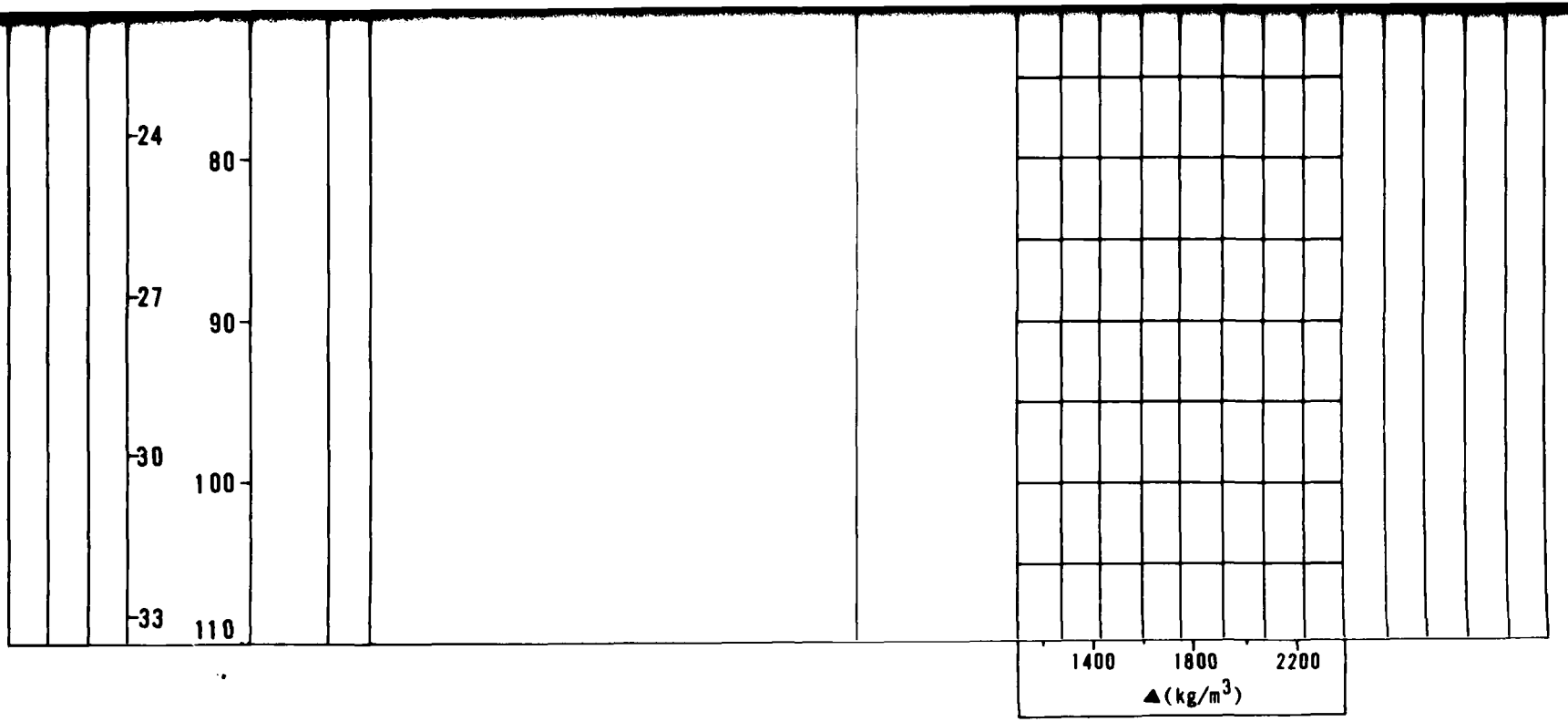
DEPARTMENT OF THE AIR FORCE



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5480' (1670m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 3 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

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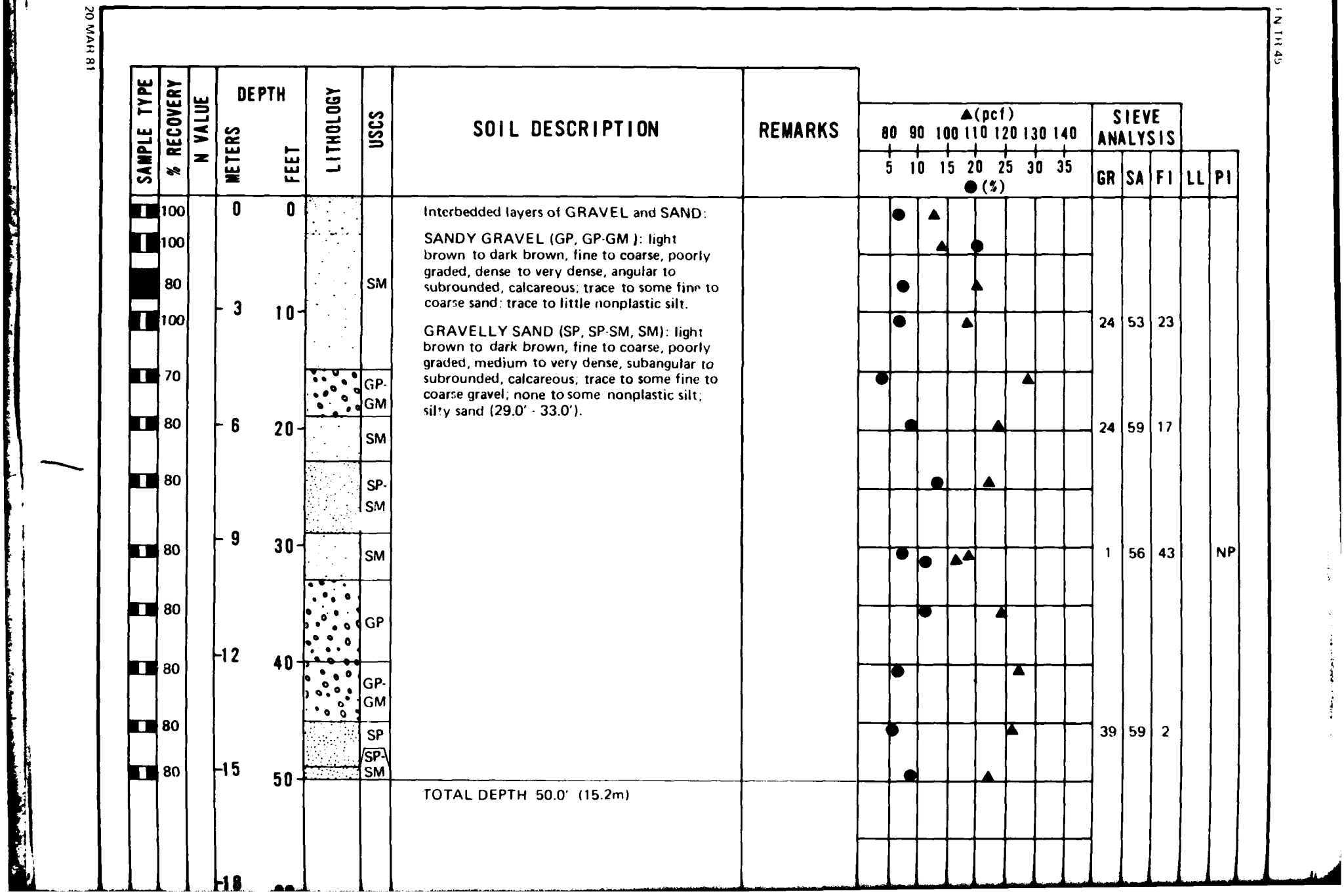
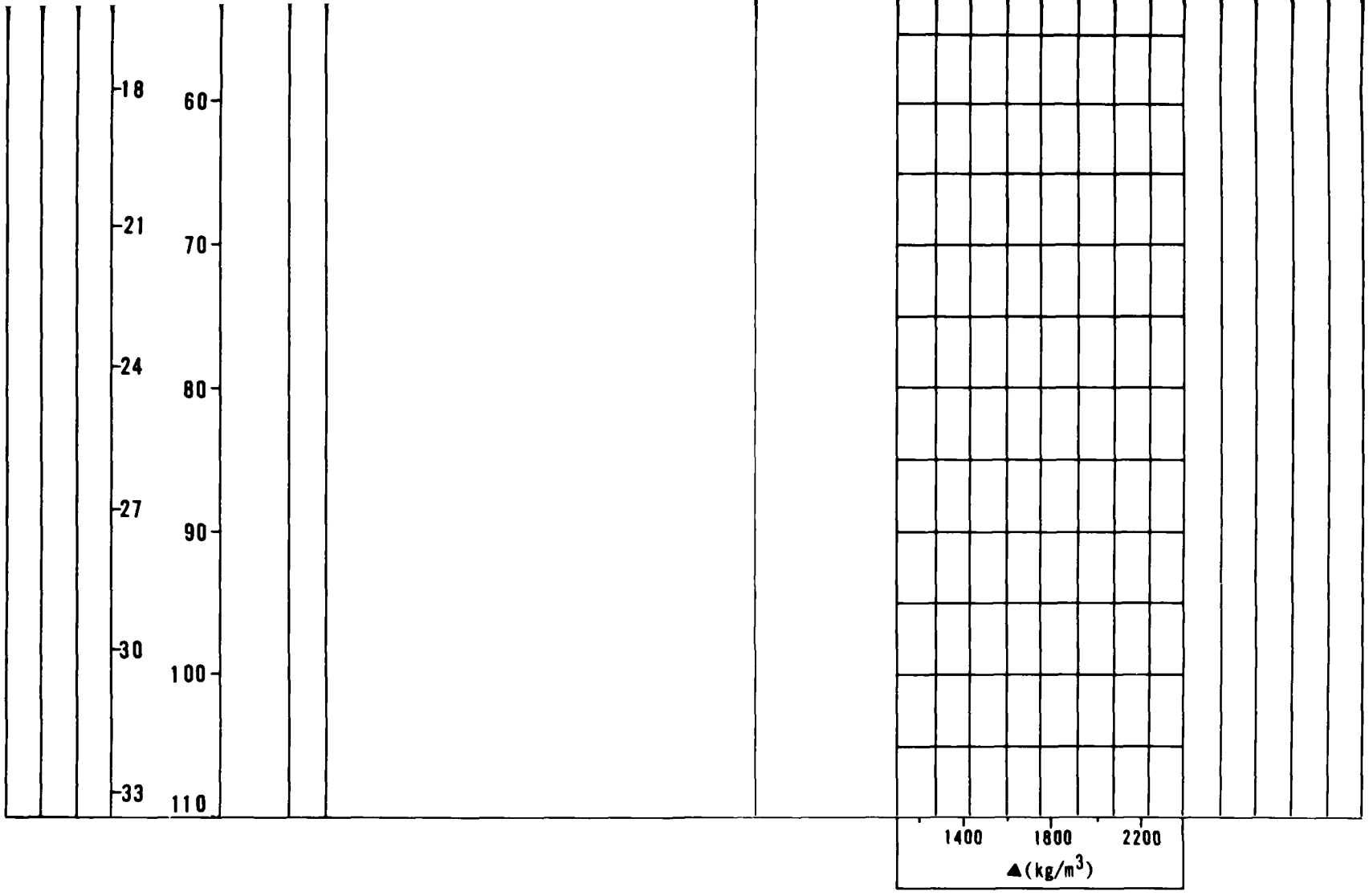
DEPARTMENT OF THE AIR FORCE BMO

LOG OF BORING BL-B-5
OPERATIONAL BASE SITE
BERYL, UTAH

FIGURE II-2-5

AFV-08


SAMPLE TYPE
% RECOVERY
N VALUE
DEPTH
METERS
FEET
LITHOLOGY
USCS
SOIL DESCRIPTION
REMARKS
▲(pcf)
80 90 100 110 120 130 140
5 10 15 20 25 30 35
● (%)
SIEVE ANALYSIS
GR SA FI LL PI
Interbedded layers of GRAVEL and SAND:
SANDY GRAVEL (GP, GP-GM): light brown to dark brown, fine to coarse, poorly graded, dense to very dense, angular to subrounded, calcareous; trace to some fine to coarse sand; trace to little nonplastic silt.
GRAVELLY SAND (SP, SP-SM, SM): light brown to dark brown, fine to coarse, poorly graded, medium to very dense, subangular to subrounded, calcareous; trace to some fine to coarse gravel; none to some nonplastic silt; silty sand (29.0' - 33.0').
SM
GP-GM
SM
SP-SM
SM
GP
GP-GM
SP
SP-SM
TOTAL DEPTH 50.0' (15.2m)
24 53 23
24 59 17
1 56 43 NP
39 59 2
0 3 6 9 12 15 18
0 10 20 30 40 50



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N - STANDARD PENETRATION RESISTANCE
- ▲ - DRY UNIT WEIGHT (ASTM: D-2937-71)

BORING DETAILS

ELEVATION	: 5320' (1622m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 3 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIO

LOG OF BORING
OPERATIONAL BA
BERYL, UTA

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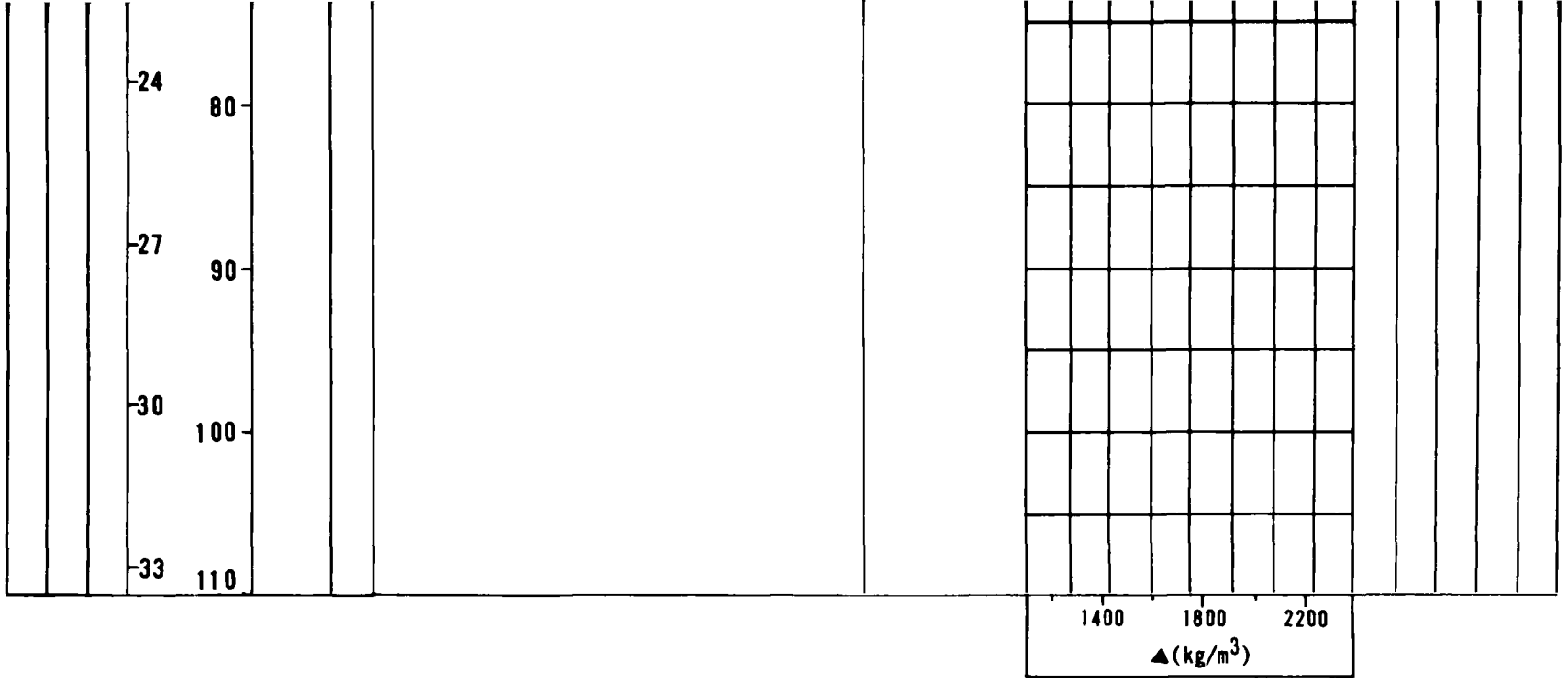


EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5320' (1622m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 3 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

LOG OF BORING BL-B-6
OPERATIONAL BASE SITE
BERYL, UTAH

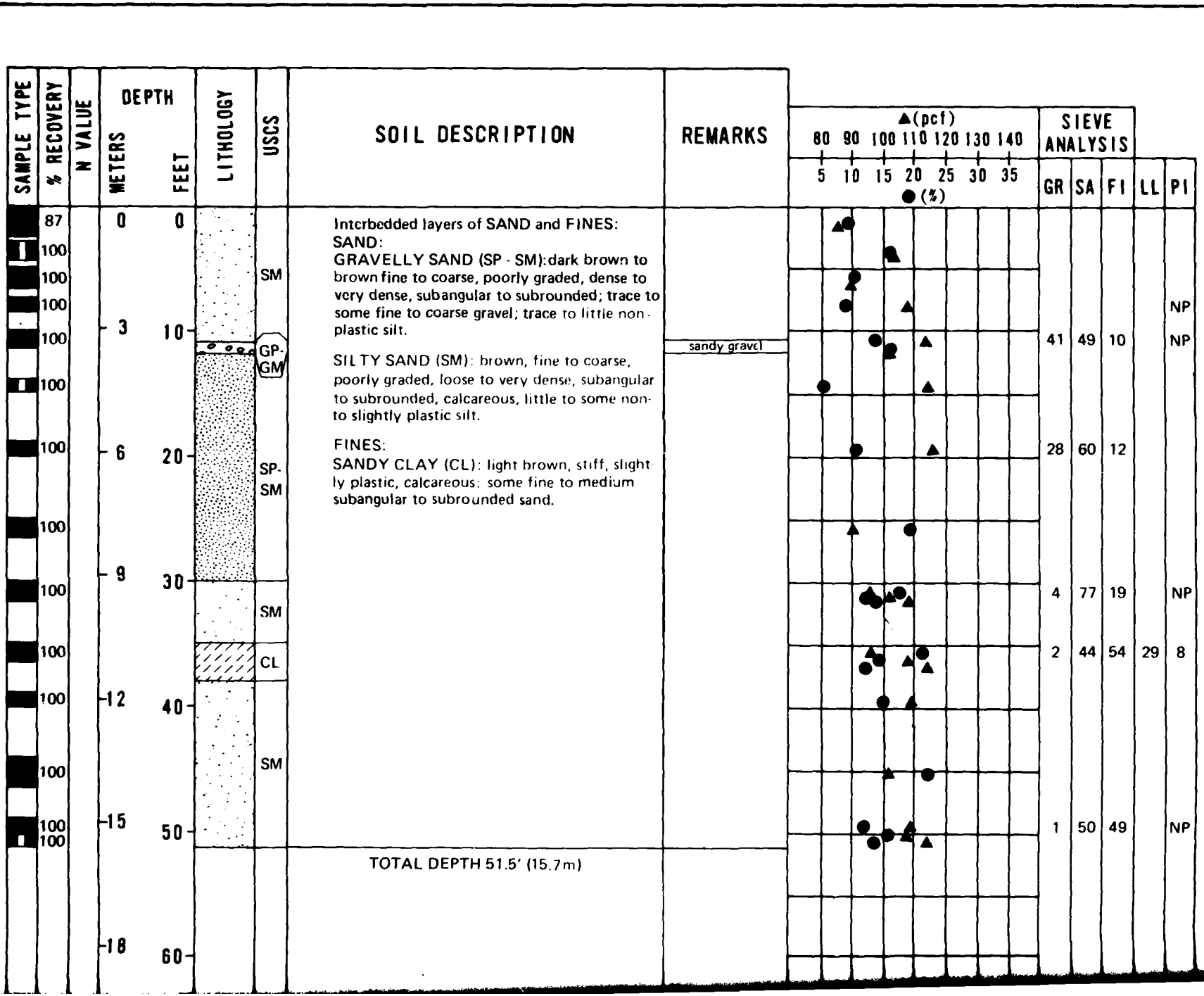
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II-2-6

AFV-06

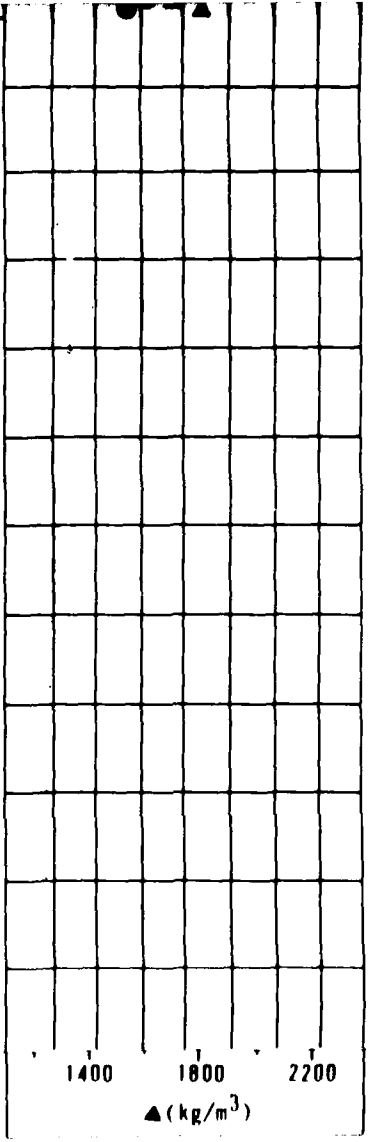
20 MAR 81

FN-TR-45



TOTAL DEPTH 51.5' (15.7m)

18	60
21	70
24	80
27	90
30	100
33	110



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE

N - STANDARD PENETRATION RESISTANCE

BORING DETAILS

ELEVATION	5200' (1585m)
SURFICIAL GEOLOGIC UNIT	A5i
DATE DRILLED	4 November 1980
DRILLING METHOD	Rotary Wash
HOLE DIAMETER	4 7/8" (124 mm)
WATER LEVEL	Not Encountered

FUGRO NATIONAL

LOG OF BORING
OPERATIONAL
BERYL, UT

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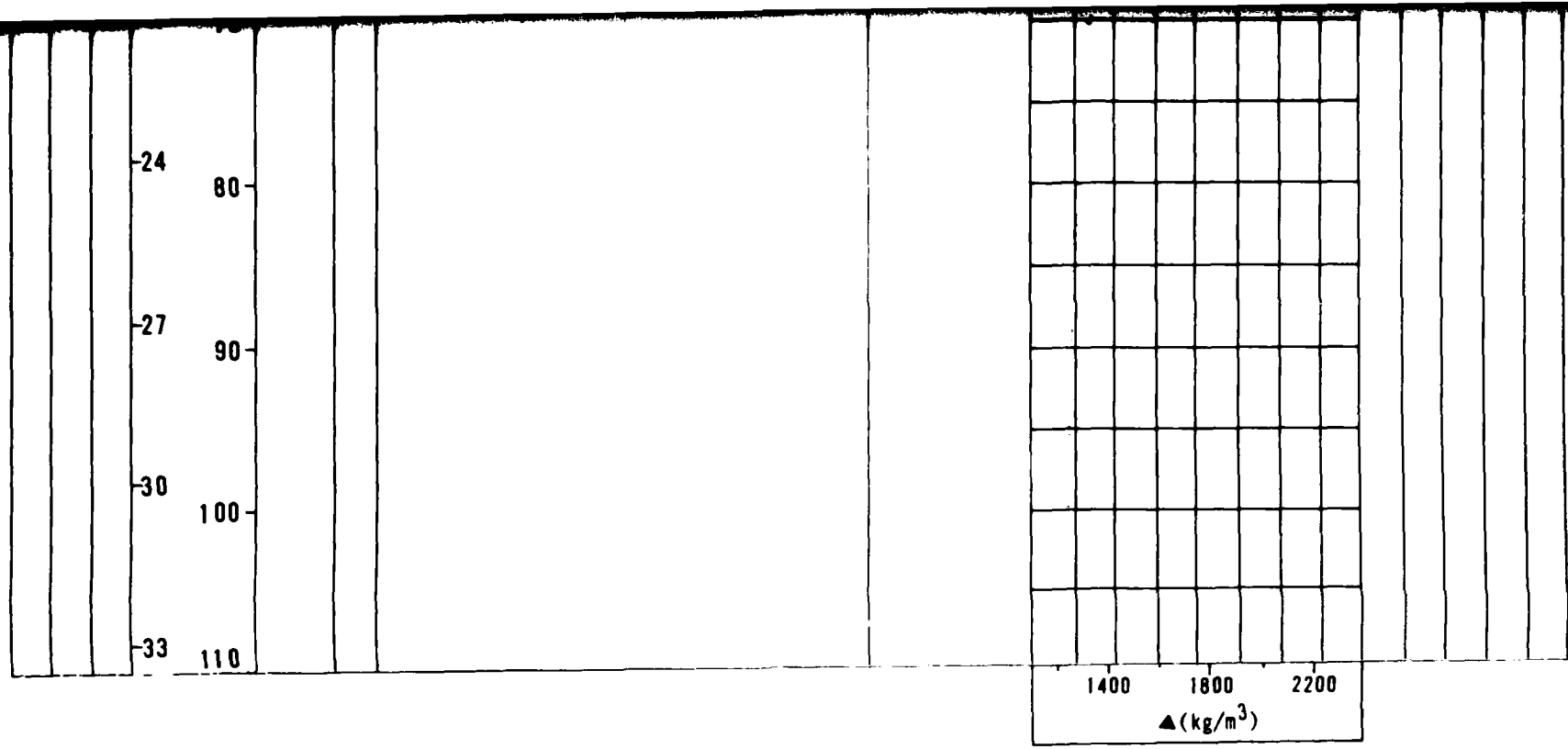
DEPARTMENT OF THE AIR FORCE



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N VALUE > 100

BORING DETAILS

ELEVATION	: 5200' (1585m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 4 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124 mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

LOG OF BORING BL-B-7
OPERATIONAL BASE SITE
BERYL, UTAH

FIGURE II-27

AFV-08

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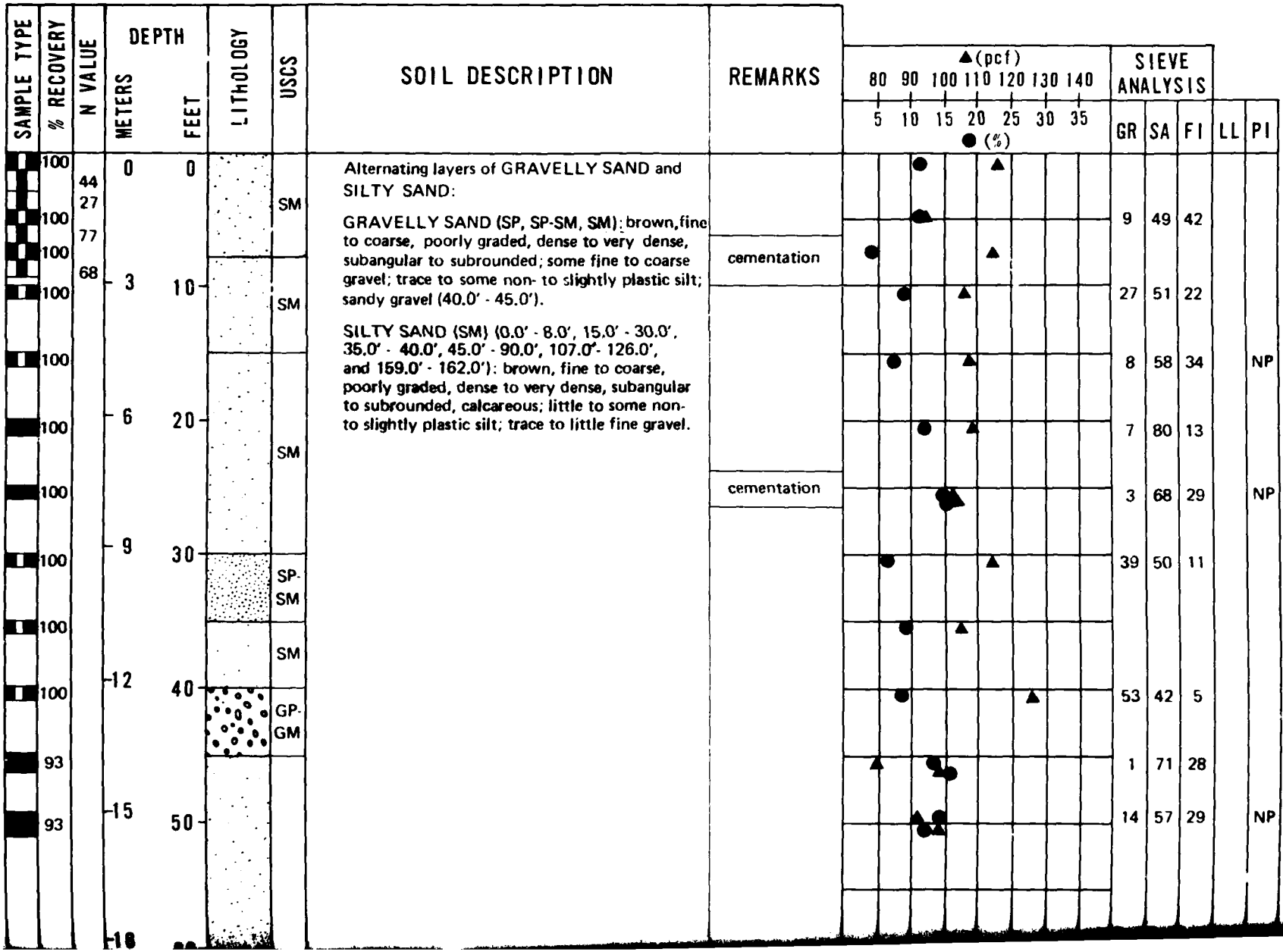

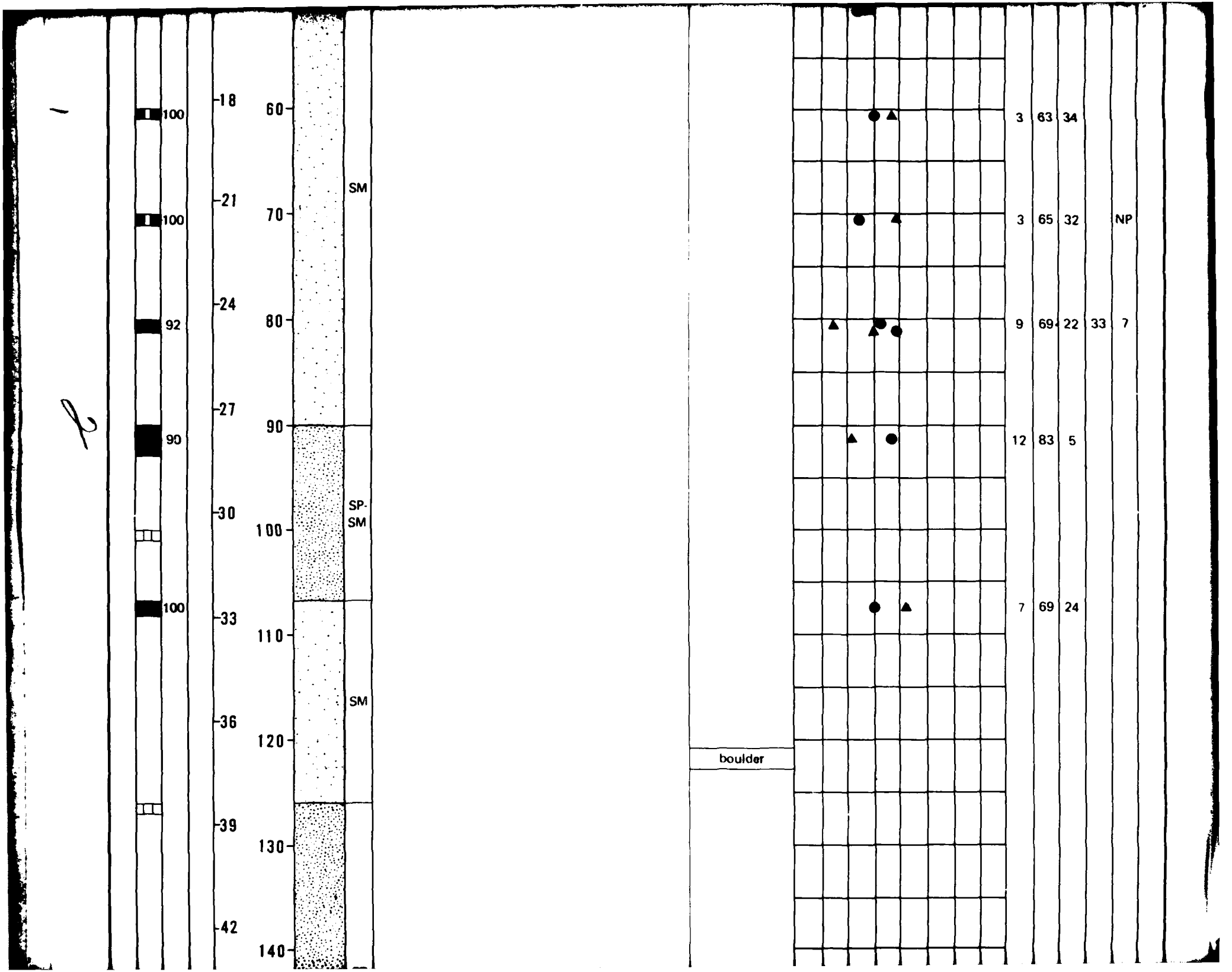
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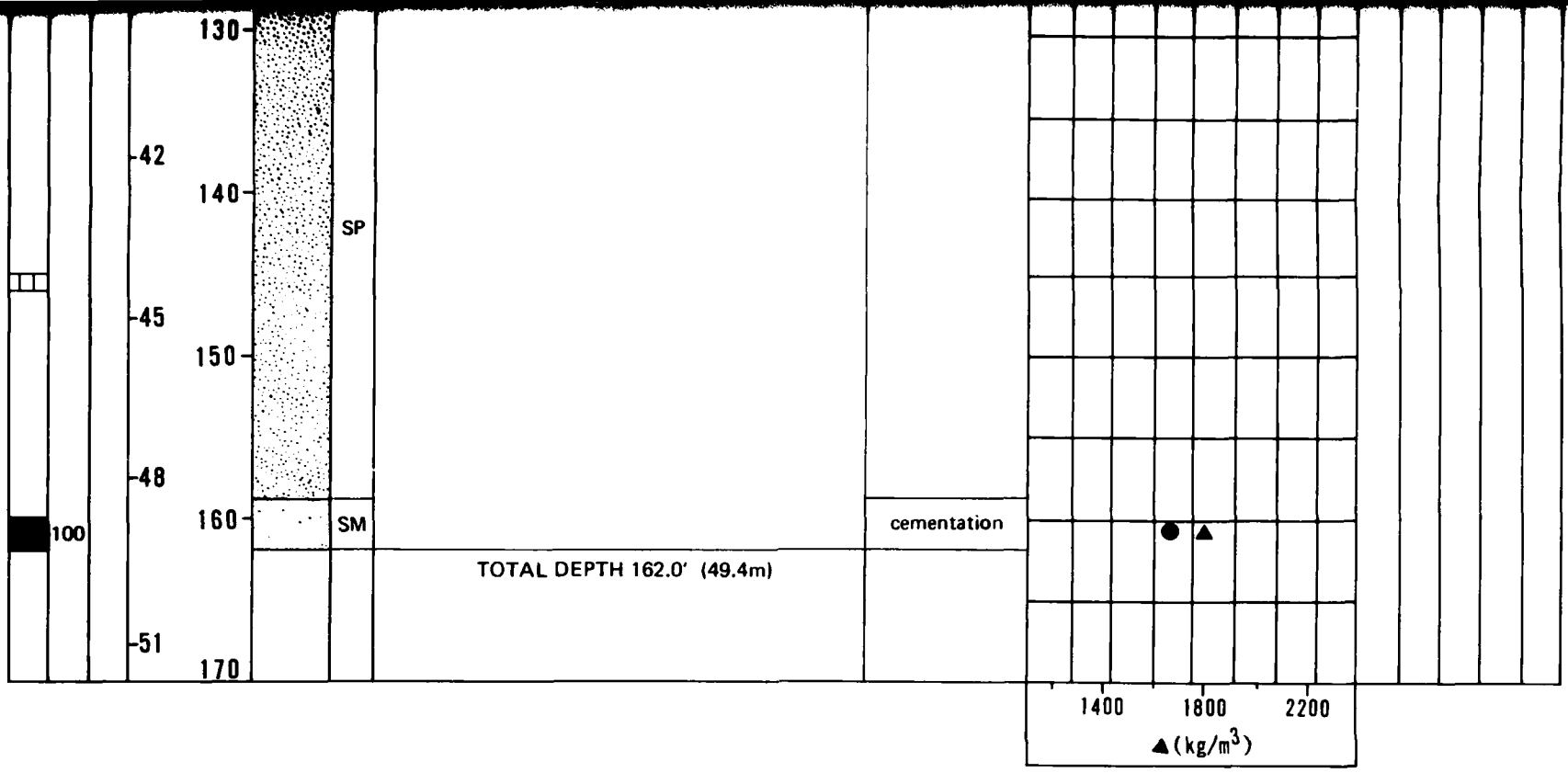

EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5320' (1622m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 14 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-2-8

LOG OF BORING BL-B-8
OPERATIONAL BASE SITE
BERYL, UTAH

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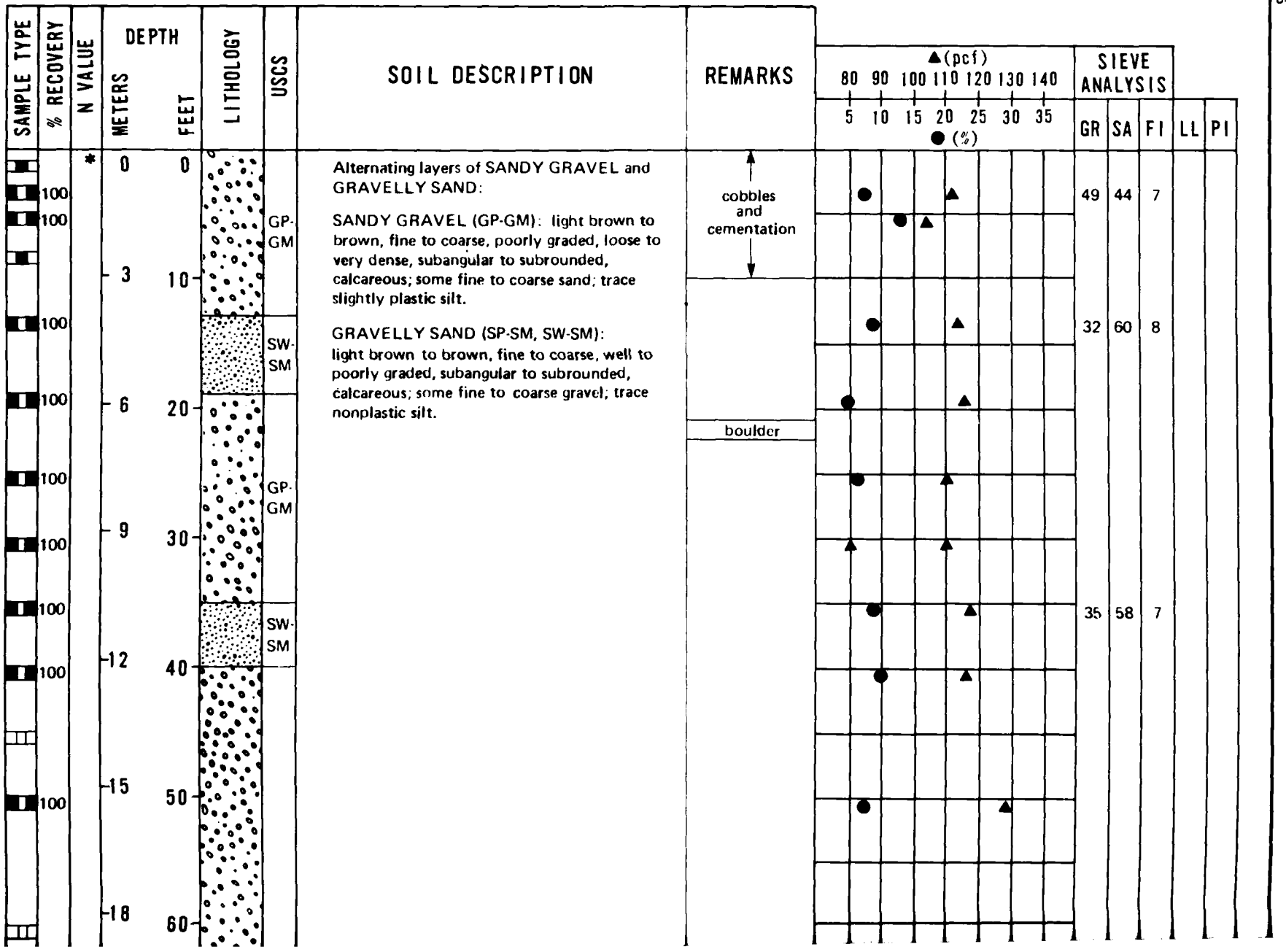

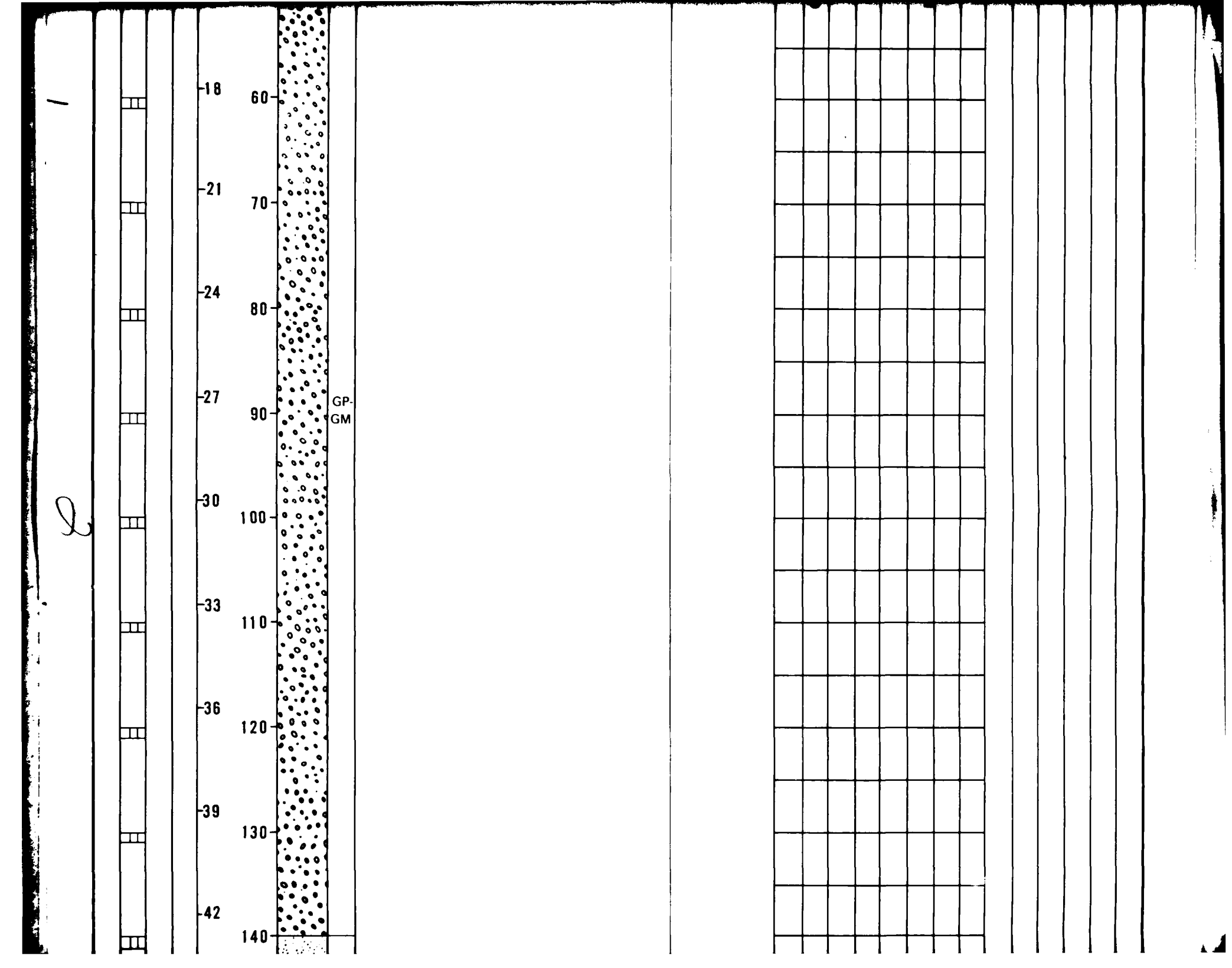
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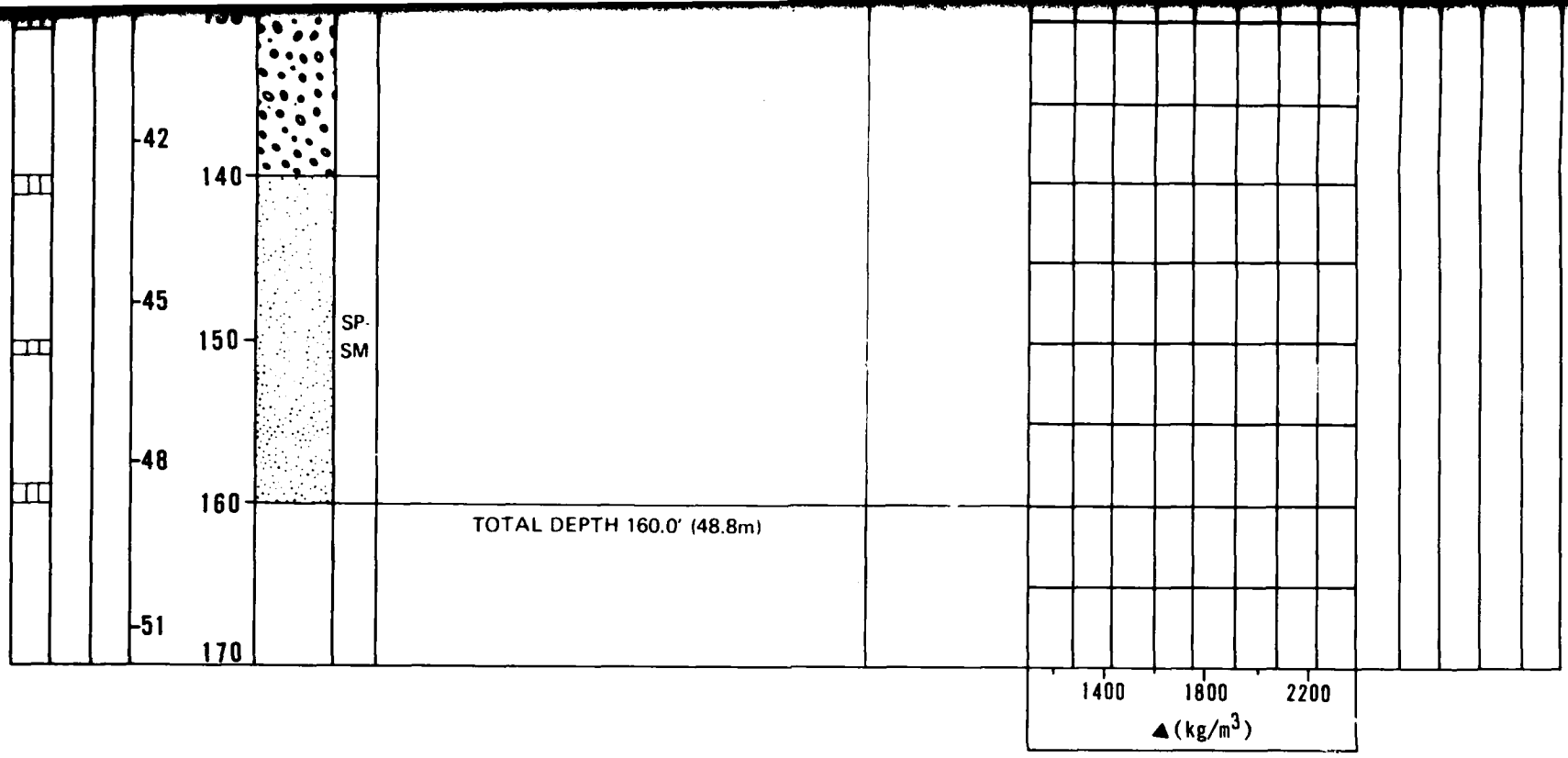
GM



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- – N Value > 100

BORING DETAILS

ELEVATION	: 5460' (1664m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 15 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

LOG OF BORING BL-B-9
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE II-2-9

AFV-08

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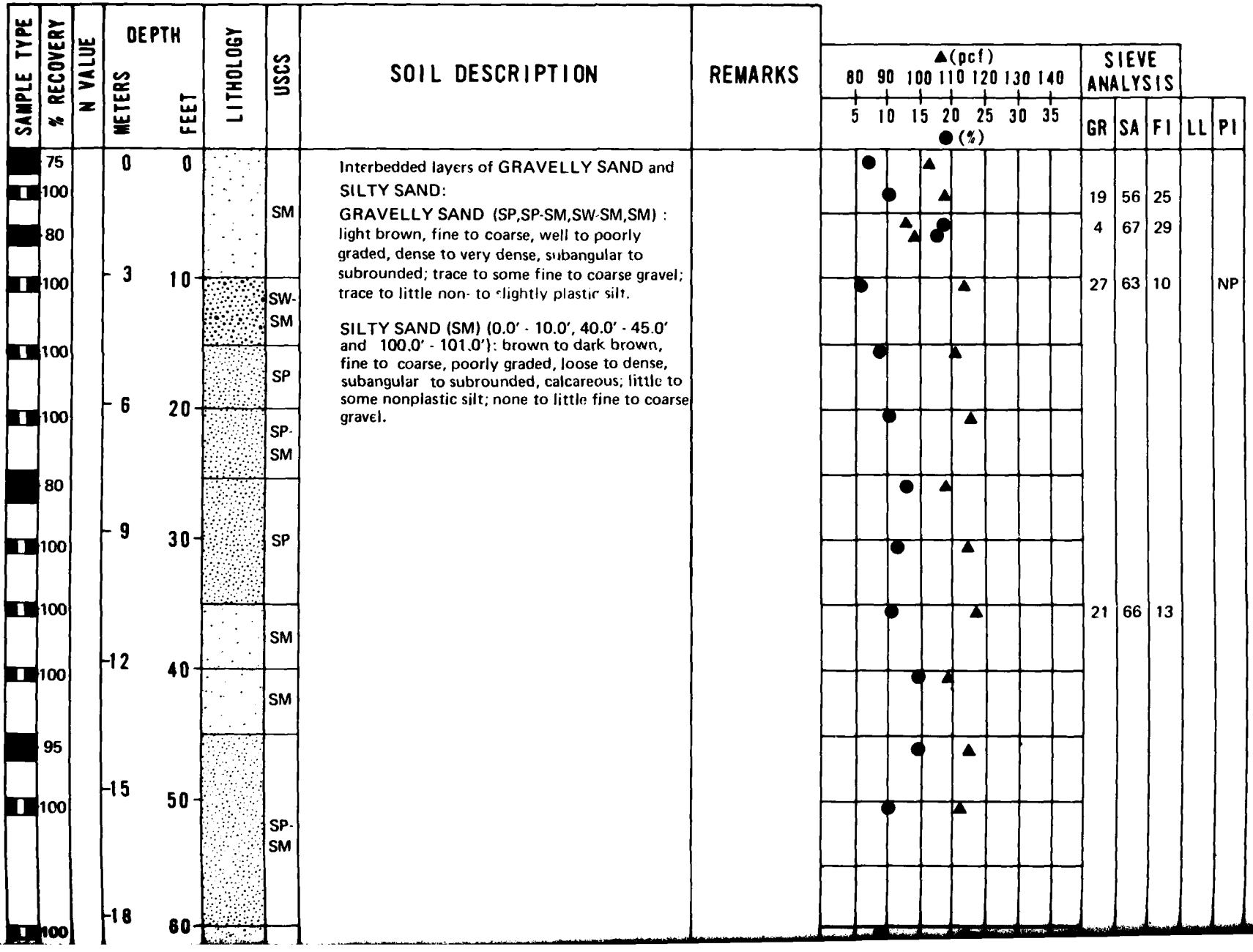

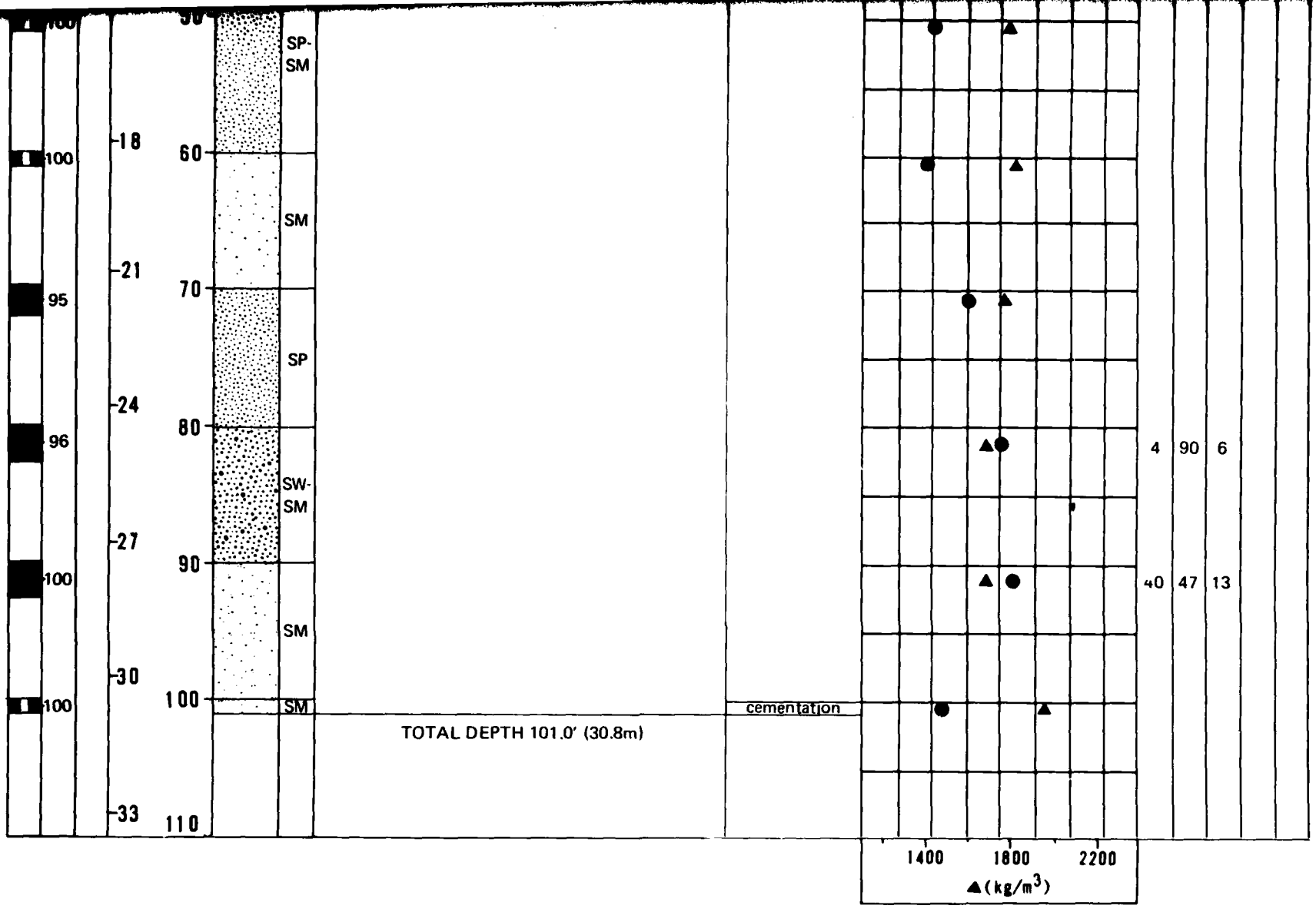

EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE

N = STANDARD PENETRATION RESISTANCE

BORING DETAILS

ELEVATION	: 5340' (1628m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 16 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

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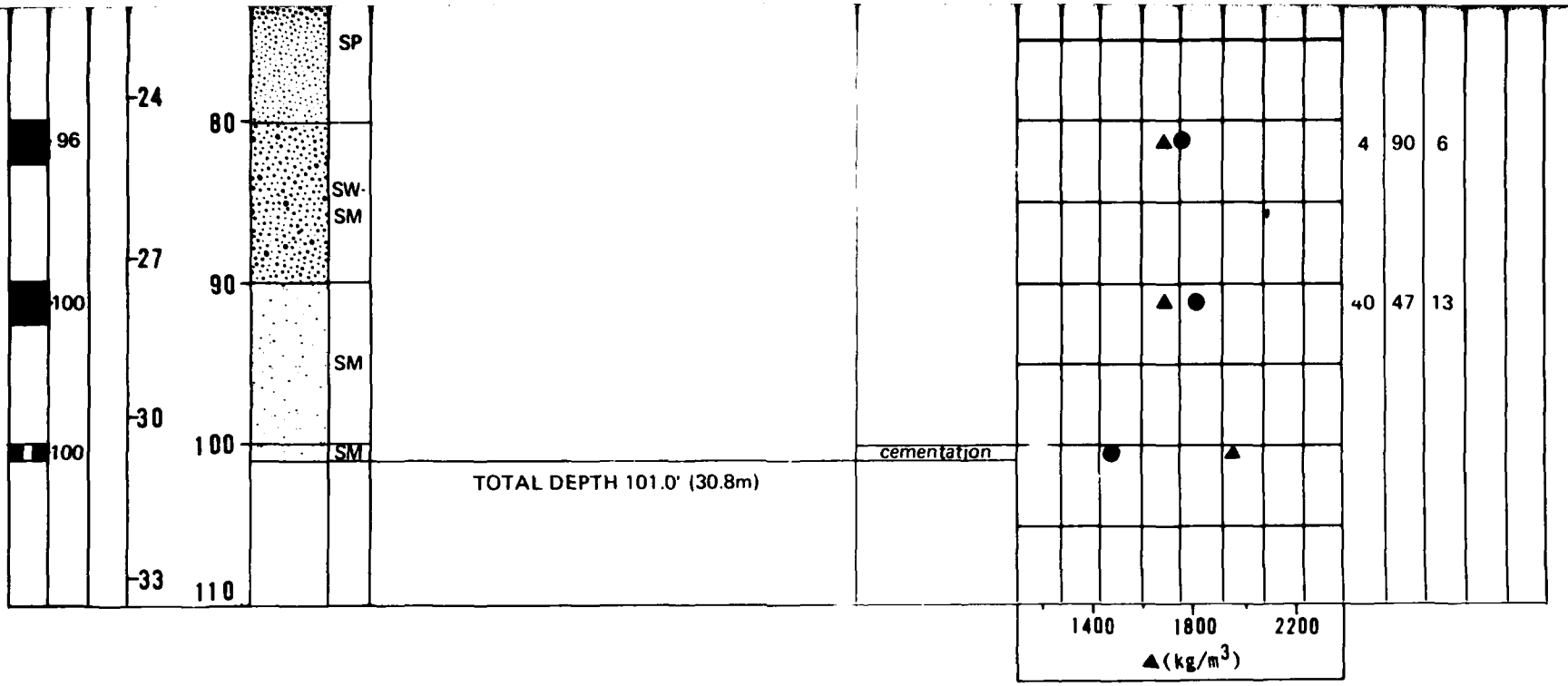

EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- – N VALUE > 100

BORING DETAILS

ELEVATION	: 5340' (1628m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 16 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

LOG OF BORING BL-B-10
OPERATIONAL BASE SITE
BERYL, UTAH

FIGURE II-2-10

AFV-06

20 MAR 81

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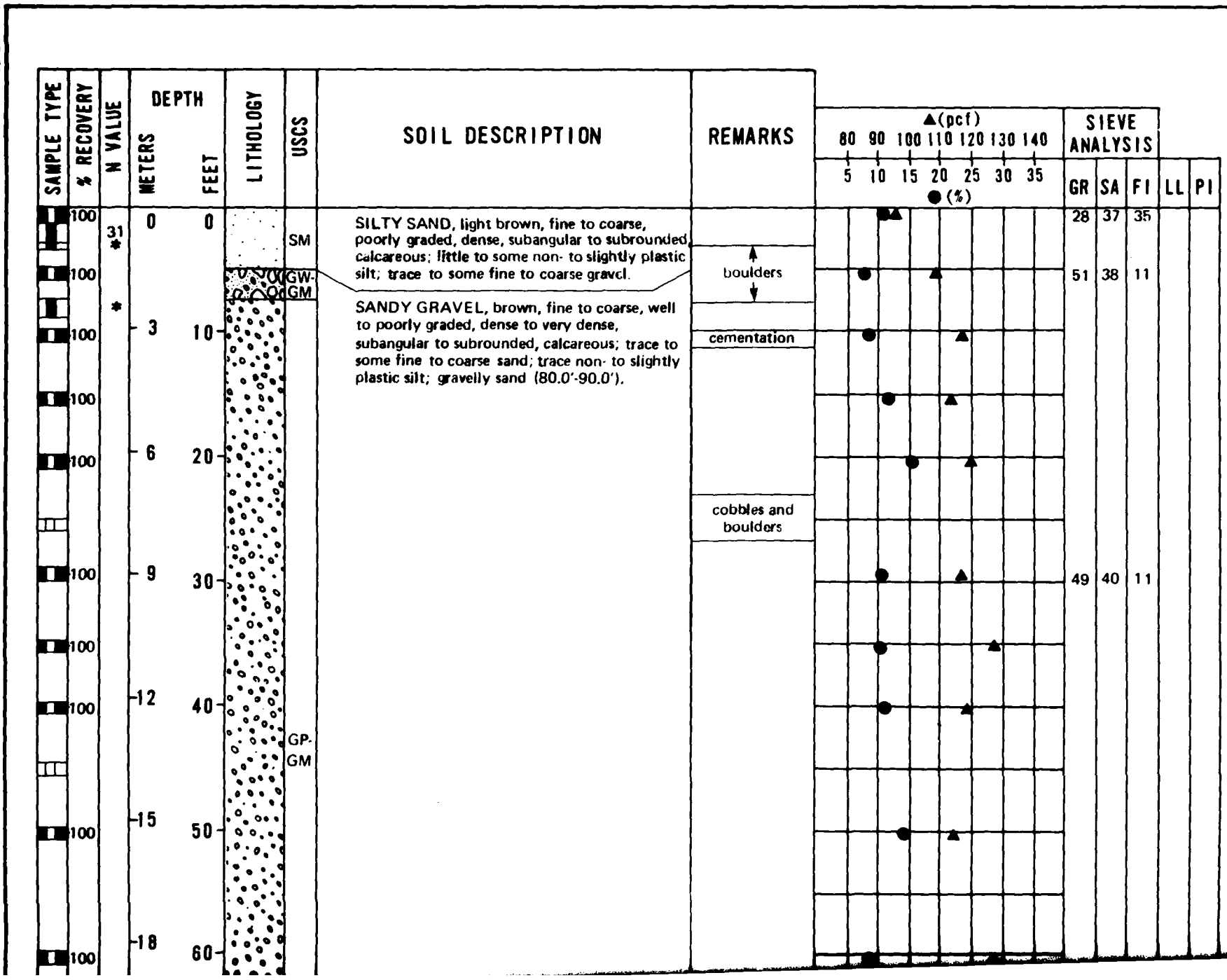
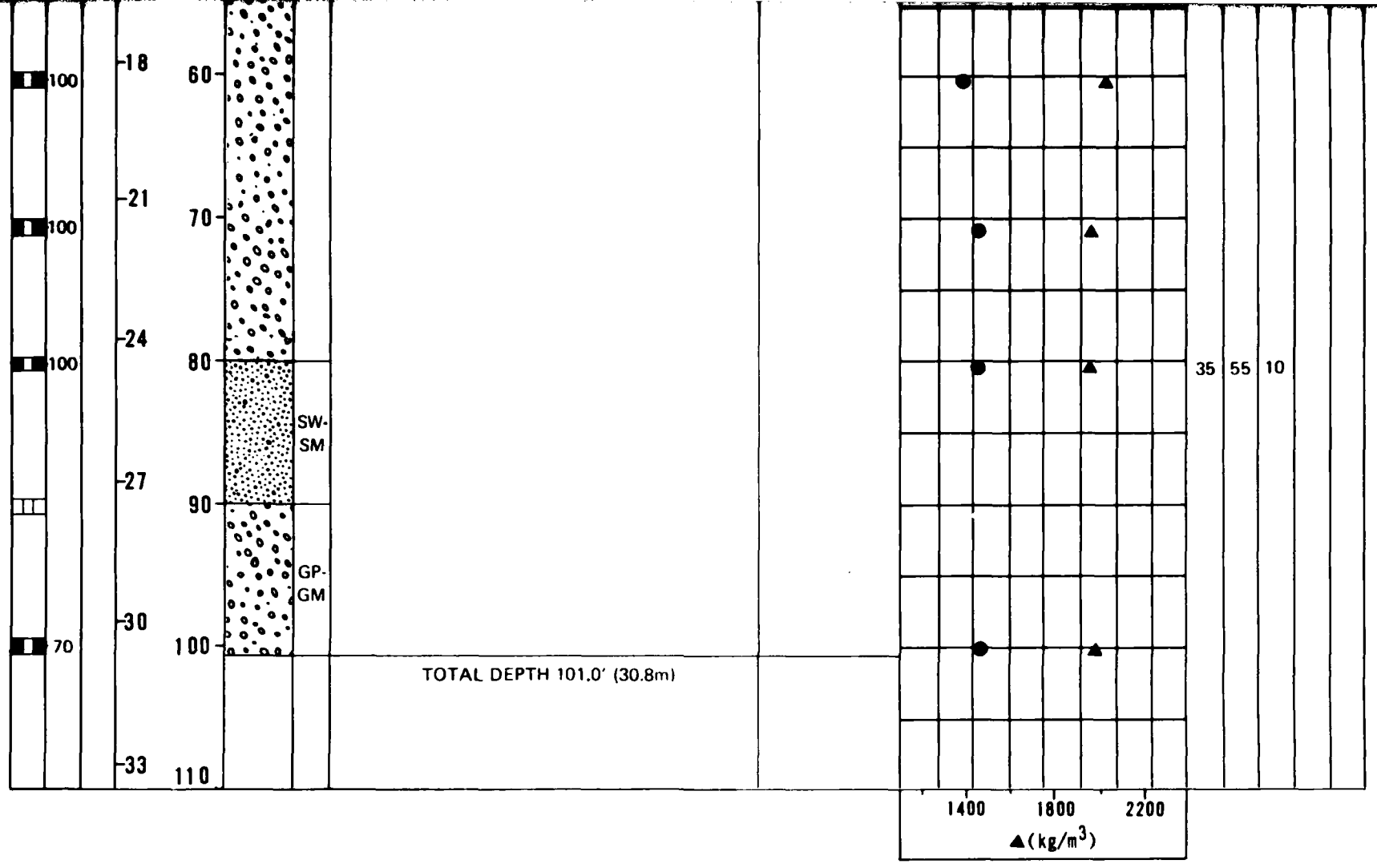




EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N - STANDARD PENETRATION RESISTANCE
- ▲ - DRY UNIT WEIGHT (ASTM: D-2937-71)

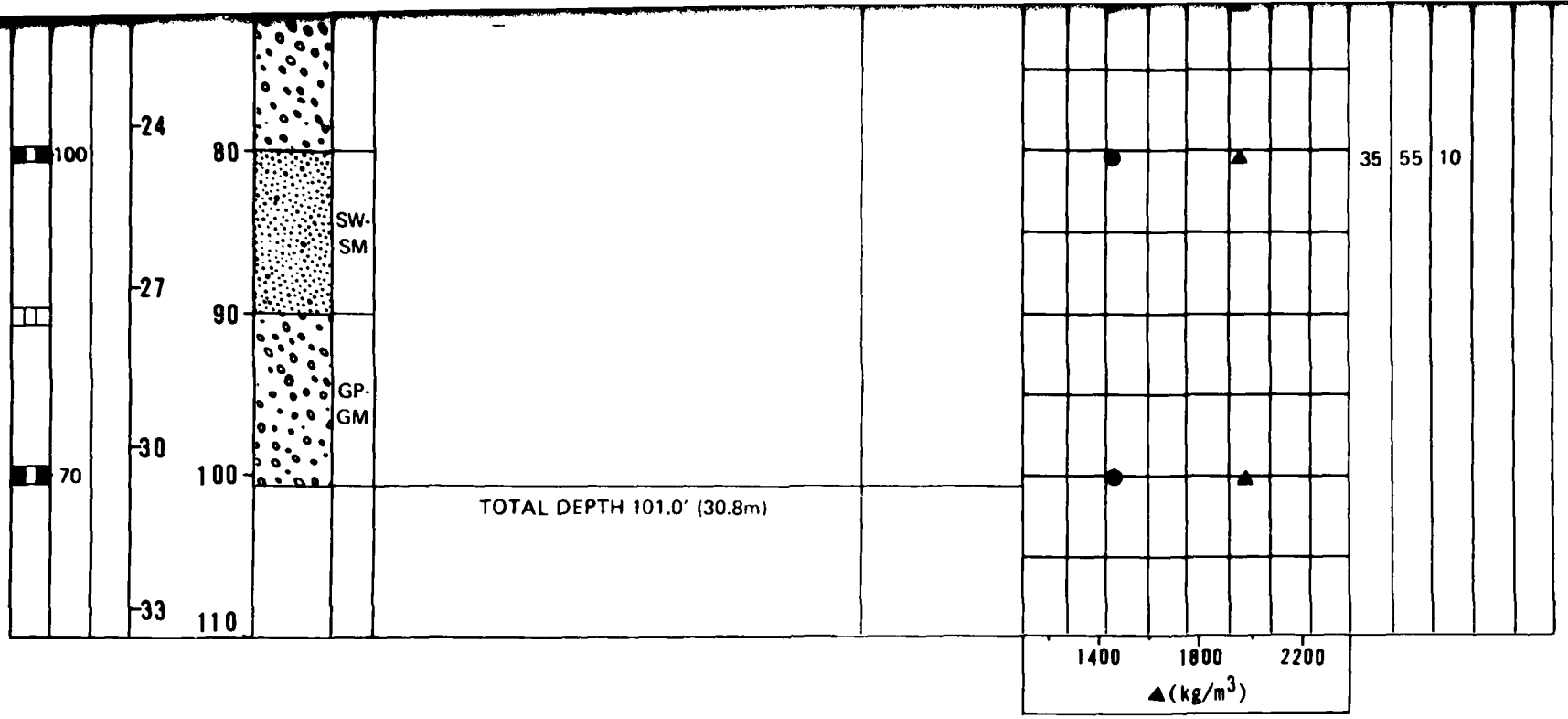
BORING DETAILS

ELEVATION	: 5440' (1646m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 13 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE

LOG OF BORING BL-
OPERATIONAL BASE
BERYL, UTAH



EXPLANATION

- FUGRO DRIVE SAMPLE
- BULK SAMPLE
- PITCHER TUBE SAMPLE
- STANDARD PENETRATION TEST SAMPLE
- CORE SAMPLE
- N – STANDARD PENETRATION RESISTANCE
- ▲ – DRY UNIT WEIGHT (ASTM: D-2937-71)
- ● – MOISTURE CONTENT (ASTM: D-2216-71)
- NR – NO RECOVERY
- * – N Value > 100

BORING DETAILS

ELEVATION	: 5440' (1646m)
SURFICIAL GEOLOGIC UNIT	: A5i
DATE DRILLED	: 13 November 1980
DRILLING METHOD	: Rotary Wash
HOLE DIAMETER	: 4 7/8" (124mm)
WATER LEVEL	: Not Encountered

FUGRO NATIONAL, INC.

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

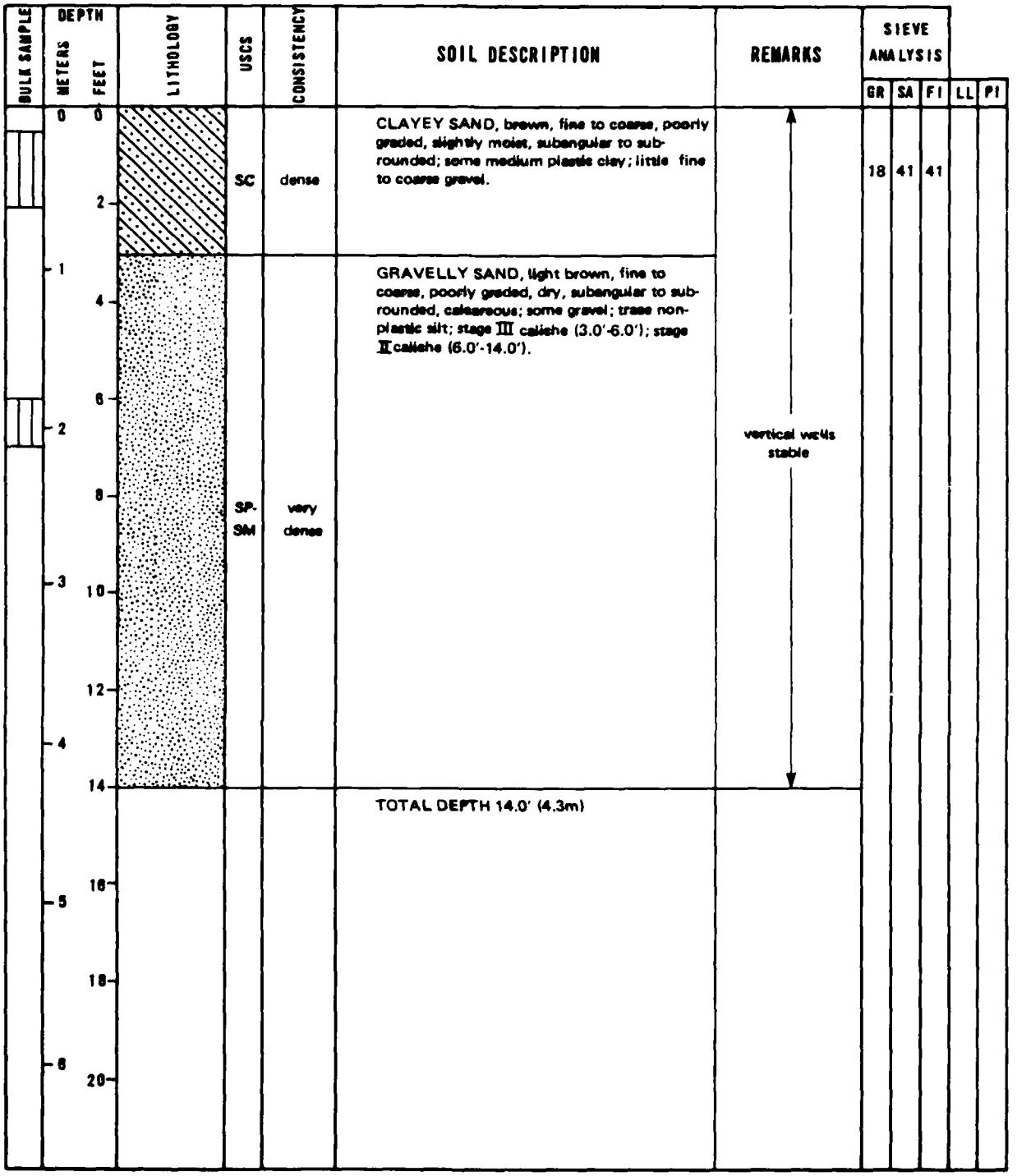
LOG OF BORING BL-B-11
OPERATIONAL BASE SITE
BERYL, UTAH

FIGURE II-2.11

AFV-05

3.0 EXPLANATION OF TRENCH LOGS

See Section 2.0, "Explanation of Boring, Trench, and Test Pit Logs", for explanations.



TRENCH DETAILS

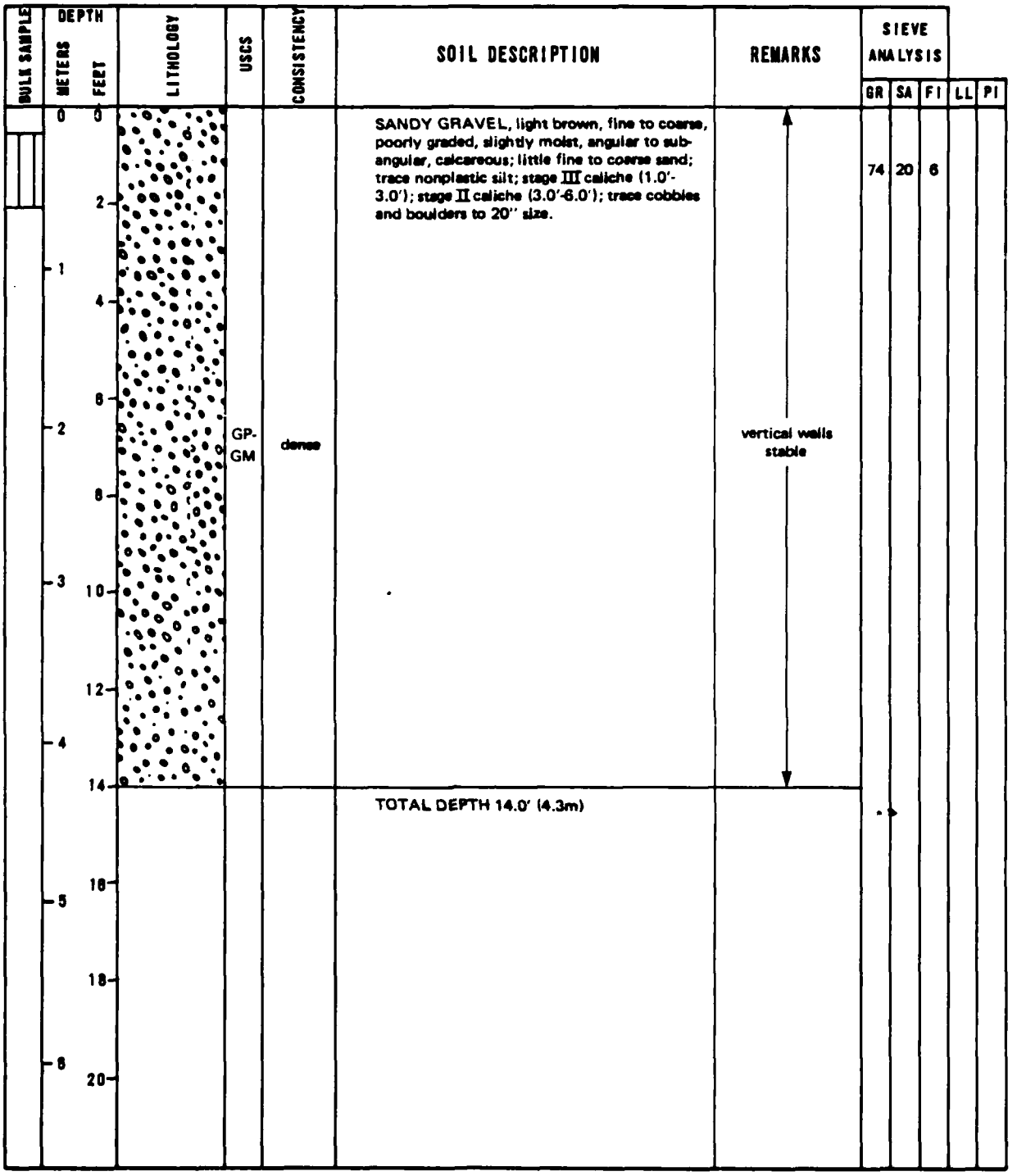
SURFACE ELEVATION	: 5520' (1682m)
DATE EXCAVATED	: 28 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A5i
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH BL-T-1
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-1

FUGRO NATIONAL, INC.



TRENCH DETAILS

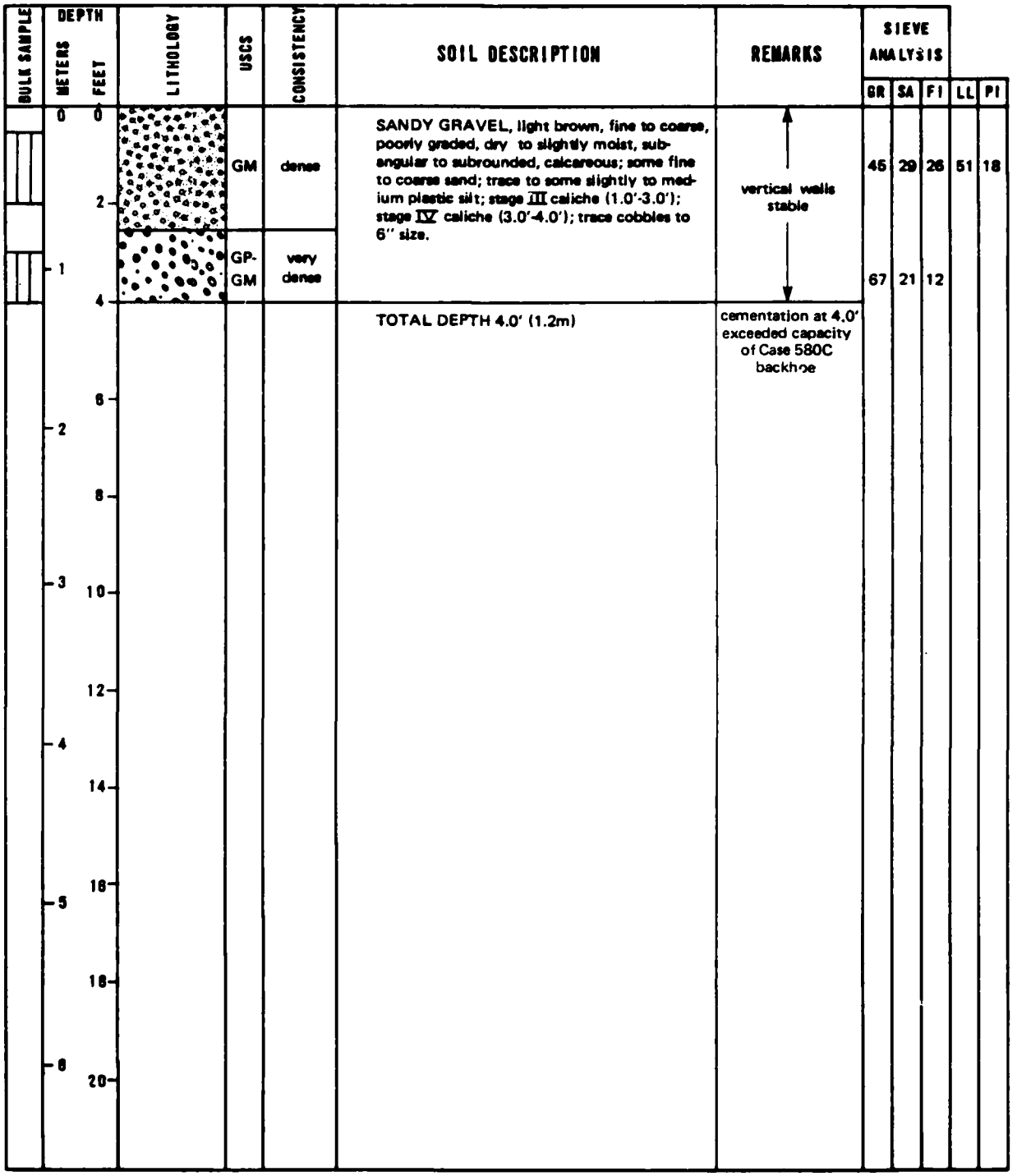
SURFACE ELEVATION : 5880' (1792m)
DATE EXCAVATED : 29 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5o
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T- 2
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-2

FUGRO NATIONAL, INC.



TRENCH DETAILS

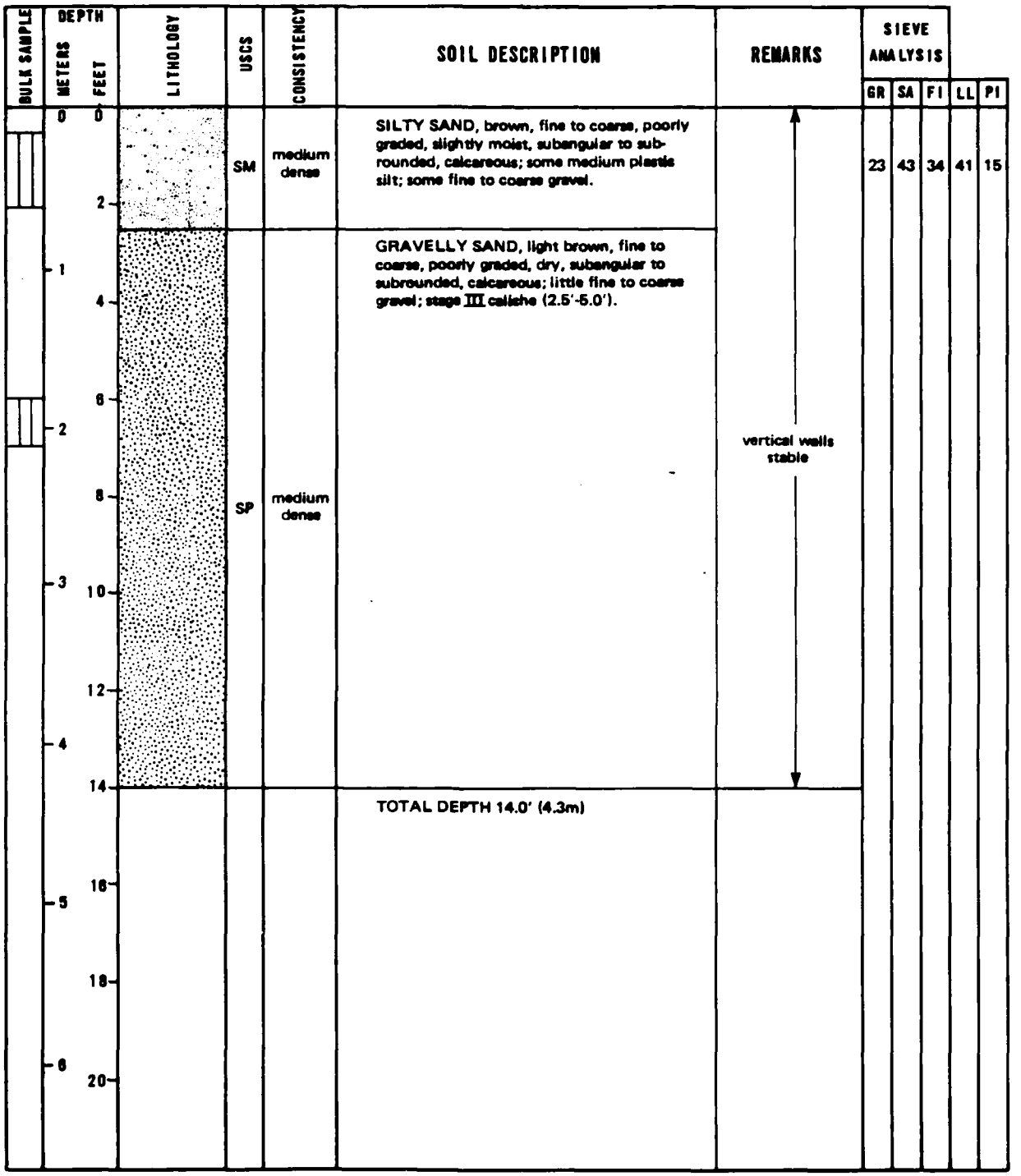
SURFACE ELEVATION : 5680' (1731m)
DATE EXCAVATED : 29 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5o
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-3
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-3

FUGRO NATIONAL, INC.



TRENCH DETAILS

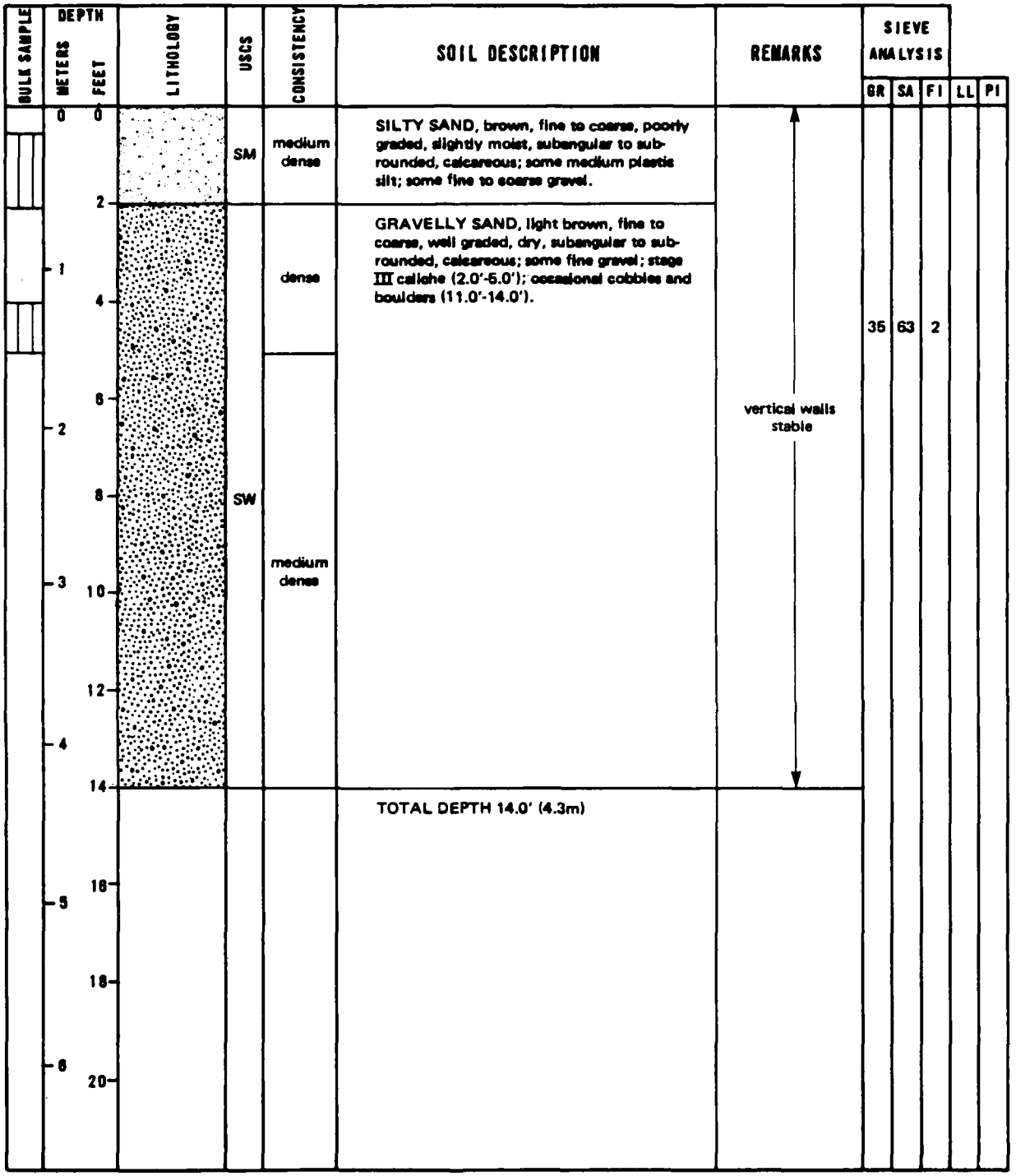
SURFACE ELEVATION : 5520' (1682m)
DATE EXCAVATED : 29 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : Afi
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : N-S

LOG OF TRENCH BL-T-4
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-4

FUGRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	: 5660' (1725m)
DATE EXCAVATED	: 29 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: Asi
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH BL-T- 5
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-5

UGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		SM	medium dense	SILTY SAND, brown, fine to coarse, poorly graded, dry to slightly moist, subangular to subrounded, calcareous; some medium plastic silt; some fine to coarse gravel; stage II caliche (2.0'-4.0'); trace cobbles and boulders to 20" size.	vertical walls stable					
		2										
	1											
		4				TOTAL DEPTH 4.0' (1.2m)	cementation at 4.0' exceeded capacity of Case 580C backhoe					
		6										
	2											
		8										
	3	10										
		12										
	4											
		14										
		16										
	5											
		18										
	6											
		20										

TRENCH DETAILS

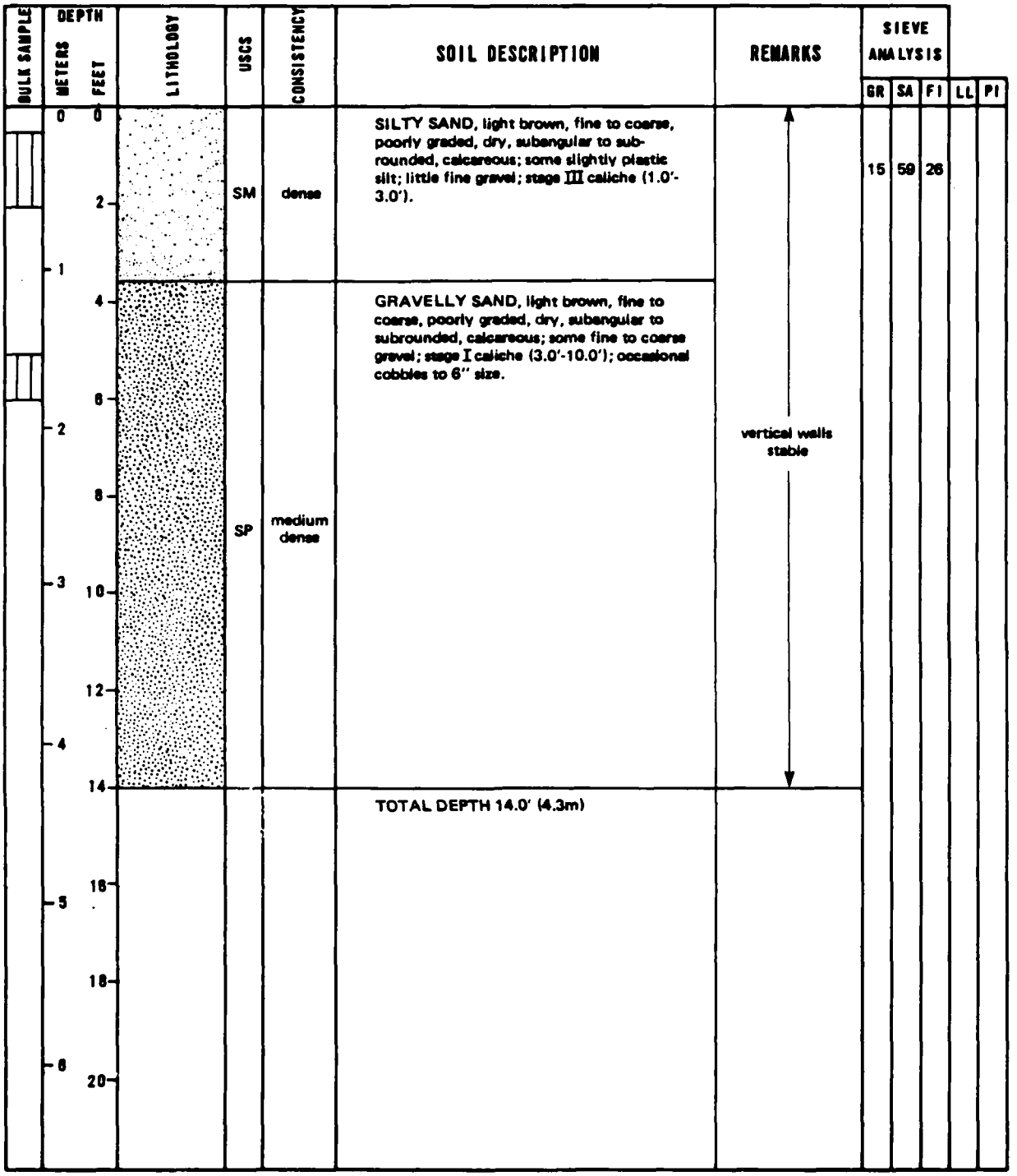
SURFACE ELEVATION : 5800' (1768m)
DATE EXCAVATED : 30 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-6
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

FIGURE II-3-6

FUGRO NATIONAL, INC.



TRENCH DETAILS

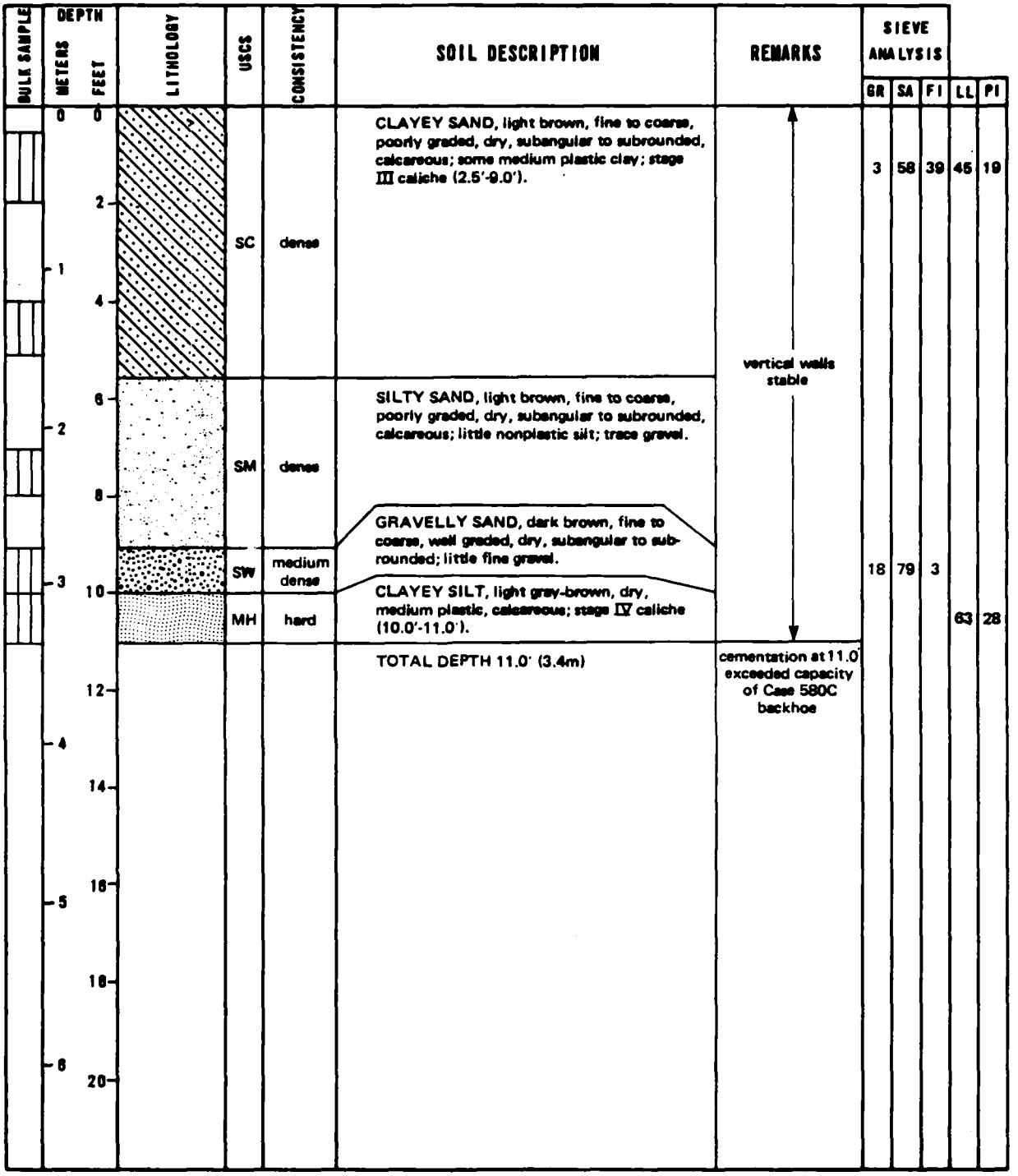
SURFACE ELEVATION : 5540' (1689m)
DATE EXCAVATED : 30 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : N-S

LOG OF TRENCH BL-T-7
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

FIGURE II-3-7

FUGRO NATIONAL, INC.



TRENCH DETAILS

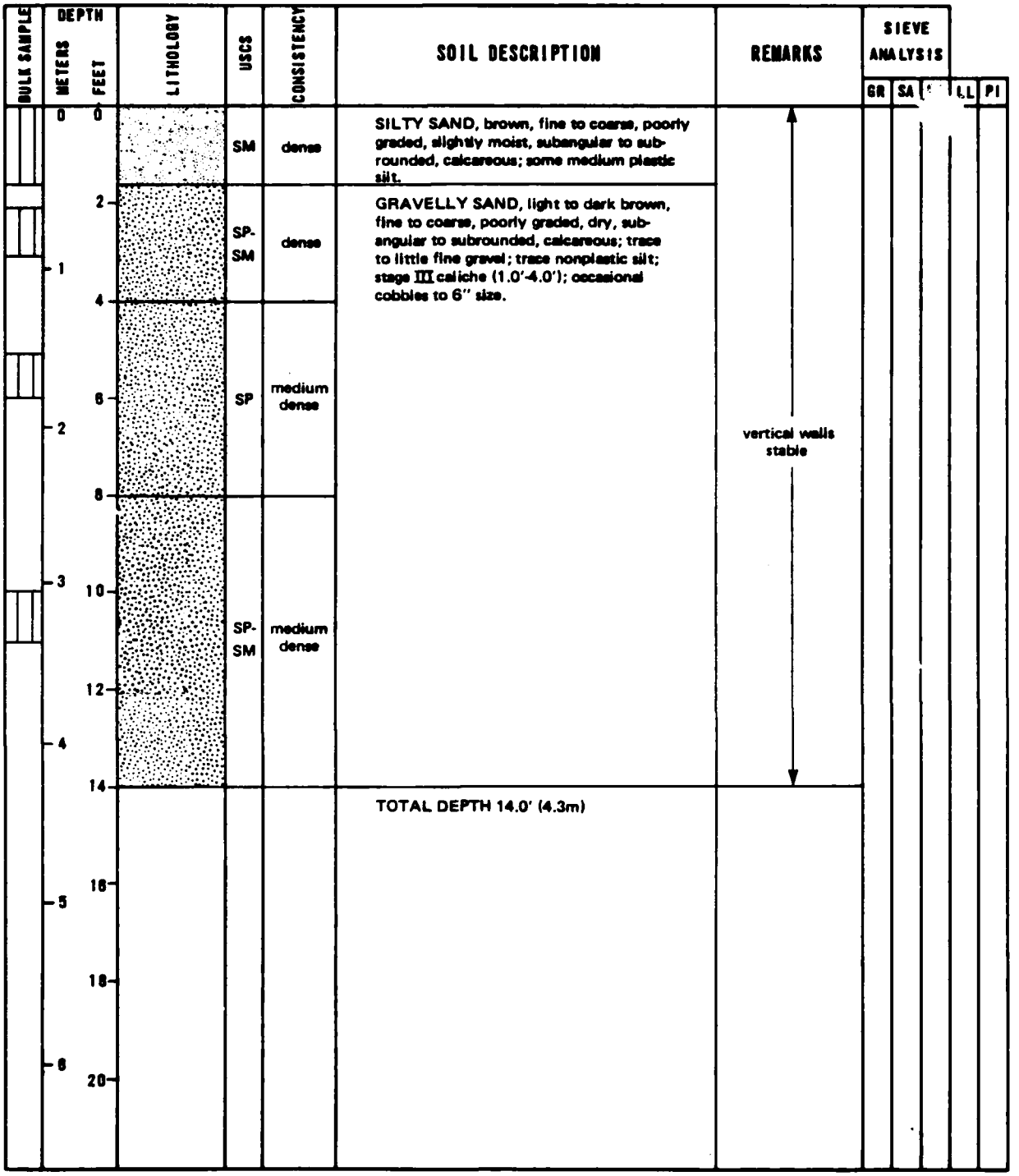
SURFACE ELEVATION : 5410' (1649m)
DATE EXCAVATED : 31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-8
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-8

UGRO NATIONAL, INC.



TRENCH DETAILS

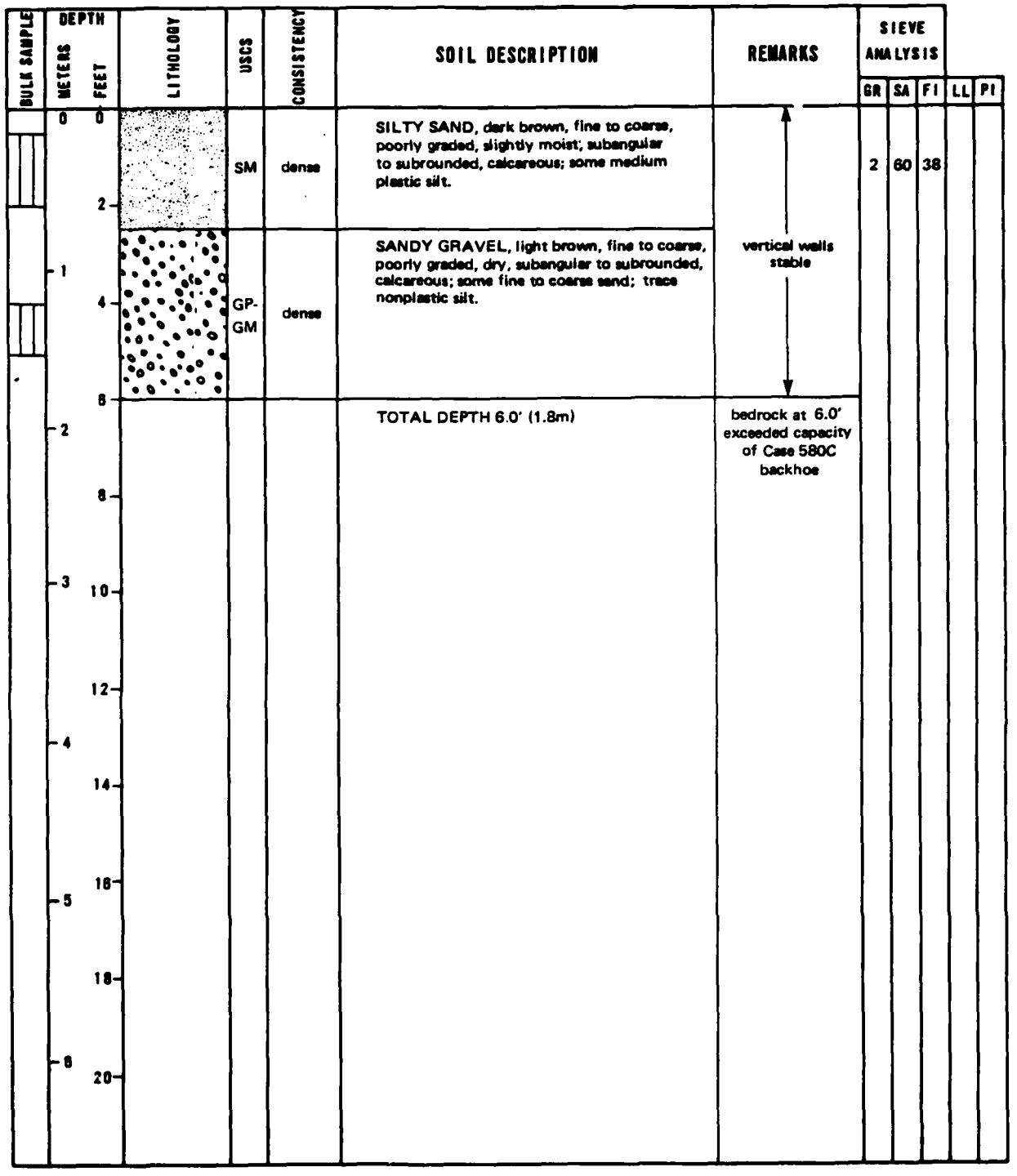
SURFACE ELEVATION : 5460' (1664m)
DATE EXCAVATED : 31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-9
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

FIGURE II-3-9

FUGRO NATIONAL, INC.



TRENCH DETAILS

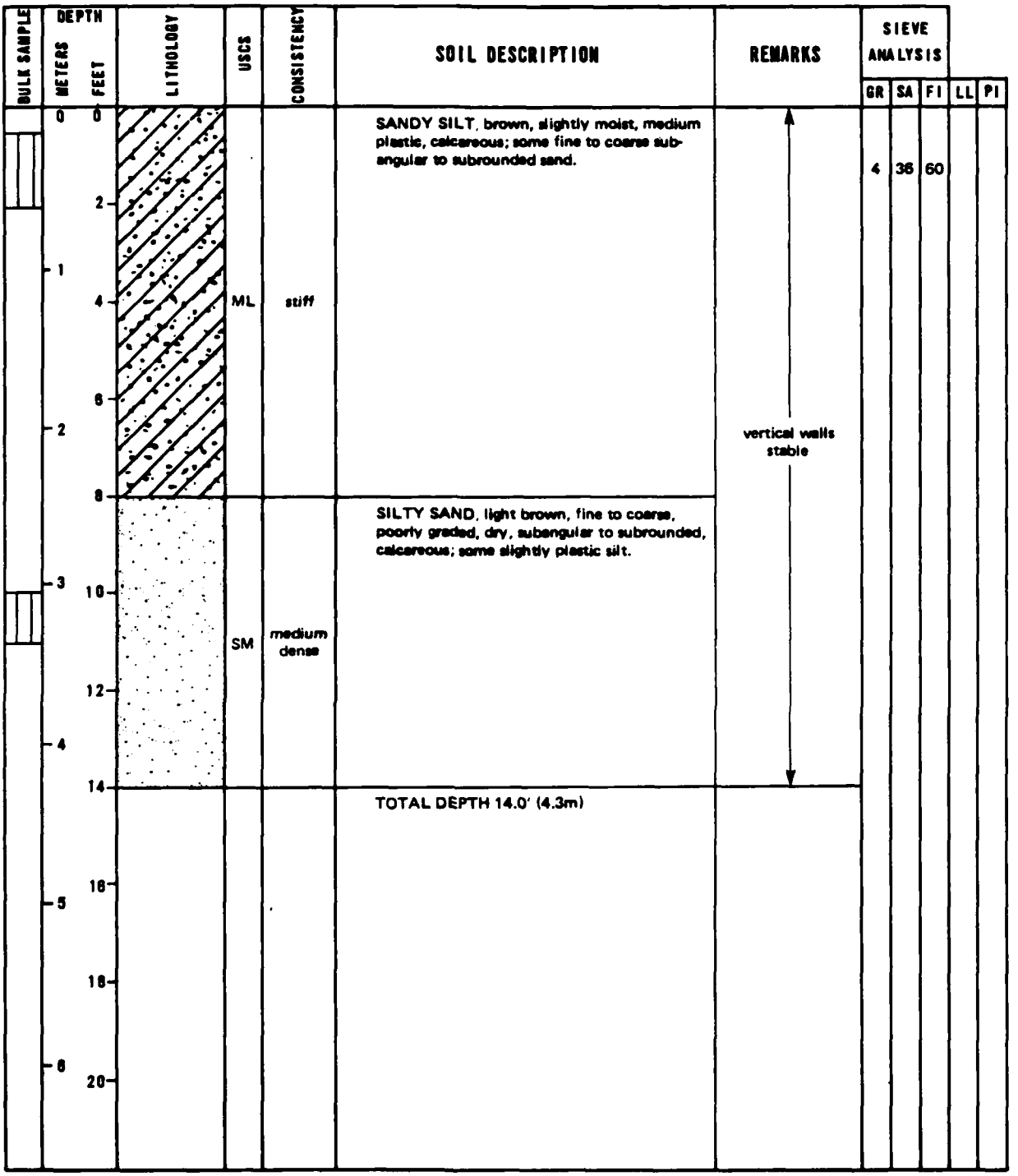
SURFACE ELEVATION : 5880' (1792m)
DATE EXCAVATED : 31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : I 4
TRENCH LENGTH : 12.0 (3.7m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-10
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-10

FUGRO NATIONAL, INC.



TRENCH DETAILS

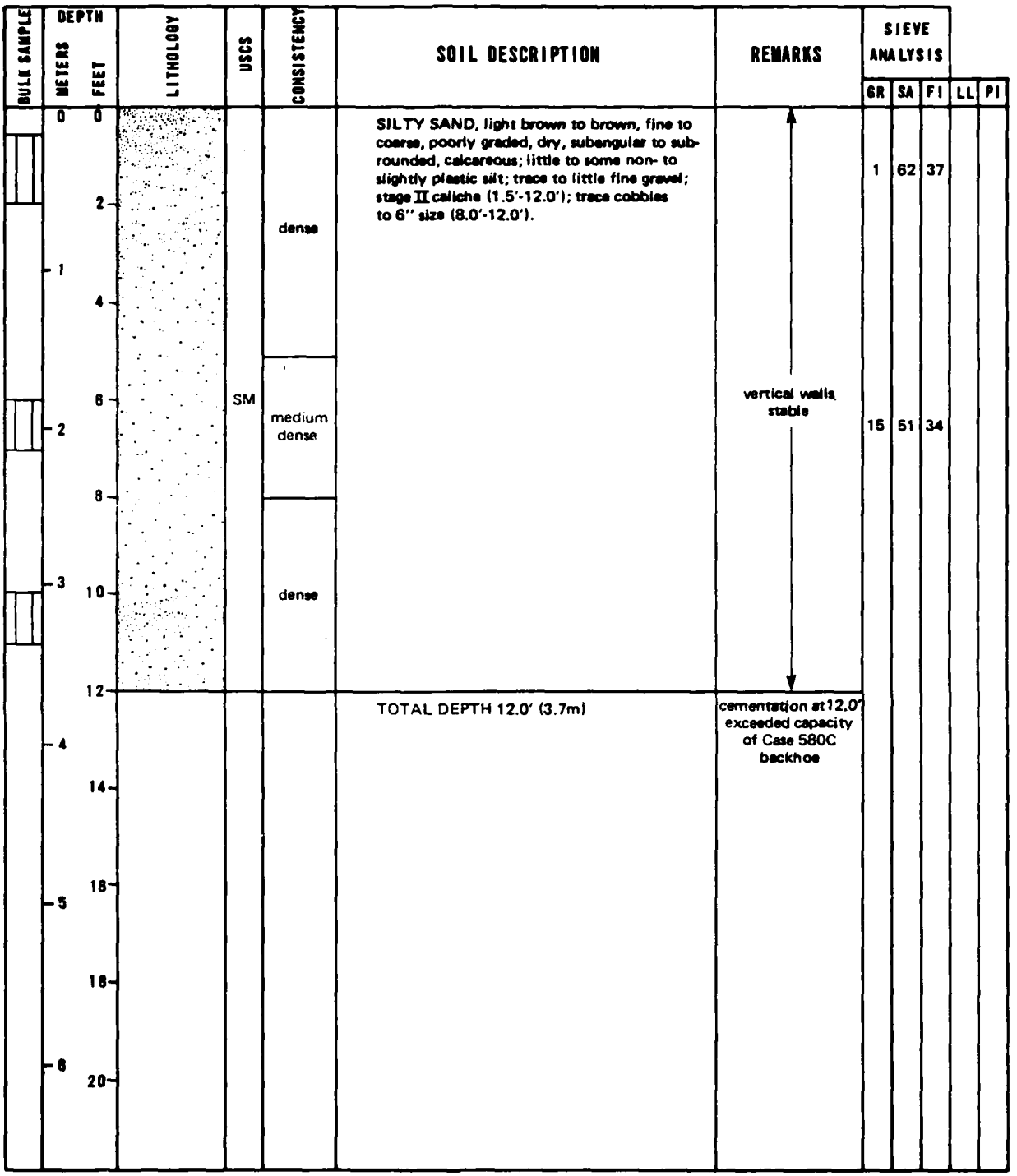
SURFACE ELEVATION : 5760' (1756m)
DATE EXCAVATED : 31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT : I 4
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-11
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-11

FUGRO NATIONAL, INC.



TRENCH DETAILS

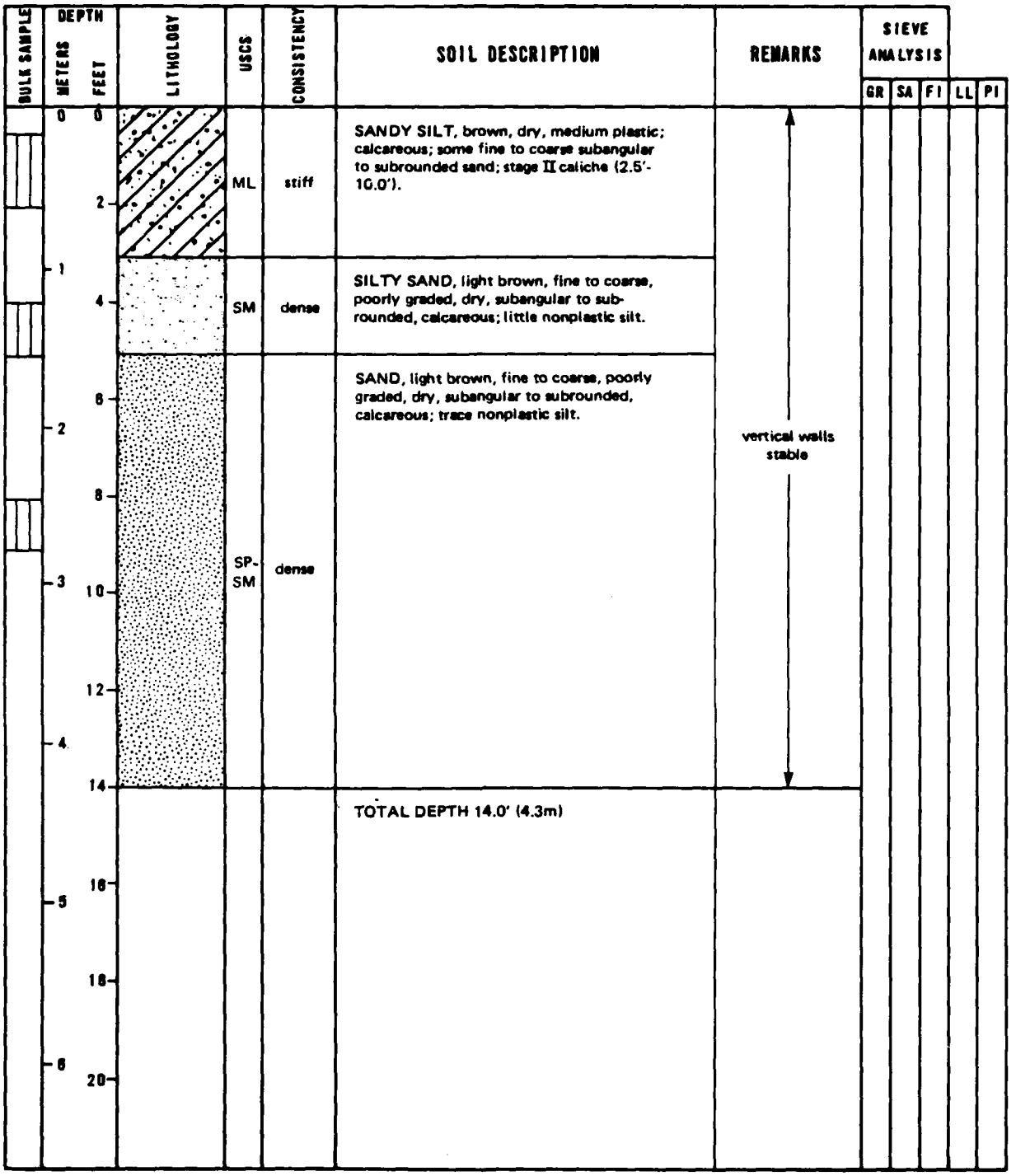
SURFACE ELEVATION	: 5515' (1681m)
DATE EXCAVATED	: 31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	: A5i
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH BL-T-12
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-12

UGRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	:	5420' (1652m)
DATE EXCAVATED	:	31 OCTOBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5i
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	E-W

LOG OF TRENCH BL-T-13
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-13

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		GP-GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, angular to subangular, calcareous; some fine to coarse sand; trace non-plastic silt; some cobbles to 6" size.	vertical walls stable	70	24	6		
		2				TOTAL DEPTH 2.5' (0.8m)	bedrock at 2.5' exceeded capacity of Case 580C backhoe					
	1	4										
		6										
	2	8										
	3	10										
		12										
	4	14										
		16										
	5	18										
	6	20										

TRENCH DETAILS

SURFACE ELEVATION : 5700' (1737m)
DATE EXCAVATED : 1 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT : I4
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-14
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-14

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0										
		2		SM	dense	GRAVELLY SAND, brown to light brown, fine to coarse, poorly graded, dry, subangular, calcareous; some fine to coarse gravel; little slightly plastic silt; stage III caliche (1.0'-3.5'); stage IV caliche (3.5'-4.0'); occasional cobbles to 6" size.	vertical walls stable	36	51	13		
	1	4			very dense							
						TOTAL DEPTH 4.0' (1.2m)	cementation at 4.0' exceeded capacity of Case 580C backhoe					
		6										
	2	8										
		10										
	3	12										
	4	14										
		16										
	5	18										
	6	20										

TRENCH DETAILS

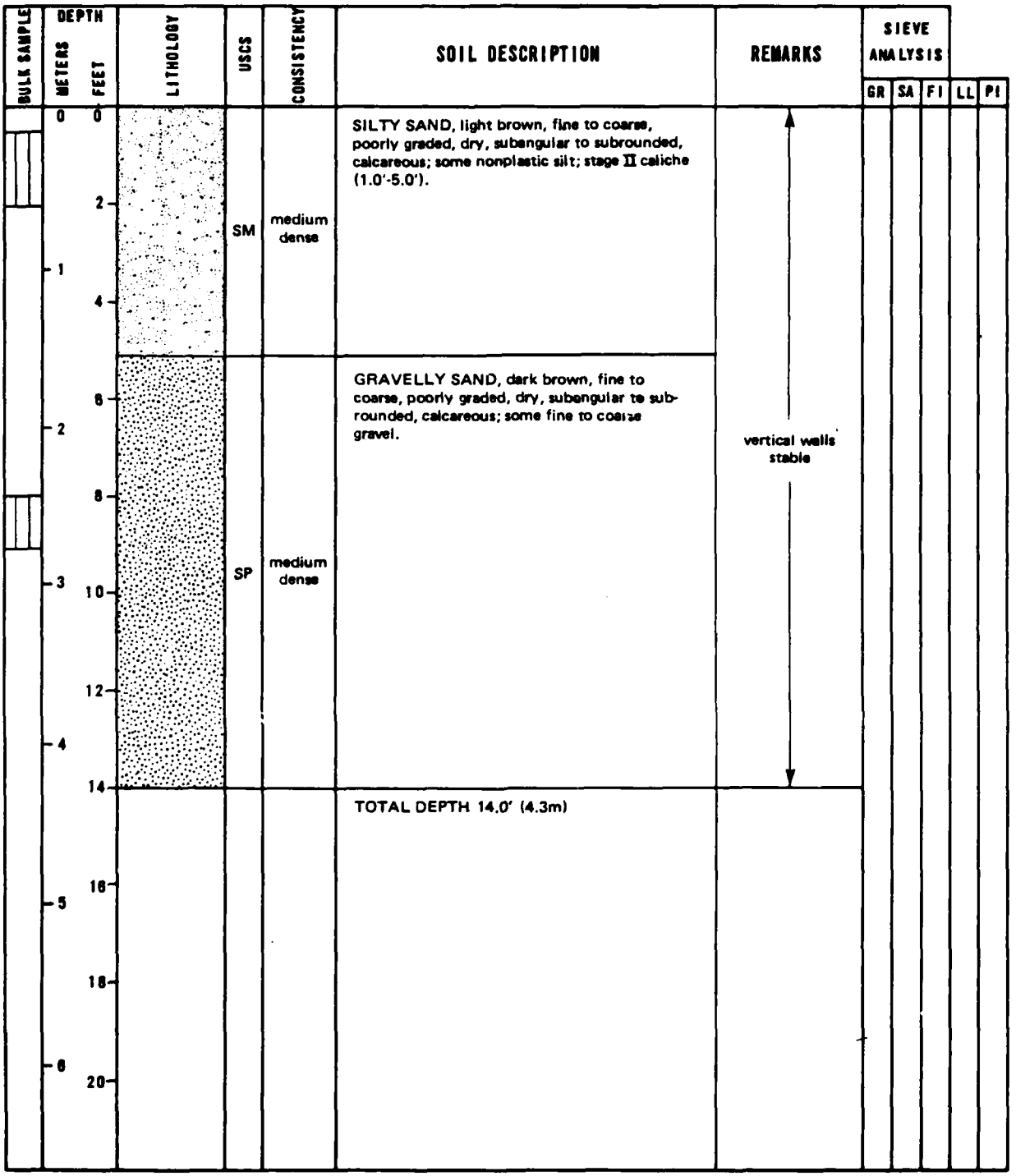
SURFACE ELEVATION : 5520' (1682m)
DATE EXCAVATED : 1 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT : A5i
TRENCH LENGTH : 10.0' (3.0m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-15
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-15

UGRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	:	5375' (1638m)
DATE EXCAVATED	:	1 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5i
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	N-S

LOG OF TRENCH BL-T-16
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-16

UGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY CLAY, brown to dark gray, very moist to saturated, slightly plastic, calcareous.		0	3	97	26	10
		2										
	1	4					vertical walls stable water encountered at 5.0'					
		6		CL	firm							
	2											
		8										
	3	10				TOTAL DEPTH 10.0' (3.0m)	excavation terminated at 10.0' due to water infiltration					
		12										
	4											
		14										
		16										
	5											
		18										
	6	20										

TRENCH DETAILS

SURFACE ELEVATION : 5080' (1548m)
DATE EXCAVATED : 2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT : A1/A4o
TRENCH LENGTH : 12.0 (3.7m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-17
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-17

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0		MH	firm	SILT, brown to dark olive-gray, moist to saturated, medium plastic, calcareous; some fine to medium sand; stage I caliche (1.0'-2.0'); stage III caliche (2.0'-5.0').	vertical walls stable water encountered at 7.5'	0	38	62	59	19
		2										
	1	4			stiff							
		6										
	2											
		8			firm							
	3	10				TOTAL DEPTH 10.0' (3.0m)	excavation terminated at 10.0' due to water infiltration					
		12										
	4											
		14										
		16										
	5											
		18										
	6	20										

TRENCH DETAILS

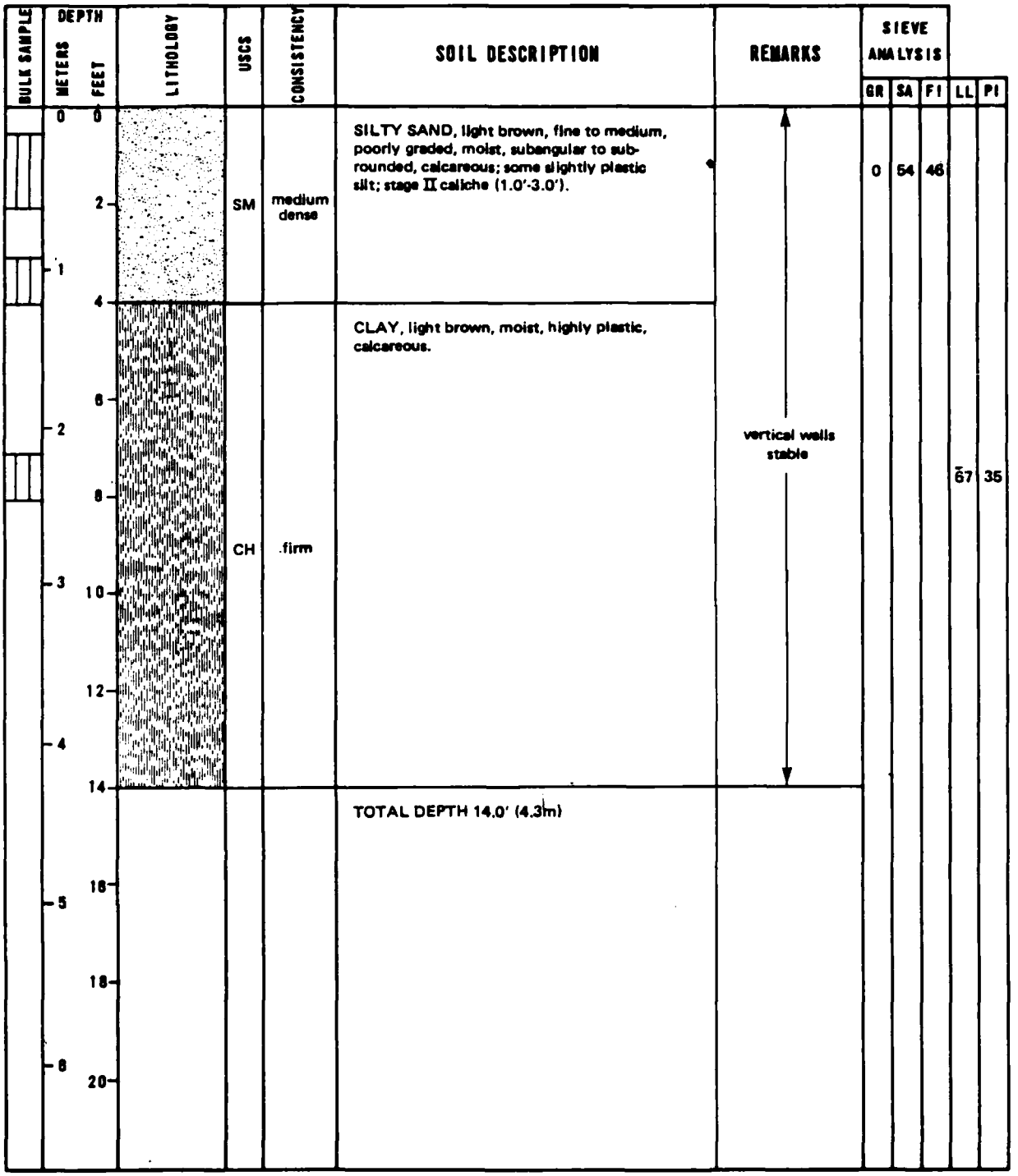
SURFACE ELEVATION	:	5090' (1551m)
DATE EXCAVATED	:	2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A4o
TRENCH LENGTH	:	12.0' (3.7m)
TRENCH ORIENTATION	:	E-W

LOG OF TRENCH BL-T-18
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-18

FUGRO NATIONAL, INC.



TRENCH DETAILS

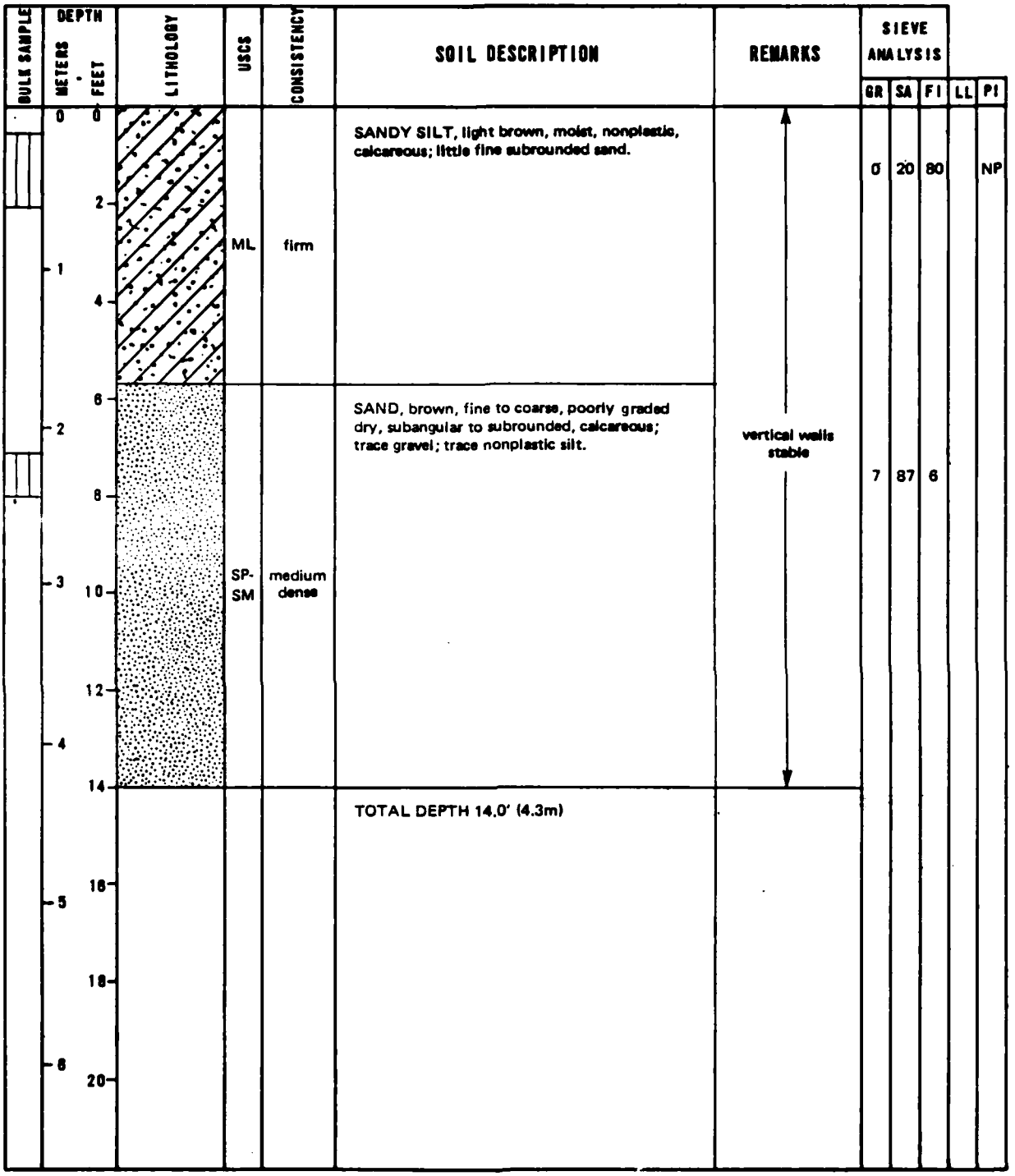
SURFACE ELEVATION	:	5105' (1556m)
DATE EXCAVATED	:	2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5y/A4o
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	E-W

LOG OF TRENCH BL-T-19
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-19

FUGRO NATIONAL, INC.



TRENCH DETAILS

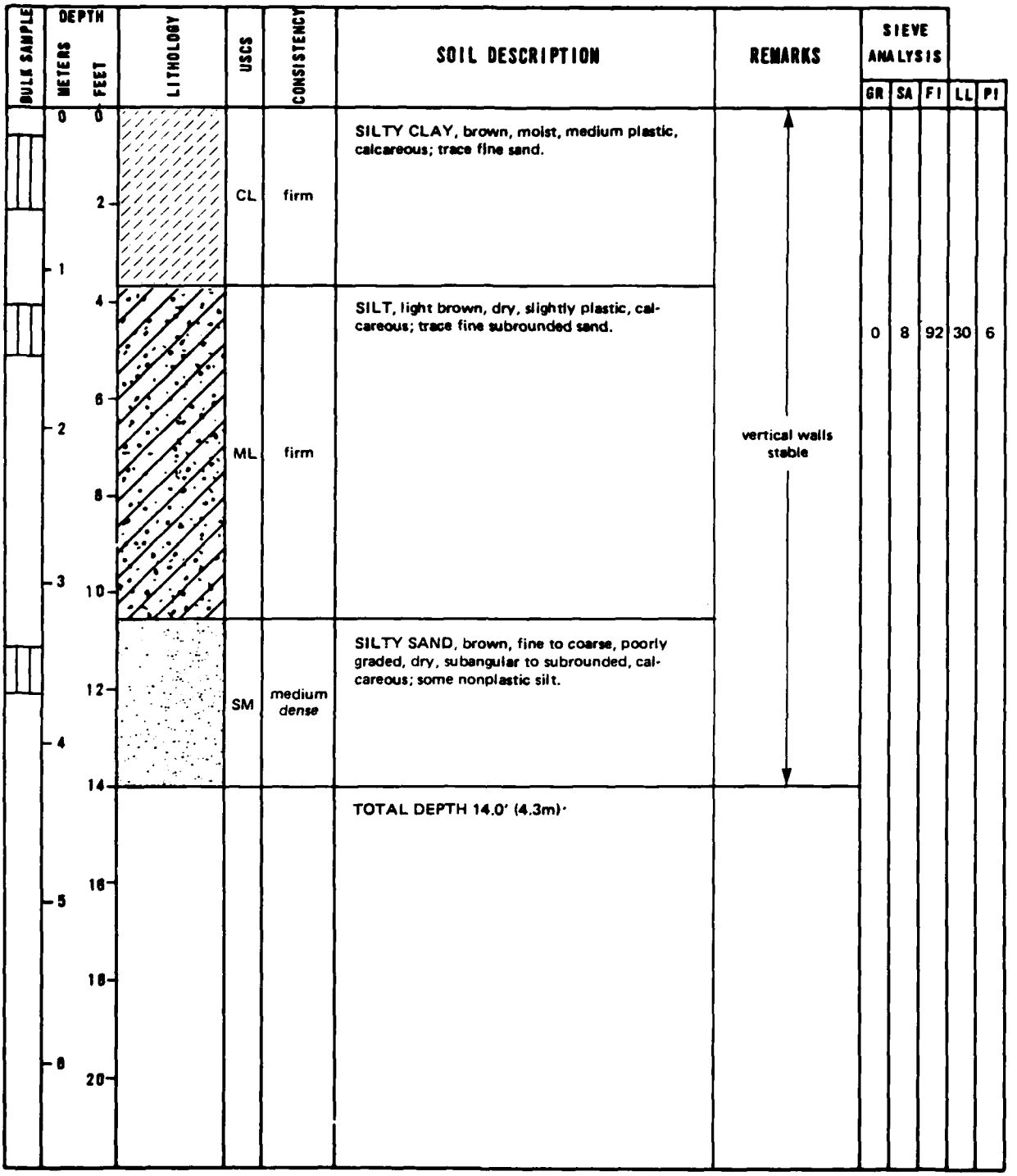
SURFACE ELEVATION	:	5140' (1567m)
DATE EXCAVATED	:	2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5y
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	N-S

LOG OF TRENCH BL-T-20
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-20

UBRO NATIONAL, INC.



TRENCH DETAILS

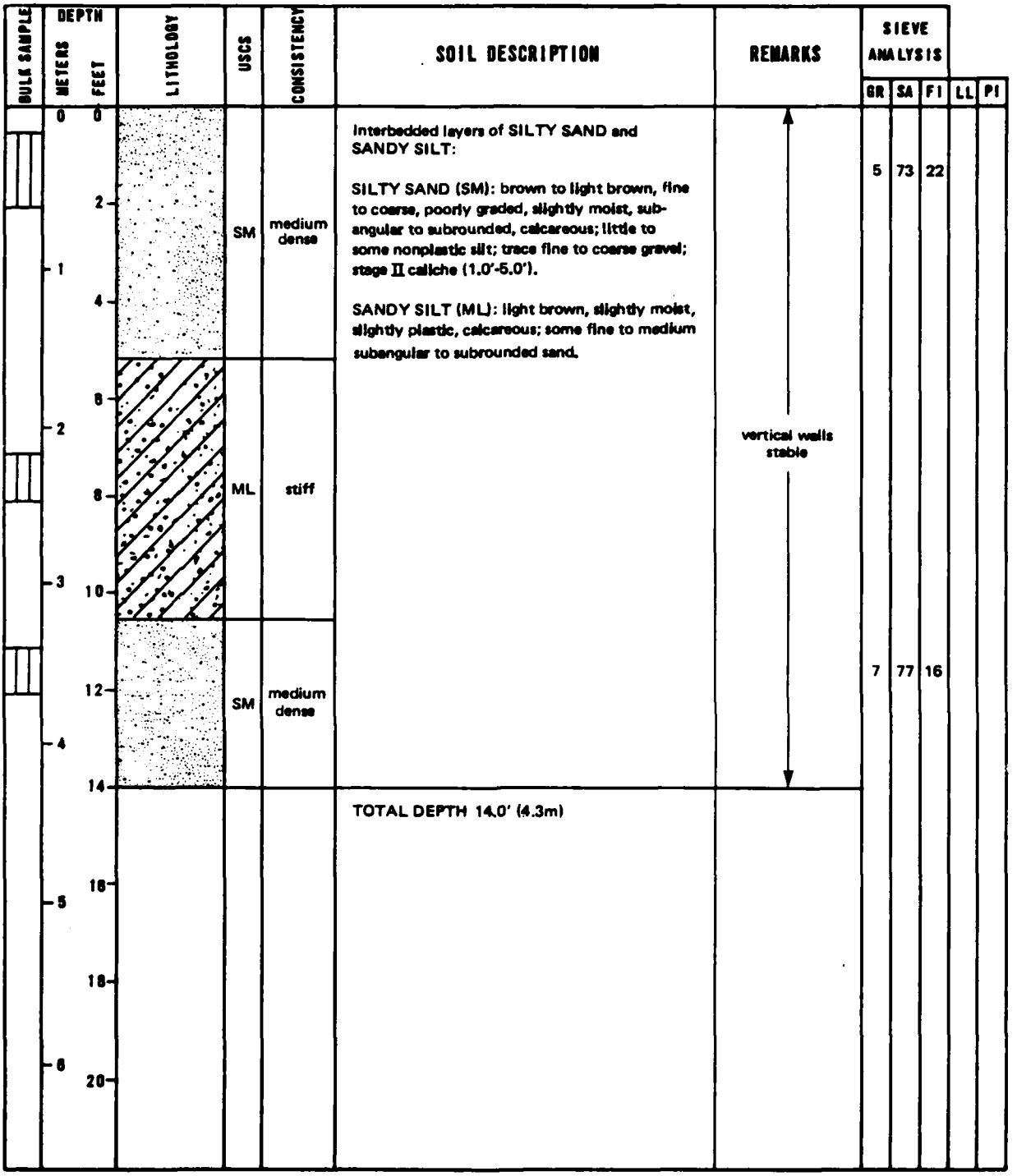
SURFACE ELEVATION	:	5145' (1568m)
DATE EXCAVATED	:	2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5y/A4o
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	N-S

LOG OF TRENCH BL-T-21
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-21

FUGRO NATIONAL, INC.



TRENCH DETAILS

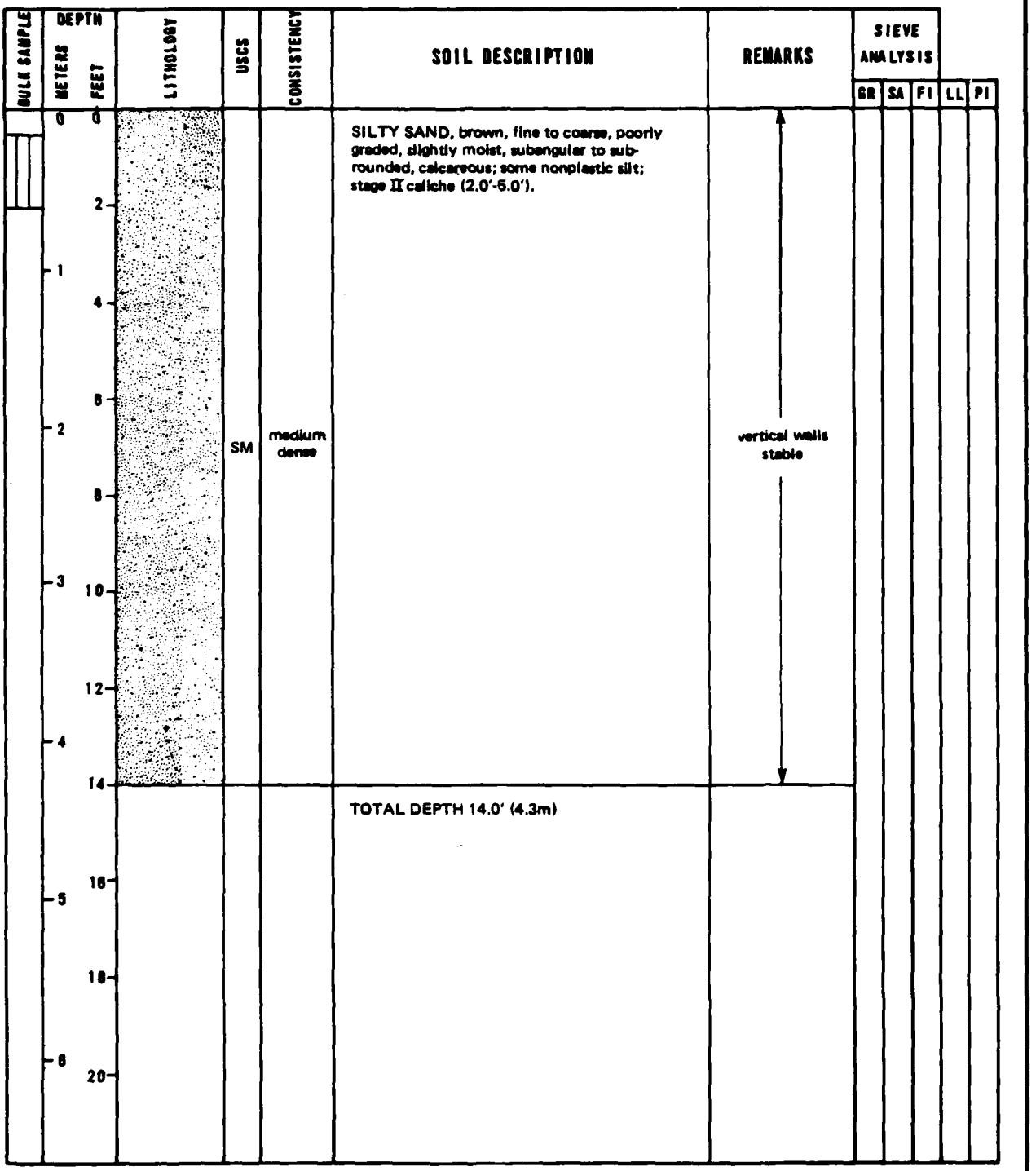
SURFACE ELEVATION	:	5180' (1579m)
DATE EXCAVATED	:	2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	:	A5I
TRENCH LENGTH	:	14.0' (4.3m)
TRENCH ORIENTATION	:	E-W

LOG OF TRENCH BL-T-22
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-22

FUGRO NATIONAL, INC.



TRENCH DETAILS

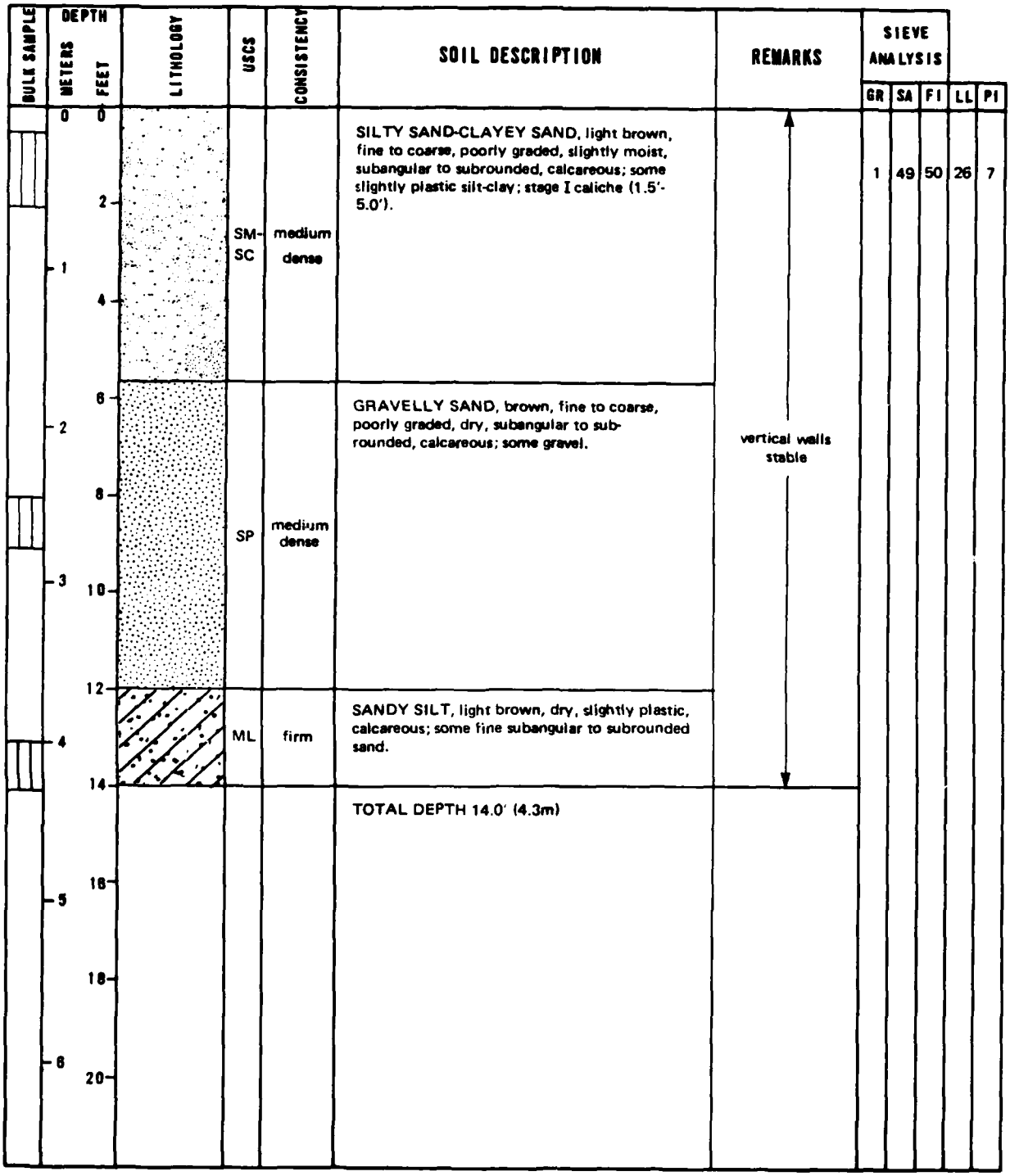
SURFACE ELEVATION	: 5200' (1585m)
DATE EXCAVATED	: 2 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: Afi
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH BL-T-23
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

FIGURE
II-3-23

UGRO NATIONAL, INC.



TRENCH DETAILS

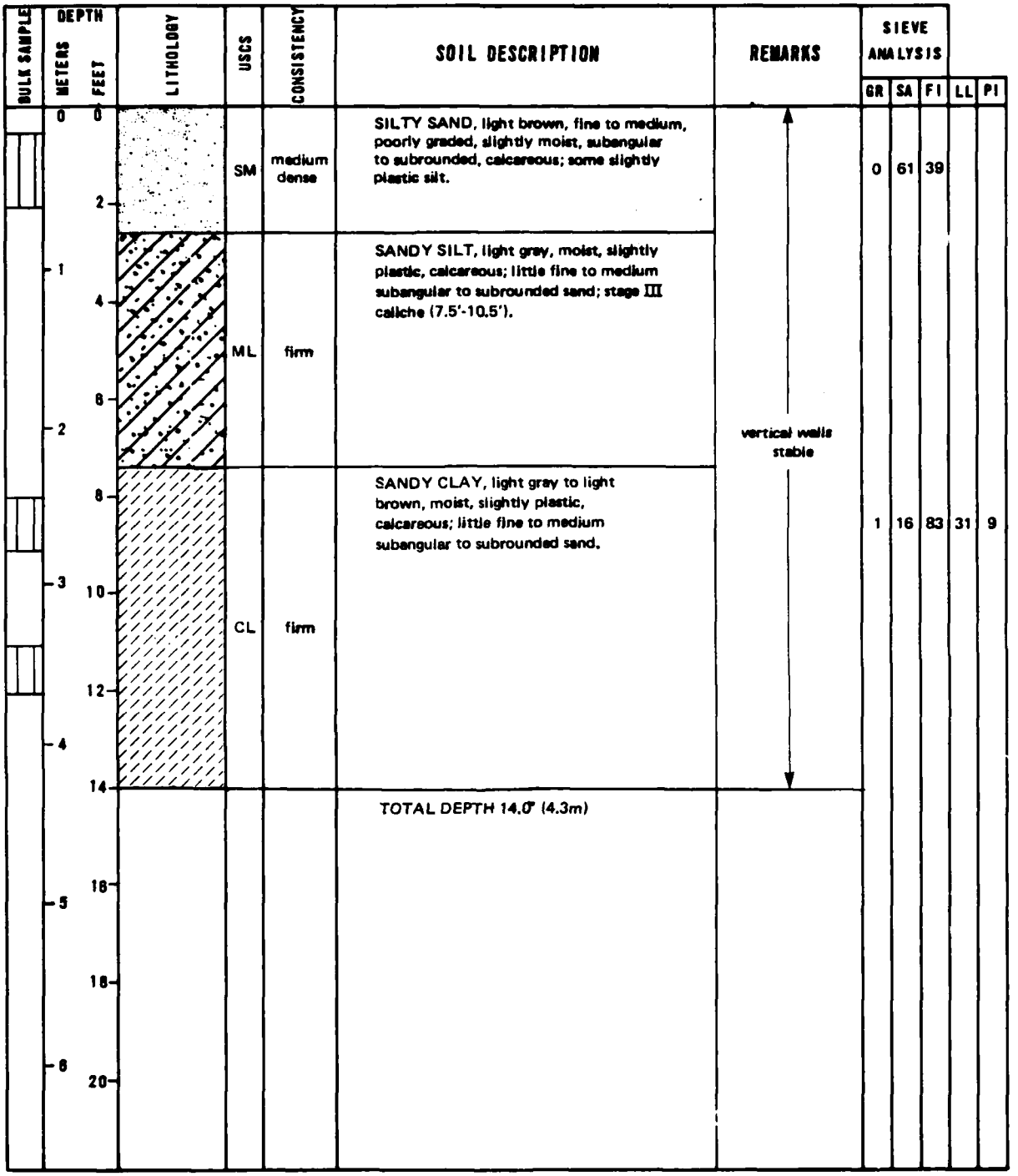
SURFACE ELEVATION	: 5175' (1577m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH BL-T-24
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

FIGURE
II-3-24

FUGRO NATIONAL, INC.



TRENCH DETAILS

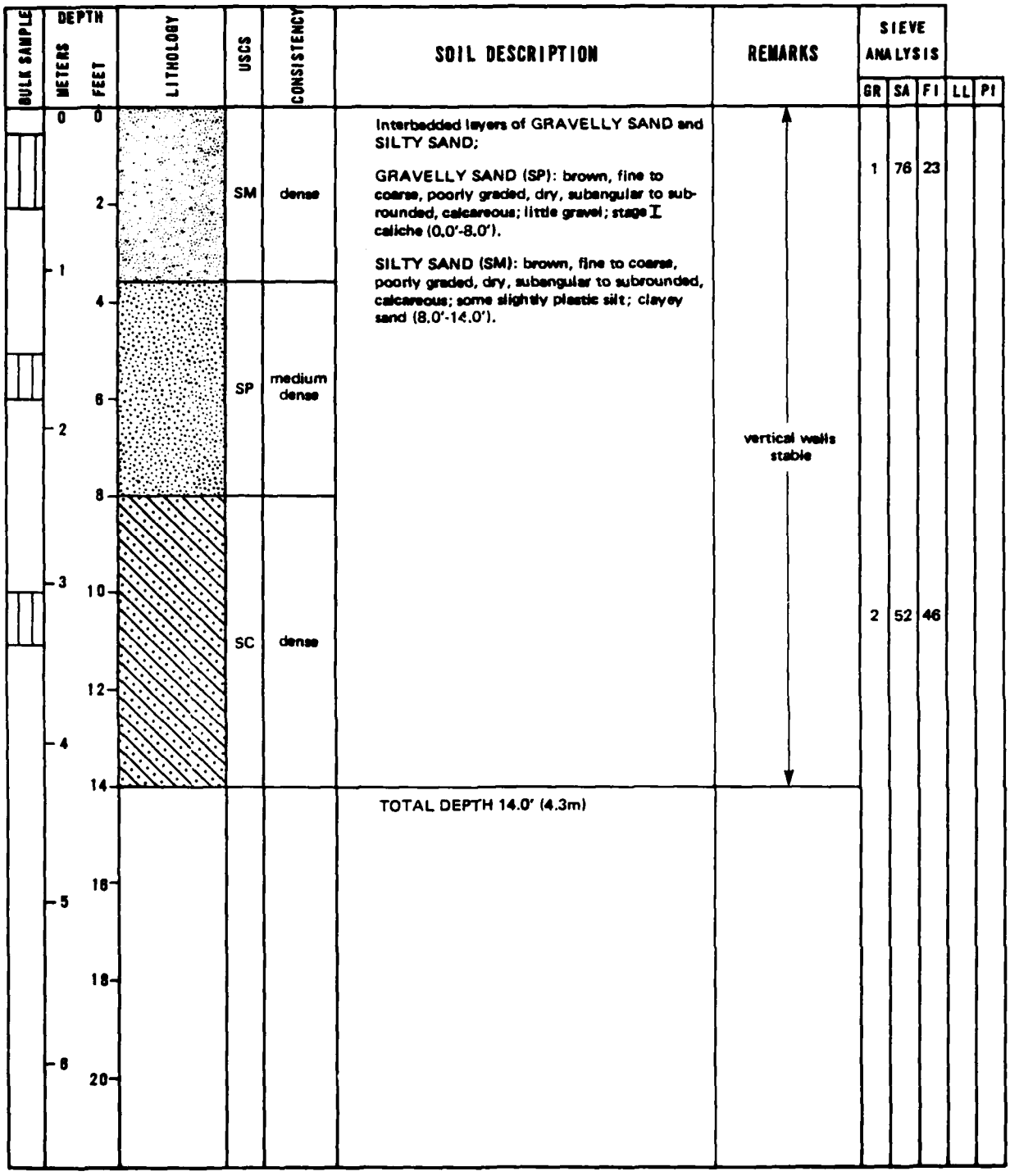
SURFACE ELEVATION	: 5150' (1570m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A3/A4o
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: E-W

LOG OF TRENCH BL-T-25
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-25

FUGRO NATIONAL, INC.



TRENCH DETAILS

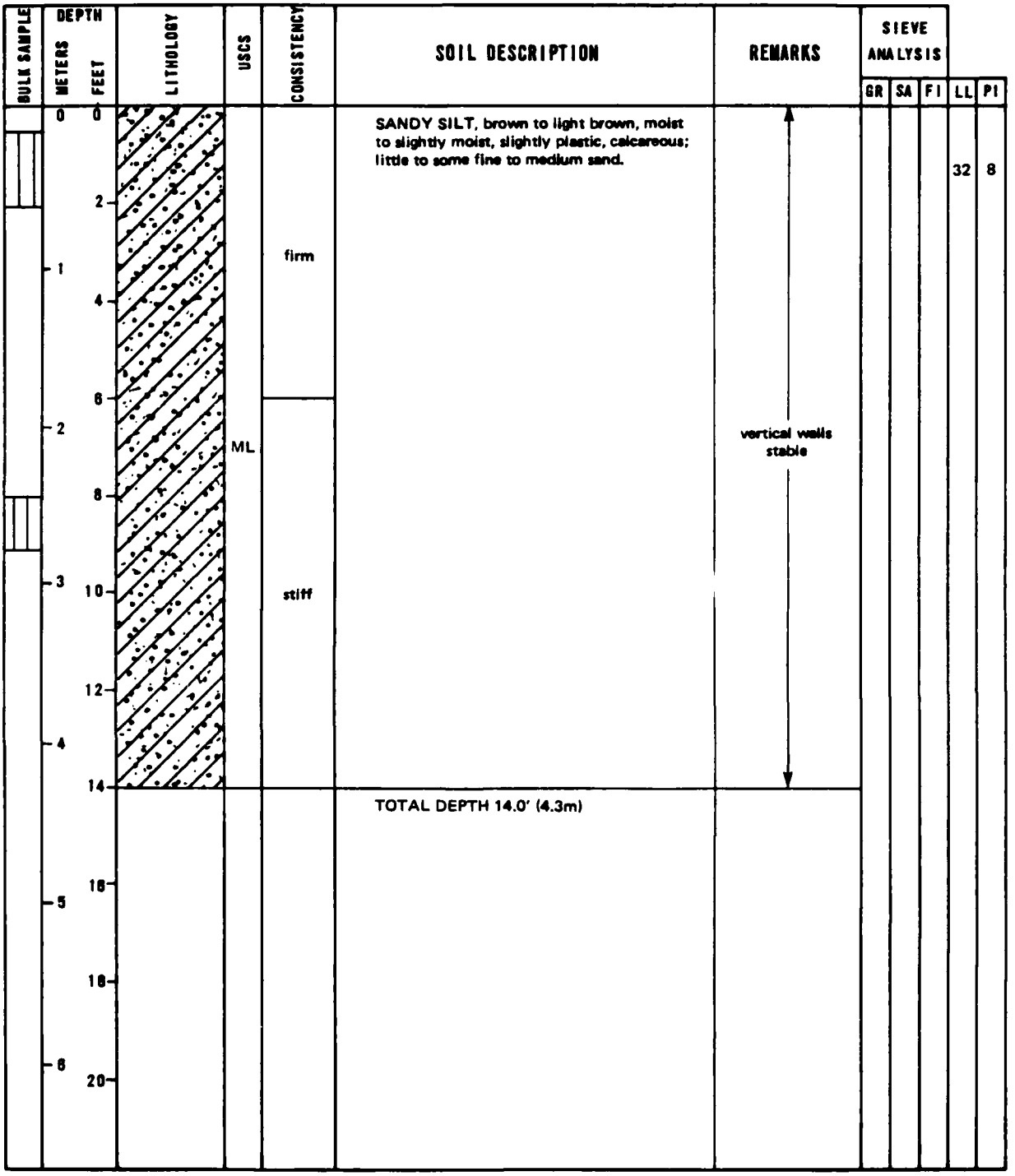
SURFACE ELEVATION : 5160' (1573m)
DATE EXCAVATED : 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT : A4o/A5y
TRENCH LENGTH : 14.0' (4.3m)
TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-26
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

FIGURE
II-3-26

FUGRO NATIONAL, INC.



TRENCH DETAILS

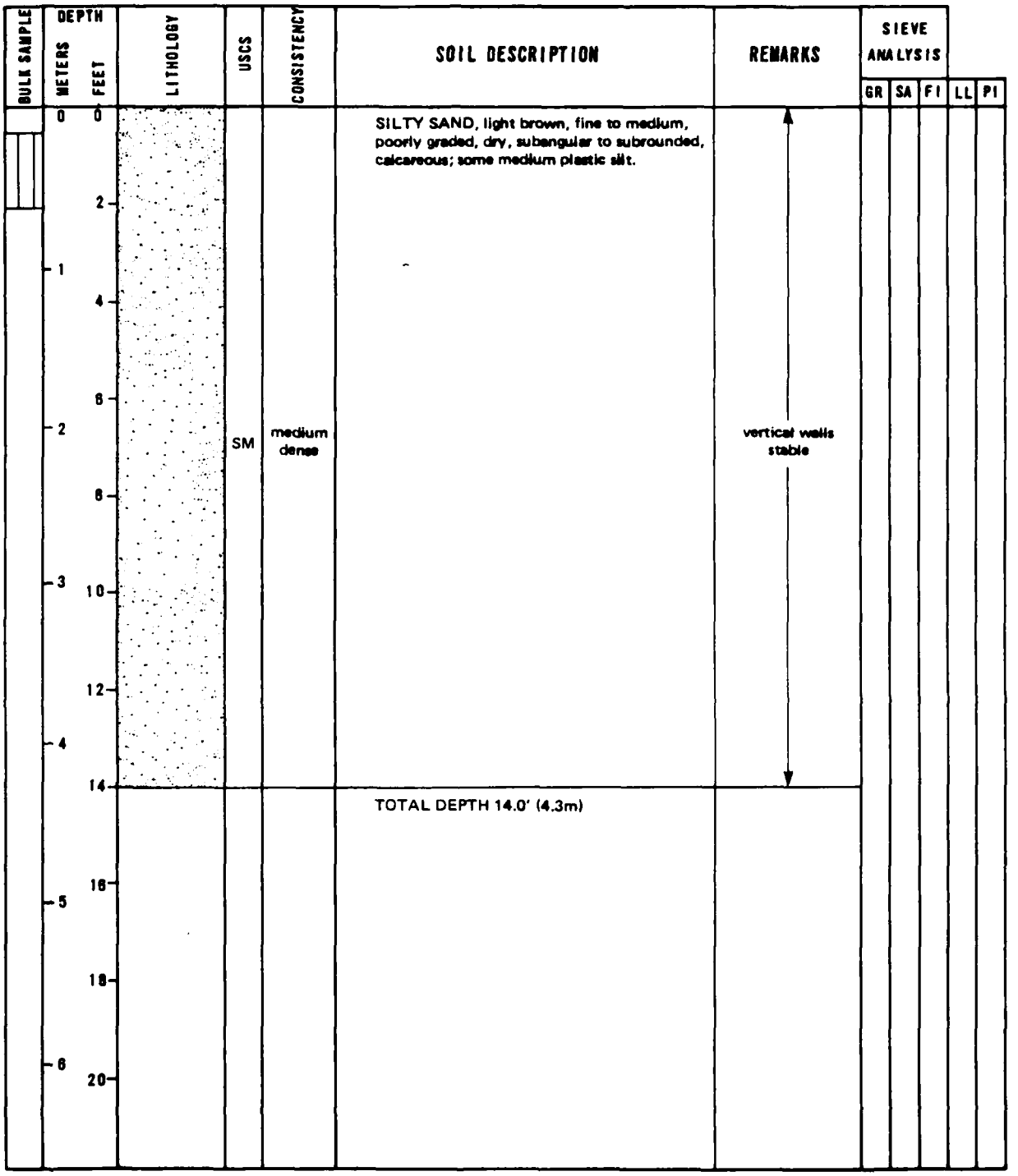
SURFACE ELEVATION	: 5175' (1577m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A4o/A5y
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH BL-T-27
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-27

FUGRO NATIONAL, INC.



TRENCH DETAILS

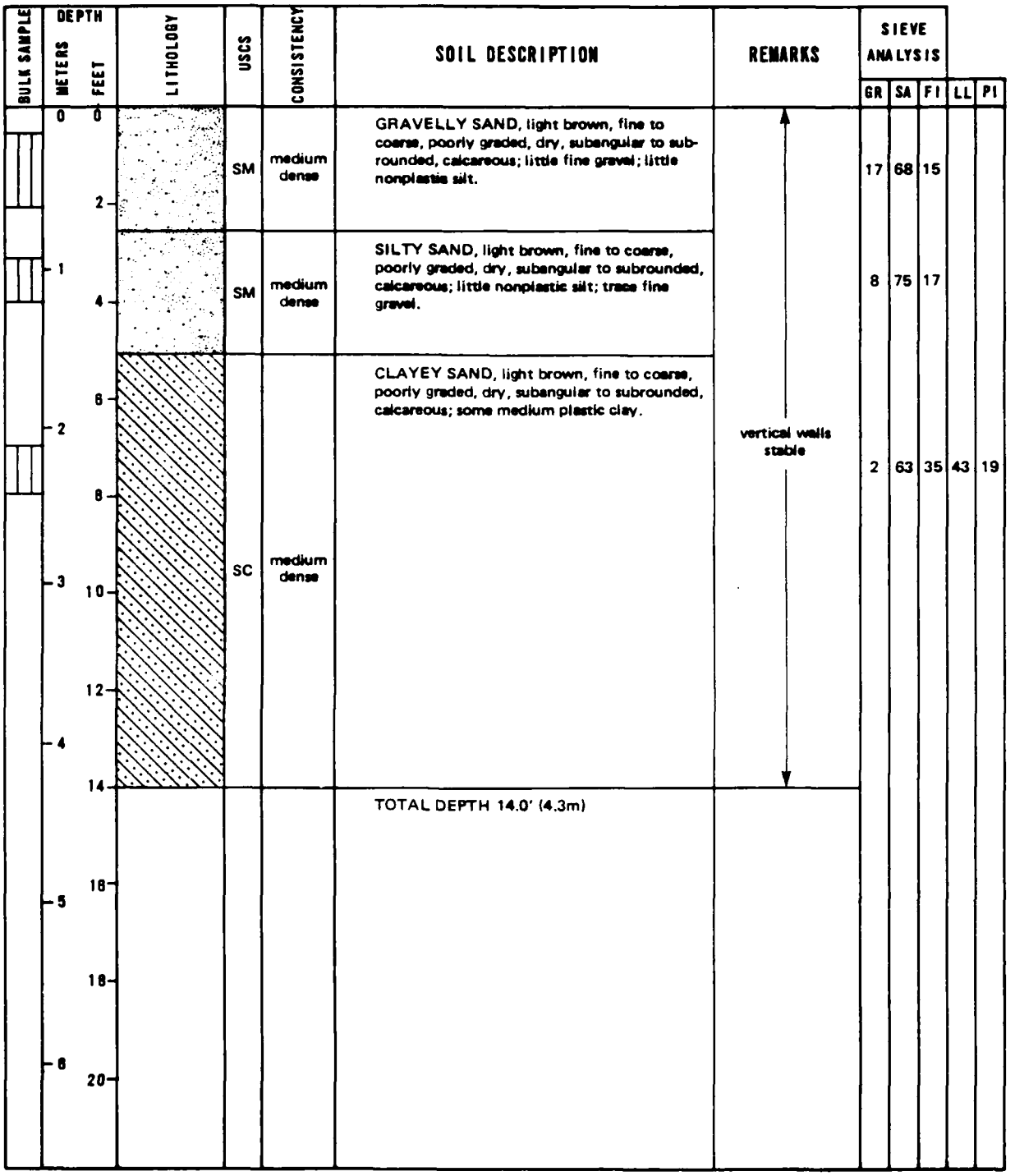
SURFACE ELEVATION	: 5185' (1580m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y/A4o
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH BL-T-28
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-3-28

FUGRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	: 5200' (1585m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y/A4o
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

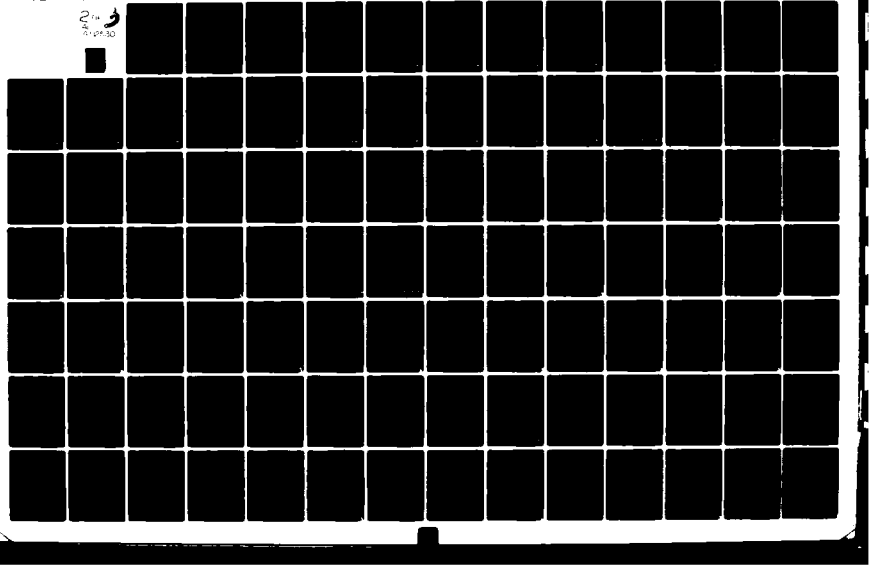
LOG OF TRENCH BL-T-29
OPERATIONAL BASE SITE
BERYL, UTAH

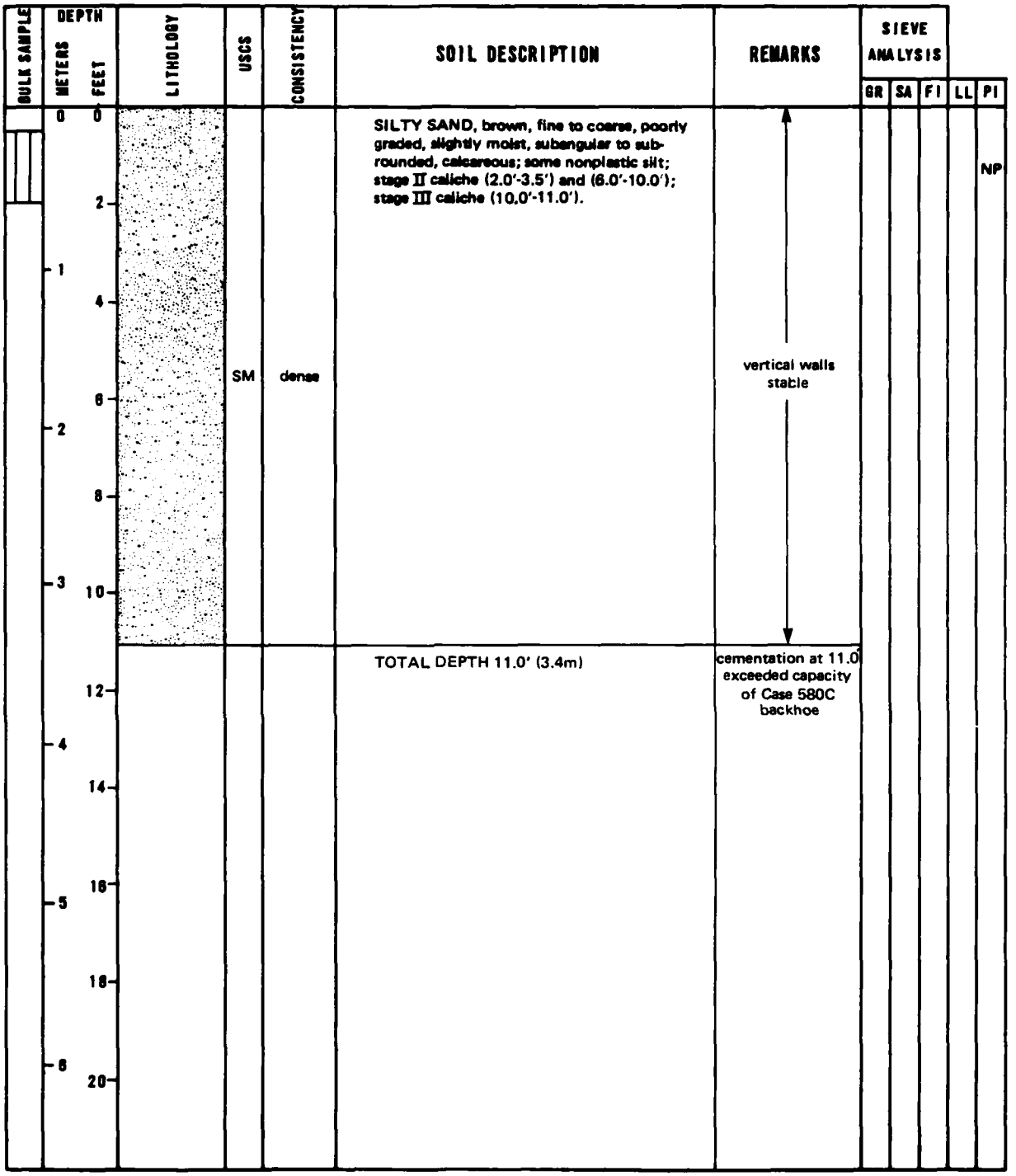
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

FIGURE
II-3-29

FUGRO NATIONAL, INC.

AD-A112 530 FUGRO NATIONAL INC LONG BEACH CA F/G 8/13
MX SITING INVESTIGATION. PRELIMINARY GEOTECHNICAL INVESTIGATION--ETC(U)
MAR 81 F04704-80-C-0006
UNCLASSIFIED FN-TR-45-VOL-2 NL





TRENCH DETAILS

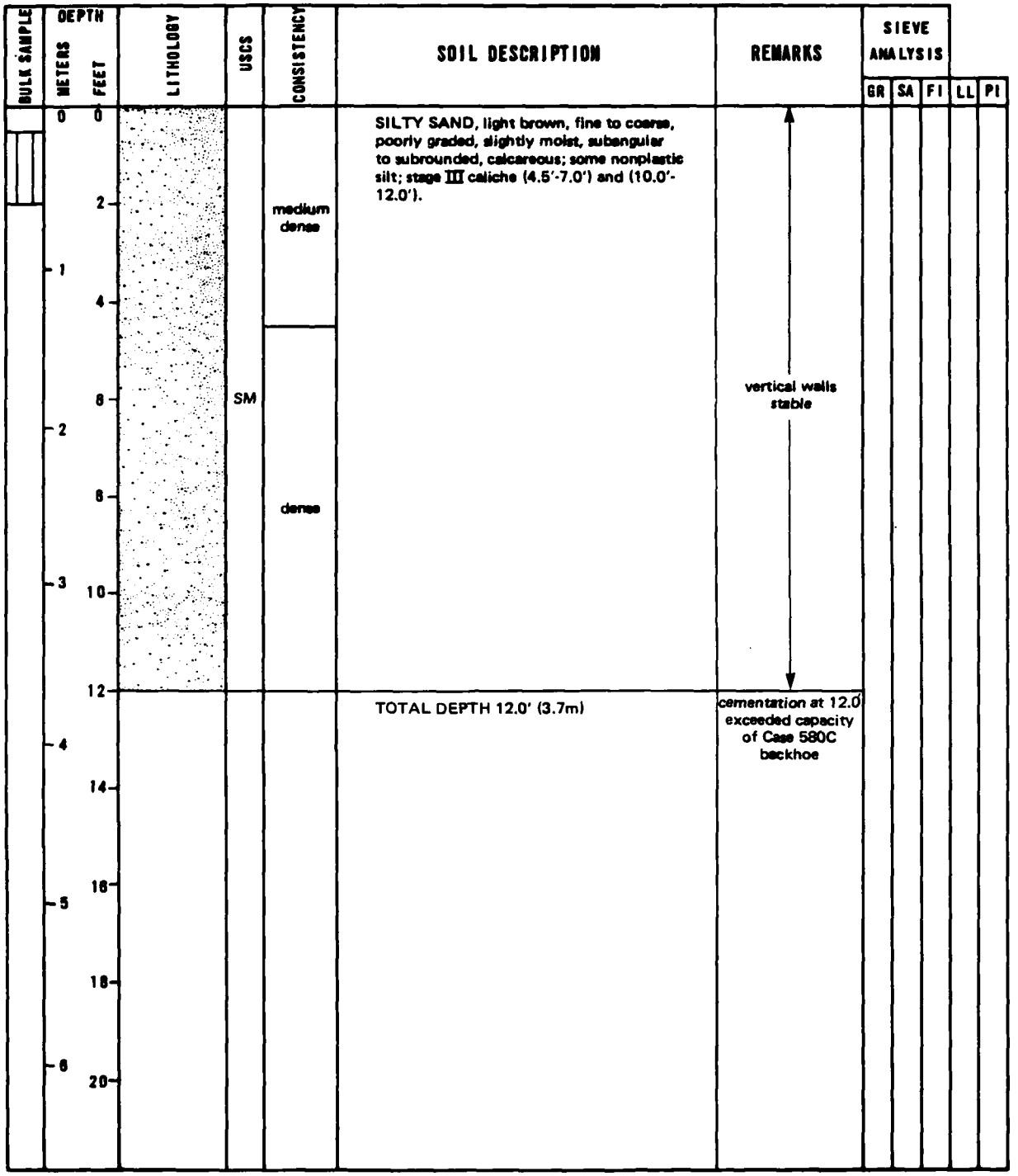
SURFACE ELEVATION	: 5225' (1593m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A5y
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH BL-T-30
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

FIGURE II-3-30

UNRO NATIONAL, INC.



TRENCH DETAILS

SURFACE ELEVATION	: 5280' (1603m)
DATE EXCAVATED	: 3 NOVEMBER 1980
SURFICIAL GEOLOGIC UNIT	: A5i
TRENCH LENGTH	: 14.0' (4.3m)
TRENCH ORIENTATION	: N-S

LOG OF TRENCH BL-T-31
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-31

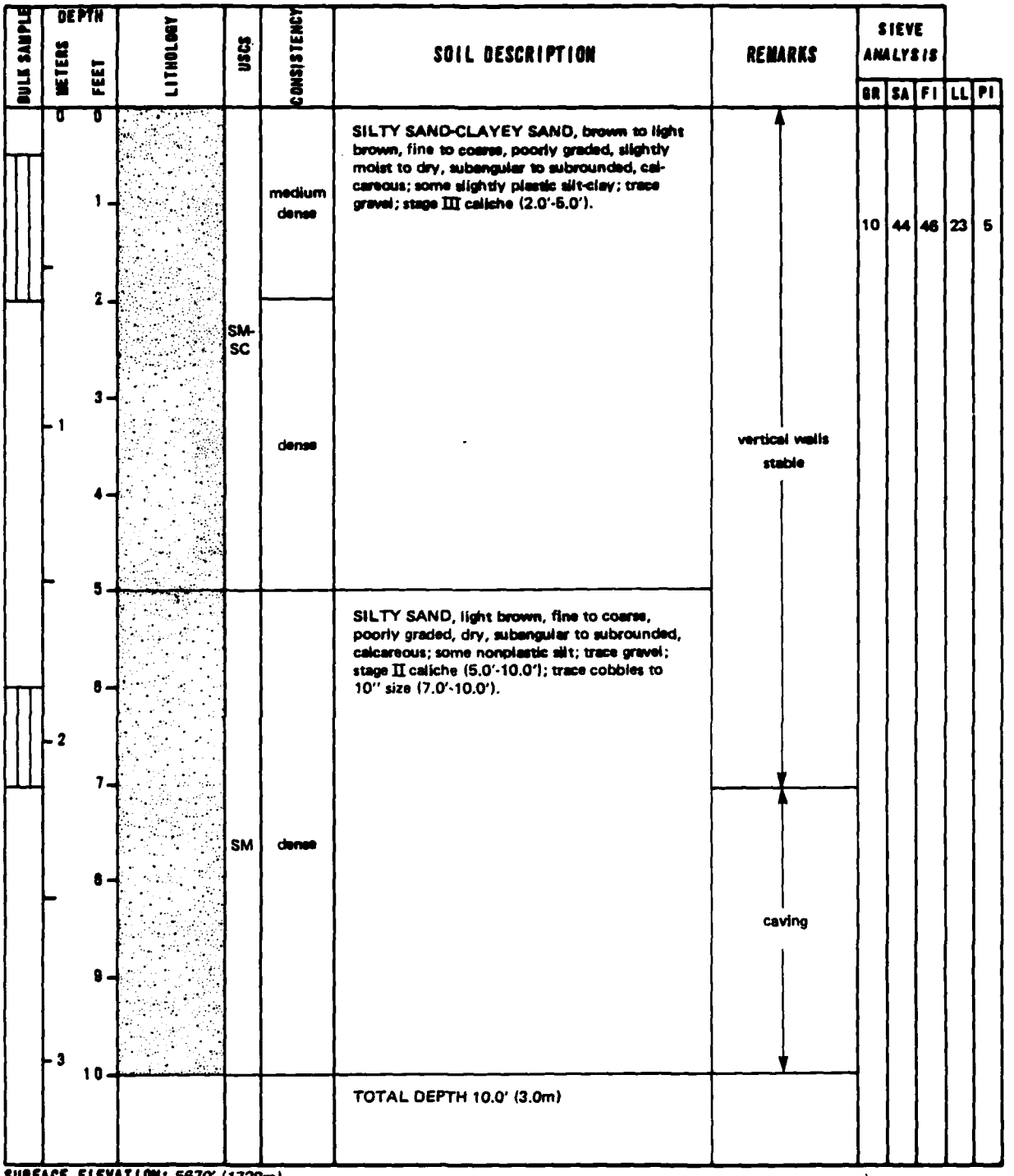
FUGRO NATIONAL, INC.

SECTION 4.0

EXPLANATION OF TEST PIT LOGS

4.0 EXPLANATION OF TEST PIT LOGS

See Section 2.0, "Explanation of Boring, Trench, and Test Pit Logs", for explanations.



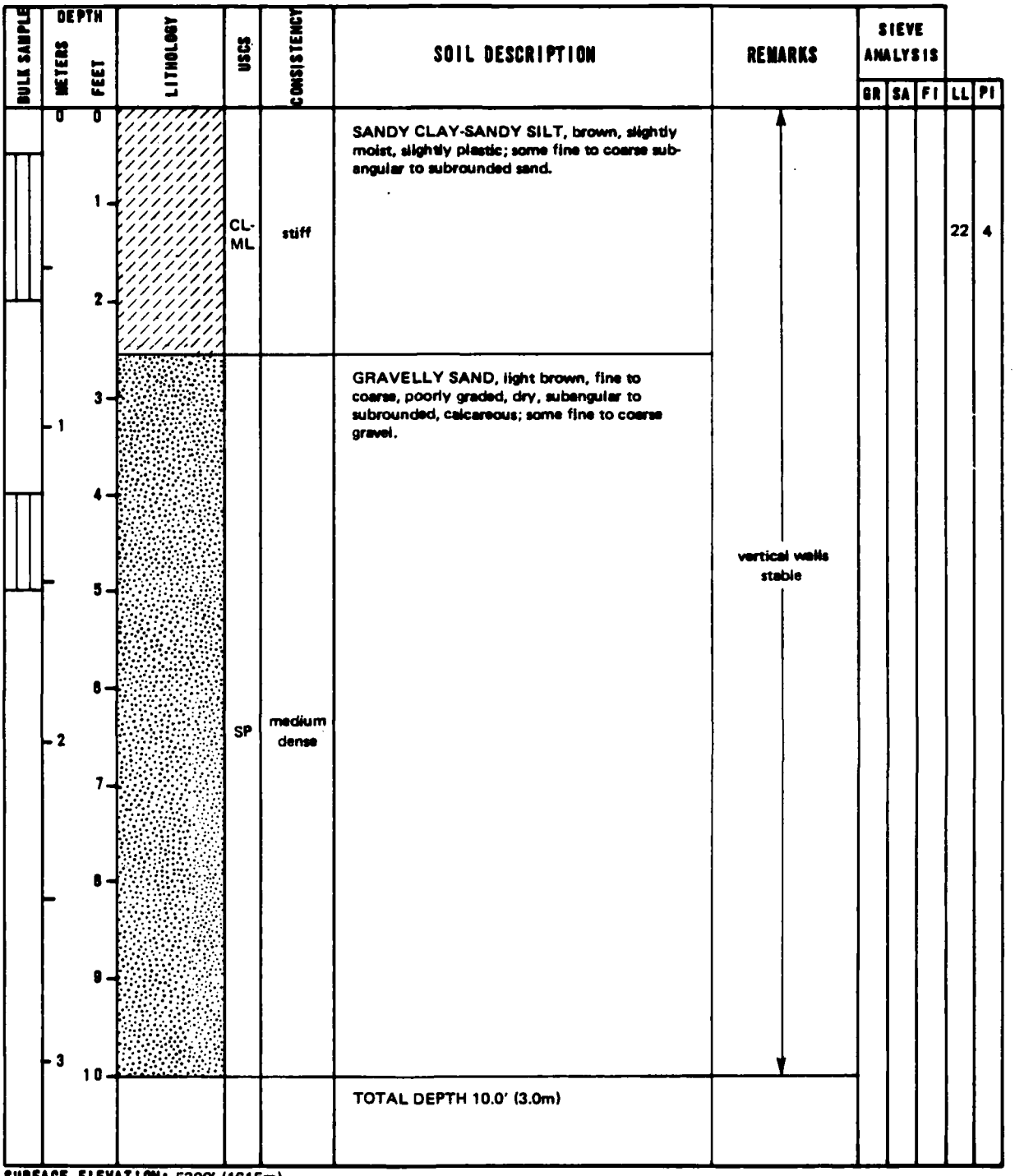
SURFACE ELEVATION: 5670' (1728m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-1
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-1

FUGRO NATIONAL, INC.



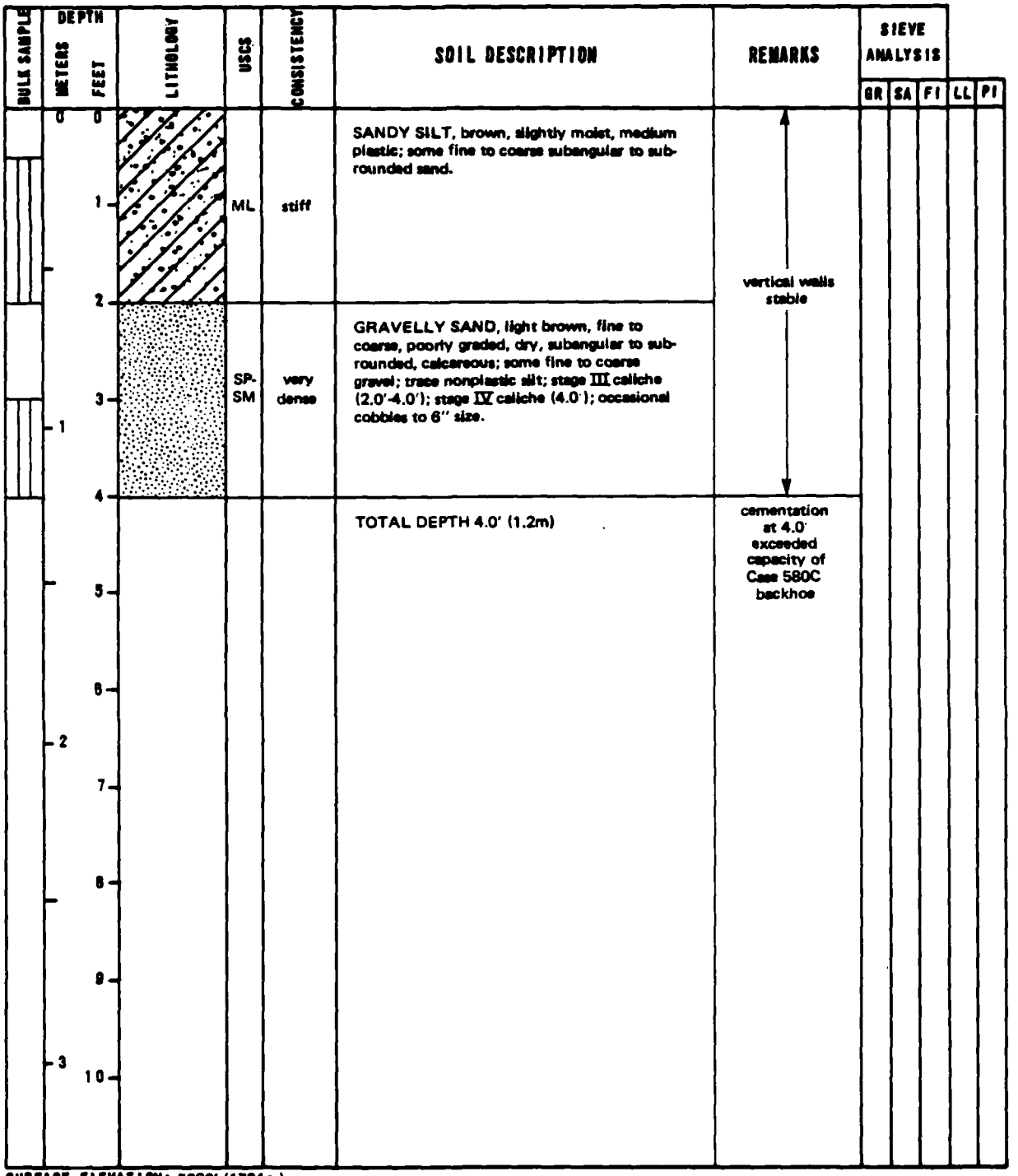
SURFACE ELEVATION: 5300' (1615m)
SURFICIAL GEOLOGIC UNIT: A5i/A5y

LOG OF TEST PIT BL-P-2
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-2

FUGRO NATIONAL, INC.



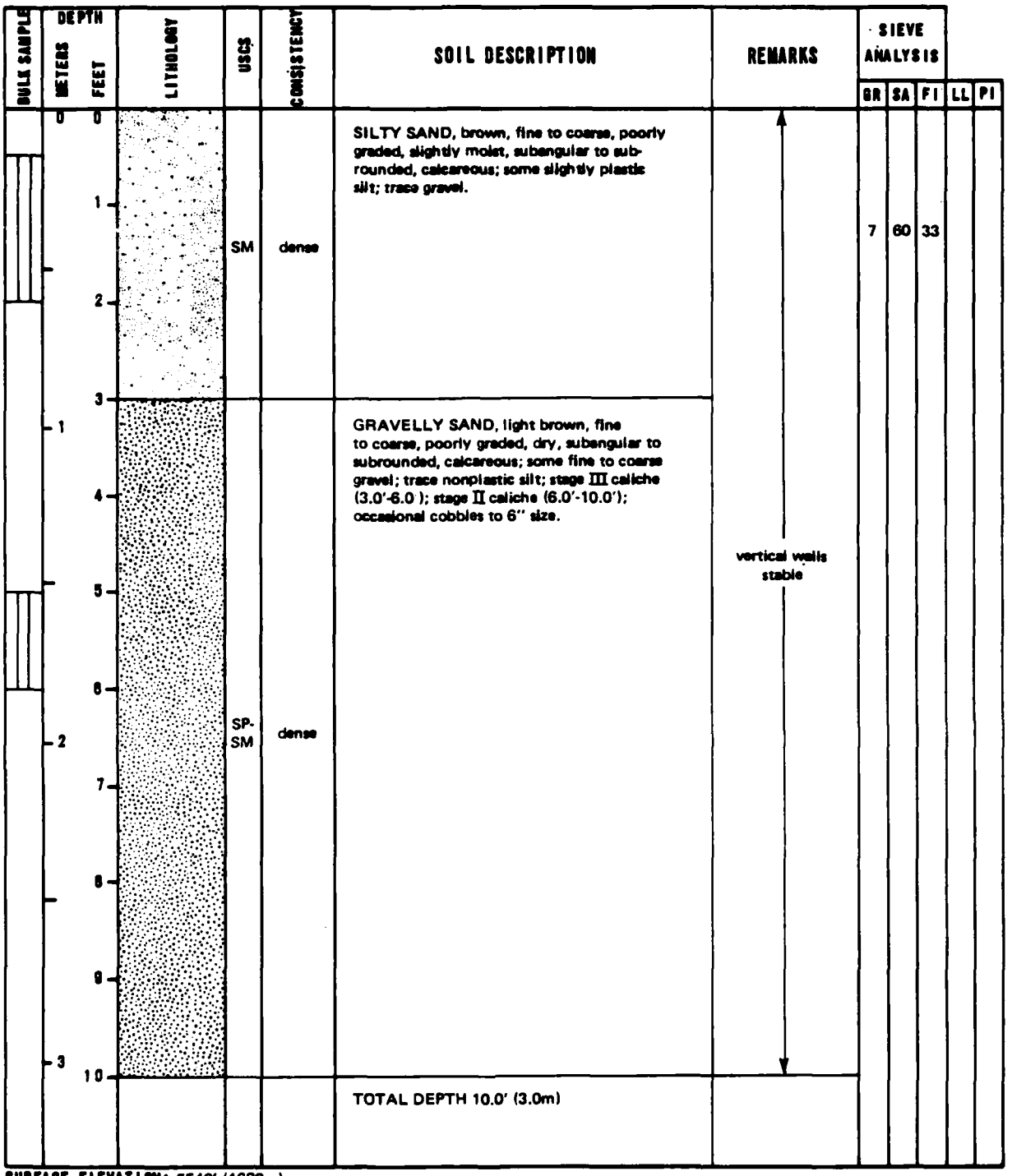
SURFACE ELEVATION: 5680' (1731m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-3
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-3

FUGRO NATIONAL, INC.



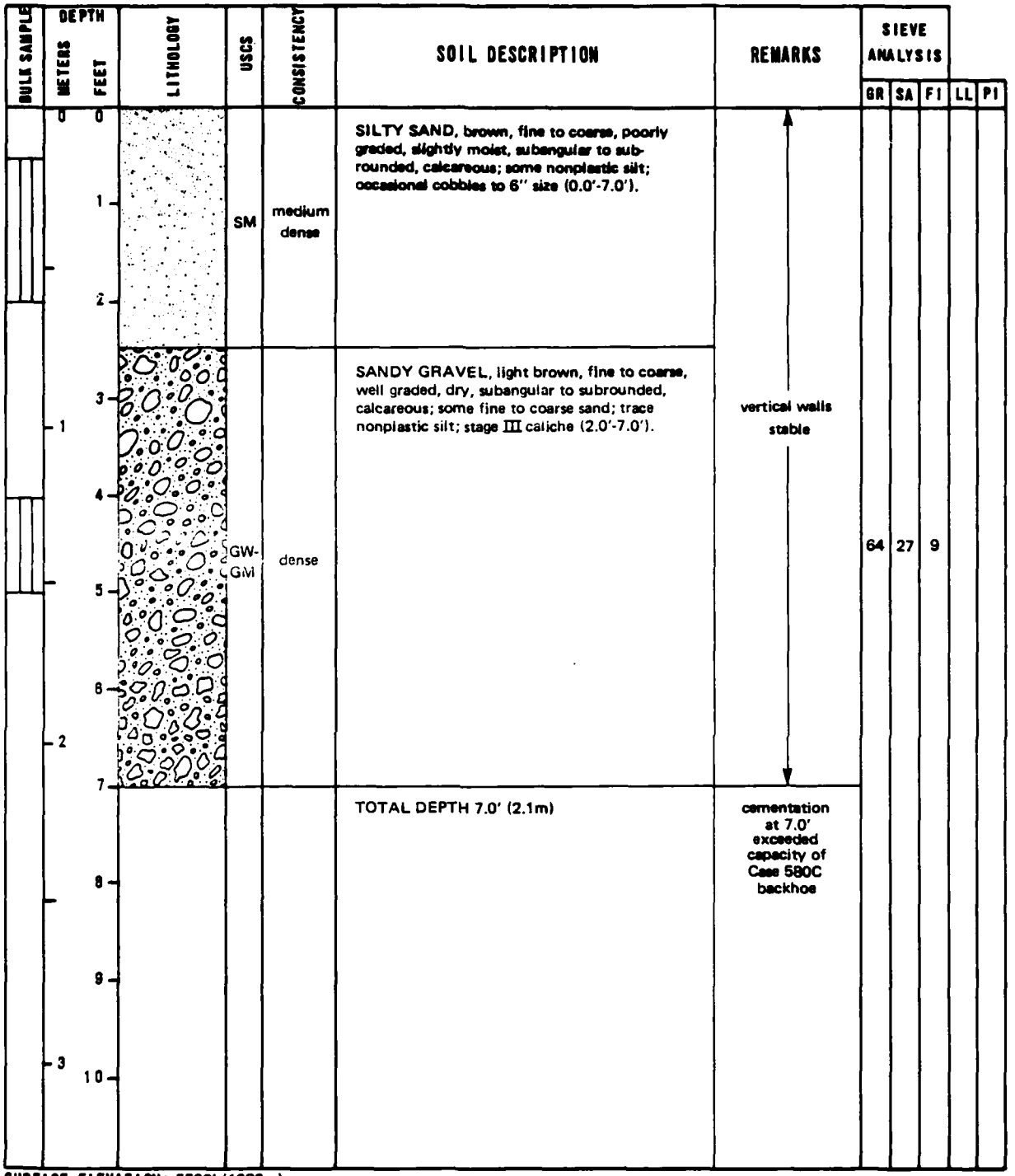
SURFACE ELEVATION: 5540' (1689m)
SURFICIAL GEOLOGIC UNIT: Afi

LOG OF TEST PIT BL-P-4
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-4

UGRO NATIONAL, INC.



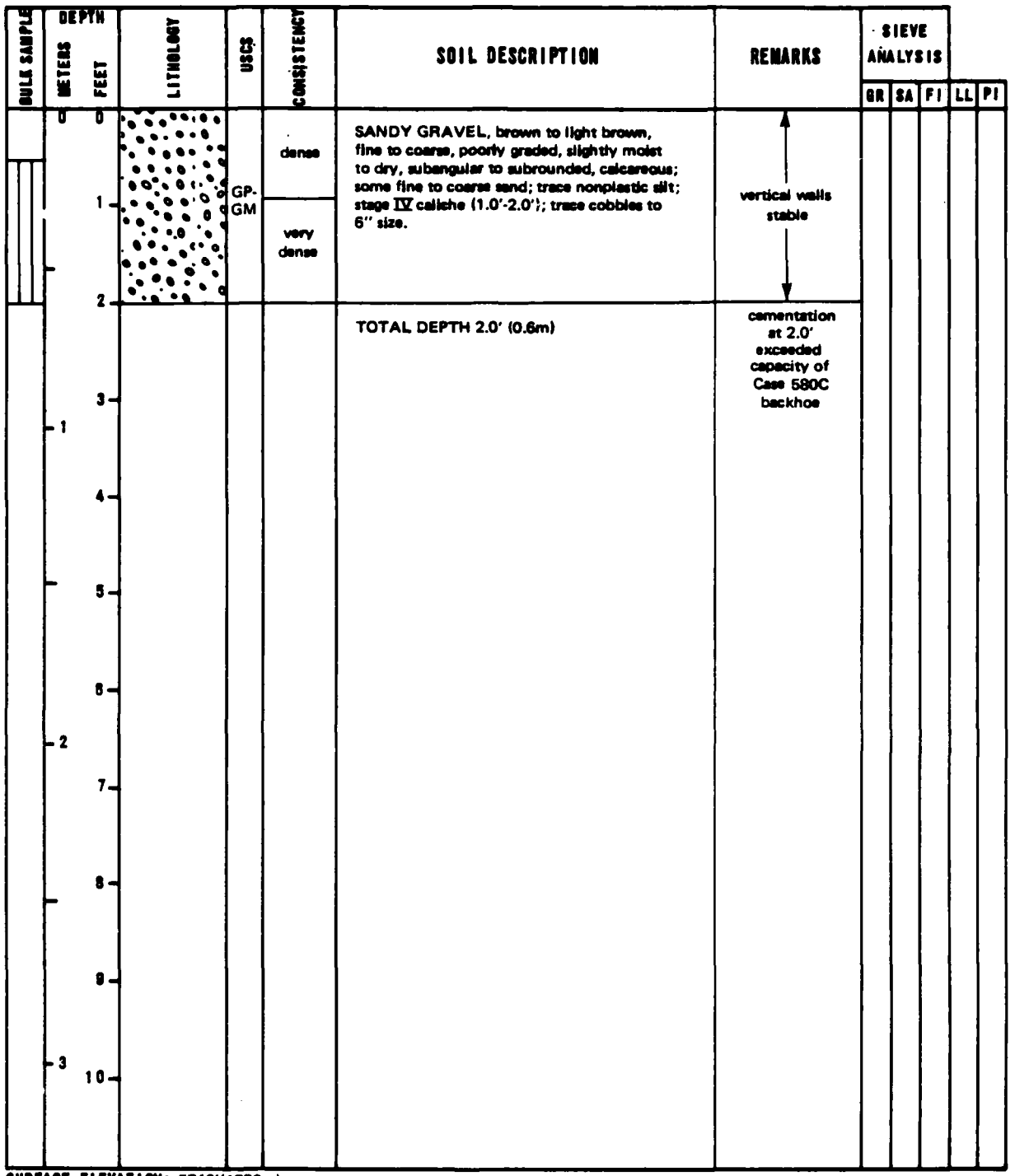
SURFACE ELEVATION: 5530' (1686m)
SURFICIAL GEOLOGIC UNIT: A5o

LOG OF TEST PIT BL-P-5
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-5

FUGRO NATIONAL, INC.



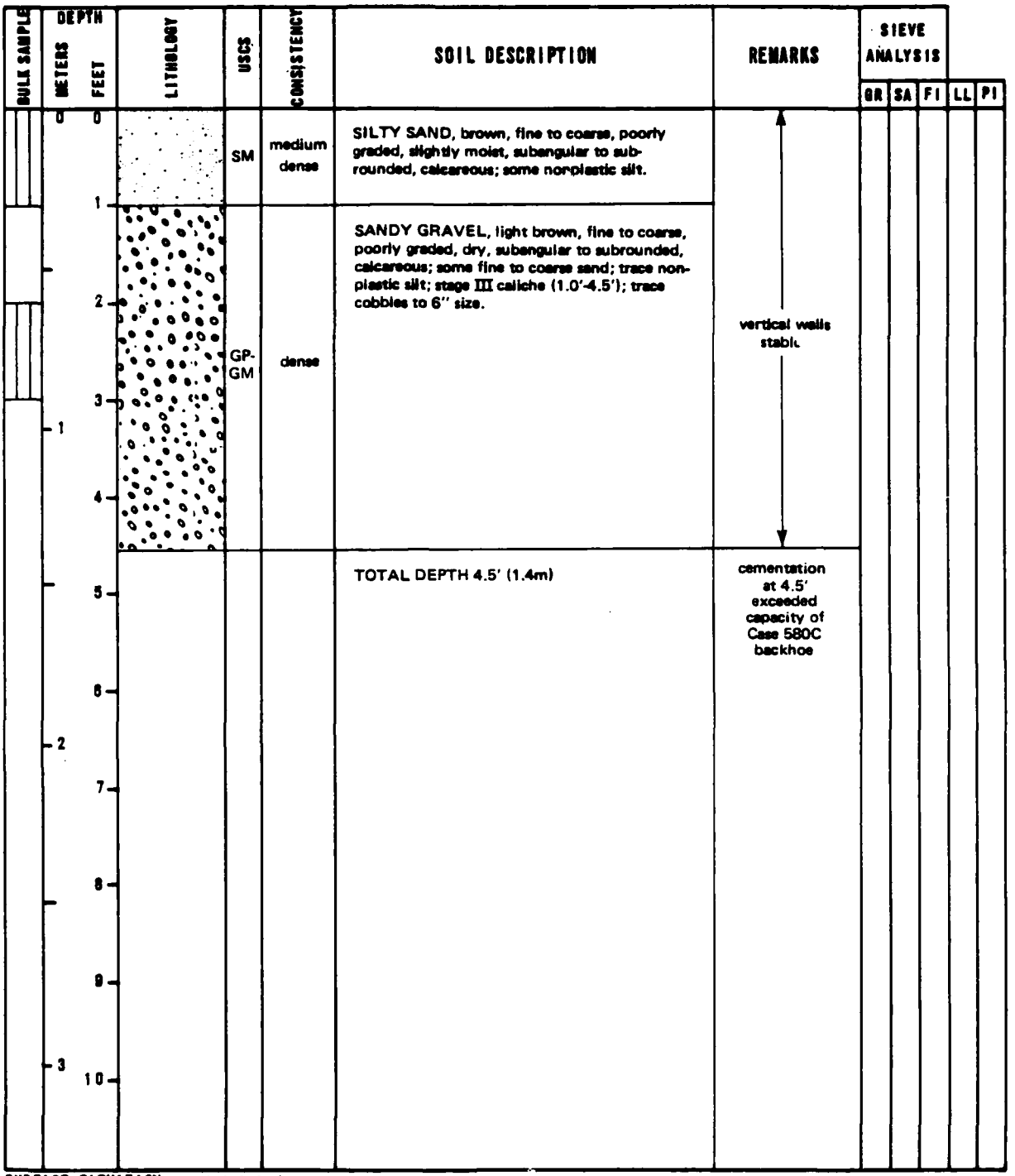
SURFACE ELEVATION: 5740'(1750m)
SURFICIAL GEOLOGIC UNIT: A5o

LOG OF TEST PIT BL-P-6
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-6

FUGRO NATIONAL, INC.



SURFACE ELEVATION: 5400' (1646m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-7
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-7

FUGRO NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0										
		1		ML	firm	SANDY SILT, brown, moist, slightly plastic; some fine to coarse subangular to subrounded sand; trace gravel; stage IV caliche (1.5'-2.0'); trace cobbles to 10" size.	vertical walls stable	6	33	61		
		2				TOTAL DEPTH 2.0' (0.6m)	cementation at 2.0' exceeded capacity of Case 580C backhoe					
	1	3										
		4										
		5										
	2	6										
		7										
		8										
		9										
	3	10										

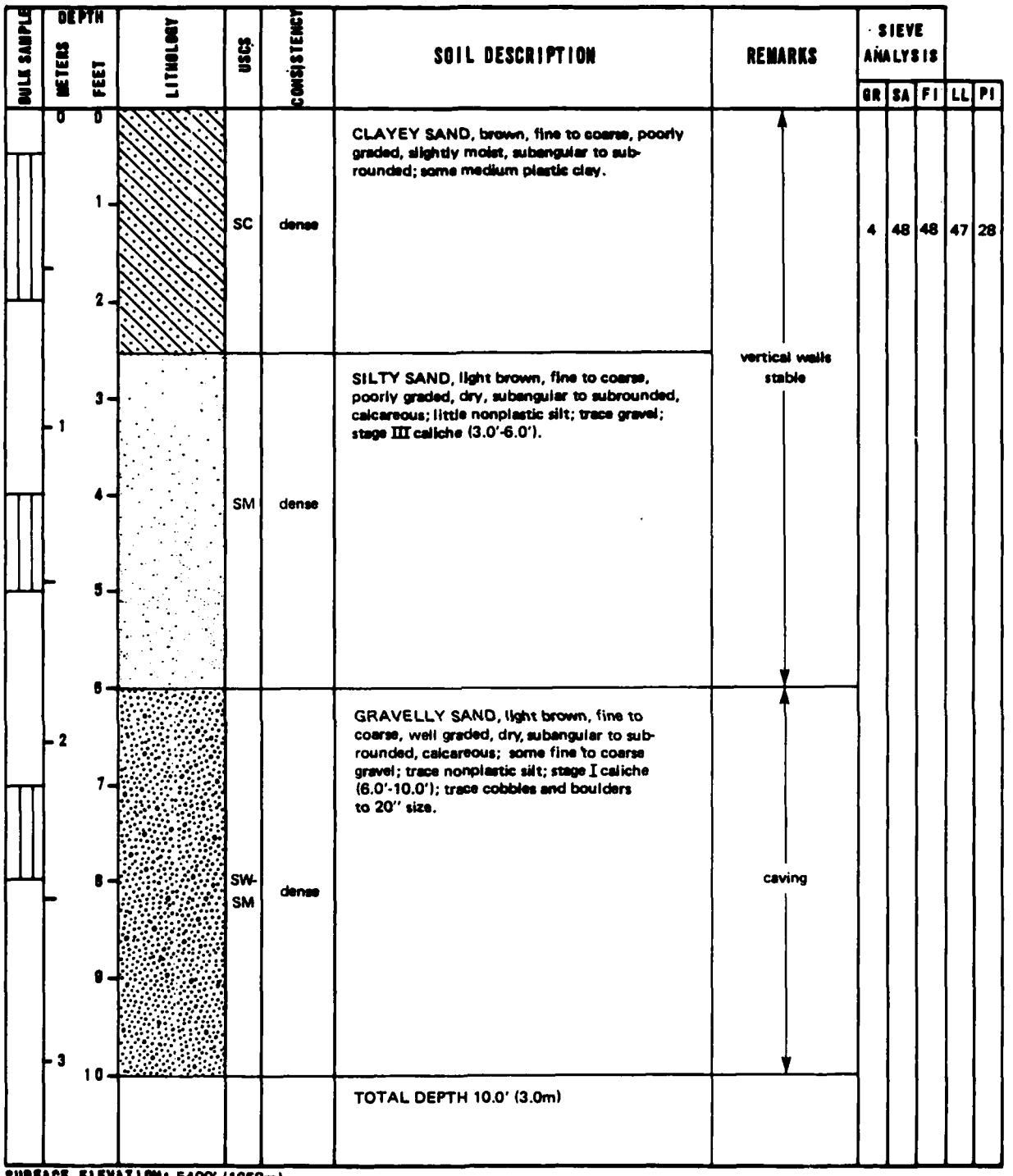
SURFACE ELEVATION: 5480' (1670m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-8
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-4-8

FUGRO NATIONAL, INC.



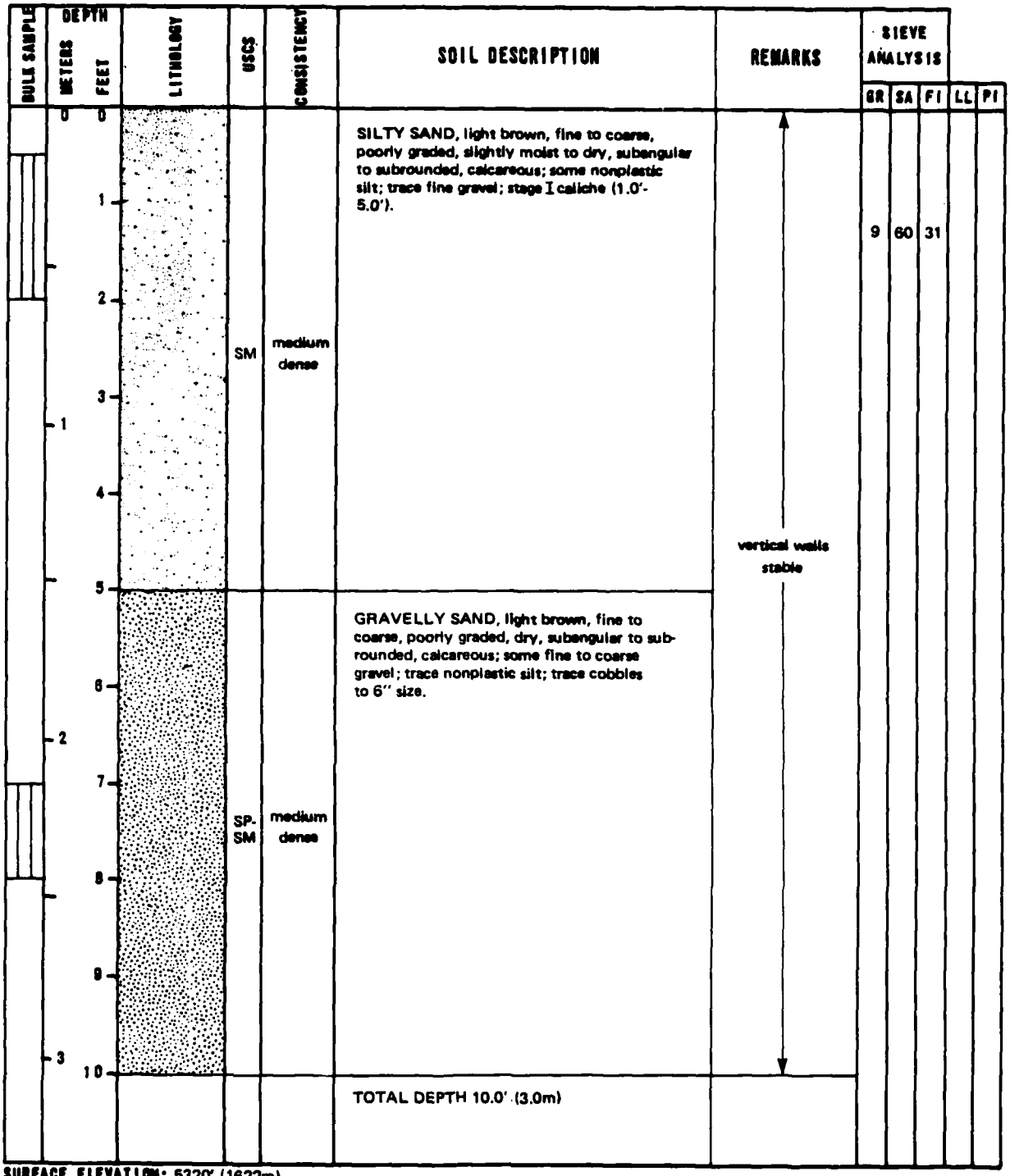
SURFACE ELEVATION: 5400' (1658m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-9
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-9

FUGRO NATIONAL, INC.

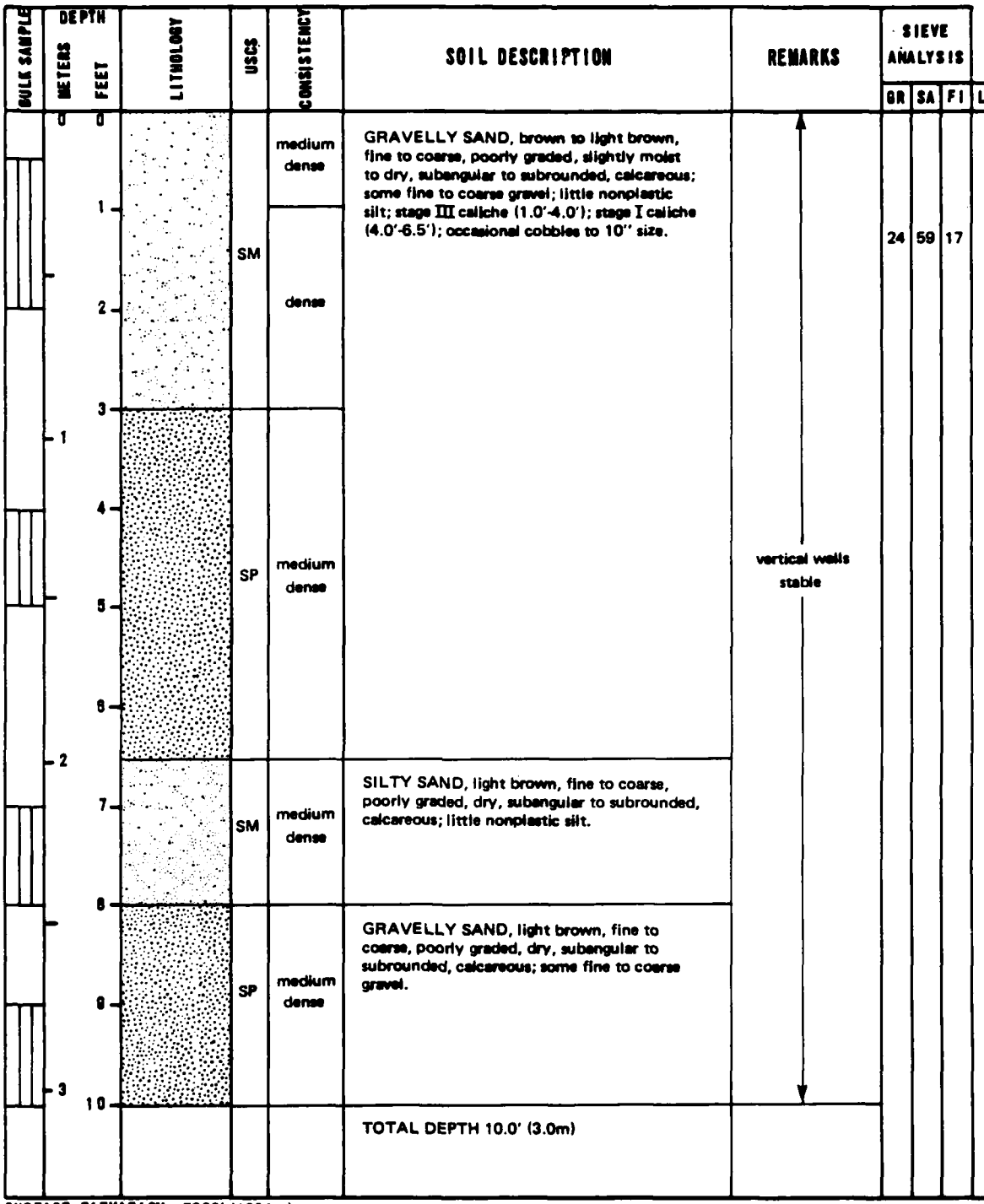


SURFACE ELEVATION: 5320' (1622m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-10
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-10



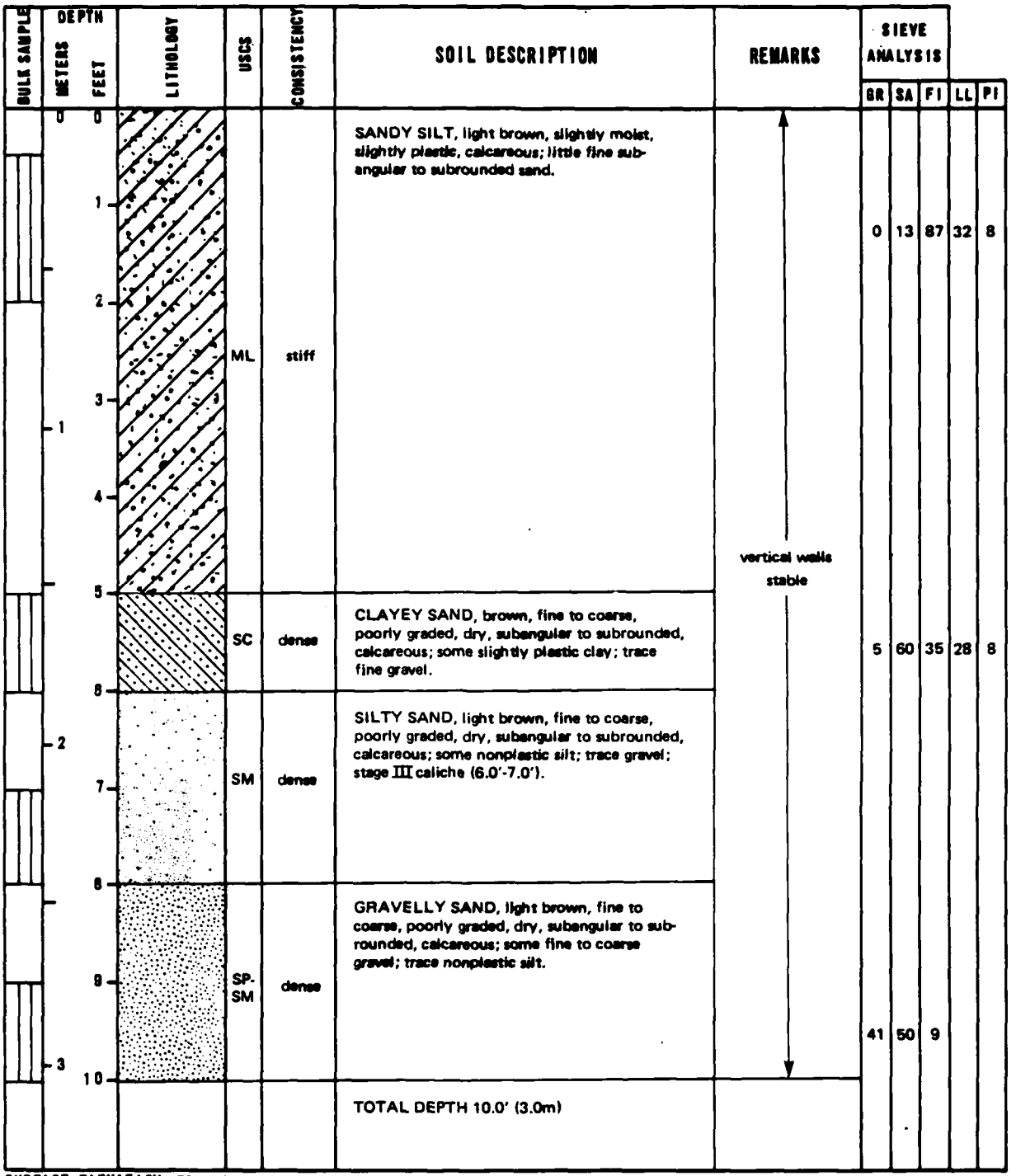
SURFACE ELEVATION: 5360' (1634m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-11
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-11

FUGRO NATIONAL, INC.



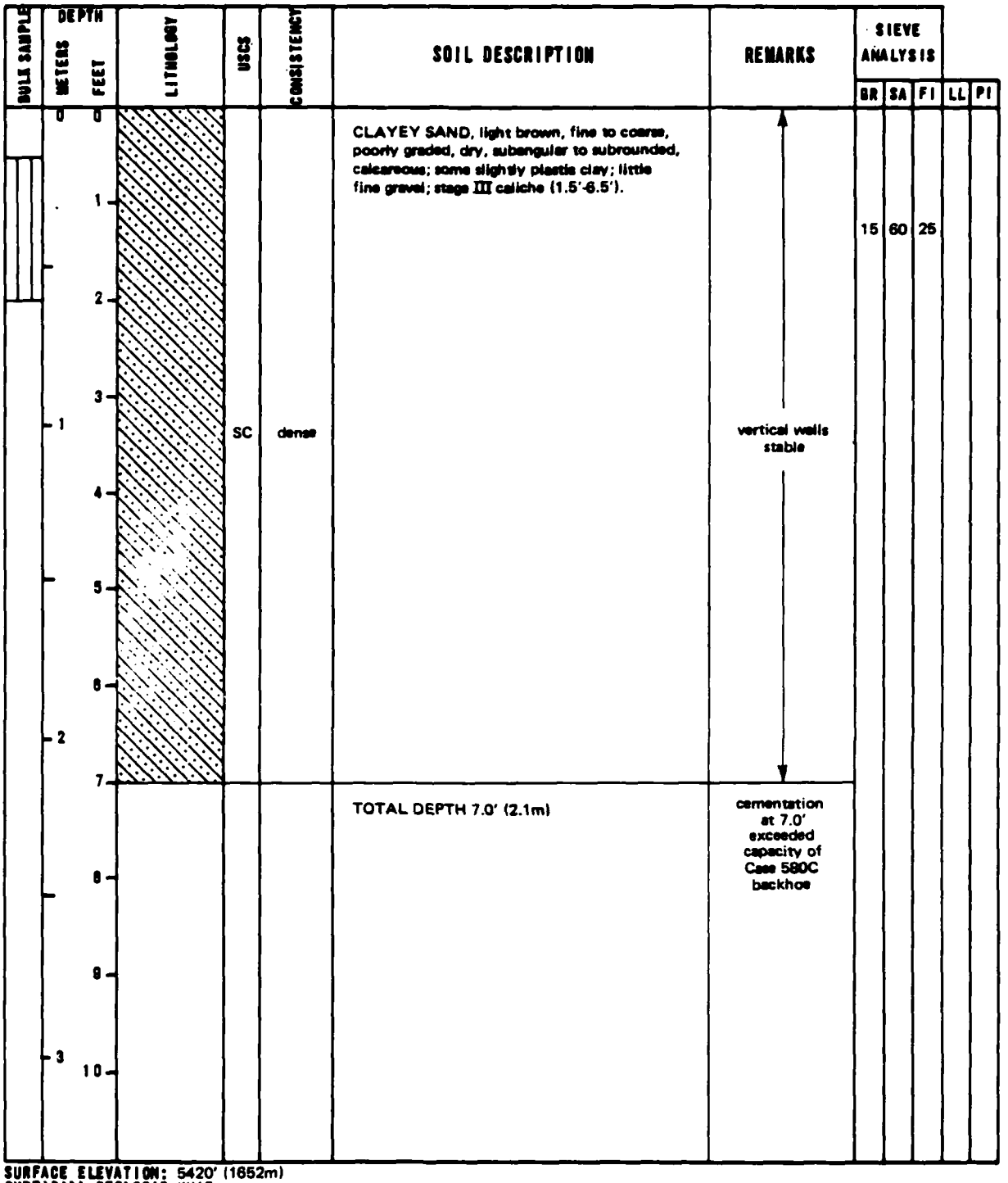
SURFACE ELEVATION: 5210' (1588m)
SURFICIAL GEOLOGIC UNIT: A3

LOG OF TEST PIT BL-P-12
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-12

FUGRO NATIONAL, INC.



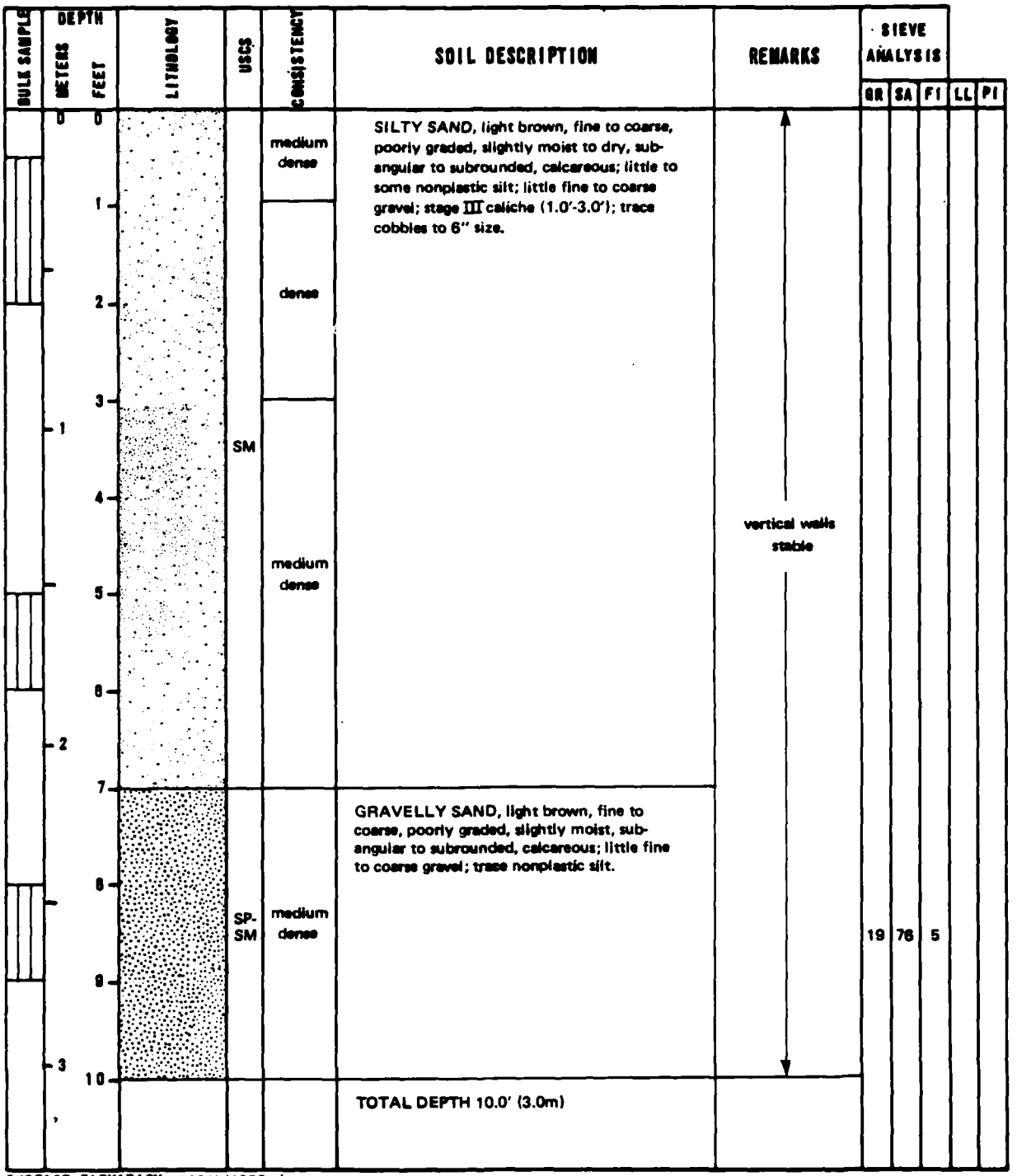
SURFACE ELEVATION: 5420' (1652m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-13
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-13

FUGRO NATIONAL, INC.



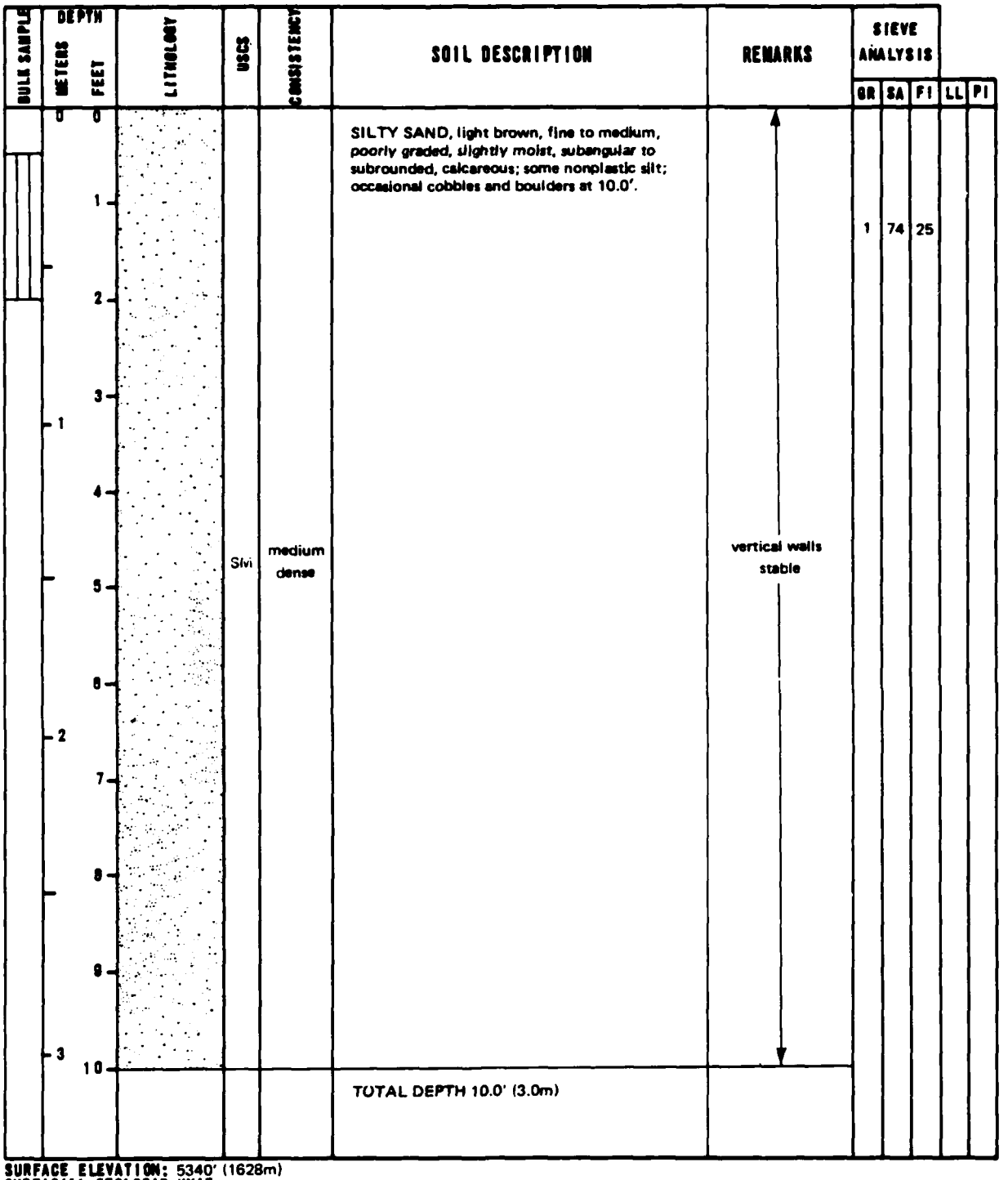
SURFACE ELEVATION: 5320' (1622m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-14
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-14

FUGRO NATIONAL, INC.



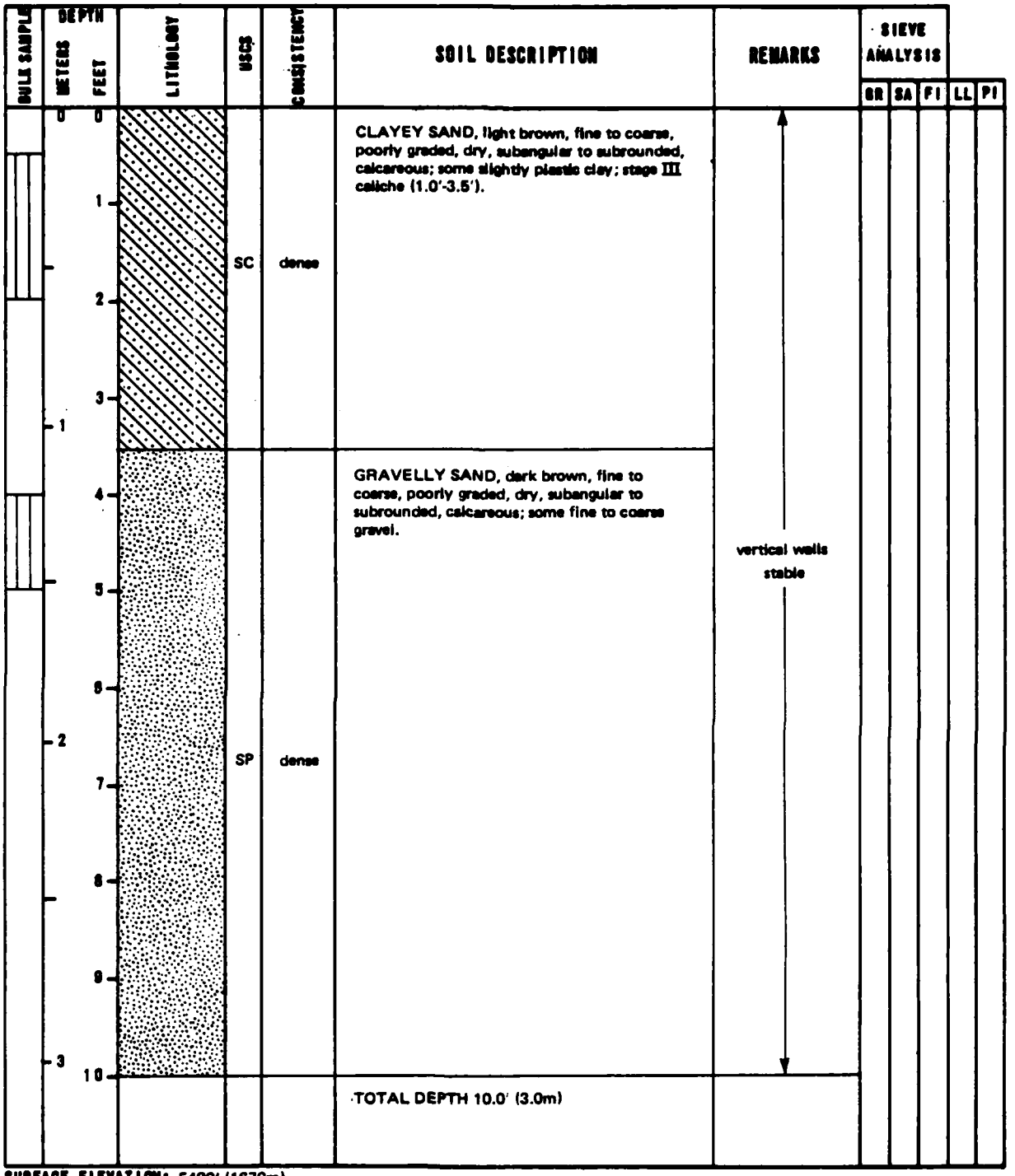
SURFACE ELEVATION: 5340' (1628m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-15
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [illegible]

FIGURE
II-4-15

FUGRO NATIONAL, INC.



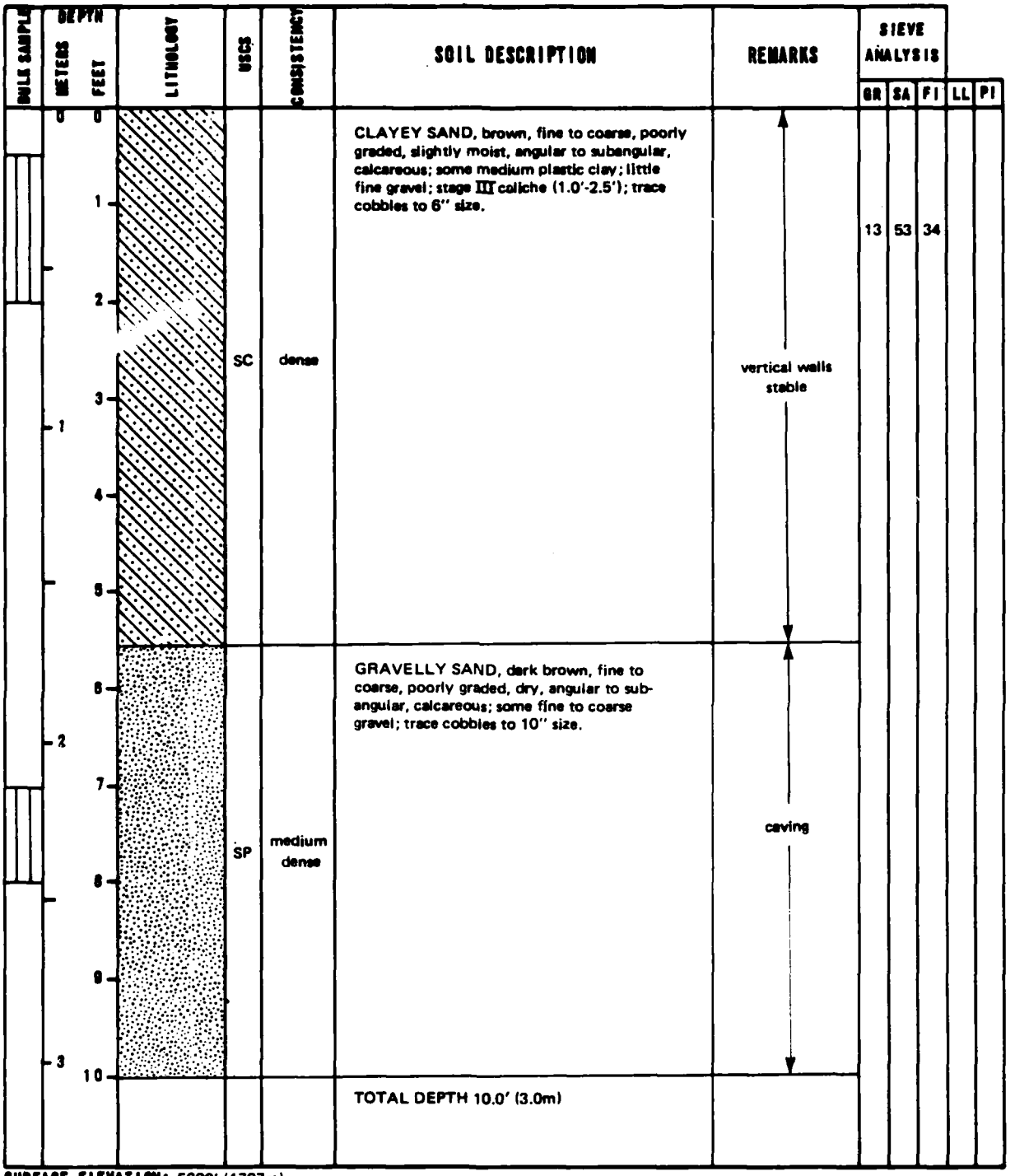
SURFACE ELEVATION: 5480' (1670m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-16
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-16

FUGRO NATIONAL, INC.



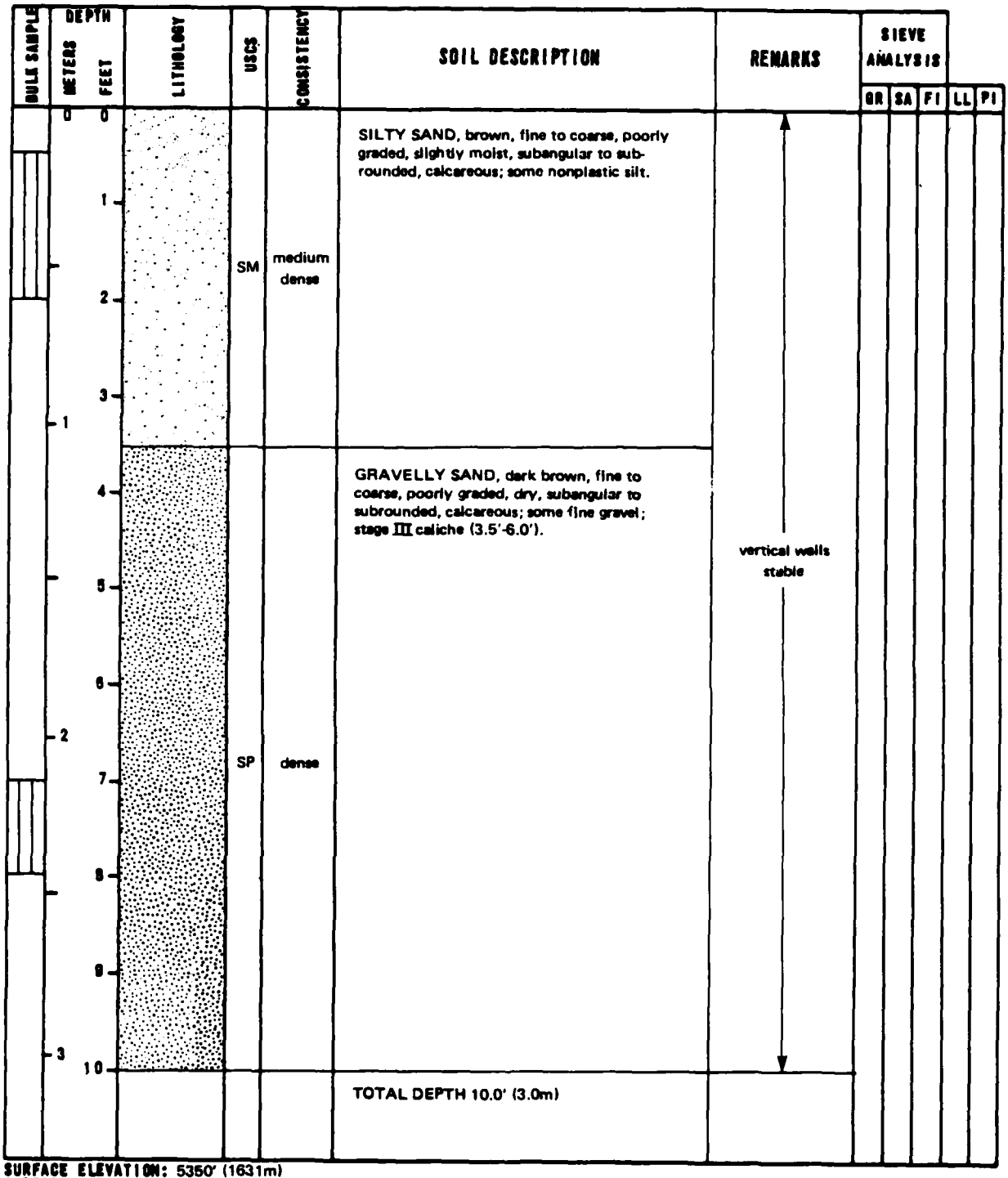
SURFACE ELEVATION: 5600' (1707m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-17
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-17

FUGRO NATIONAL, INC.



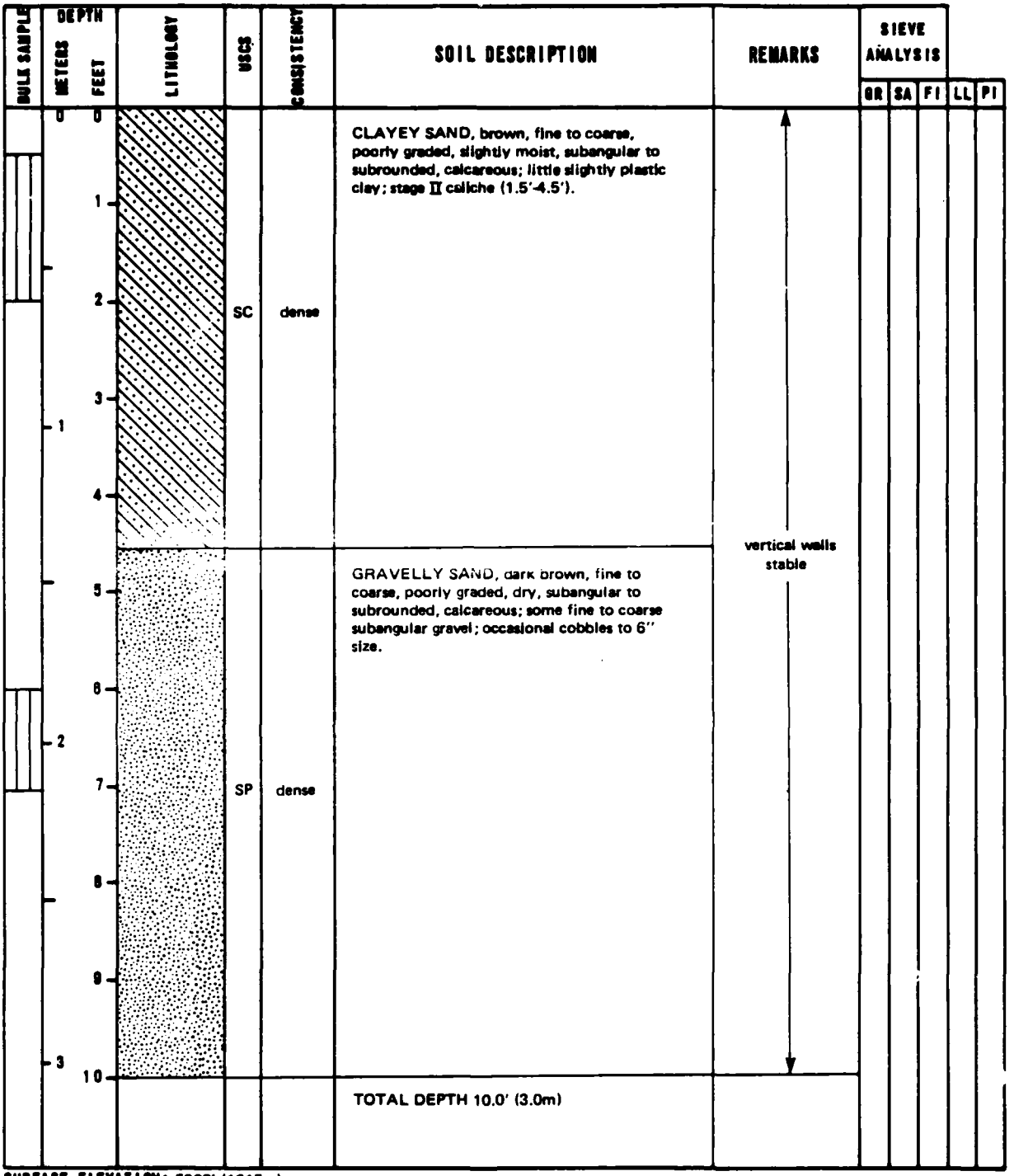
SURFACE ELEVATION: 5350' (1631m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-18
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-18

USGRO NATIONAL, INC.



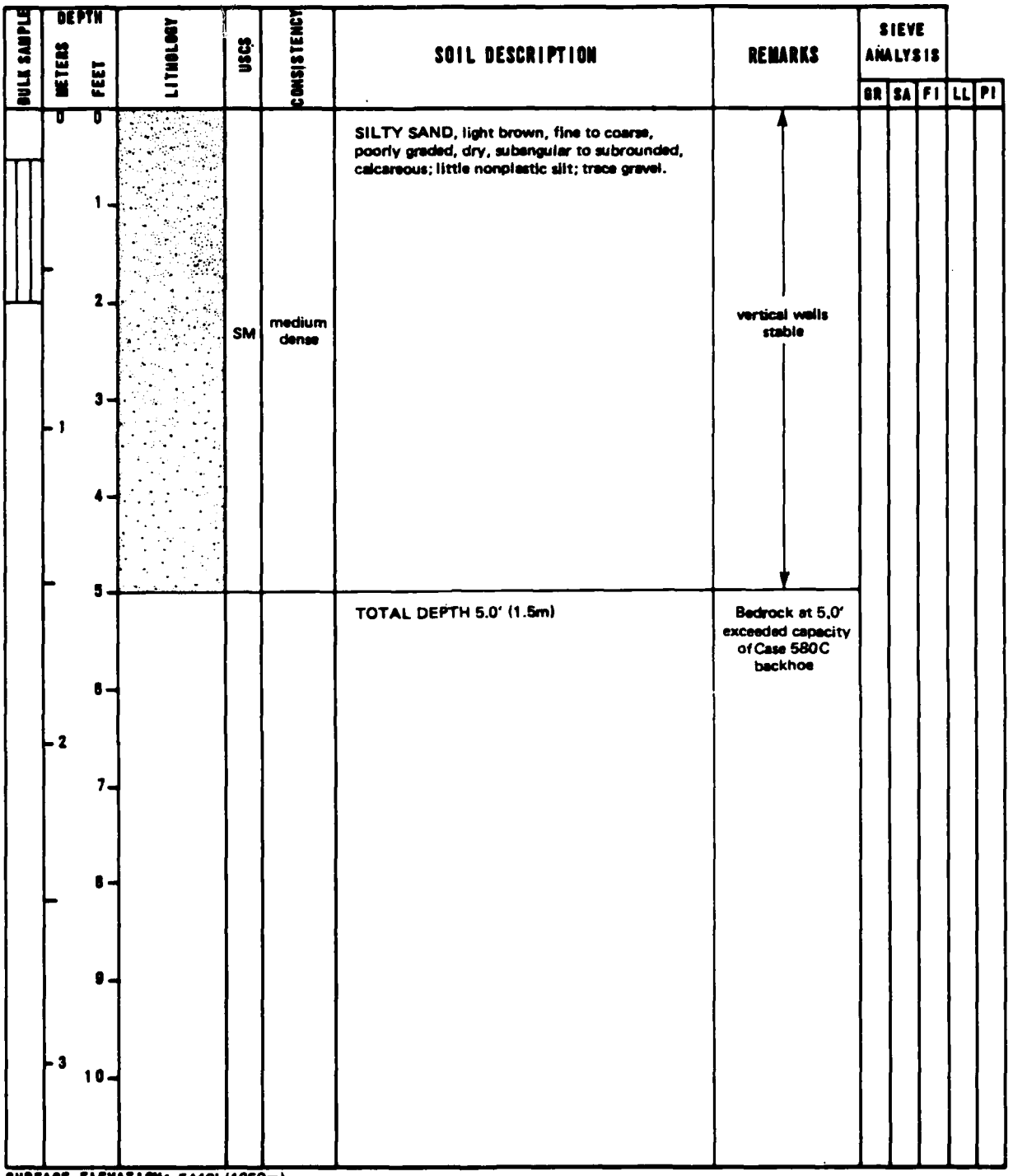
SURFACE ELEVATION: 5300' (1615m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-19
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-19

USRO NATIONAL, INC.



SURFACE ELEVATION: 5440' (1658m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-20
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-4-20

USBR NATIONAL, INC.

BULK SAMPLE	DEPTH METERS	DEPTH FEET	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS GR	SA	FI	LL	PI
	0	0				SILTY SAND, light brown, fine to medium, poorly graded, moist, subangular to subrounded, calcareous; some nonplastic silt; stage II caliche (2.0'-5.0').						
		1						2	50	48		
		2										
	1	3										
		4										
		5		SM	medium dense		vertical walls stable					
		6										
	2	7										
		8										
		9										
	3	10				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 5200' (1584m)
SURFICIAL GEOLOGIC UNIT: A5i

LOG OF TEST PIT BL-P-21
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-4-21

FUGRO NATIONAL, INC.

SECTION 5.0

EXPLANATION OF LABORATORY TEST RESULTS

5.0 EXPLANATION OF LABORATORY TEST RESULTS

Laboratory test results are presented in this section. Table II-5-1 contains a summary of laboratory test results. This table contains results of sieve analysis; plasticity data; in-situ dry unit weight, moisture content, degree of saturation, and void ratio for drive and Pitcher samples; results of compaction tests; and specific gravity of solids. Other tests such as triaxial compression, unconfined compression, direct shear, consolidation, chemical, and California Bearing Ratio (CBR) are indicated on the table. Tables II-5-2 through II-5-4 and Figures II-5-1 through II-5-5 present results of triaxial compression, unconfined compression, direct shear, consolidation, chemical, and CBR tests.

All tests were performed in general accordance with the American Society for Testing and Materials (ASTM) procedures. The following list presents the ASTM designations for the tests performed during the investigation.

Type of Test	ASTM Designations
Particle Size Analysis	D 422-63
Liquid Limit	D 423-66
Plastic Limit	D 424-59
Unit Weight	D 2937-71
Moisture Content	D 2216-71
Compaction	D 1557-70
Specific Gravity of Solids	D 854-58
Triaxial	D 2850-70
Unconfined Compression	D 2166-66
Direct Shear	D 3080-72
Consolidation	D 2435-70
Test for Alkalinity (pH)	D 1067-70
Water Soluble Sodium	D 1428-64
Water Soluble Chloride	D 512-67
Water Soluble Sulphate	D 516-68
Water Soluble Calcium	D 511-72
Calcium Carbonate	D 1126-67
California Bearing Ratio (CBR)	D 1883-73

Explanation for the tables and figures presented in this section are as follows:

A. Activity Number - Boring, trench, or test pit sample designation.

B. Sample Number - Prefix indicates the type of sample; explanation is at the bottom of the table.

C. Sample Interval - This is the depth range measured from ground surface over which the sample was obtained.

D. Percent Finer by Weight - Presents the results of laboratory particle-size analysis (ASTM D 422-63) performed on representative soil samples at the depth indicated. The numbers represent the percent (by dry weight) of the total sample weight passing through each sieve size indicated.

E. Atterberg Limits (ASTM D 423-66 and D 424-59) -

LL - Liquid Limit, the water content (as percent of soil dry weight) corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).

PL - Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).

PI - Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soil-water mixture is plastic.

NP - Nonplastic.

F. USCS - Unified Soil Classification Symbols are given here; see Table II-2-1 in Section 2.0, "Boring Logs", for complete details of USCS system.

G. In Situ - Presents results of tests on drive and Pitcher samples.

Dry Unit Weight - indicates dry unit weight of soil determined as per ASTM D 2937-71.

Moisture Content - weight of water reported in percent of dry weight of soil sample (ASTM D 2216-71).

Saturation - the degree of saturation in a soil sample is defined as the ratio (in percent) of the volume of water to the volume of all voids in the soil.

Void Ratio - the numerical ratio of the volume of voids to the volume of solids in a soil specimen.

H. Compacted - Indicates results of laboratory maximum dry density and optimum moisture content test as per ASTM D 1557-70.

I. Specific Gravity of Solids (ASTM D 854-58) - Indicates the ratio of 1) the weight in air of a given volume of soil solids at a stated temperature, to 2) the weight in air of an equal volume of distilled water at a stated temperature.

J. Triaxial - The triaxial compression tests were performed in accordance with the procedures of ASTM D 2850-70. The following explanations and definitions apply.

Triaxial Compression Test - a cylindrical specimen of soil is surrounded by a fluid in a pressure chamber and subjected to an isotropic pressure. An additional compressive load is then applied, directed along the axis of the specimen called the axial load.

Consolidated-Drained (CD) Test - a triaxial compression test in which the soil was first consolidated under an all around confining stress (test chamber pressure) and was then compressed (and hence sheared) by increasing the vertical stress. "Drained" indicates that excess pore water

pressure generated by strains is permitted to dissipate by the free movement of pore water during consolidation and compression.

Consolidated-Undrained (CU) Test - a triaxial compression test in which essentially complete consolidation under the confining (chamber) pressure is followed by a shear test at constant water content.

Confining Pressure ($_3$) - the isotropic chamber pressure applied to the soil specimen during consolidation and compression.

Maximum Deviator Stress ($_1$- $_3$) - the difference between the major and minor principal stresses in the specimen at failure. The major principal stress on the specimen is equal to the unit axial load plus the chamber pressure, and the minor principal stress on the specimen is equal to the chamber pressure.

Strain Rate - axial strain, , at a given stress level is defined as the ratio of the change in length (L) of the specimen to the original length of the specimen (L_o). The rate of strain was controlled during the test so that this ratio increased at equal increments for each minute of testing.

Back Pressure - pressure in excess of atmospheric applied to the pore water of a soil sample. Back pressure is usually applied to 1) increase saturation of the sample, or 2) simulate the actual in situ pressure regime.

K. Unconfined Compression - Test procedures were as described in ASTM D 2166-66. Unconfined compressive strength is defined as the load per unit area at which an unconfined prismatic or cylindrical specimen of soil will fail in a simple compression test. In these methods, unconfined compressive strength is taken as the maximum load attained per unit area or the load per unit area at 20 percent axial strain, whichever occurred first during the performance of a test.

L. Direct Shear - The procedures of ASTM D 3080-72 were followed for direct shear testing. In this test, soil under an

applied normal load is stressed to failure by moving one section of the soil container (shear box) relative to the other section. Normal stress is the value of load per unit area acting perpendicular to the plane of shearing. Maximum shear strength is defined as the maximum resistance (ksf) of a soil to shearing (tangential) stresses.

M. Consolidation (ASTM D 2435-70) - A consolidation test is a test in which a cylindrical soil specimen is laterally confined in a ring and compressed between porous plates. The term "consolidation", as used here, indicates the gradual reduction in volume of the soil mass resulting from an increase in compressive stress (axial load per unit area).

N. Chemical - The chemical tests performed on soil samples included: pH; water soluble sodium, chloride, sulphate, calcium; and calcium carbonate content. pH is an index of the acidity or alkalinity of a soil in terms of the logarithm of the reciprocal of the hydrogen ion concentration. ASTM test procedure designations for these chemical tests are included in the list on the first page of these Explanations.

O. CBR - California Bearing Ratio (CBR) is the ratio (in percent) of the resistance to penetration developed by a subgrade soil to that developed by a standard crushed-rock base material. The procedures for conducting a CBR test were as outlined in ASTM D 1883-73. The materials tested

for CBR were also analyzed for particle-size distribution (ASTM D 422-63) and compaction characteristics (ASTM D 1557-70). The term "percentage of maximum density" indicates the ratio (as a percentage) of the compacted sample dry unit weight to maximum dry density obtained in the laboratory from ASTM D 1557-70, "Moisture-Density Relations of Soils Using 10-Pound (4.5-kg) Hammer and 18-inch (457-mm) Drop."

D-4	10.2 - 11.0	3.11 - 3.35						100
D-5	15.2 - 16.0	4.63 - 4.88						100
D-6	20.2 - 21.0	6.16 - 6.40						
D-7	25.2 - 26.0	7.68 - 7.92					100	90
D-8	30.2 - 31.0	9.20 - 9.45						
D-9	35.1 - 35.9	10.70 - 10.94					100	90
D-10	40.2 - 41.0	12.25 - 12.50					100	97
D-12	50.2 - 51.0	15.30 - 15.54						
D-13	60.2 - 61.0	18.35 - 18.59					100	81
D-14	70.2 - 71.0	21.40 - 21.64					100	84
D-15	80.2 - 81.0	24.44 - 24.69						
D-17	100.2 - 101.0	30.54 - 30.78						
D-2	1.7 - 2.5	0.52 - 0.76					100	89
D-4	3.7 - 4.5	1.13 - 1.37						
D-6	6.2 - 7.0	1.89 - 2.13						
D-9	11.2 - 12.0	3.41 - 3.66						
D-10	15.2 - 16.0	4.63 - 4.88					100	91
D-12	25.2 - 26.0	7.68 - 7.92						
D-13	30.2 - 31.0	9.20 - 9.45						
D-14	37.2 - 38.0	11.34 - 11.58						
D-15	41.2 - 42.0	12.56 - 12.80					100	97
D-17	49.2 - 50.0	15.00 - 15.24						
D-18	60.2 - 61.0	18.35 - 18.59						
D-19	70.2 - 71.0	21.40 - 21.64						100
D-19	70.2 - 71.0	21.40 - 21.64						
D-20	80.1 - 80.9	24.41 - 24.66				100	80	70
D-21	90.2 - 91.0	27.49 - 27.74						
D-22	101.2 - 102.0	30.84 - 31.09						
D-3	3.2 - 4.0	0.98 - 1.22						
P-6	7.0 - 7.8	2.13 - 2.38						
P-8	13.5 - 14.2	4.11 - 4.33						
P-8	13.5 - 14.2	4.11 - 4.33						
P-8	14.2 - 15.0	4.33 - 4.57						
P-9	19.0 - 19.7	5.79 - 6.00						
P-9	19.7 - 20.4	6.00 - 6.22						
D-10	25.2 - 26.0	7.68 - 7.92						
P-11	29.9 - 30.7	9.11 - 9.36						100

ER BY WEIGHT							ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS
U S STANDARD SIEVE NO.						PARTICLE SIZE (mm)					DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	
SAND				SILT OR CLAY															
4	10	40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)		
										SM	95.3	1527	11.2	39.6	0.77				
										SM	95.3	1527	14.1	49.7	0.77				
94	86	66	45	33						SM	100.7	1613	11.5	46.2	0.67				
95	86	25	11	9						SW-SM	104.3	1671	9.1	39.9	0.62				
95	88	68	47	33						SM	96.9	1552	13.3	48.4	0.74				
										GP-GM	111.9	1793	13.4	71.6	0.51				
71	54	24	13	9						SW-SM	118.8	1903	5.3	34.1	0.41				
										SW-SM	122.9	1969	9.5	69.2	0.37				
64	44	17	8	6						SW-SM	120.3	1927	9.8	66.4	0.40				
67	49	27	15	12						SW-SM	118.9	1905	7.5	48.4	0.42				
										SM	117.0	1874	9.3	57.3	0.44				
54	43	23	13	10						GP-GM	121.6	1948	8.8	61.9	0.39				
55	45	25	13	10						SW-SM	117.2	1878	7.1	43.7	0.44				
										GP	111.8	1791	13.6	72.3	0.51				
										SM	108.4	1737	17.6	85.4	0.56				
66	53	36	24	20						SM	106.6	1708	6.0	28.1	0.58				
									NP	SM	113.4	1817	5.9	32.9	0.49				
										SP	109.1	1748	7.2	35.9	0.55				
97	91	77	57	41					NP	SM	105.7	1693	5.2	23.7	0.59				
70	63	22	11	8						SW-SM	110.1	1764	8.7	44.4	0.53				
										SP	117.0	1874	5.8	35.8	0.44				
										SM	113.6	1820	8.4	47.0	0.48				
										SP	114.5	1834	7.6	43.7	0.47				
67	53	27	13	7						SP-SM	117.7	1886	10.8	67.7	0.43				
										SP-SM	131.4	2105	4.6	43.9	0.28				
										SP-SM	112.7	1805	11.1	60.5	0.49				
97	86	39	21	15					NP	SM	92.1	1475	6.1	19.8	0.83				
										SM	109.3	1751	11.9	59.5	0.54				
39	29	16	9	6						GP-GM	126.5	2027	9.9	81.1	0.33				
										GP-GM	121.7	1950	9.8	68.7	0.38				

ERG (b)	USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
		DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)								
	SM	95.3	1527	11.2	39.6	0.77										
	SM	95.3	1527	14.1	49.7	0.77										
	SM	100.7	1613	11.5	46.2	0.67							*			
	SW-SM	104.3	1671	9.1	39.9	0.62										
	SM	96.9	1552	13.3	48.4	0.74							*			
	GP-GM	111.9	1793	13.4	71.6	0.51										
	SW-SM	118.8	1903	5.3	34.1	0.41									*	
	SW-SM	122.9	1969	9.5	69.2	0.37										
	SW-SM	120.3	1927	9.8	66.4	0.40										
	SW-SM	118.9	1905	7.5	48.4	0.42										
	SM	117.0	1874	9.3	57.3	0.44										
	GP-GM	121.6	1948	8.8	61.9	0.39										
	SW-SM	117.2	1878	7.1	43.7	0.44										
	GP	111.8	1791	13.6	72.3	0.51										
	SM	108.4	1737	17.6	85.4	0.56										
	SM	106.6	1708	6.0	28.1	0.58							*			
NP	SM	113.4	1817	5.9	32.9	0.49										
	SP	109.1	1748	7.2	35.9	0.55										
NP	SM	105.7	1693	5.2	23.7	0.59						*				
	SW-SM	110.1	1764	8.7	44.4	0.53										
	SP	117.0	1874	5.8	35.8	0.44										
	SM	113.6	1820	8.4	47.0	0.48										
	SP	114.5	1834	7.6	43.7	0.47										
	SP-SM	117.7	1886	10.8	67.7	0.43										
	SP-SM	131.4	2105	4.6	43.9	0.28										
	SP-SM	112.7	1805	11.1	60.5	0.49										
NP	SM	92.1	1475	6.1	19.8	0.83										
	SM	109.3	1751	11.9	59.5	0.54									*	
	GP-GM	126.5	2027	9.9	81.1	0.33										
	GP-GM	121.7	1950	9.8	68.7	0.38										
	GP-GM	107.9	1729	11.0	53.0	0.56										
	GP	119.3	1911	6.3	41.6	0.41										
	GP	97.6	1564	14.4	53.7	0.73										
	CL	94.6	1515	17.1	59.2	0.78									*	
12	CL	88.8	1423	17.8	53.6	0.90										
20	CL	93.9	1504	17.1	58.3	0.79						*				
20	MH	71.1	1139	28.6	57.0	1.34				2.67						
	MH	81.7	1309	14.4	36.7	1.06										
	GM	115.2	1846	9.0	52.6	0.46										
	SW-SM	113.0	1810	11.5	63.5	0.49										
8	ML	75.0	1202	17.6	83.1	1.25					*					

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE
II-5-1
1 OF 7

FUGRO NATIONAL, INC.

AFV-81

10.7 - 11.5	3.26 - 3.51				
14.0 - 14.6	4.27 - 4.45				
14.6 - 15.2	4.45 - 4.63				
19.2 - 19.9	5.85 - 6.07				
19.2 - 19.9	5.85 - 6.07				
19.9 - 20.7	6.07 - 6.31				
25.2 - 25.8	7.68 - 7.86				
29.5 - 30.3	8.99 - 9.24				
30.3 - 31.0	9.24 - 9.45				
35.0 - 35.7	10.67 - 10.88				
35.0 - 35.7	10.67 - 10.88				
40.5 - 41.2	12.34 - 12.56				
47.0 - 47.8	14.33 - 14.57				
47.8 - 48.7	14.57 - 14.84				
49.2 - 50.0	15.00 - 15.24				
0.7 - 1.5	0.21 - 0.46				
3.2 - 4.0	0.98 - 1.22				
6.2 - 7.0	1.89 - 2.13				
9.1 - 9.9	2.77 - 3.02				
1.2 - 2.0	0.37 - 0.61				

ER BY WEIGHT							ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	
U S STANDARD SIEVE NO.					PARTICLE SIZE (mm)						DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)		
SAND				SILT OR CLAY																
4	10	40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)			
										ML	99.4	1593	13.8	53.4	0.70					
										ML	79.6	1275	13.2	92.7	1.12					
93	81	53	34	26					NP	SM	99.9	1600	11.3	49.6	0.69					
	100	98	95	89					NP	ML	97.1	1556	21.9	80.6	0.74					
										ML	94.8	1519	15.9	55.5	0.78					
										SC	82.0	1313	15.5	39.8	1.06					
98	95	80	57	47			31	17	14	SC	95.8	1535	14.2	50.4	0.76					
										SM	102.7	1645	18.6	78.5	0.64					
										SP	117.2	1878	12.9	79.7	0.44					
100	98	92	83	78					NP	ML	81.5	1306	16.8	42.6	1.07					
										ML	81.6	1307	18.7	47.3	1.06					
100	98	94	75	52					NP	ML	95.2	1525	9.8	34.2	0.77					
										ML	99.2	1589	9.7	37.4	0.70					
100	99	95	83	68					NP	ML	99.3	1591	10.1	39.0	0.70					
										ML	104.5	1674	11.5	50.6	0.61					
100	99	90	62	45					NP	SM	90.0	1442	13.0	40.3	0.87					
										SM	100.5	1610	10.3	41.2	0.68					
81	78	67	36	25					NP	SM	98.3	1575	14.2	57.5	0.64				2.59	
										SM	103.1	1652	19.5	88.6	0.67					
										SM	100.8	1615	22.4	90.1	0.67					
69	50	37	26	19						SM	106.4	1705	15.6	72.2	0.58					
										SM	102.5	1642	14.2	59.5	0.64					
77	65	47	33	25						SM	115.2	1846	8.0	46.6	0.46					
										SM	93.8	1503	11.9	40.3	0.80					
40	32	20	13	10						GW-GM	126.6	2028	5.3	42.9	0.33					
										GW-GM	123.2	1974	8.4	61.5	0.37					
										GW-GM	119.9	1921	8.1	54.2	0.41					
										SM	94.6	1515	6.4	22.1	0.78					
										SM	98.4	1576	20.0	76.0	0.71					
										SM	110.3	1767	7.0	35.9	0.63					
76	66	46	31	23						SM	107.0	1714	5.5	26.1	0.57					
										GP-GM	128.2	2054	3.3	28.9	0.31					
76	59	33	21	17						SM	118.3	1894	8.2	52.3	0.42					
										SP-SM	114.2	1829	13.1	74.6	0.48					
99	97	82	59	43					NP	SM	107.2	1717	7.7	36.4	0.57					
										SM	101.8	1631	12.1	49.5	0.66					
										GP	119.1	1908	11.0	71.5	0.41					
										GP-GM	123.2	1974	6.3	46.6	0.37					
61	48	15	5	2						SP	120.5	1930	5.2	35.2	0.40					
										SP-SM	113.3	1815	7.7	42.8	0.49					

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ATTERBERG LIMITS (b)		USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
			DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)								
		ML	99.4	1593	13.8	53.4	0.70										
		ML	79.6	1275	13.2	92.7	1.12					*					
	NP	SM	99.9	1600	11.3	49.6	0.69										
	NP	ML	97.1	1556	21.9	80.6	0.74							*			
		ML	94.8	1519	15.9	55.5	0.78										
		SC	82.0	1313	15.5	39.8	1.06										
17	14	SC	95.8	1535	14.2	50.4	0.76										
		SM	102.7	1645	18.6	78.5	0.64										
		SP	117.2	1878	12.9	79.7	0.44										
	NP	ML	81.5	1306	16.8	42.6	1.07					*					
		ML	81.6	1307	18.7	47.3	1.06					*					
	NP	ML	95.2	1525	9.8	34.2	0.77								*		
		ML	99.2	1589	9.7	37.4	0.70										
	NP	ML	99.3	1591	10.1	39.0	0.70						*				
		ML	104.5	1674	11.5	50.6	0.61										
	NP	SM	90.0	1442	13.0	40.3	0.87					*					
		SM	100.5	1610	10.3	41.2	0.68					*					
	NP	SM	98.3	1575	14.2	57.5	0.64				2.59						
		SM	103.1	1652	19.5	88.6	0.57								*		
		SM	100.8	1615	22.4	90.1	0.67										
		SM	106.4	1705	15.6	72.2	0.58										
		SM	102.5	1642	14.2	59.5	0.64						*				
		SM	115.2	1846	8.0	46.6	0.46						*			*	
		SM	93.8	1503	11.9	40.3	0.80										
		GW-GM	126.6	2028	5.3	42.9	0.33										
		GW-GM	123.2	1974	8.4	61.5	0.37										
		GW-GM	119.9	1921	8.1	54.2	0.41									*	
		SM	94.6	1515	6.4	22.1	0.78										
		SM	98.4	1576	20.0	76.0	0.71										
		SM	110.3	1767	7.0	35.9	0.53										
		SM	107.0	1714	5.5	26.1	0.57										
		GP-GM	128.2	2054	3.3	28.9	0.31										
		SM	118.3	1894	8.2	52.3	0.42										
		SP-SM	114.2	1829	13.1	74.5	0.48										
	NP	SM	107.2	1717	7.7	36.4	0.57						*				
		SM	101.8	1631	12.1	49.5	0.66								*		
		GP	119.1	1908	11.0	71.5	0.41										
		GP-GM	123.2	1974	6.3	46.5	0.37										
		SP	120.5	1930	5.2	35.2	0.40										
		SP-SM	113.3	1815	7.7	42.8	0.49										

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

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FUGRO NATIONAL, INC.

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30.8 31.5	9.39 - 9.60		
35.0 - 35.7	10.07 - 10.88		
35.7 - 36.3	10.88 - 11.06		
36.3 - 36.6	11.06 - 11.16		
39.0 - 39.6	11.89 - 12.07		
45.2 - 45.8	13.78 - 13.96		
49.0 - 49.7	14.94 - 15.15		
49.7 50.5	15.15 - 15.39		
50.7 51.5	15.45 - 15.70		
0.7 - 1.5	0.21 - 0.46		
4.7 - 5.5	1.43 - 1.68		
7.2 - 8.0	2.19 - 2.44		
10.2 - 11.0	3.11 - 3.35		
15.2 - 16.0	4.63 - 4.88		
20.0 - 20.4	6.10 - 6.22		
25.1 - 25.8	7.65 - 7.86		
25.8 26.2	7.86 - 7.99		
30.2 - 31.0	9.20 - 9.45		
35.2 - 36.0	10.73 - 10.97		

								SP-SM	110.9	1777	15.6	80.9	0.52
								SP-SM	114.2	1829	5.3	30.3	0.48
35	16	12						SP SM	114.4	1833	9.4	53.8	0.47
								SP-SM	89.4	1432	17.6	53.8	0.89
								SM	92.9	1488	15.9	52.6	0.81
45	26	19	5	2			NP	SM	99.9	1600	12.1	47.7	0.69
								SM	104.9	1680	12.9	57.7	0.61
84	65	54			29	21	8	CL	94.5	1514	20.8	71.8	0.78
								CL	106.7	1709	12.9	60.1	0.58
								CL	111.1	1780	11.3	58.7	0.52
								SM	108.2	1733	14.5	70.6	0.56
								SM	98.9	1584	22.3	85.5	0.70
88	66	49					NP	SM	107.2	1717	11.8	55.7	0.57
								SM	104.5	1674	13.7	60.3	0.61
								SM	110.9	1777	13.0	67.8	0.52
								SM	115.6	1852	11.4	67.4	0.46
66	48	42						SM	92.5	1482	11.1	36.5	0.82
								SM	114.1	1828	4.5	25.5	0.48
36	25	22						SM	106.6	1708	9.4	43.9	0.58
69	48	34					NP	SM	106.9	1713	7.3	34.3	0.58
51	21	13						SM	108.1	1732	12.3	59.5	0.56
79	46	29					NP	SM	100.9	1616	14.3	59.2	0.64
								SM	101.9	1632	14.7	62.8	0.62
32	17	11						SP-SM	113.8	1823	5.8	32.4	0.48
								SM	105.2	1685	9.3	41.6	0.60
15	8	5						GP-GM	126.2	2022	8.1	65.5	0.34
74	43	28						SM	79.4	1272	13.2	92.4	1.12
								SM	97.5	1562	15.1	55.9	0.73
74	47	29					NP	SM	91.0	1458	14.4	45.8	0.85

ERG (b) PI	USCS (c)	IN-SITU DRY UNIT WEIGHT (pcf)	IN-SITU DRY UNIT WEIGHT (kg/m^3)	IN-SITU MOISTURE CONTENT (%)	IN-SITU SATURATION (%)	IN-SITU VOID RATIO	COMPACTED MAXIMUM DRY DENSITY (pcf)	COMPACTED MAXIMUM DRY DENSITY (kg/m^3)	COMPACTED OPTIMUM MOISTURE (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
	SM	86.8	1391	8.4	24.0	0.94										
	SM	102.6	1644	16.4	68.8	0.64										
	SM	89.9	1440	10.1	31.2	0.87										
NP	SM	109.2	1749	7.8	38.9	0.54										
NP	GP-GM	113.1	1812	13.6	75.3	0.49										
	SP-SM	110.9	1777	15.6	80.9	0.52						*				
	SP-SM	114.2	1829	5.3	30.3	0.48										
	SP-SM	114.4	1833	9.4	53.8	0.47							*		*	
	SP-SM	89.4	1432	17.6	53.8	0.89										
	SM	92.9	1488	15.9	52.6	0.81						*				
NP	SM	99.9	1600	12.1	47.7	0.69										
	SM	104.9	1680	12.9	57.7	0.61						*				
8	CL	94.5	1514	20.8	71.8	0.78					*					
	CL	106.7	1709	12.9	60.1	0.58					*					
	CL	111.1	1780	11.3	58.7	0.52								*		
	SM	108.2	1733	14.5	70.6	0.56										
	SM	98.9	1584	22.3	85.5	0.70										
NP	SM	107.2	1717	11.8	55.7	0.57										
	SM	104.5	1674	13.7	60.3	0.61						*				
	SM	110.9	1777	13.0	67.8	0.52										
	SM	115.6	1852	11.4	67.4	0.46										
	SM	92.5	1482	11.1	36.5	0.82						*				
	SM	114.1	1828	4.5	25.5	0.48										
	SM	106.6	1708	9.4	43.9	0.58										
NP	SM	106.9	1713	7.3	34.3	0.58						*				
	SM	108.1	1732	12.3	59.5	0.56							*			
NP	SM	100.9	1616	14.3	59.2	0.64				2.65		*				
	SM	101.9	1632	14.7	62.8	0.62								*		
	SP-SM	113.8	1823	5.8	32.4	0.48							*			
	SM	105.2	1685	9.3	41.6	0.60										
	GP-GM	126.2	2022	8.1	65.5	0.34										
	SM	79.4	1272	13.2	92.4	1.12										
	SM	97.5	1562	15.1	55.9	0.73						*				
NP	SM	91.0	1458	14.4	45.8	0.85						*				
	SM	98.3	1575	11.5	43.7	0.71								*		
	SM	107.0	1714	14.9	69.9	0.58							*			
NP	SM	109.0	1746	12.4	61.4	0.55						*			*	
7	SM	85.4	1368	16.1	100.0	0.97							*			
	SM	100.3	1607	19.2	76.2	0.68								*		
	SP-SM	91.4	1464	18.2	100.0	0.84							*			
	SM	111.9	1793	15.2	81.2	0.51										
	SM	111.6	1788	16.8	88.9	0.51										

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
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FUGRO NATIONAL, INC.

AFV-01

ACTIVITY NUMBER	SAMPLE NUMBER (a)	SAMPLE INTERVAL		PERCENT FINER BY WEIGHT									
				STANDARD SIEVE OPENING							U S STANDARD		
				BLDRS.	COBBLES		GRAVEL				SAND		
		FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40
BL-B-9	D-2	3.2 - 4.0	0.98 - 1.22					100	70	60	51	38	18
	D-3	5.2 - 6.0	1.58 - 1.83										
	D-5	13.1 - 13.9	3.99 - 4.24						100	92	68	46	21
	D-6	19.2 - 20.0	5.85 - 6.10										
	D-7	25.2 - 26.0	7.68 - 7.92										
	D-8	30.2 - 31.0	9.20 - 9.45										
	D-9	35.2 - 36.0	10.73 - 10.97				100	86	83	76	65	49	21
	D-10	40.1 - 40.9	12.22 - 12.47										
	D-12	50.1 - 50.9	15.27 - 15.51										
BL-B-10	P-1	0.5 - 1.2	0.15 - 0.37										
	D-2	3.2 - 4.0	0.98 - 1.22					100	90	87	81	68	46
	P-3	6.5 - 7.7	1.98 - 2.35							100	96	86	53
	P 3	7.7 - 8.5	2.35 - 2.59										
	D-4	10.2 - 11.0	3.11 3.35						100	91	73	52	24
	D-5	15.2 - 16.0	4.63 - 4.88										
	D-6	20.2 - 21.0	6.16 - 6.40										
	P-7	25.0 - 25.6	7.62 - 7.80										
	D-8	30.2 - 31.0	9.20 - 9.45										
	D-9	35.2 - 36.0	10.73 - 10.97					100	96	89	79	66	26
	D-10	40.2 - 41.0	12.25 - 12.50										
	P-11	46.6 - 47.1	14.20 - 14.36										
	D-12	50.2 - 51.0	15.30 - 15.54										
	D-13	60.2 - 61.0	18.35 - 18.59										
	P-14	70.8 - 71.4	21.58 - 21.76										
	P-15	81.8 - 8.25	24.93 - 25.15							100	96	72	16
	P-16	90.9 - 91.8	27.71 - 27.98					100	79	69	60	49	24
	D-17	100.2 - 101.0	30.54 - 30.78										
BL B 11	D-1	0.7 - 1.5	0.21 - 0.46					100	84	76	72	67	57
	D-4	5.2 - 6.0	1.58 - 1.83					100	81	64	49	37	22
	D-6	10.2 - 11.0	3.11 - 3.35										
	D-7	15.2 - 16.0	4.63 - 4.88										
	D-8	20.2 - 21.0	6.16 - 6.40										
	D-10	29.2 - 30.0	8.90 - 9.14					100	91	68	51	38	23
	D-11	35.0 - 35.5	10.67 - 10.82										
	D-12	40.2 - 41.0	12.25 - 12.50										
	D-14	50.2 - 51.0	15.30 - 15.54										
	D-15	60.2 - 61.0	18.35 - 18.59										
	D-16	70.7 - 71.5	21.55 - 21.79										
	D-17	80.2 - 81.0	24.44 - 24.69					100	88	78	65	49	25
	D-19	100.2 - 101.0	30.54 30.78										

NOTES:

(a) Sample types
- SS - Standard split spoon
- P - Pitcher
- D - Fugro Drive
- B,b - Bulk

(b) NP - Not Plastic

(c) USCS - Unified Soil Classification System

(d) * Indicates that test has been performed and results are included in this report

FINER BY WEIGHT								ATTERBERG LIMITS (b)			USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY
	U S STANDARD SIEVE NO.					PARTICLE SIZE (mm)						DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	
	SAND				SILT OR CLAY															
3/8"	4	10	40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)		
80	51	38	18	10	7						GP GM	110.6	1772	7.7	42.2	0.48				2.6
											GP-GM	103.7	1661	13.1	56.7	0.63				
92	68	46	21	10	8						SW SM	113.8	1823	7.9	43.6	0.49				
											GP-GM	115.4	1849	4.5	26.6	0.46				
											GP-GM	110.2	1765	6.2	31.9	0.53				
											GP-GM	109.9	1761	4.9	24.7	0.53				
76	65	49	21	10	7						SW-SM	116.5	1866	7.6	45.8	0.45				
											GP GM	116.4	1865	9.5	57.1	0.45				
											GP-GM	127.9	2049	7.2	61.4	0.32				
											SM	101.7	1629	7.2	29.7	0.66				
87	81	68	46	30	25						SM	109.3	1751	9.9	49.5	0.54				
100	96	86	53	35	29						SM	95.7	1533	17.6	62.6	0.76				
											SM	98.1	1572	13.2	49.7	0.72				
91	73	52	24	13	10					NP	SW-SM	113.7	1821	5.6	31.1	0.48				
											SP	109.8	1759	8.5	43.1	0.53				
											SP-SM	115.3	1847	10.0	58.7	0.46				
											SP	107.8	1727	13.1	63.0	0.56				
											SP	113.6	1820	10.7	59.6	0.48				
89	79	66	26	16	13						SM	116.8	1871	10.3	63.0	0.44				
											SM	106.9	1713	14.1	66.2	0.58				
											SP SM	112.0	1794	13.9	74.3	0.50				
											SP SM	110.6	1772	9.6	49.7	0.52				
											SM	113.5	1818	7.7	43.1	0.48				
											SP	110.1	1764	14.7	75.0	0.53				
100	96	72	16	8	6						SW SM	104.8	1679	19.4	86.3	0.61				
69	60	49	24	15	13						SM	105.6	1692	21.7	98.6	0.60				
											SM	121.0	1938	10.9	75.7	0.39				
76	72	67	57	43	35						SM	94.6	1515	10.2	35.2	0.78				
64	49	37	22	15	11						GW-GM	109.1	1748	6.7	33.5	0.54				
											GP-GM	116.2	1862	8.1	48.6	0.45				
											GP GM	111.8	1791	11.2	59.6	0.51				
											GP-GM	119.2	1910	14.9	97.3	0.41				
68	51	38	23	15	11						GP-GM	117.4	1881	10.4	64.6	0.44				
											GP-GM	126.5	2027	10.1	82.2	0.33				
											GP GM	117.2	1878	10.6	65.3	0.44				
											GP-GM	113.6	1820	14.1	79.1	0.48				
											GP-GM	127.3	2039	8.3	69.6	0.32				
											GP GM	121.9	1953	10.5	74.3	0.38				
78	66	49	25	13	10						SW-SM	121.4	1945	10.4	72.7	0.39				
											GP GM	123.4	1977	10.9	80.9	0.37				

7.6	45.8	0.45						
9.5	57.1	0.45						
7.2	61.4	0.32						
7.2	29.7	0.66						
9.9	49.5	0.54						
17.6	62.6	0.76						
13.2	49.7	0.72						*
5.6	31.1	0.48						
8.5	43.1	0.53						
10.0	58.7	0.46						
13.1	63.0	0.56						
10.7	59.6	0.48						
10.3	63.0	0.44						
14.1	66.2	0.58						
13.9	74.3	0.50						
9.6	49.7	0.52						
7.7	43.1	0.48						
14.7	75.0	0.53						
19.4	86.3	0.61						
21.7	98.6	0.60						
10.9	75.7	0.39						
10.2	35.2	0.78						
6.7	33.5	0.54						
8.1	48.6	0.45						
11.2	59.6	0.51						
14.9	97.3	0.41						
10.4	64.6	0.44						
10.1	82.2	0.33						

0.5 - 2.0	0.15 - 0.61					100	65	41	26
0.5 - 2.0	0.15 - 0.61					100	80	65	55
3.0 - 4.0	0.91 - 1.22				100	91	63	40	33
0.5 - 2.0	0.15 - 0.61					100	93	85	77
4.0 - 5.0	1.22 - 1.52						100	97	65
0.5 - 2.0	0.15 - 0.61						100	94	85
0.5 - 2.0	0.15 - 0.61						100	99	97
4.0 - 5.0	1.22 - 1.52								
9.0 - 10.0	2.74 - 3.05						100	97	82
10.0 - 11.0	3.05 - 3.35								
0.5 - 2.0	0.15 - 0.61							100	98
4.0 - 5.0	1.22 - 1.52								
0.5 - 2.0	0.15 - 0.61						100	98	96
0.5 - 2.0	0.15 - 0.61							100	99
6.0 7.0	1.83 - 2.13						100	92	85
0.5 - 2.0	0.15 - 0.61				100	88	60	41	30
0.5 - 2.0	0.15 - 0.61					100	96	73	64
0.5 - 2.0	0.15 - 0.61								
0.5 - 2.0	0.15 - 0.61								

ARD SIEVE NO.			PARTICLE SIZE (mm)		ATTERBERG LIMITS (b)			USCS (c)	DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	SPECIFIC GRAVITY OF SOLID	TRIAXIAL
ID			SILT OR CLAY															
40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m^3)				(pcf)	(kg/m^3)			
61	47	41						SC										
12	8	6						GP-GM						125.5	2011	11.0		
39	31	26			51	33	18	GM						115.0	1842	15.0		
21	15	12						GP-GM										
56	40	34			41	26	15	SM						118.8	1903	11.8		
6	2	2						SW										
51	33	26						SM										
73	48	39			45	26	19	SC										
								SC										
21	6	3						SW										
					63	35	28	MH										
66	46	38						SM										
								GP-GM										
73	66	60						ML										
86	54	37						SM										
66	47	34						SM										
12	8	6						GP-GM										
28	16	13						SM										
100	99	97	47	23	26	16	10	CL									2.72	
90	70	62			59	40	19	MH										
87	58	46						SM										
					67	32	35	CH										
99	94	80	19	10			NP	ML										
54	13	6						SP-SM										
100	98	92			30	24	6	ML										

ATTERBERG LIMITS (b)		USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
			DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)								
		SC															
		GP-GM						125.5	2011	11.0							*
33	18	GM						115.0	1842	15.0							*
		GP-GM															
26	15	SM						118.8	1903	11.8							*
		SW															
		SM															
26	19	SC															
		SC														*	
		SW															
35	28	MH															
		SM															
		GP-GM														*	
		ML															
		SM															
		SM															
		GP-GM															
		SM															
16	10	CL									2.72					*	
40	19	MH															
		SM															
32	35	CH															
	NP	ML															
		SP-SM															
24	6	ML															

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-5-1
5 OF 7

FUGRO NATIONAL, INC.

AFV-01

B-1	0.5 - 2.0	0.15 - 0.61							
b-2	8.0 - 9.0	2.44 - 2.74							
B-1	0.5 - 2.0	0.15 - 0.61							
b-3	10.0 - 11.0	3.05 - 3.35							100
b-1	0.5 - 2.0	0.15 - 0.61							
B-1	0.5 - 2.0	0.15 - 0.61							100
b-2	3.0 - 4.0	0.91 - 1.22							100
b-3	7.0 - 8.0	2.13 - 2.44							
b-1	0.5 - 2.0	0.15 - 0.61							
B-1	0.5 - 2.0	0.15 - 0.61							100
b-1	0.5 - 2.0	0.15 - 0.61							
b-2	4.0 - 5.0	1.22 - 1.52							
b-1	0.5 - 2.0	0.15 - 0.61							100
b-2	4.0 - 5.0	1.22 - 1.52				100	87		59
b-1	0.0 - 1.5	0.00 - 0.46							100
b-1	0.5 - 2.0	0.15 - 0.61							100
B-1	0.5 - 2.0	0.15 - 0.61					100		99
b-1	0.5 - 2.0	0.15 - 0.61					100		97
B-1	0.5 - 2.0	0.15 - 0.61							
b-2	5.0 - 6.0	1.52 - 1.83							100
b-4	9.0 - 10.0	2.74 - 3.05					100		96

			SM	
			SM	
43	24	19	SC	
		NP	SM	
23	18	5	SM-SC	
22	18	4	CL-ML	
			SP	
			SM	
			GW-GM	
			ML	
47	19	28	SC	

ERG (b) PI	USCS (c)	IN-SITU DRY UNIT WEIGHT (pcf)	IN-SITU DRY UNIT WEIGHT (kg/m^3)	IN-SITU MOISTURE CONTENT (%)	IN-SITU SATURATION (%)	IN-SITU VOID RATIO	COMPACTED MAXIMUM DRY DENSITY (pcf)	COMPACTED MAXIMUM DRY DENSITY (kg/m^3)	COMPACTED OPTIMUM MOISTURE (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
	SM															
	SM															
7	SM-SC															
	SM															
9	CL															
	SM															
	SC															
8	ML															
	SM						122.9	1969	11.4							*
	SM															
19	SC															
NP	SM															
5	SM-SC														*	
4	CL-ML															
	SP														*	
	SM															
	GW-GM															
	ML															
28	SC															
	SM						125.2	2006	9.8							*
	SM															
8	ML						112.6	1804	16.4							*
8	SC															
	SP-SM															
	SC															
	SP-SM															

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

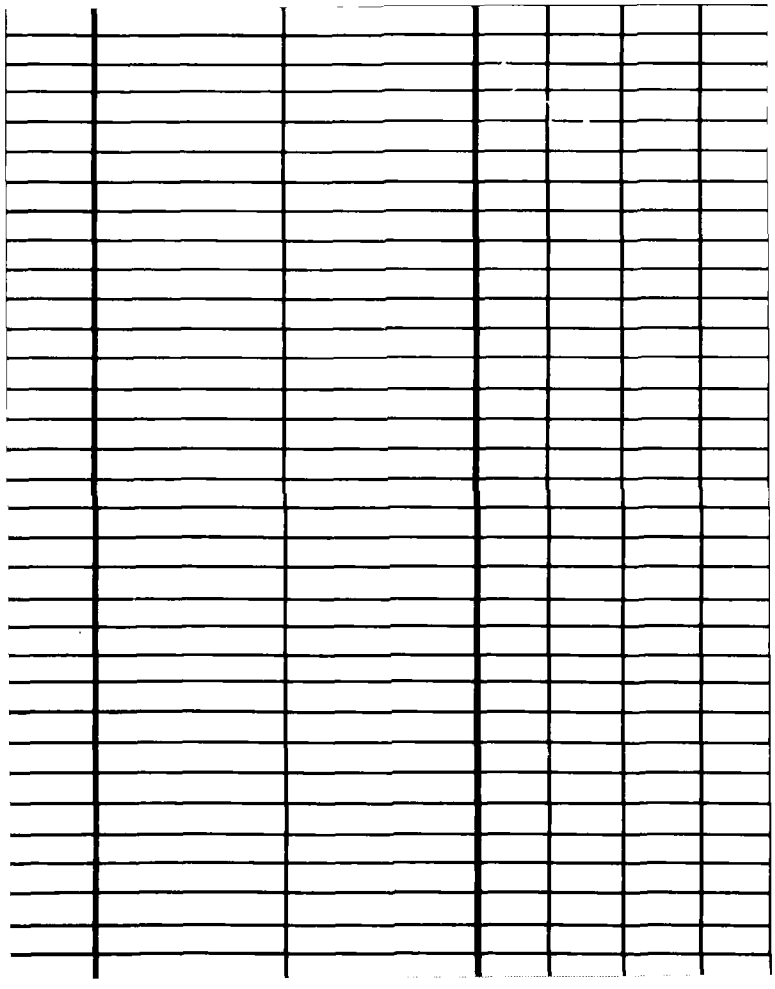
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

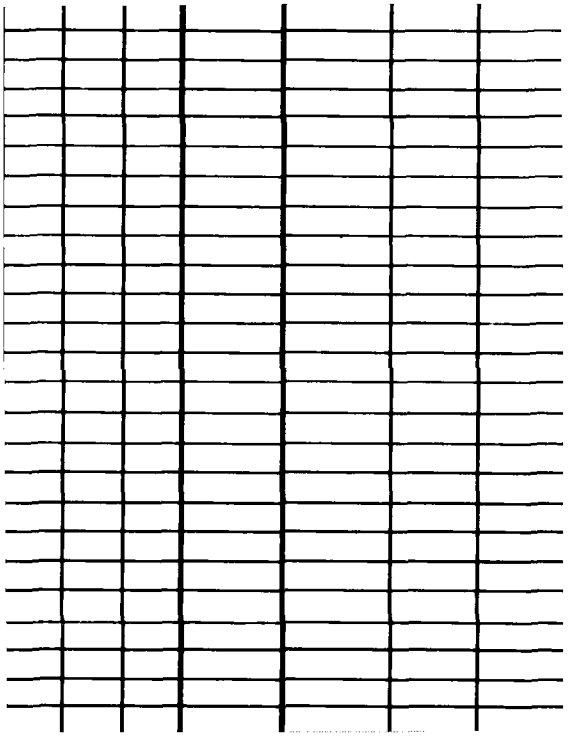
TABLE II-5-1
6 OF 7

FUGRO NATIONAL, INC.

AFV-01

2 1 3





ATTERBERG LIMITS (b)		USCS (c)	IN-SITU					COMPACTED			SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
			DRY UNIT WEIGHT		MOISTURE CONTENT (%)	SATURATION (%)	VOID RATIO	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)							
PL	PI		(pcf)	(kg/m³)				(pcf)	(kg/m³)								
		SM						125.0	2003	10.9							*
		SC															
		SM						122.5	1962	11.5							*

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-5-1
7 OF 7

FUGRO NATIONAL, INC.

AFV-01

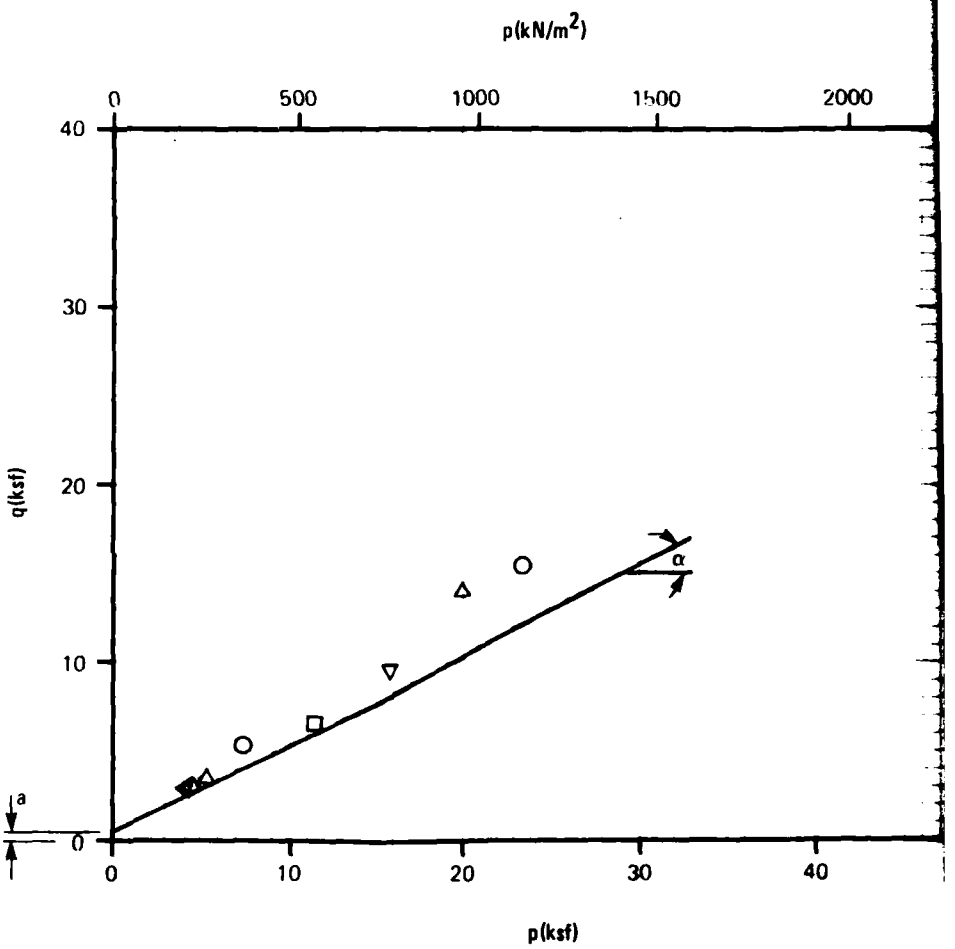
2 3

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT	CONFINING PRESSURE (σ_3)		MAX DEVI STRESS
			FEET	METERS			pcf	kg/m^3	(%)	ksf	kN/m^2	ksf
○	BL-B-3	P-12	35.1 - 35.7	10.70 - 10.88	ML	CD	75.0	1202	17.6	2.0	96	10.5
		P-12	36.3 - 37.0	11.06 - 11.28	ML	CD	79.6	1275	13.2	8.1	388	30.9
□	BL-B-4	P-5	14.0 - 14.6	4.27 - 4.45	ML	CD	81.5	1306	16.8	2.0	96	6.3
		P-5	14.6 - 15.2	4.45 - 4.63	ML	CD	81.6	1307	18.7	5.0	239	13.0
△	BL-B-4	P-8	29.5 - 30.3	8.99 - 9.24	SM	CD	90.0	1442	13.0	1.4	67	7.2
		P-8	30.3 - 31.0	9.24 - 9.45	SM	CD	100.5	1610	10.3	6.0	287	28.2
▽	BL-B 7	P-10	35.0 - 35.7	10.67 - 10.88	CL	CD	94.5	1514	20.8	1.7	81	6.2
		P-10	35.7 - 36.3	10.88 - 11.06	CL	CD	106.7	1709	12.9	6.0	287	19.7

NOTES: $p = \frac{\sigma 1 + \sigma 3}{2}$, $q = \frac{\sigma 1 - \sigma 3}{2}$

$c = \frac{a}{\cos \phi}$, $\phi = \sin^{-1}(\tan \alpha)$

CONFINING PRESSURE (σ_3)		MAXIMUM DEVIATOR STRESS (σ_1-σ_3)		STRAIN RATE	COHESION (c)		FRICTION ANGLE (ϕ)
ksf	kN/m^2	ksf	kN/m^2	(% min.)	ksf	kN/m^2	DEGREES
2.0	96	10.5	503	0.05	1.0	48	39
8.1	388	30.9	1479	0.05			
2.0	96	6.3	302	0.07	0.5	24	32
5.0	239	13.0	622	0.07			
1.4	67	7.2	345	0.07	0.0	0	44
6.0	287	28.2	1350	0.07			
1.7	81	6.2	297	0.05	0.3	14	38
6.0	287	19.7	943	0.05			



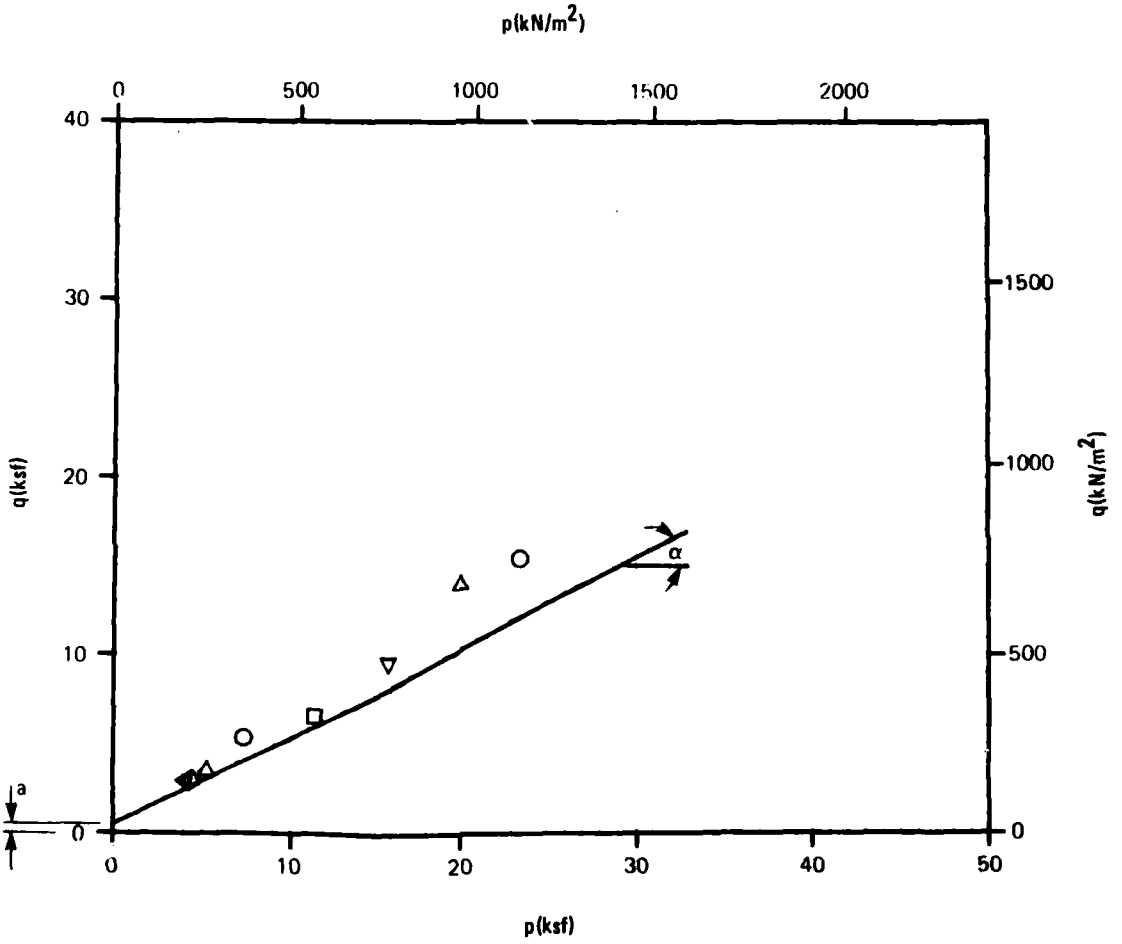
SUMMARY OF TRIAXIAL
TEST RESUL
OPERATIONAL BA
BERYL, UTA

MX SITING INVESTIGATIO

DEPARTMENT OF THE AIR FORC

FUGRO NATIO

STRAIN RATE (% min.)	COHESION (c) ksf	COHESION (c) kN/m²	FRICTION ANGLE (ϕ) DEGREES
0.05	1.0	48	39
0.05			
0.07	0.5	24	32
0.07			
0.07	0.0	0	44
0.07			
0.05	0.3	14	38
0.05			



SUMMARY OF TRIAXIAL COMPRESSION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE II-5-1

FUGRO NATIONAL, INC.

2 1 3

BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	UNCONFINED COMP. STRENGTH		DRY DENSITY		MOISTURE CONTENT (%)	DEGREE OF SATURATION (%)	HEIGHT/ DIAMETER
		FEET	METERS		ksf	kN/m²	pcf	kg/m³			
BL-B-2	D-9	11.2 - 12.0	3.41 - 3.66	SM	0.8	38	105.7	1693	5.2	23.7	2.40
BL-B-3	P-8	14.2 - 15.0	4.33 - 4.57	CL	5.8	278	93.9	1504	17.1	58.3	2.10
BL-B-4	P-2	2.5 - 4.7	0.76 - 1.43	SC	1.4	67	82.0	1314	15.5	39.8	2.10
	P-6	19.9 - 20.7	6.07 - 6.31	ML	3.7	177	99.3	1591	10.1	39.0	2.10
	P-11	47.8 - 48.7	14.57 - 14.84	SM	0.7	34	102.5	1642	14.2	59.5	2.10
	D-12	49.2 - 50.0	15.00 - 15.24	SM	2.4	115	115.2	1846	8.0	46.6	2.40
BL-B-6	D-8	30.2 - 31.0	9.20 - 9.45	SM	4.3	206	107.2	1717	7.7	36.4	2.40
BL-B-7	P-5	11.0 - 11.8	3.35 - 3.60	SP-SM	1.3	62	110.9	1777	15.6	80.9	2.10
	P-9	30.0 - 30.8	9.14 - 9.39	SM	0.2	10	92.9	1488	15.9	52.6	2.00
	P-9	30.8 - 31.5	9.39 - 9.60	SM	0.5	24	104.9	1680	12.9	57.7	2.10
	P-13	49.7 - 50.5	15.15 - 15.39	SM	8.3	397	104.5	1674	13.7	60.3	2.10
BL-B-8	D-4	4.7 - 5.5	1.43 - 1.68	SM	3.9	187	92.5	1482	11.1	36.5	2.00
	D-9	15.2 - 16.0	4.63 - 4.88	SM	1.8	86	106.9	1713	7.3	34.3	2.40
	P-11	25.1 - 25.8	7.65 - 7.86	SM	1.6	77	100.9	1616	14.3	59.2	2.10
	P-15	45.7 - 46.5	13.93 - 14.17	SM	1.6	77	97.5	1562	15.1	55.9	2.10
	P-16	49.6 - 50.3	15.12 - 15.33	SM	0.7	34	91.0	1458	14.4	45.8	2.10
	D-18	70.2 - 71.0	21.40 - 21.64	SM	13.8	661	109.0	1746	12.4	61.4	2.40
BL-B-10	P-3	7.7 - 8.5	2.35 - 2.59	SM	0.5	24	98.1	1572	13.2	49.7	2.10

SUMMARY OF UNCONFINED COMPRESSION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-5-2

UGRO NATIONAL, INC.

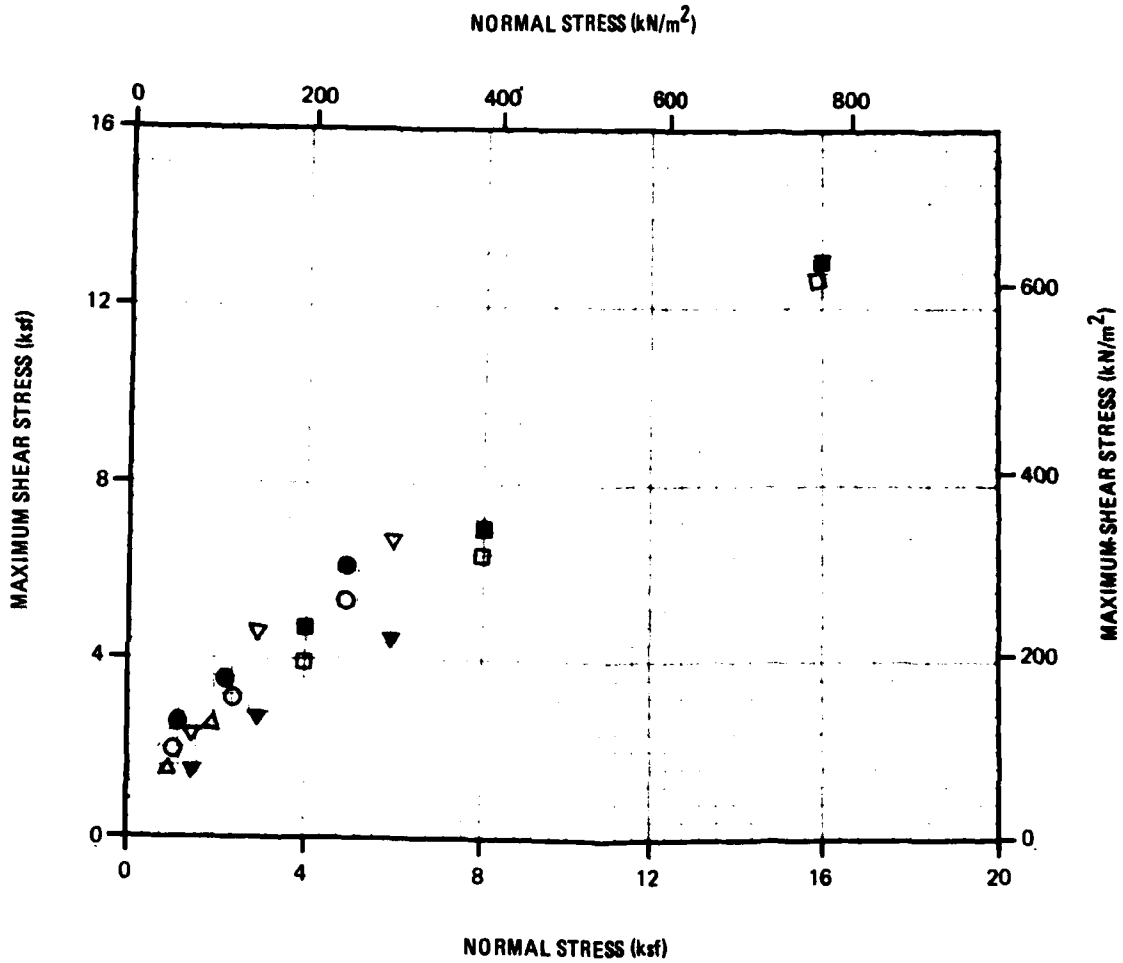
USAF-05

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT	COHESION (c)		FRICTION ANGLE
			FEET	METERS			pcf	kg/m^3	(%)	ksf	kN/m^2	DEGREE
○	BL-B-6	D-7	24.1 - 24.9	7.35 - 7.53	SP-SM	CD	114.2	1829	13.1	0.9	43	42°
●									18.3	1.4	67	42°
△	BL-B-7	D-7	19.2 - 20.0	5.85 - 6.10	SP-SM	CD	114.4	1833	9.4	0.5	24	45°
▽	BL-B-8	D-12	30.2 - 31.0	9.20 - 9.45	SP-SM	CD	113.8	1823	5.8	1.0	48	43°
▼									22.7	0.6	29	33°
□	BL-B-8	P-20	92.1 - 93.0	28.07 - 28.35	SP-SM	CD	91.4	1464	18.2	1.1	53	37°
■									19.4	2.0	96	34°

○, △, ▽ □ – Tested at natural moisture content

●, ▼, ■ – Tested in soaked condition

ON	FRICTION ANGLE (ϕ)
t/m²	DEGREES
43	42°
87	42°
94	45°
68	43°
29	33°
53	37°
96	34°



SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-5-2
1 OF 5

FUGRO NATIONAL, INC.

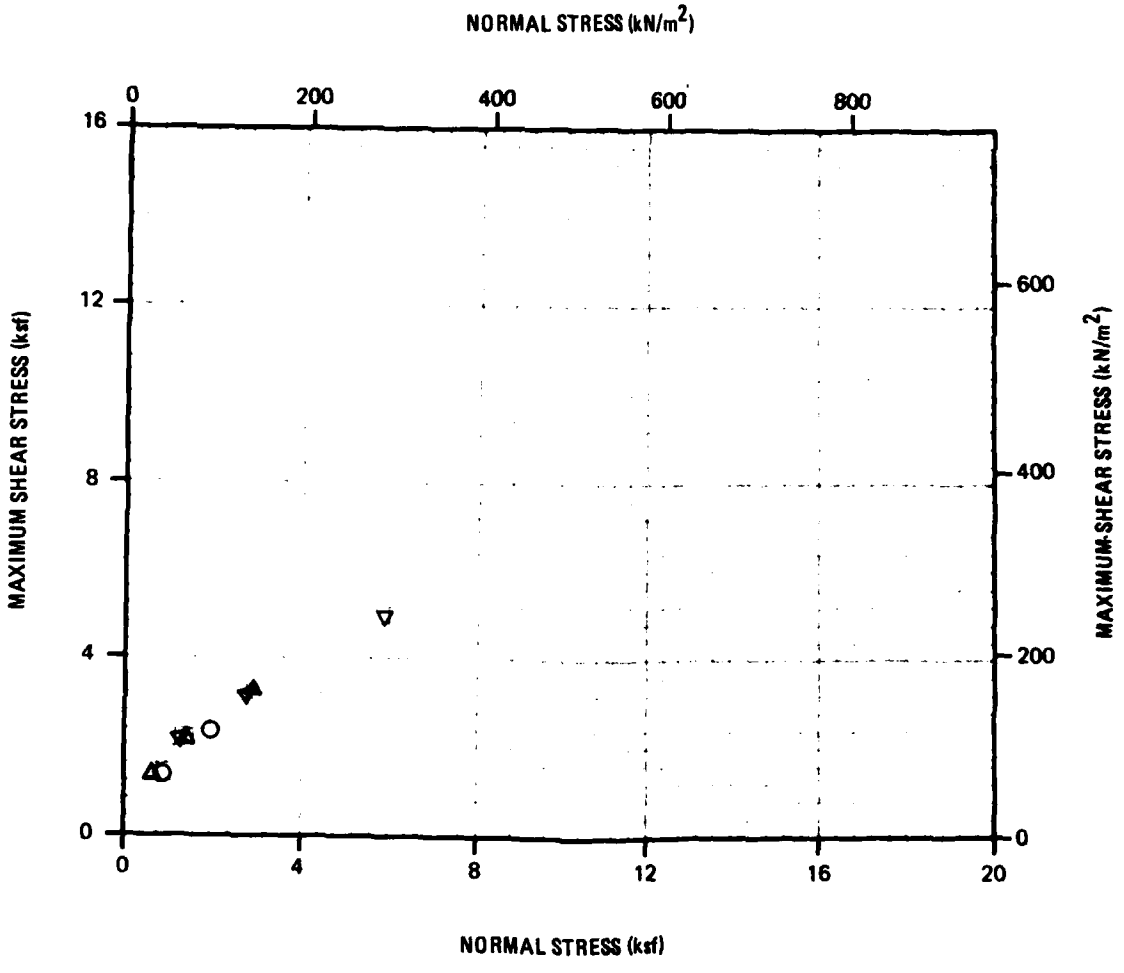
1

2

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT (%)	COHESION (c)		FRICTION ANGLE (ϕ)
			FEET	METERS			pcf	kg/m^3		ksf	kN/m^2	DEGREES
O	BL-B-1	D-4	10.2 - 11.0	3.11 - 3.35	SW-SM	CD	104.3	1671	9.1	0.1	5	48°
Δ	BL-B-2	D-10	15.2 - 16.0	4.63 - 4.88	SW-SM	CD	110.1	1764	8.7	0.8	38	39°
∇	BL-B-3	P-11	29.3 - 29.9	8.93 - 9.11	SW-SM	CD	113.0	1810	11.5	0.9	43	34°

O, Δ, ∇ – Tested at natural moisture content

FRICTION ANGLE (ϕ)
DEGREES
48°
39°
34°



SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE — BMO

FIGURE
II-5-2
2 OF 5

FUGRO NATIONAL, INC.

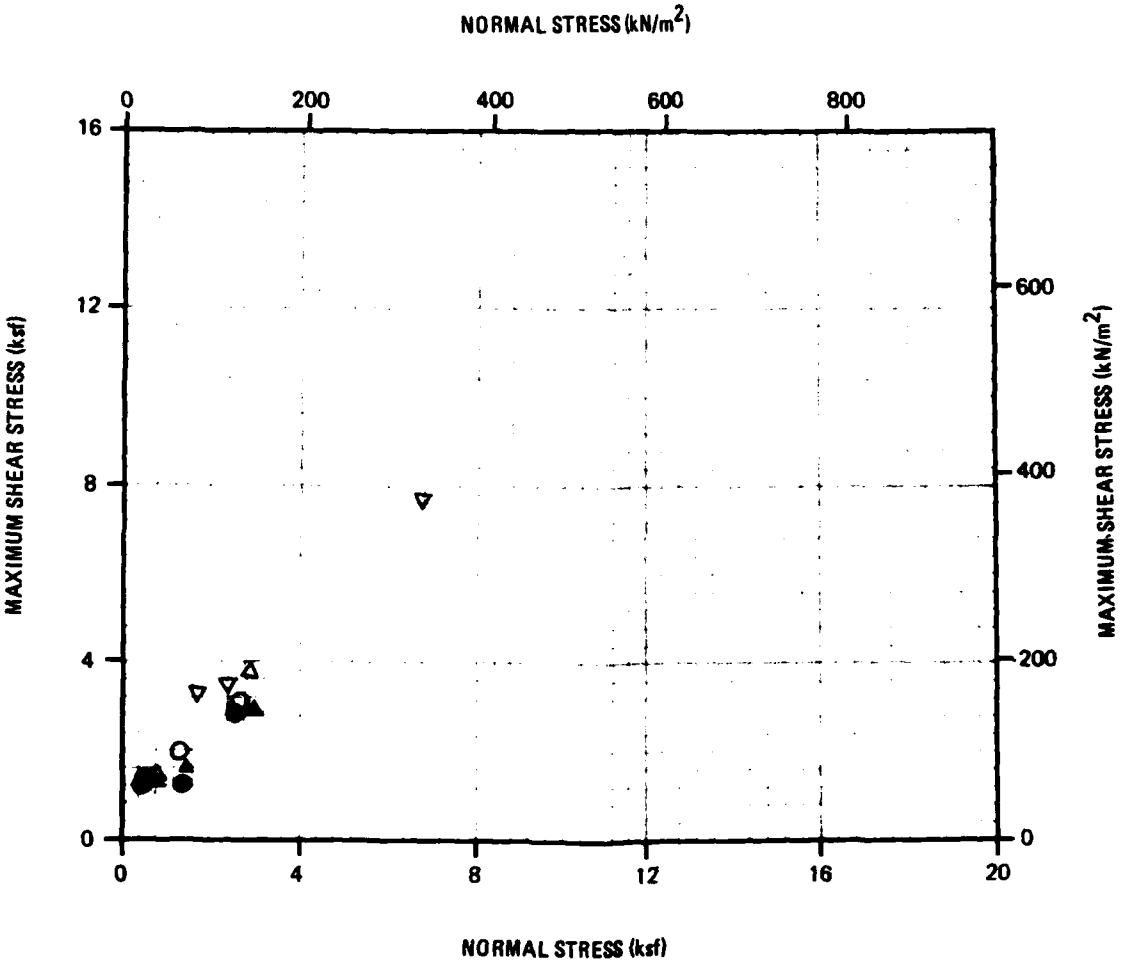
1 2

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT	COHESION (c)		FRICTION ANGLE
			FEET	METERS			pcf	kg/m^3	(%)	ksf	kN/m^2	DEGREES
O	BL-B-1	D-3	6.7 - 7.5	2.04 - 2.29	SM	CD	100.7	1613	11.5	0.5	24	44°
●									21.0	0.3	14	39°
△	BL-B-1	D-5	15.2 - 16.0	4.63 - 4.88	SM	CD	96.9	1552	13.3	0.4	19	47°
▲									25.6	0.5	24	39°
▽	BL-B-2	D-2	1.7 - 2.5	0.52 - 0.76	SM	CD	106.6	1708	6.0	1.9	91	39°
			CONTINUED ON NEXT PAGE									

O, △, ▽ – Tested at natural moisture content

●, ▲, ▼ – Tested in soaked condition

	FRICTION ANGLE (ϕ)
kN/m^2	DEGREES
	44°
	39°
	47°
	39°
	39°



SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE — BMO

FIGURE
II-5-2
3 OF 5

FUGRO NATIONAL, INC.

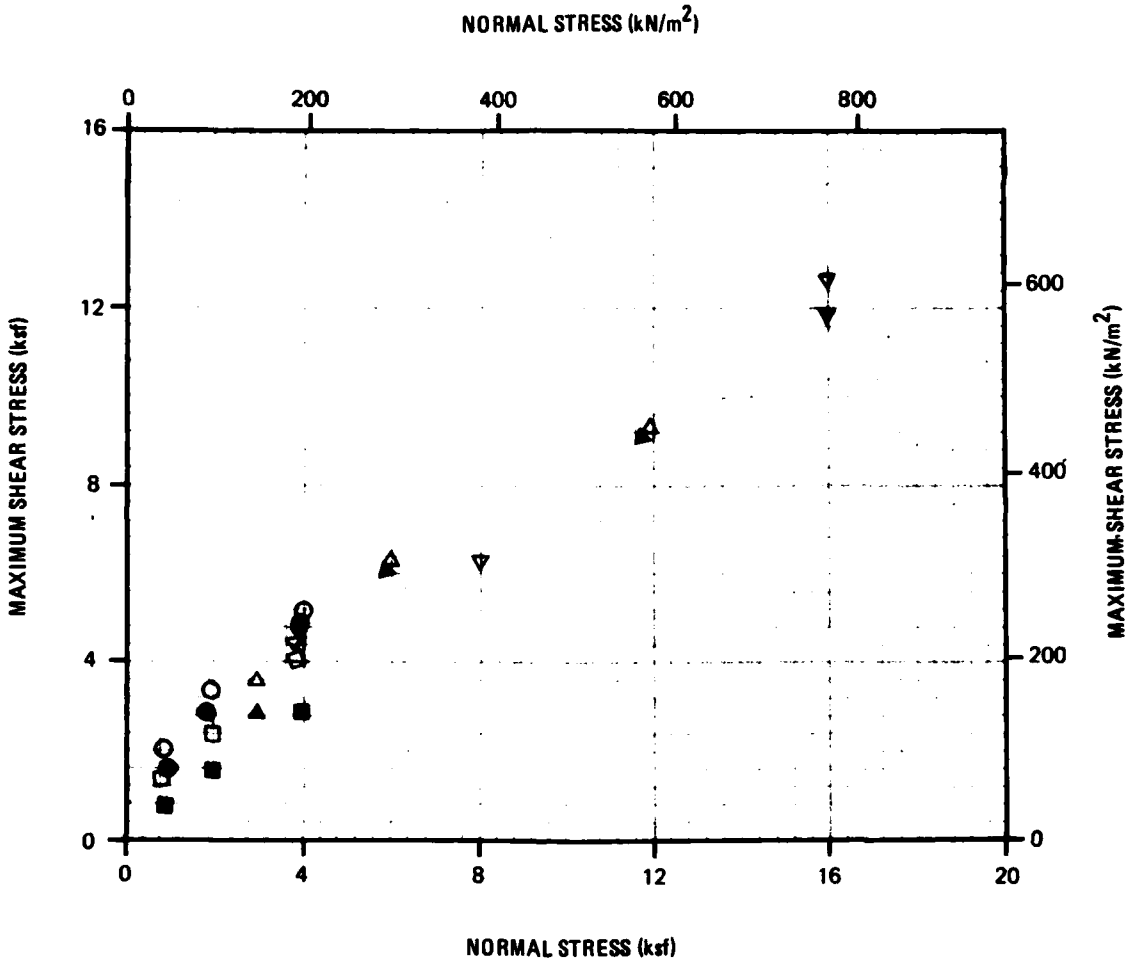
1 2

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT (%)	COHESION (c)		FRICTION ANGLE (ϕ)
			FEET	METERS			pcf	kg/m^3		ksf	kN/m^2	DEGREES
○	BL-B-8	P-10	20.4 - 21.2	6.22 - 6.46	SM	CD	108.1	1732	12.3	0.9	43	48°
●									17.8	0.6	29	46°
△	BL-B-8	D-17	60.2 - 61.0	18.35 - 18.59	SM	CD	107.0	1714	14.9	1.8	86	33°
▲									20.4	1.1	53	34°
▽	BL-B-8	P-19	80.1 - 80.8	24.41 - 24.63	SM	CD	85.4	1368	16.1	0.7	34	34°
▼									25.6	1.2	57	31°
□	BL-B-11	D-1	0.7 - 1.5	0.21 - 0.46	SM	CD	94.6	1515	10.2	0.4	19	43°
■									26.5	0.0	0	36°

○, △, ▽, □ – Tested at natural moisture content

●, ▲, ▼, ■ – Tested in soaked condition

N	FRICTION ANGLE (ϕ)
m^2	DEGREES
	48°
	46°
	33°
	34°
	34°
	31°
	43°
	36°



SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-5-2
4 OF 5

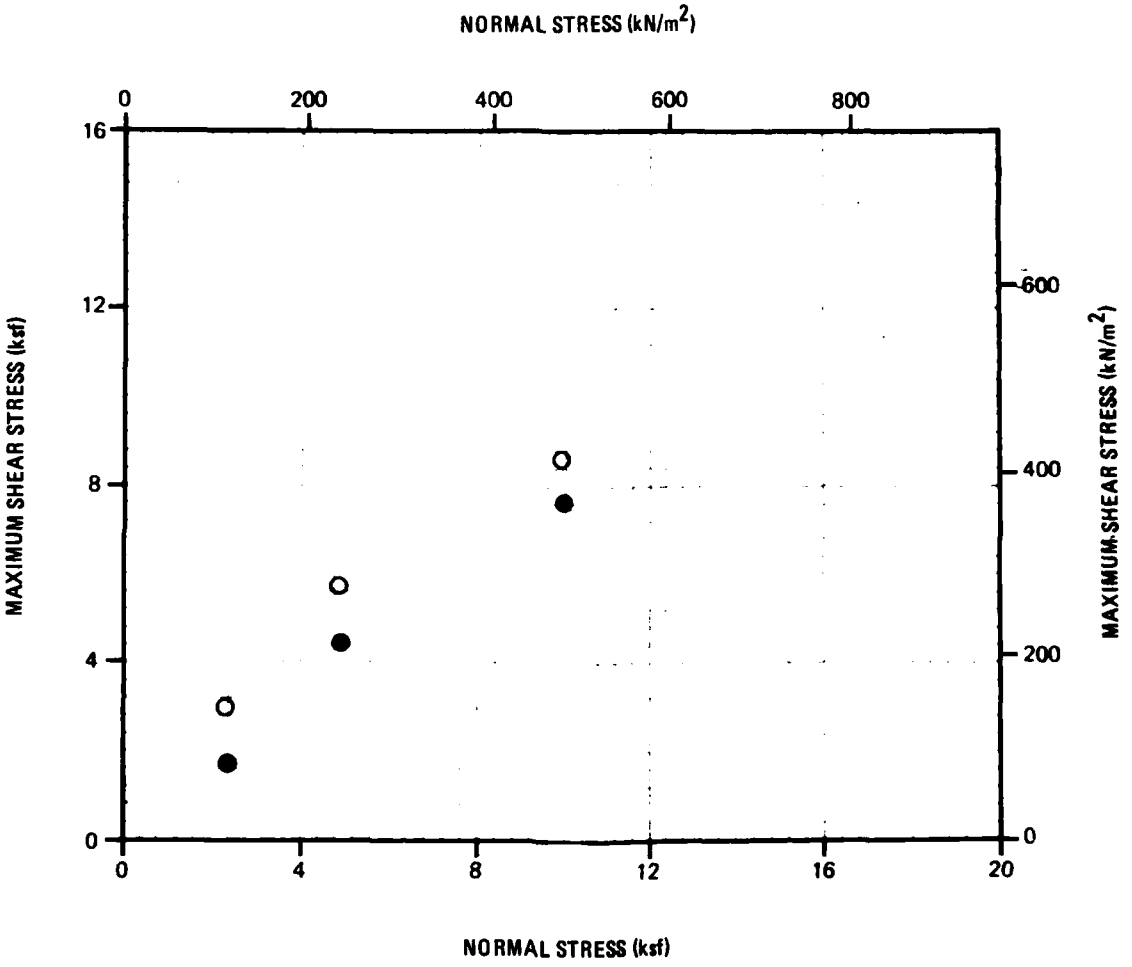
FUGRO NATIONAL, INC.

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	TYPE OF TEST	DRY DENSITY		MOISTURE CONTENT (%)	COHESION (c)		FRICTION ANGLE (ϕ)
			FEET	METERS			pcf	kg/m^3		ksf	kN/m^2	DEGREES
O	BL-B-3	P-15	49.2 - 50.0	15.00 - 15.24	ML	CD	97.1	1556	21.9	0.9	43	40°
●									20.4	0.0	0	39°

O – Tested at natural moisture content

● – Tested in soaked condition

	FRICTION ANGLE (ϕ)
kN/m^2	DEGREES
	40°
	39°



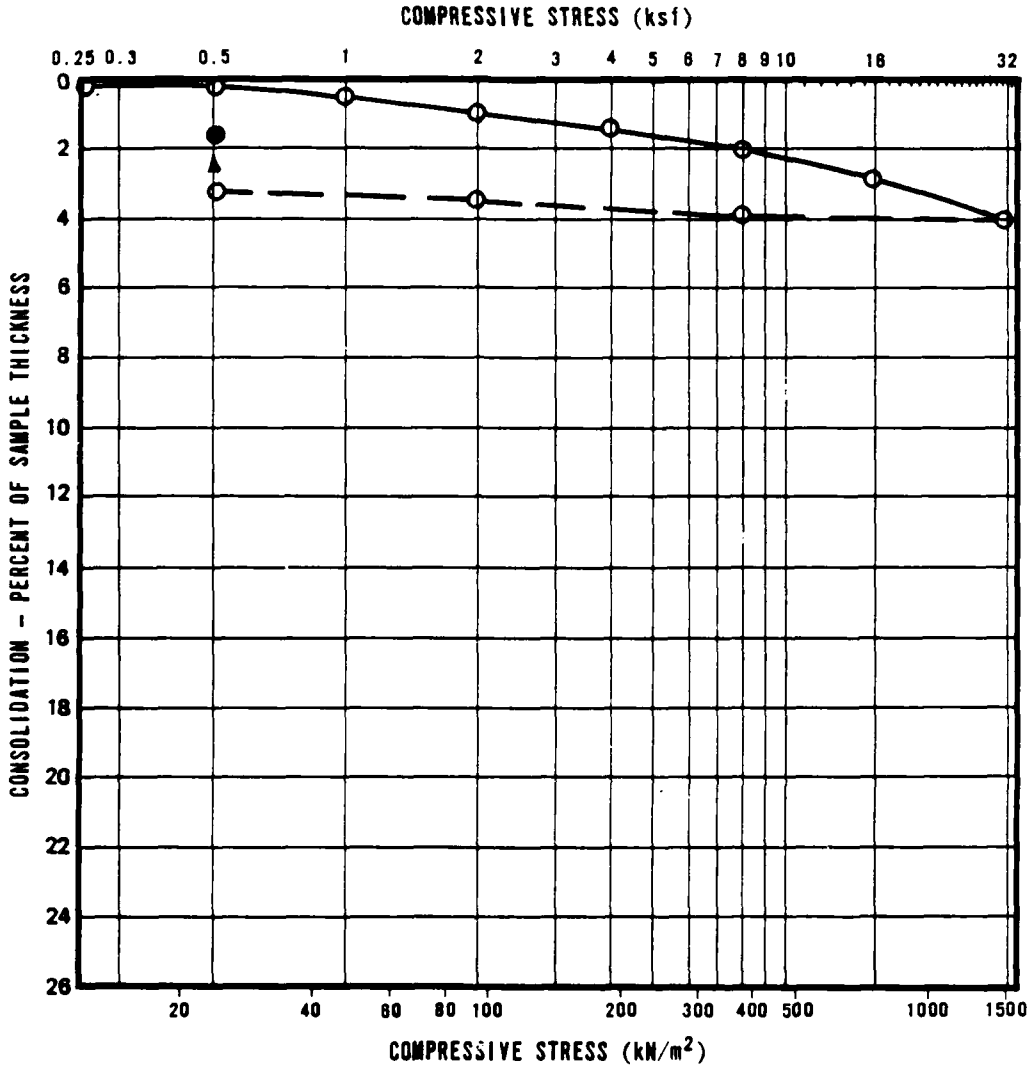
SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE — BMO

FIGURE
II-5-2
5 OF 5

UGRO NATIONAL, INC.

1 2



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
⊕, ○	BL-B-2	D-19	70.2 - 71.0	21.40 - 21.64	SM	109.3	1751	11.9	0.54	59.5

⊕, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

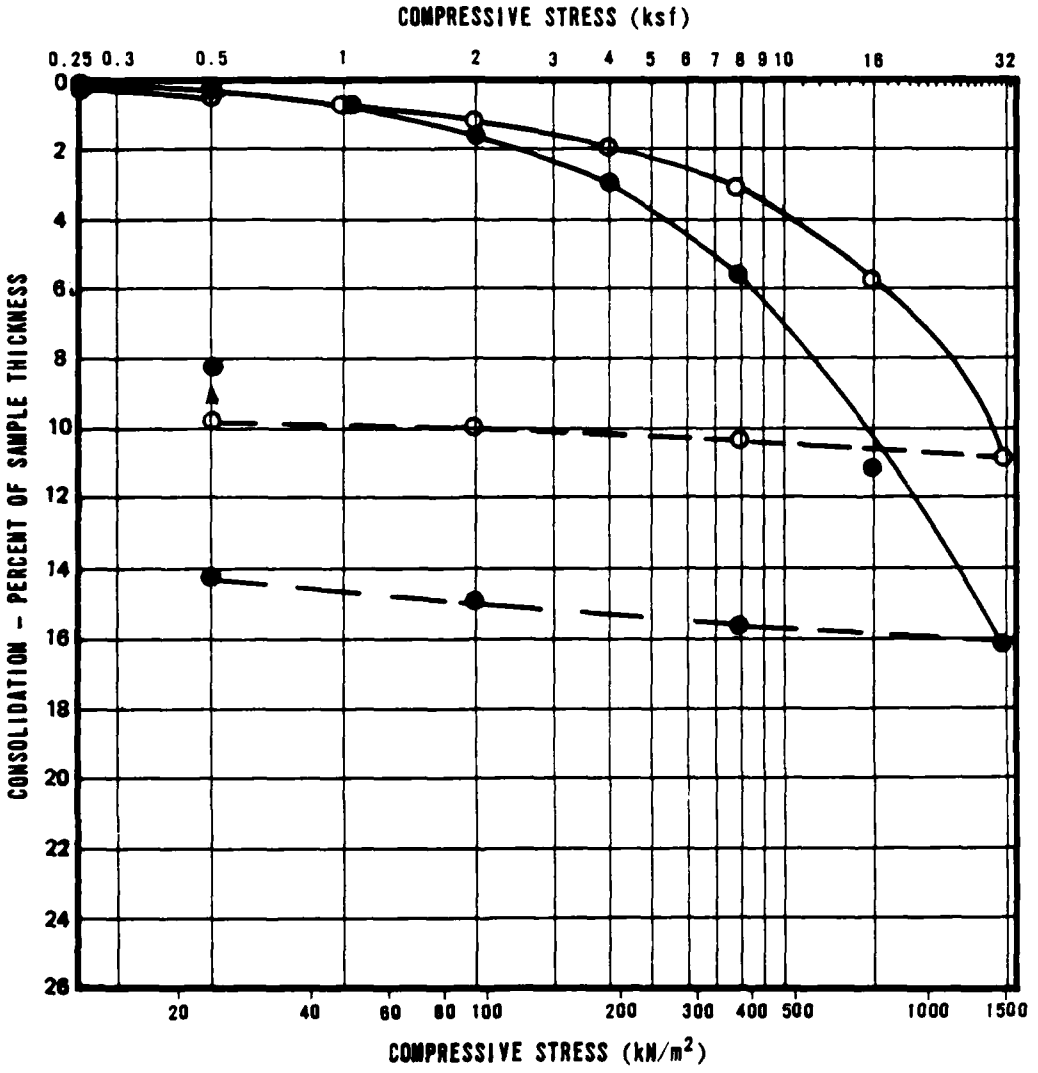
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
1 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
○, ●	BL-B-3	P-8	13.5 - 14.2	4.11 - 4.33	CL	94.6	1515	17.1	0.78	59.2
⊕, ●	BL-B-3	P-8	13.5 - 14.2	4.11 - 4.33	CL	90.9	1456	16.7	0.85	53.0

⊕, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

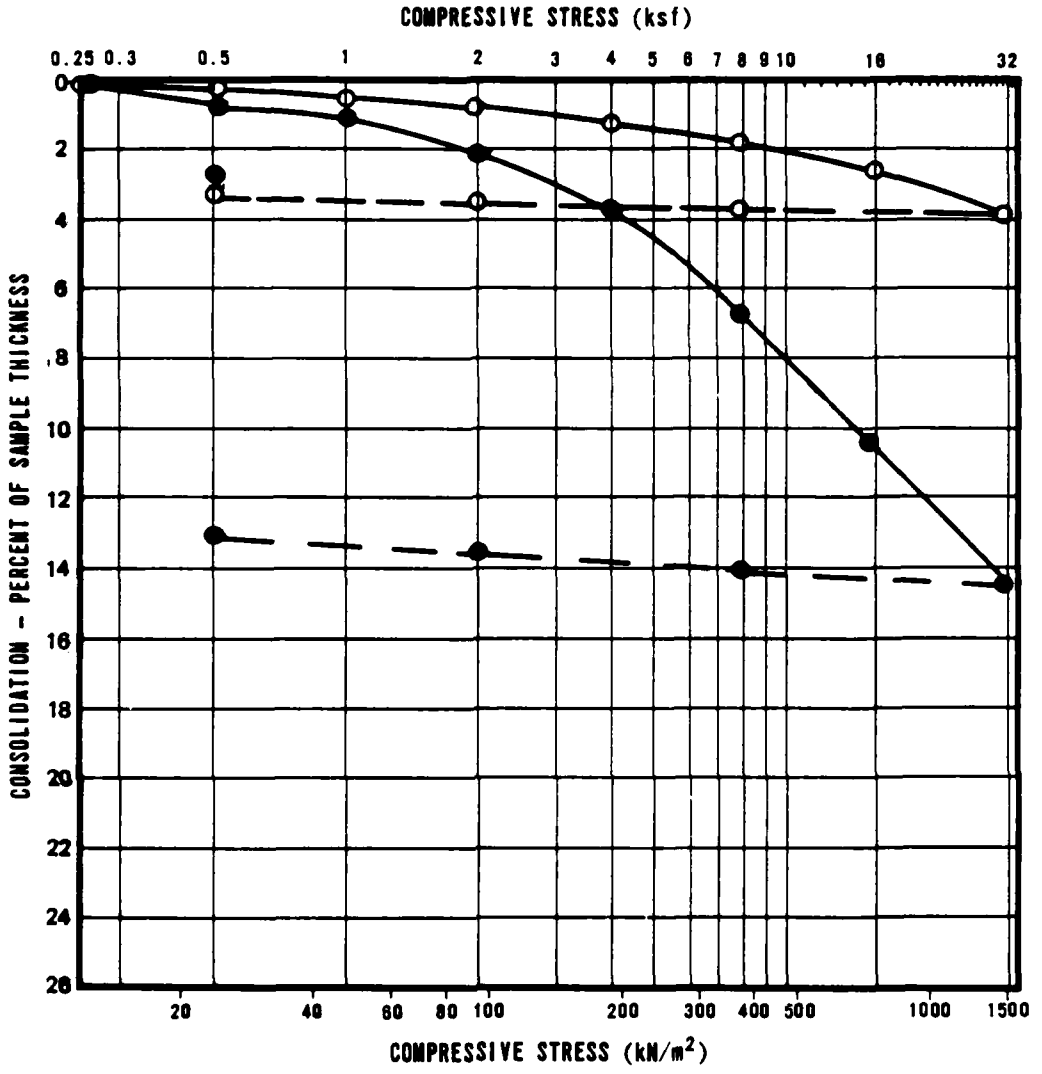
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3 2 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
○,●	BL-B-4	P-6	19.2 - 19.9	5.86 - 6.07	ML	99.2	1589	9.7	0.70	37.4
⊕,●	BL-B-4	P-6	19.2 - 19.9	5.85 - 6.07	ML	97.1	1556	14.2	0.74	51.8

⊕,○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

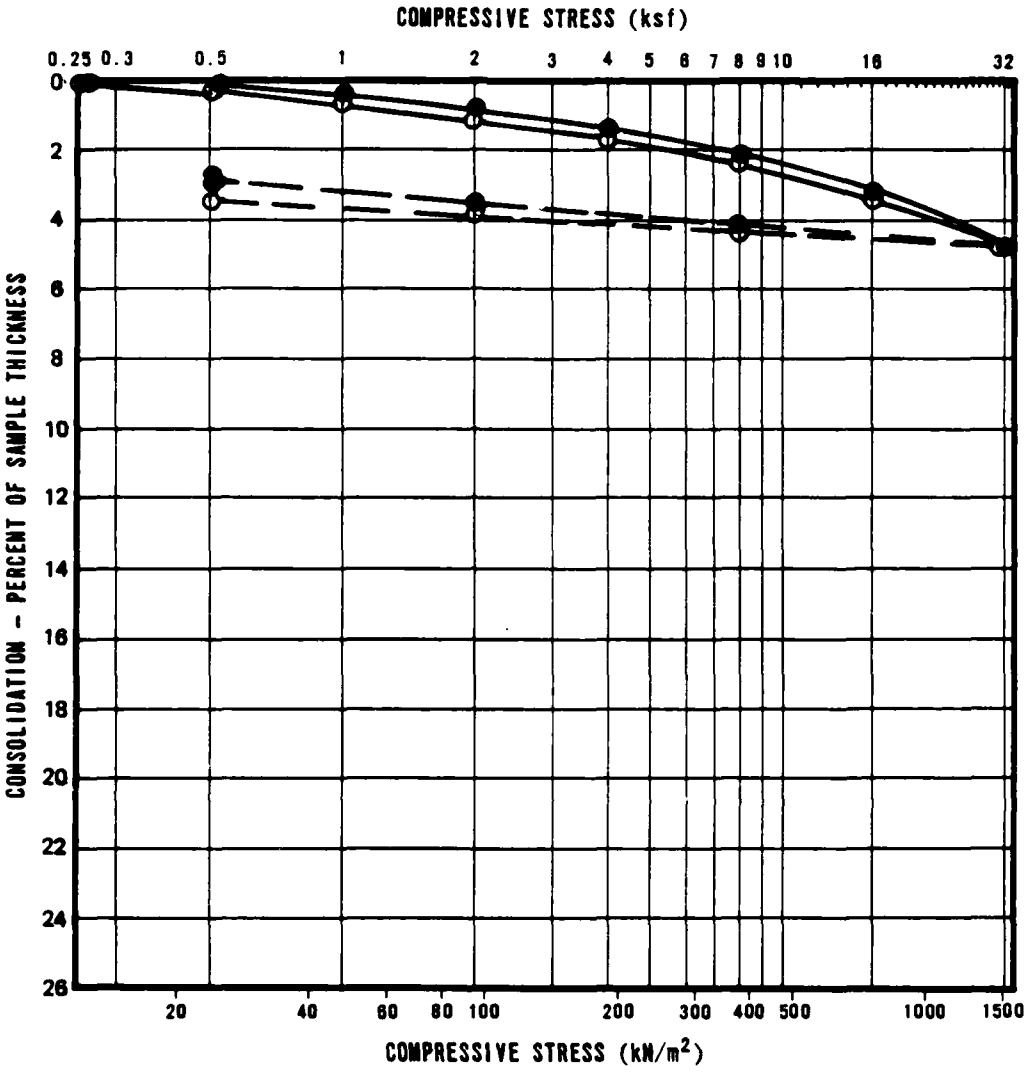
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
3 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
○,●	BL-B-4	P-9	35.0 - 35.7	10.67 - 10.88	SM	103.1	1652	19.5	0.57	88.6
⊕,●	BL-B-4	P-9	35.7 - 35.8	10.88 - 10.91	SM	103.7	1661	16.8	0.56	77.7

⊕, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

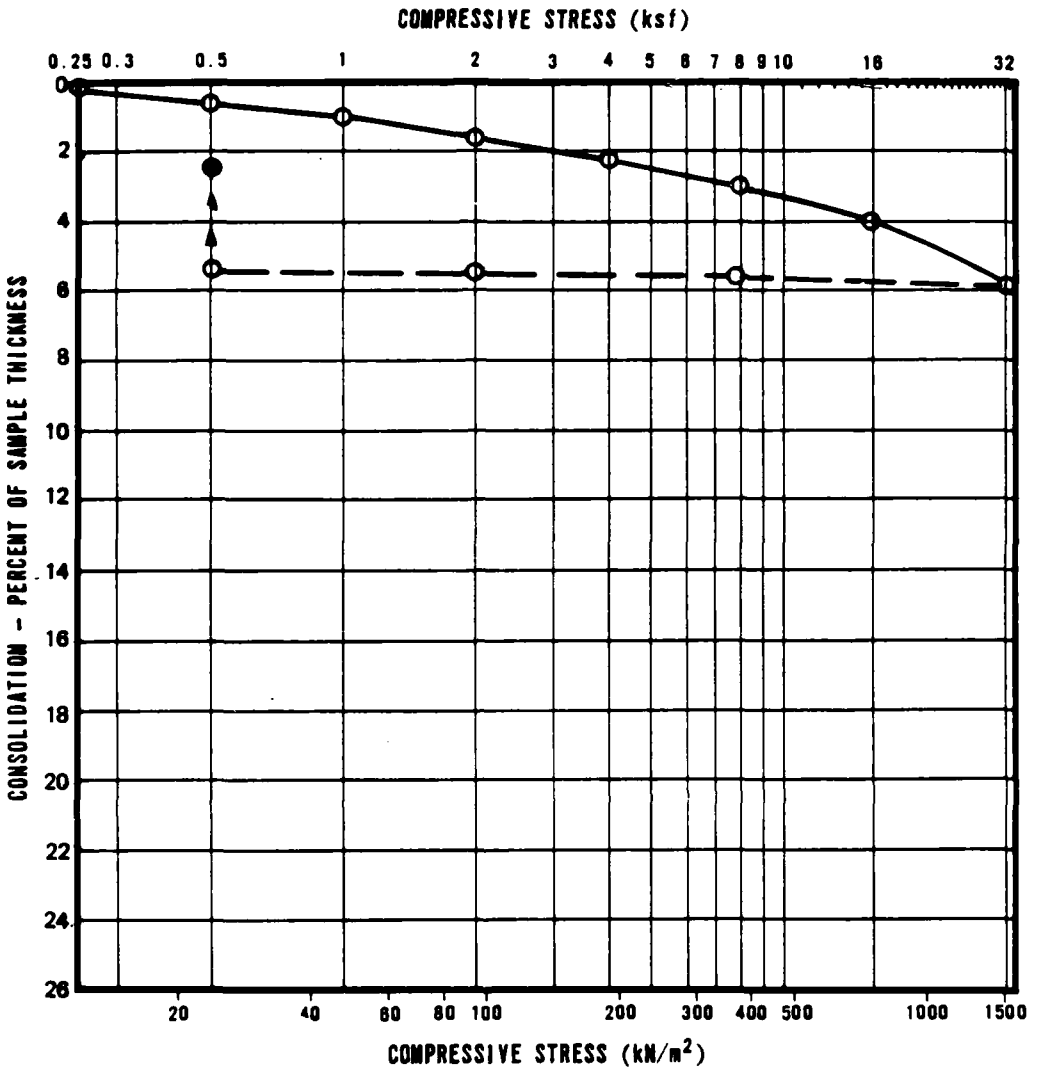
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
4 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
O, ●	BL-B-6	D-8	30.2 - 31.0	9.20 - 9.45	SM	101.8	1631	12.1	0.66	49.5

●, O AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

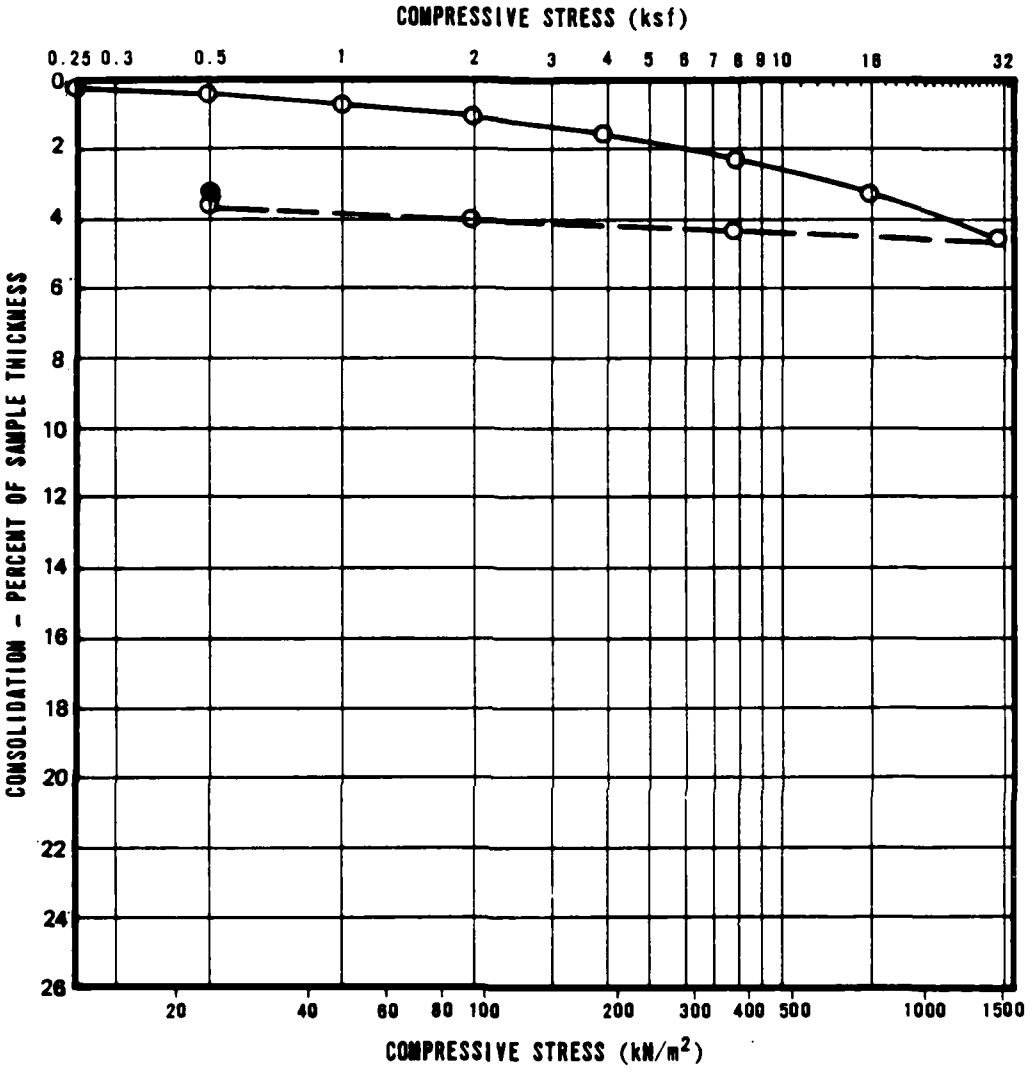
— — — REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
5 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
⊕, ●	BL-B-7	P-10	36.3 - 36.6	11.06 - 11.15	CL	111.1	1780	11.3	0.52	58.7

⊕, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

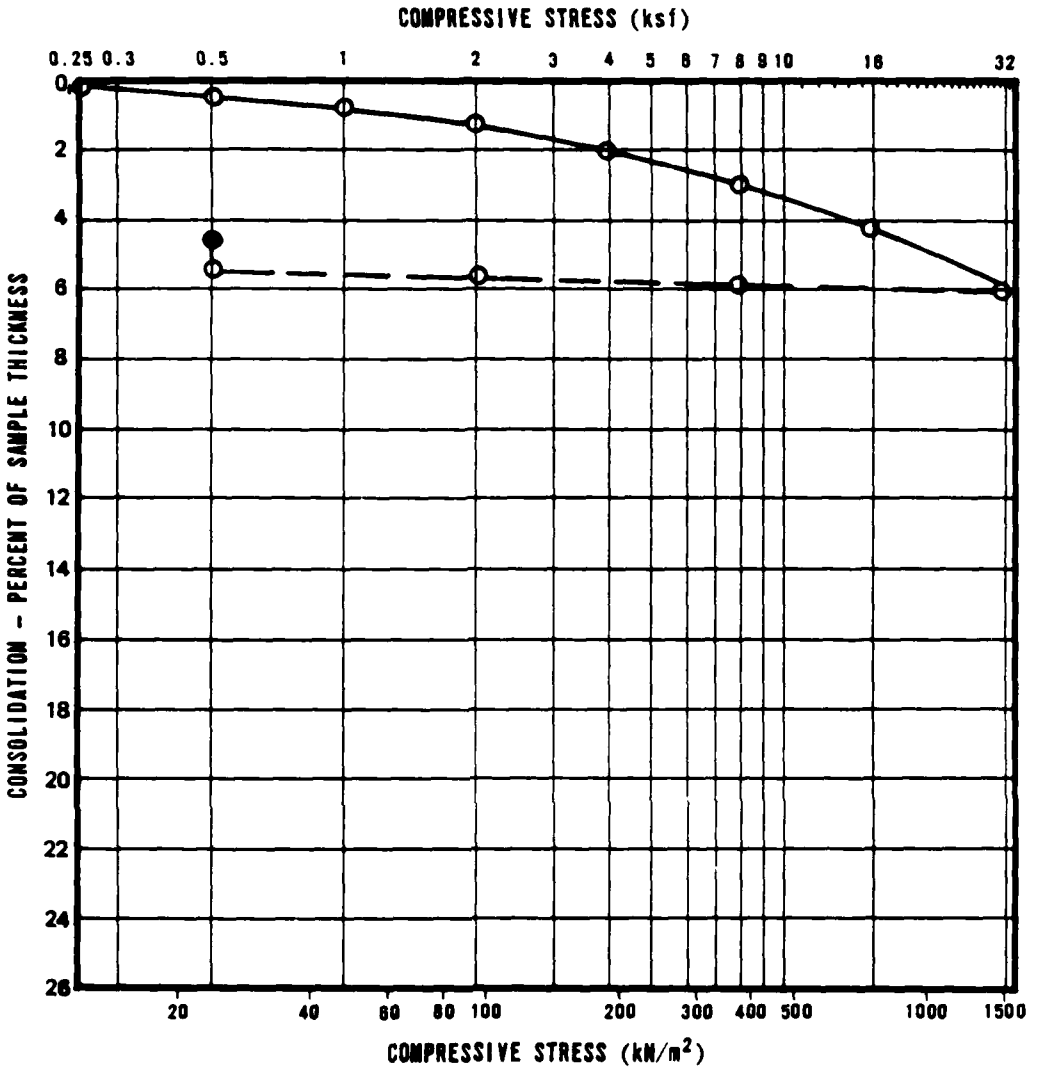
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
6 OF 9

UGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
⊕ ○ ●	BL-B-8	P-11	25.8 - 26.2	7.86 - 7.98	SM	101.9	1632	14.7	0.62	62.8

⊕ ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

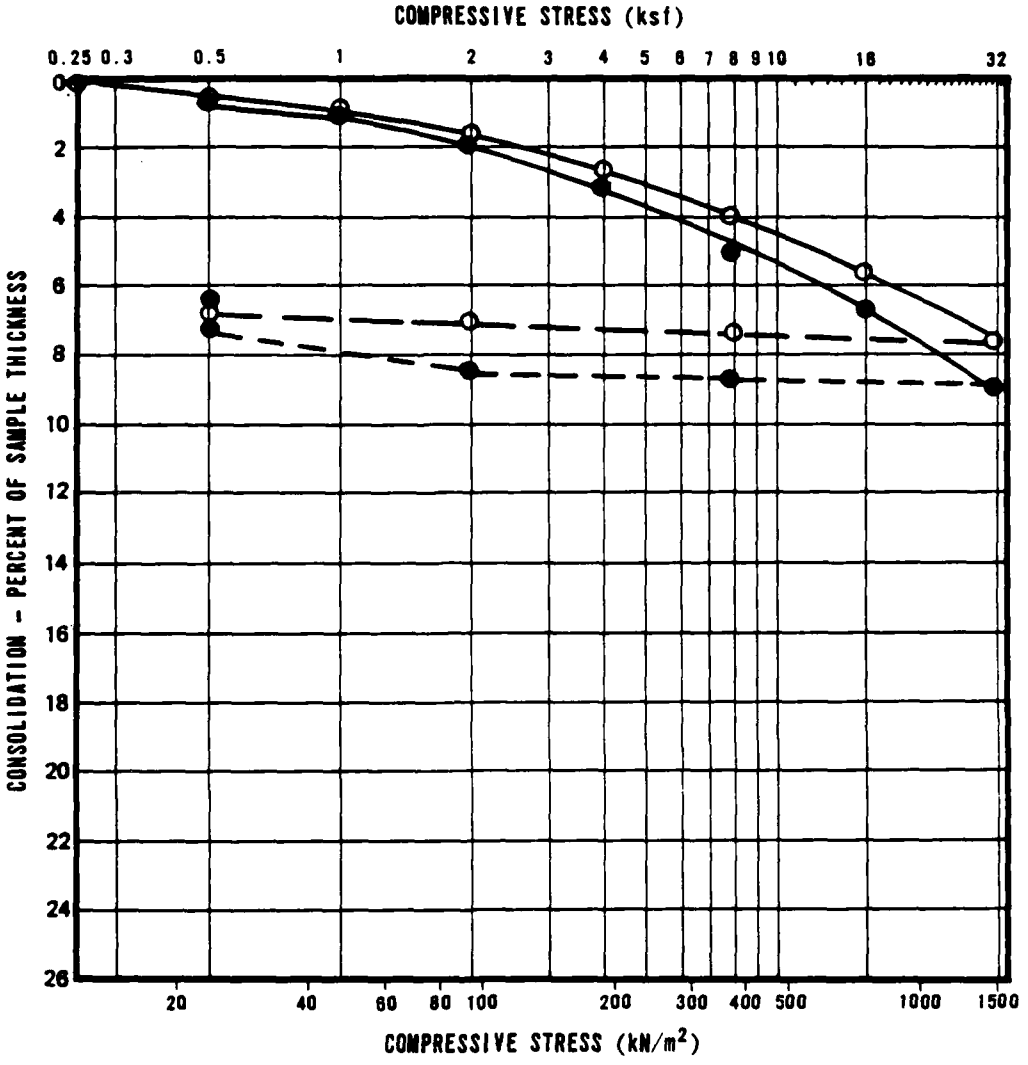
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
7 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
○, ●	BL-B-8	P-16	50.3 - 50.9	15.33 - 15.51	SM	98.3	1575	11.5	0.71	43.7
⊕, ●	BL-B-8	P-16	50.3 - 50.9	15.33 - 15.51	SM	102.1	1636	10.1	0.65	42.0

⊕, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

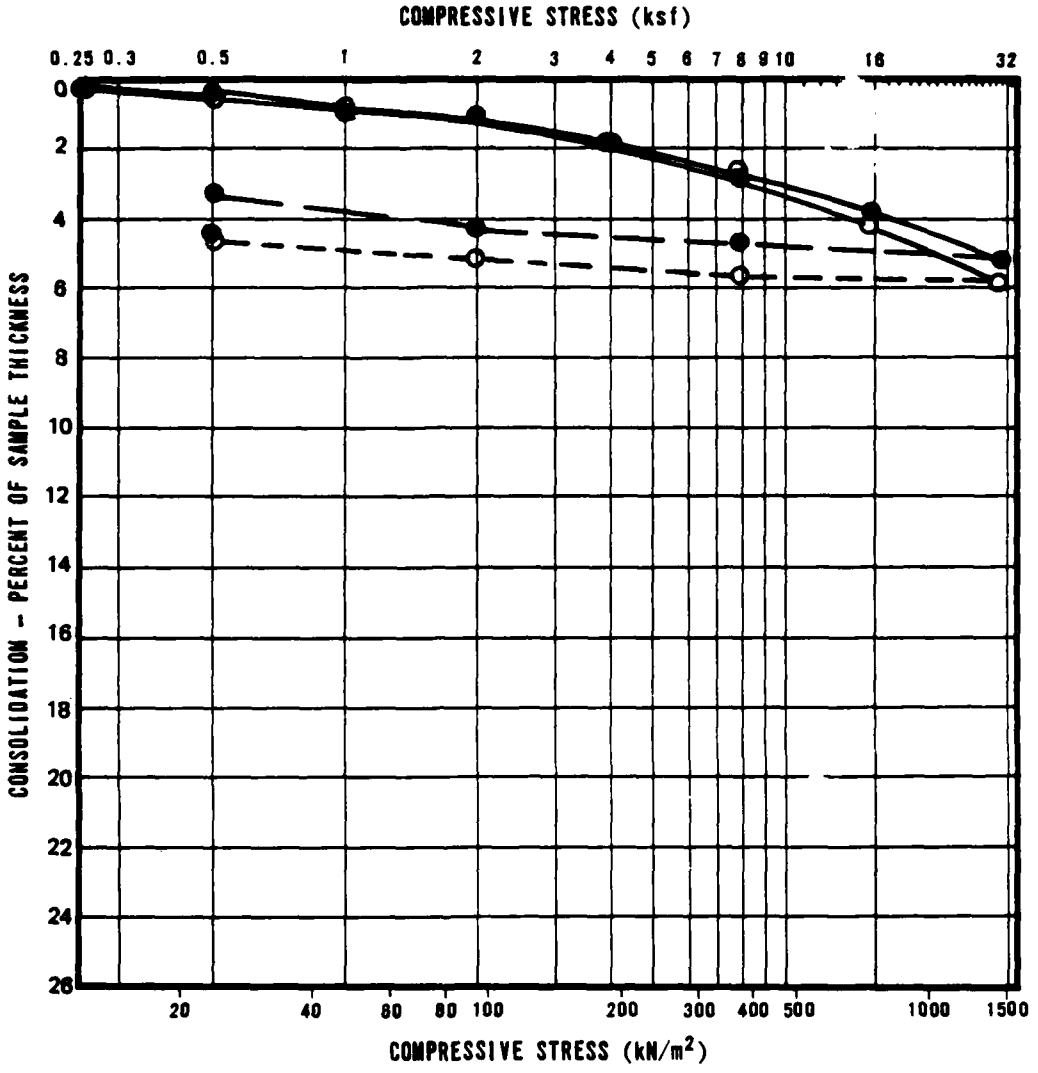
– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-3
8 OF 9

FUGRO NATIONAL, INC.



SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	INITIAL DRY DENSITY		INITIAL MOISTURE CONTENT (%)	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION (%)
			FEET	METERS		pcf	kg/m³			
○,●	BL-8-8	P-19	80.1 - 80.8	24.41 - 24.63	SM	100.3	1607	19.2	0.68	76.2
⊕,●	BL-8-8	P-19	80.1 - 80.8	24.41 - 24.63	SM	103.2	1653	17.7	0.63	75.9

●, ○ AT FIELD MOISTURE

● AFTER ADDITION OF WATER

——— COMPRESSION

– – – REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-3
9 OF 9

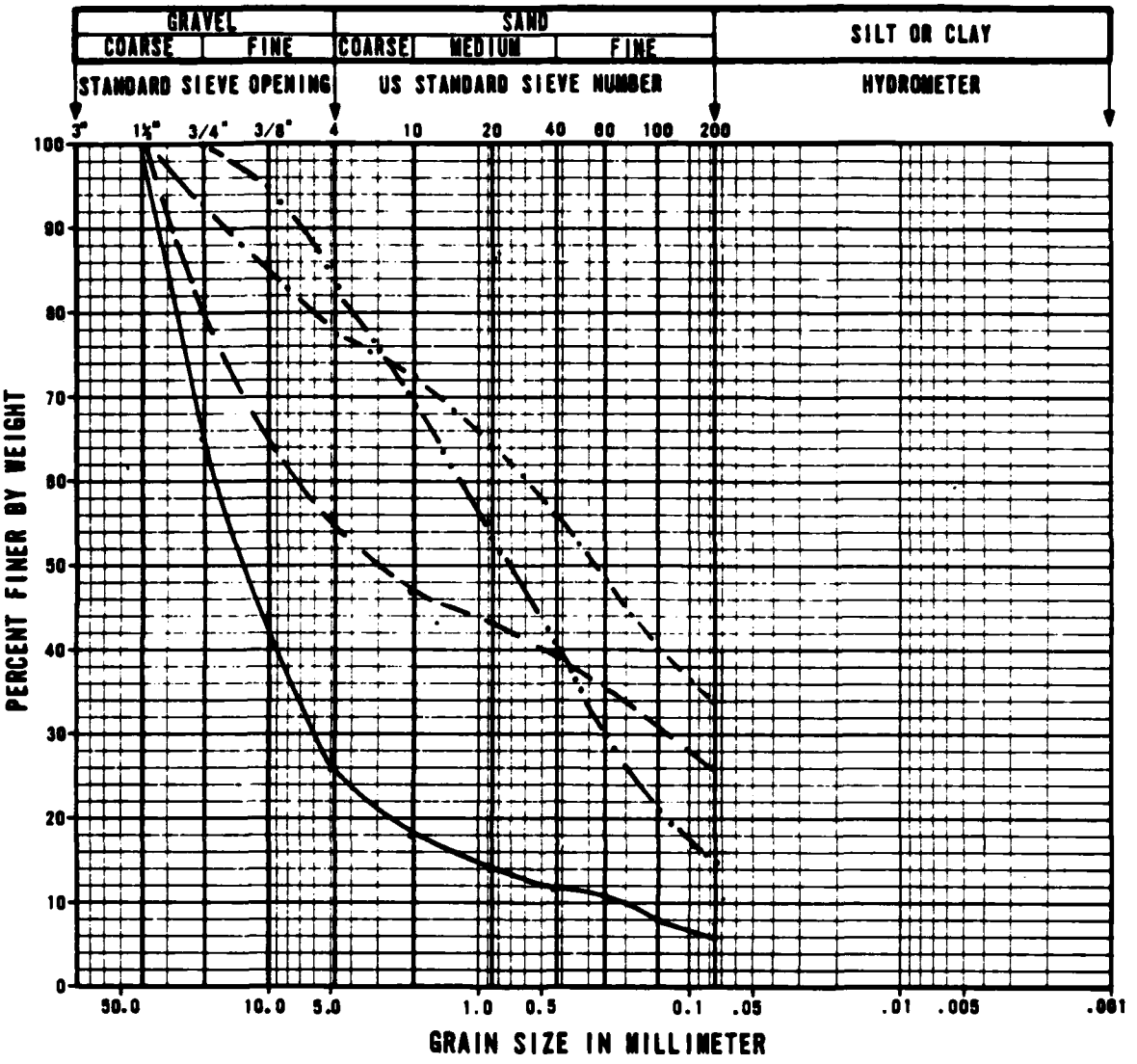
FUGRO NATIONAL, INC.

ACTIVITY NO.	SAMPLE NO.	SAMPLE INTERVAL		SOIL TYPE	pH	WATER SOLUBLE				CALCIUM CARBONATE
		FEET	METERS			SODIUM	CHLORIDE	SULPHATE	CALCIUM	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BL-B-1	D-7	25.2 - 26.0	7.68 - 7.92	SW-SM	9.4	227	78	36	12	125
BL-B-4	P-1	0.5 - 1.5	0.15 - 0.46	ML	8.6	60	127	22	147	444
	D-12	49.2 - 50.0	15.00 - 15.24	SM*	9.1	52	31	31	59	306
BL-B-5	D-4	9.1 - 9.9	2.77 - 3.02	GW-GM	8.7	187	454	109	121	1140
BL-B-7	D-7	19.1 - 19.9	5.82 - 6.07	SP-SM	8.4	193	291	1440	95	368
BL-B-8	D-18	70.2 - 71.0	21.40 - 21.64	SM	9.4	400	47	34	27	335
BL-B-10	D-9	36.2 - 36.0	10.73 - 10.97	SM	8.6	96	92	37	48	261
BL-T-8	b-2	4.0 - 5.0	1.22 - 1.52	SC	9.2	508	367	53	48	214
BL-T-10	b-2	4.0 - 5.0	1.22 - 1.52	GP-GM	9.0	32	26	48	65	289
BL-T-17	B-1	0.5 - 0.2	0.15 - 0.61	CL	8.2	1780	261	157	2420	7175
BL-P-1	B-1	0.5 - 2.0	0.15 - 0.61	SM-SC	8.4	100	48	37	21	138
BL-P-2	b-2	4.0 - 5.0	1.22 - 1.52	SP	9.4	180	47	38	42	271

SUMMARY OF CHEMICAL TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

TABLE II-5-3



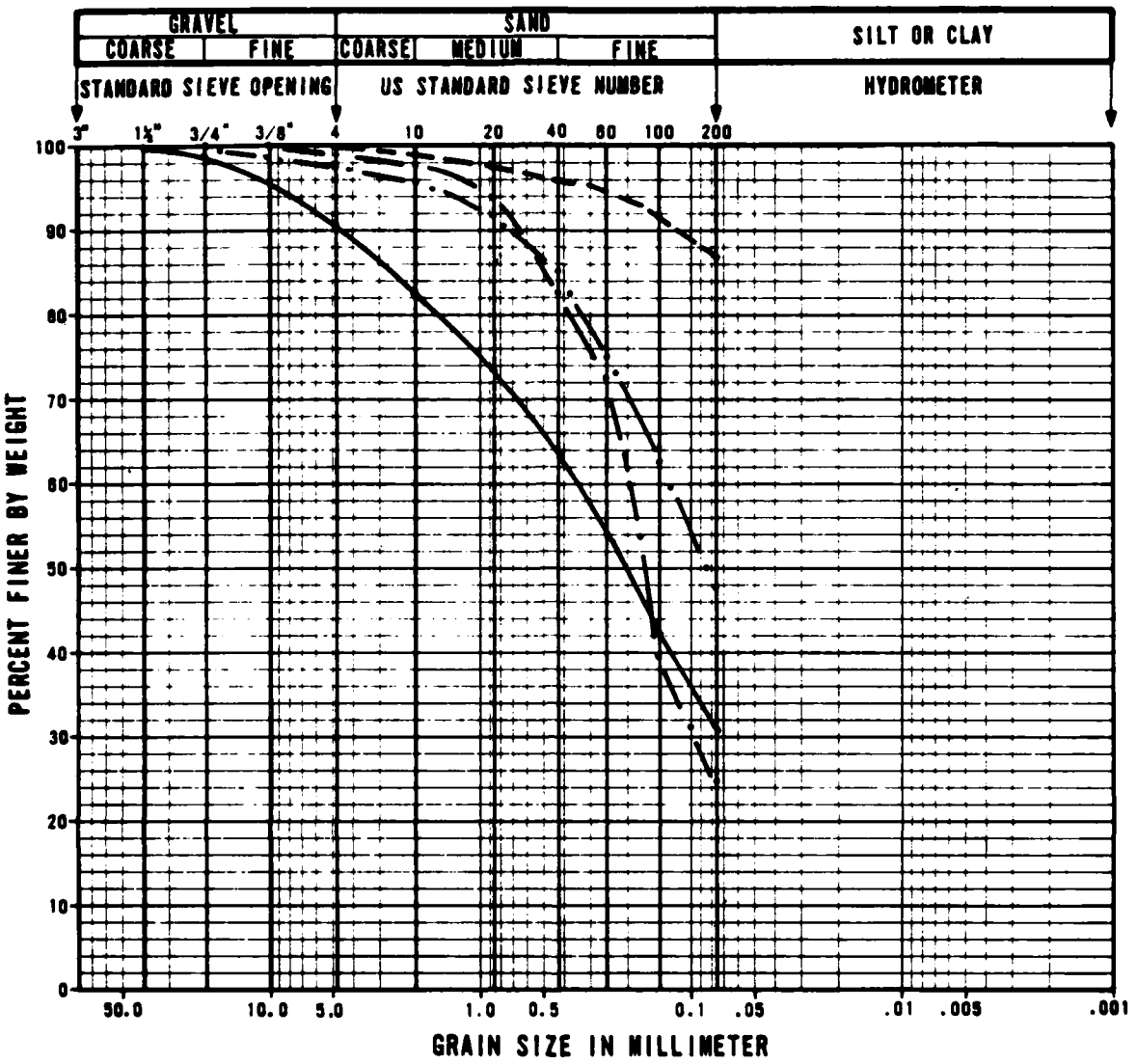
SYMBOL	COMPOSITE SAMPLE NUMBER	ACTIVITY NUMBER	SAMPLE INTERVAL		SOIL TYPE
			FEET	METERS	
——	A	BL-T-2	0.5 - 2.0	0.15 - 0.61	GP-GM
— —	B	BL-T-3	0.5 - 2.0	0.15 - 0.61	GM
—·—	C	BL-T-4	0.5 - 2.0	0.15 - 0.61	SM
—··—	D	BL-T-29	0.5 - 2.0	0.15 - 0.61	SM

GRAIN SIZE CURVES, CBR TESTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-4
1 OF 2

FUGRO NATIONAL, INC.



SYMBOL	COMPOSITE SAMPLE NUMBER	ACTIVITY NUMBER	SAMPLE INTERVAL		SOIL TYPE
			FEET	METERS	
——	E	BL-P-10	0.5 - 2.0	0.15 - 0.61	SM
— —	F	BL-P-12	0.5 - 2.0	0.15 - 0.61	ML
—·—	G	BL-P-15	0.5 - 2.0	0.15 - 0.61	SM
—··—	H	BL-P-21	0.5 - 2.0	0.15 - 0.61	SM

GRAIN SIZE CURVES, CBR TESTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-4
2 OF 2

USBRO NATIONAL, INC.

COMPOSITE SAMPLE NUMBER	SOIL TYPE	PERCENT PASSING #200	ATTERBERG LIMITS		SPECIFIC GRAVITY	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	COMPACTED DRY DENSITY		COMPACTED MOISTURE (%)	PERCENT OF MAXIMUM DRY DENSITY	CBR (%)
			LL	PI		pcf	kg/m³		pcf	kg/m³			
A	GP-GM	6				125.5	2011	11.0	123.0	1970	11.3	98.0	171
									116.5	1866	11.5	92.8	83
									112.0	1794	12.4	89.2	77
B	GM	26	51	18		115.0	1842	15.0	111.5	1786	16.8	97.0	45
									108.4	1737	16.6	94.3	39
									100.0	1602	15.7	87.0	9
C	SM	34	41	15		118.8	1903	11.8	118.1	1892	11.8	99.4	16
									113.1	1812	11.9	95.2	10
									107.5	1722	12.7	90.5	6
D	SM	15				122.9	1969	11.4	118.9	1905	11.4	96.7	41
									113.0	1810	11.7	91.9	16
									106.4	1705	11.5	86.6	3

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

TABLE II-54 1 OF 2

WOODWARD-CLYDE CONSULTANTS

USAF -40

COMPOSITE SAMPLE NUMBER	SOIL TYPE	PERCENT PASSING #200	ATTERBERG LIMITS		SPECIFIC GRAVITY	MAXIMUM DRY DENSITY		OPTIMUM MOISTURE (%)	COMPACTED DRY DENSITY		COMPACTED MOISTURE (%)	PERCENT OF MAXIMUM DRY DENSITY	CBR (%)
			LL	PI		pcf	kg/m³		pcf	kg/m³			
E	SM	31				125.2	2006	9.8	121.7	1950	10.4	97.2	66
									116.5	1866	10.4	93.1	22
									111.6	1788	10.5	89.1	9
F	ML	87	32	8		112.6	1804	16.4	109.1	1748	17.3	96.9	7
									103.3	1655	17.6	91.7	4
									96.5	1546	17.2	85.7	2
G	SM	25				125.0	2003	10.9	122.2	1958	11.1	97.8	87
									118.3	1895	11.1	94.6	43
									110.7	1773	11.1	88.6	14
H	SM	48				122.5	1962	11.5	116.8	1871	11.6	95.3	26
									110.8	1775	11.9	90.4	13
									103.2	1653	12.3	84.2	4

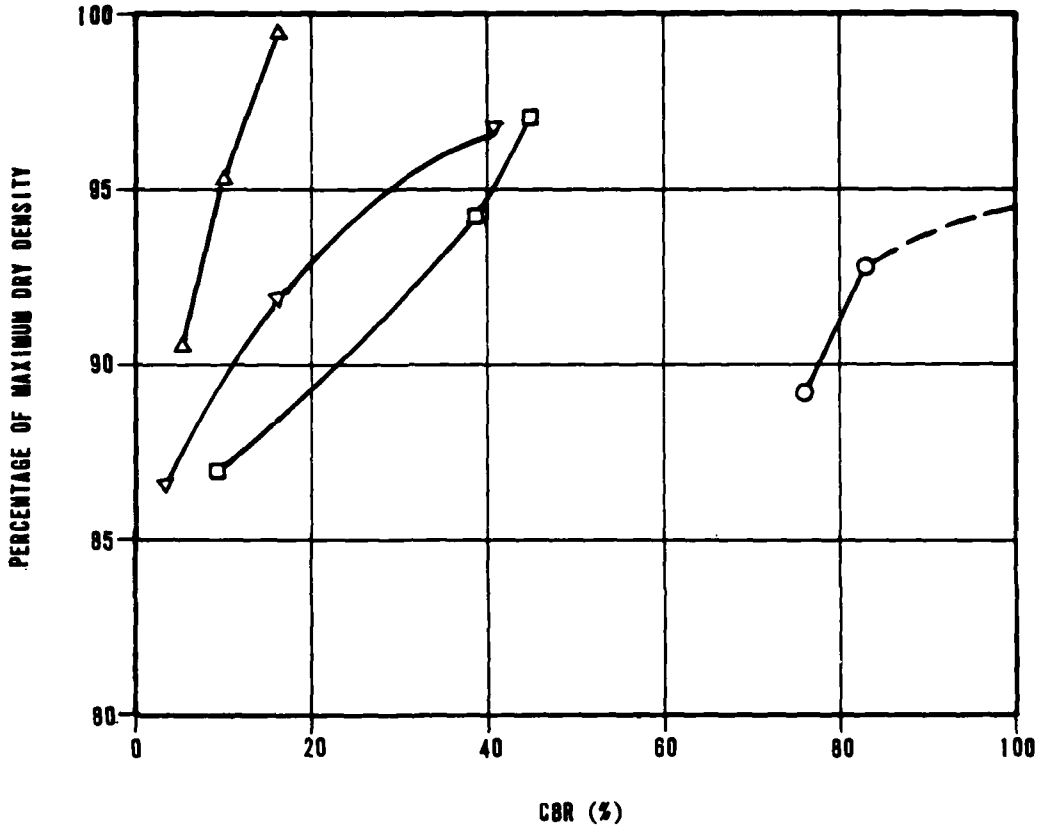
CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - [redacted]

TABLE II-5-4
2 OF 2

WOODWARD-CLYDE CONSULTANTS

USAF -80



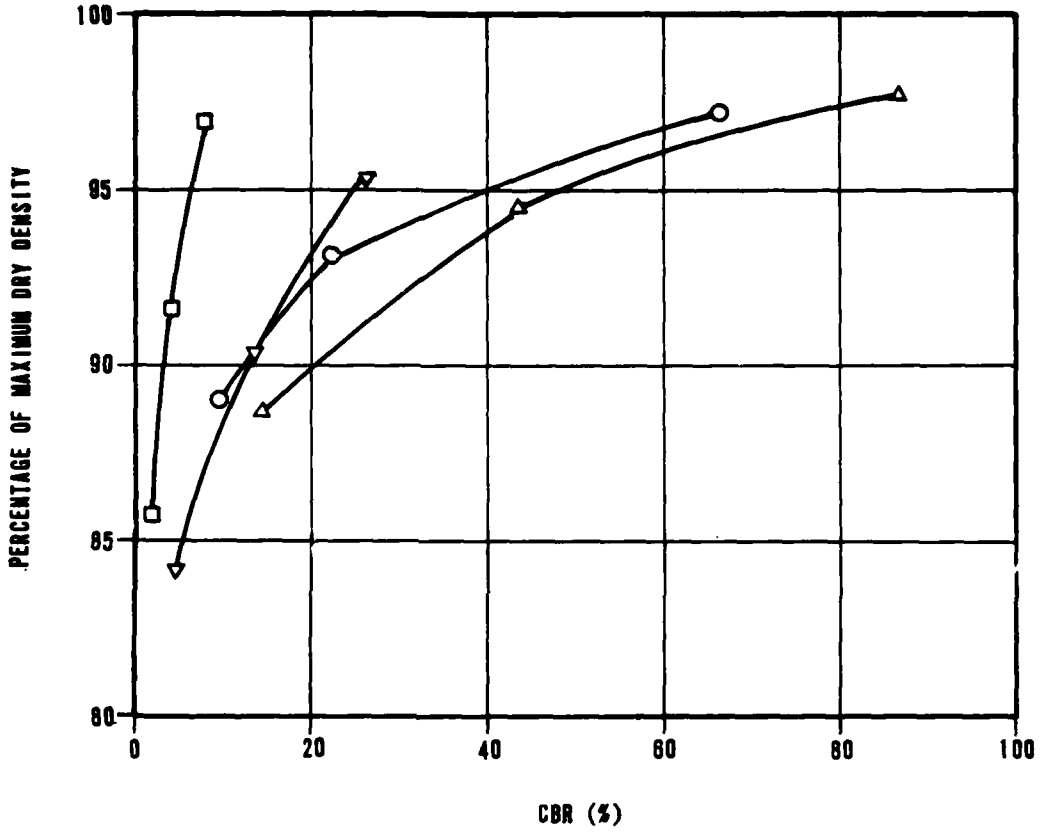
SYMBOL	COMPOSITE SAMPLE NUMBER	SOIL TYPE
○	A	GP-GM
□	B	GM
△	C	SM
▽	D	SM

CALIFORNIA BEARING RATIO (CBR) CURVES
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-5-5
1 OF 2

FUGRO NATIONAL, INC.



SYMBOL	COMPOSITE SAMPLE NUMBER	SOIL TYPE
○	E	SM
□	F	ML
△	G	SM
▽	H	SM

CALIFORNIA BEARING RATIO (CBR) CURVES
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-5-5 2 OF 2

FUGRO NATIONAL, INC.

SECTION 6.0

EXPLANATION OF CONE PENETROMETER TEST RESULTS

6.0 EXPLANATION OF CONE PENETROMETER TEST RESULTS

The results of all cone penetrometer tests are presented in this section. Explanations of the test results are as follows:

A. Friction Resistance - The resistance to penetration developed by the friction sleeve, equal to the vertical force applied to the sleeve divided by its surface area. This resistance is the sum of friction and adhesion.

B. Cone Resistance - The resistance to penetration developed by the cone, equal to the vertical force applied to the cone, divided by its horizontally projected area.

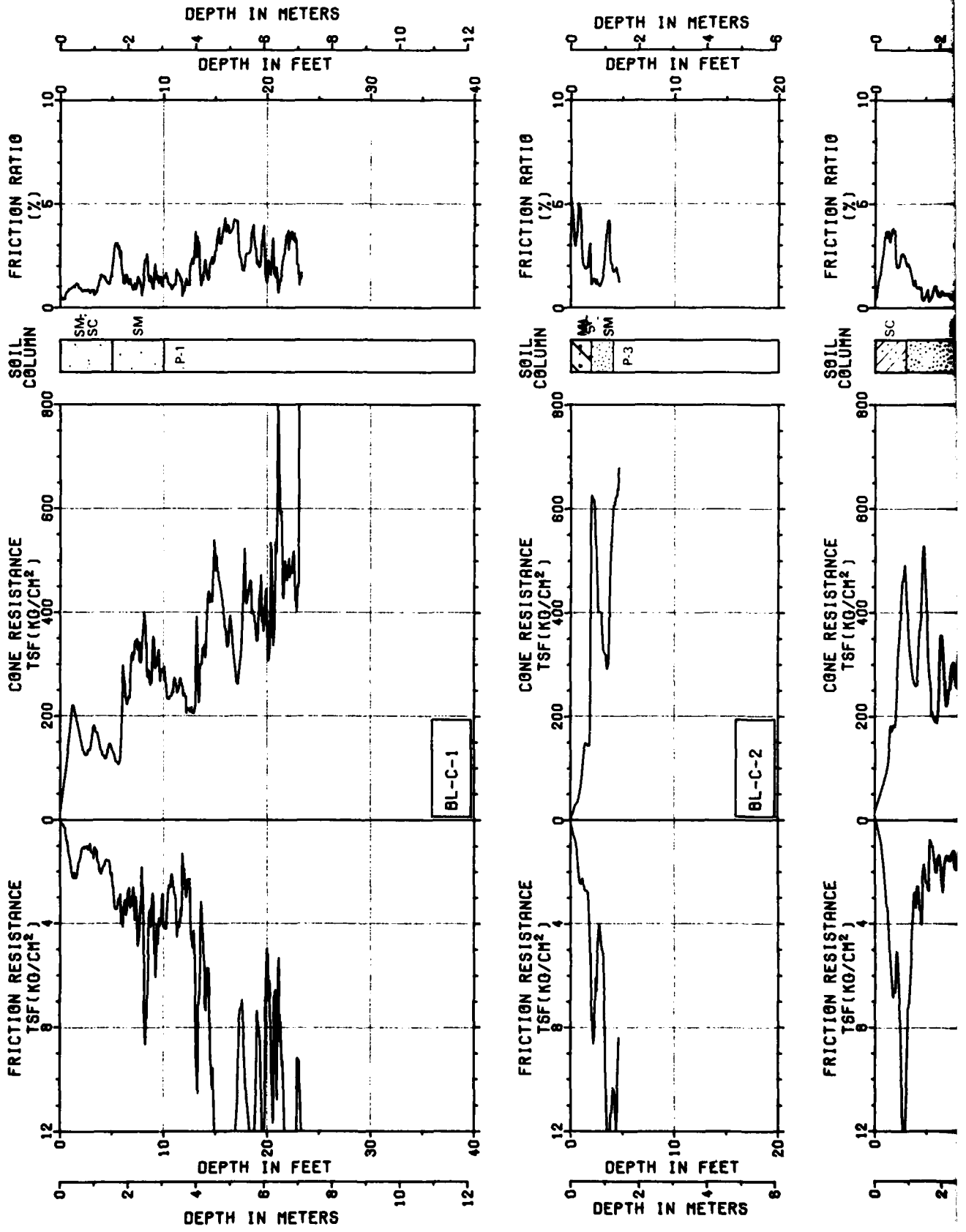
C. Friction Ratio - The ratio of friction resistance to cone resistance.

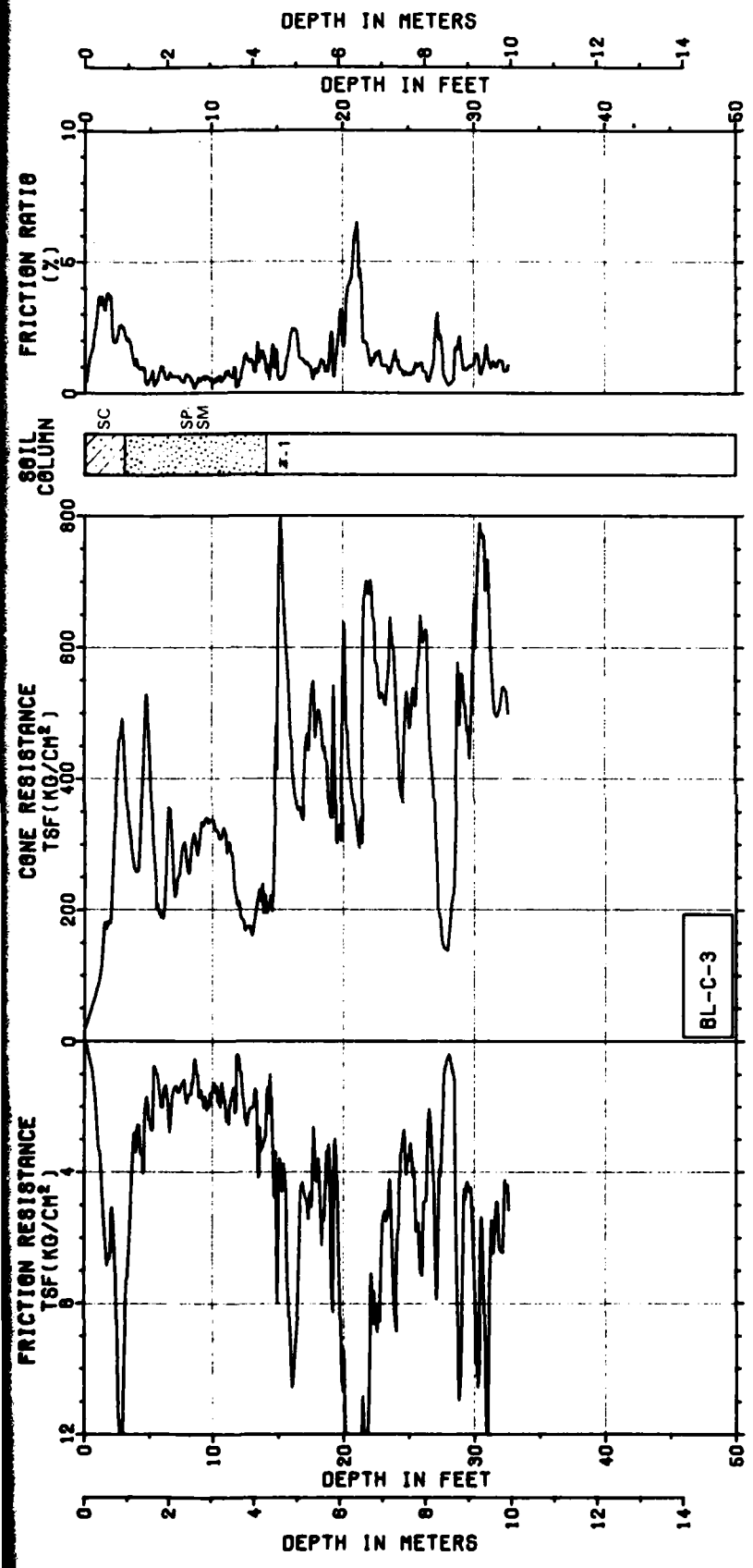
D. Designation - Each cone penetrometer test is identified by a number: for example BL-C-1.

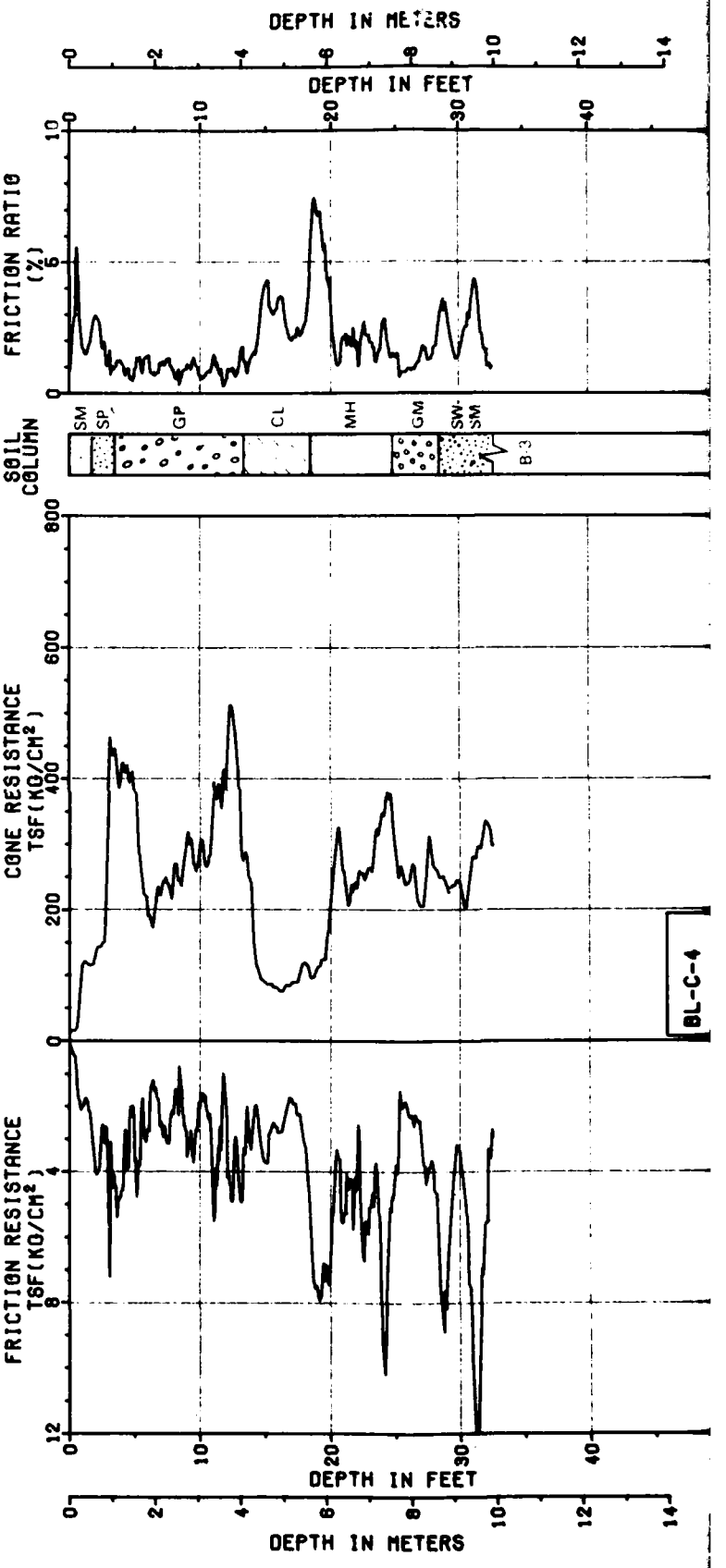
BL	- abbreviation for the site (e.g., BL-Beryl)
C	- abbreviation for the CPT
1	- number of the test

E. Soil Column - A graphical presentation of the soil type versus depth at each cone penetrometer test location where either a boring, trench, or test pit was performed. The Unified Soil Classification Symbol for each different soil type is listed immediately to the right of the soil column.

Immediately below the soil column, the activity number for the corresponding boring, trench, or test pit at each CPT location is given.

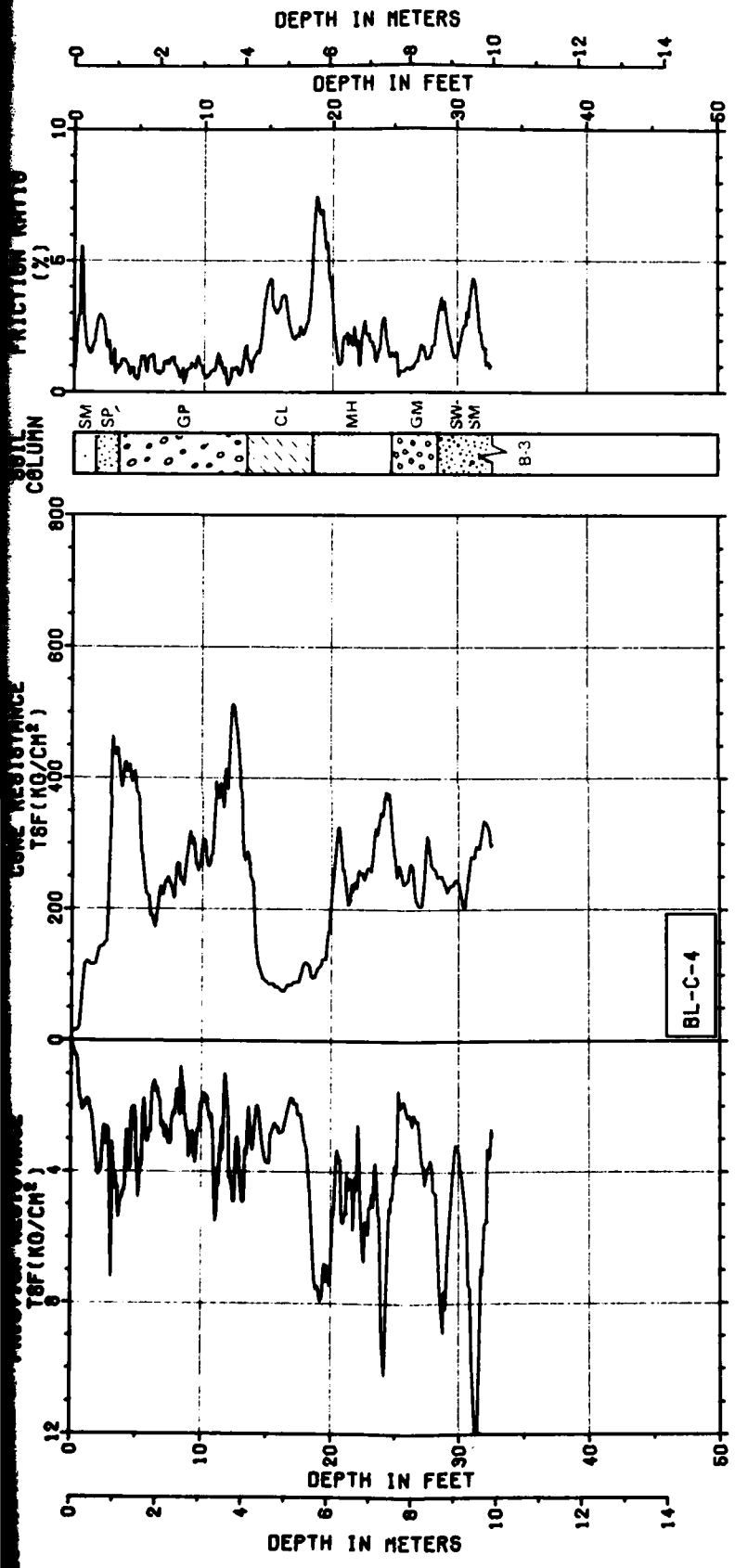

DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM-SC
SM
P-1
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-1
BL-C-2
P-3
SC


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SC
SP-SM
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-3
DEPTH IN FEET
DEPTH IN METERS


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SP
GP
CL
MH
GM
SW-SM
B-3
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-4
DEPTH IN FEET
DEPTH IN METERS

1

2



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

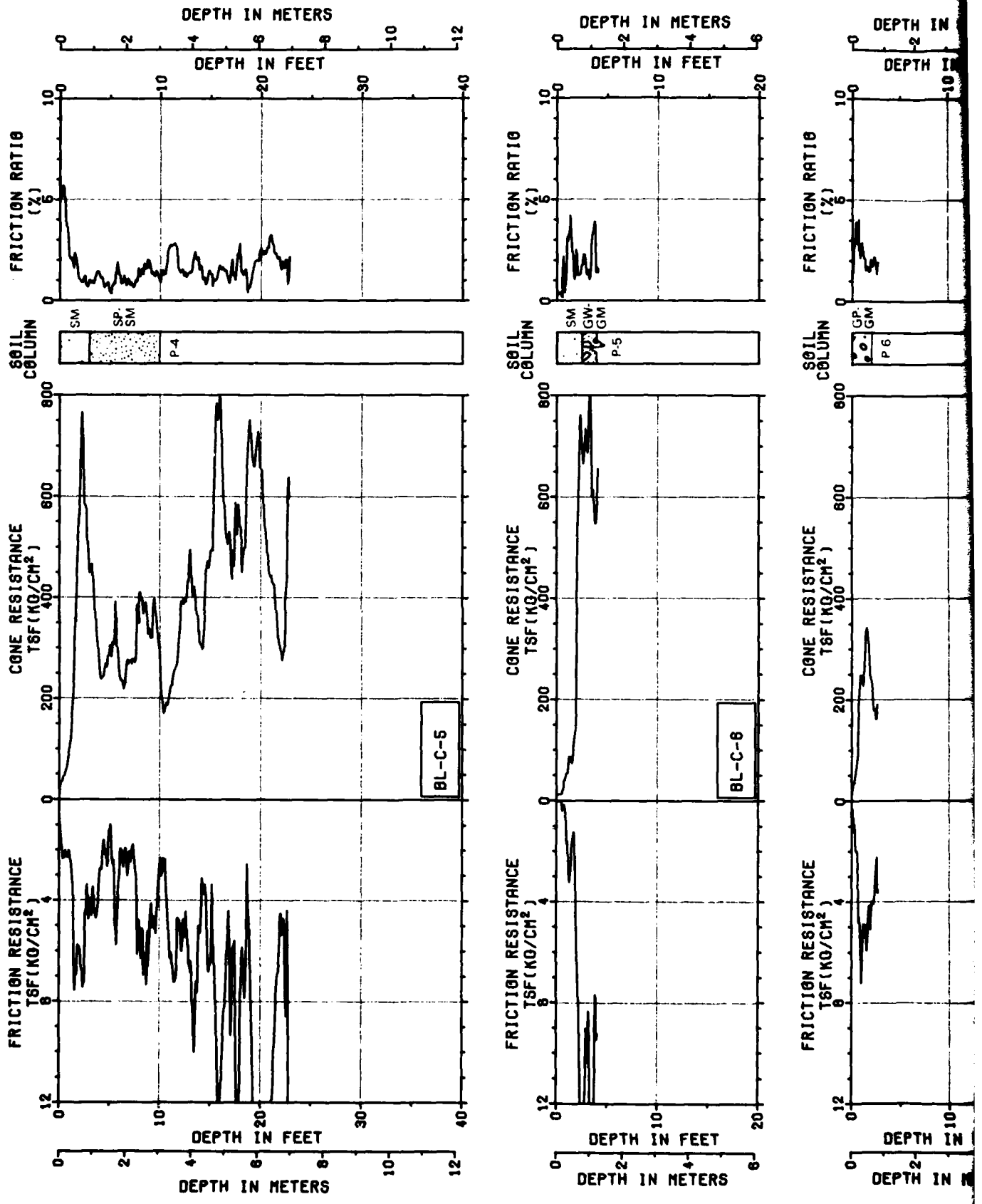
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

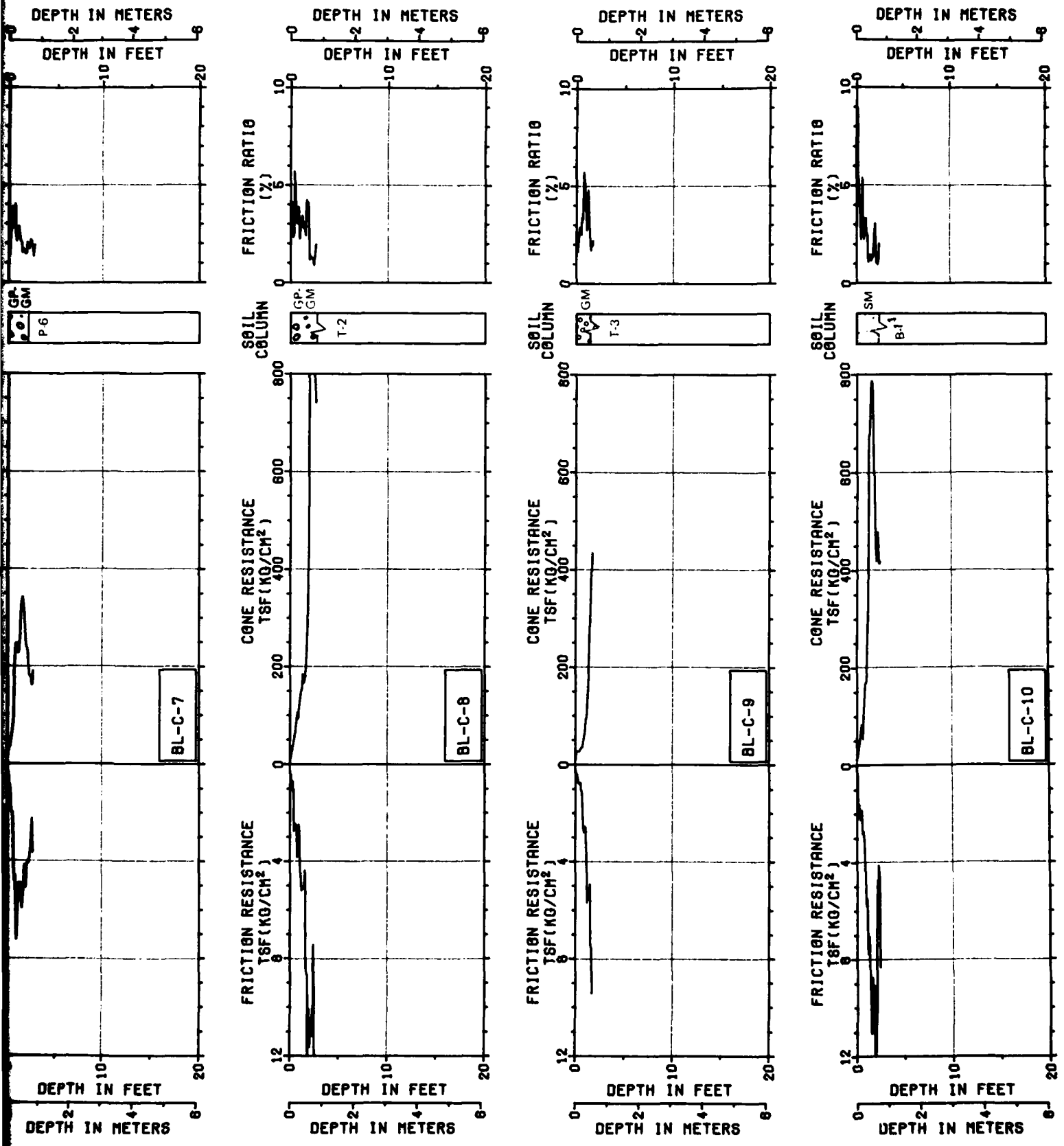
FIGURE
II-6-1
1 OF 15

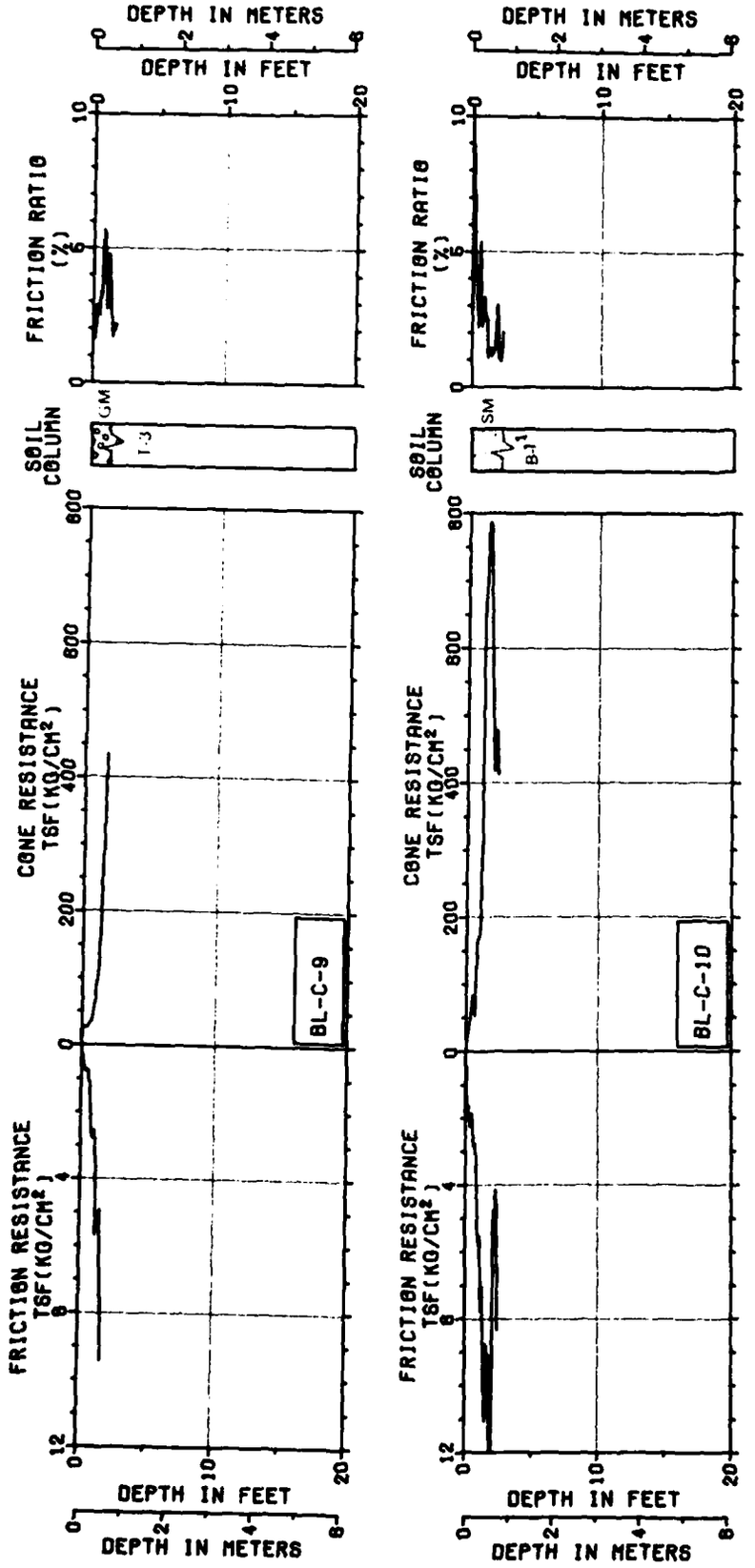
FUGRO NATIONAL, INC.

1

3


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SP-SM
P-4
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-5
DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
GW-GM
P-5
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-6
DEPTH IN
DEPTH IN
FRICTION RATIO (%)
SOIL COLUMN
GP-GM
P 6
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
DEPTH IN
DEPTH IN


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
GP-GM
P-6
T-2
T-3
SM
B-1
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-7
BL-C-8
BL-C-9
BL-C-10

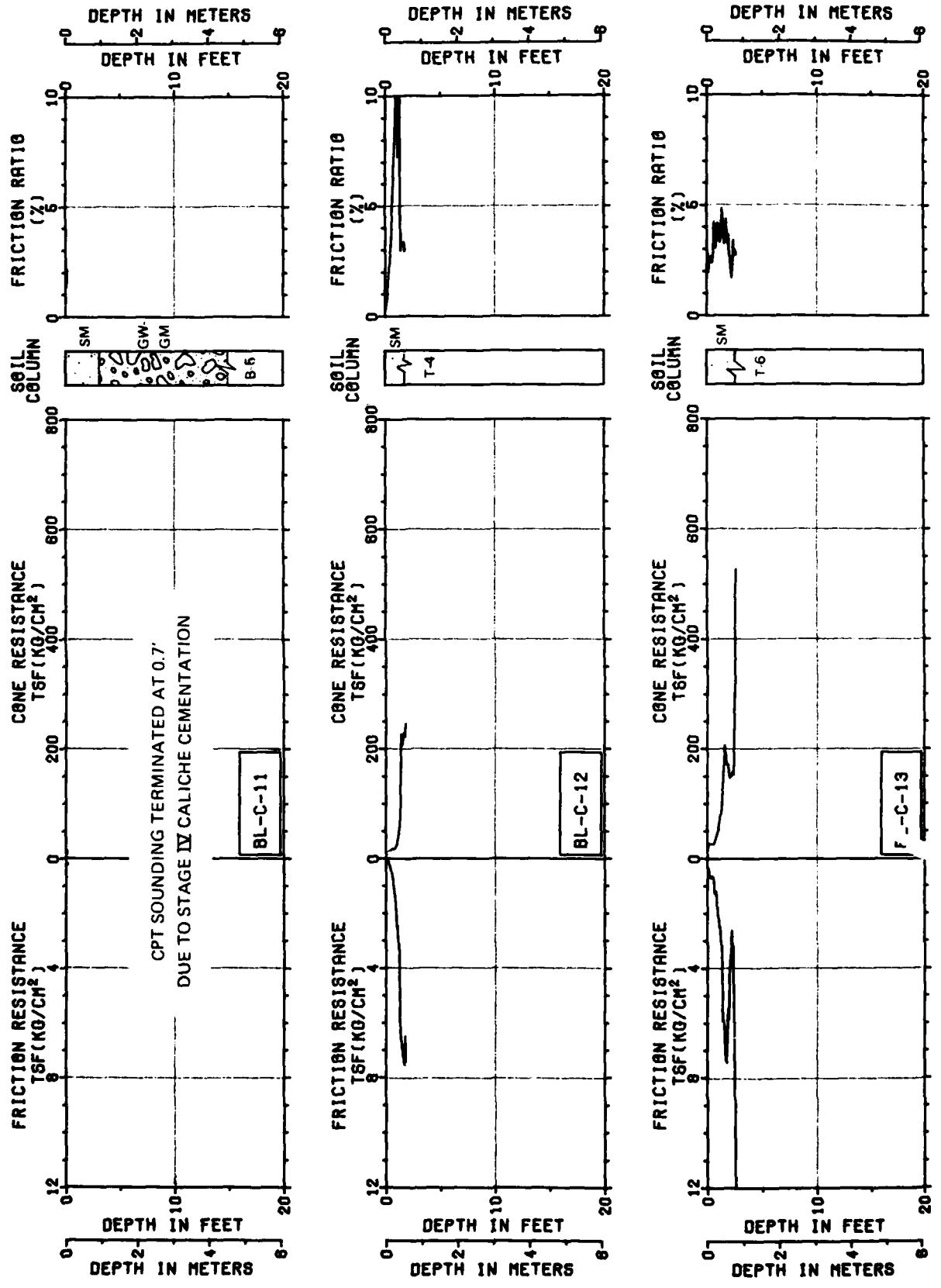


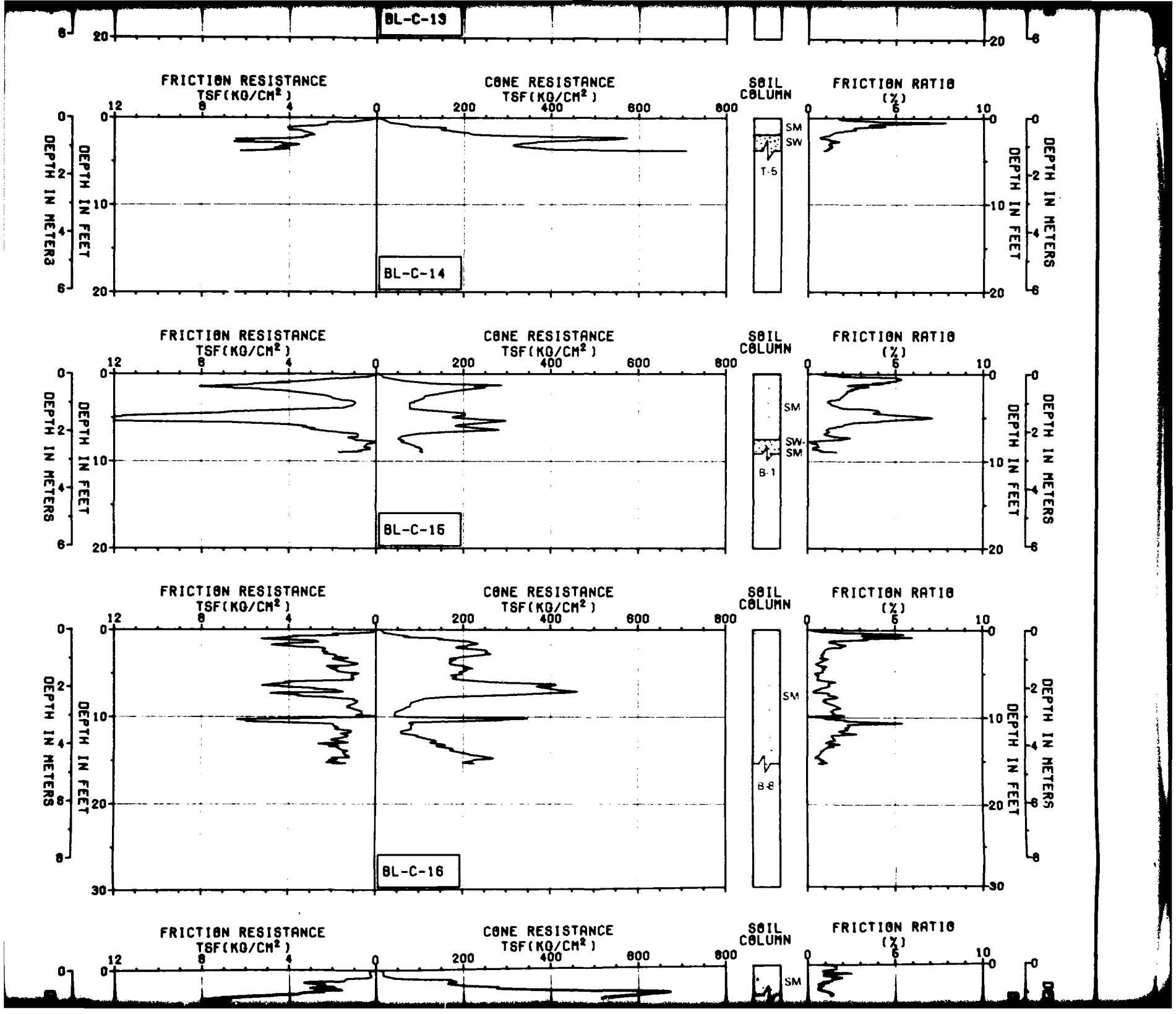
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

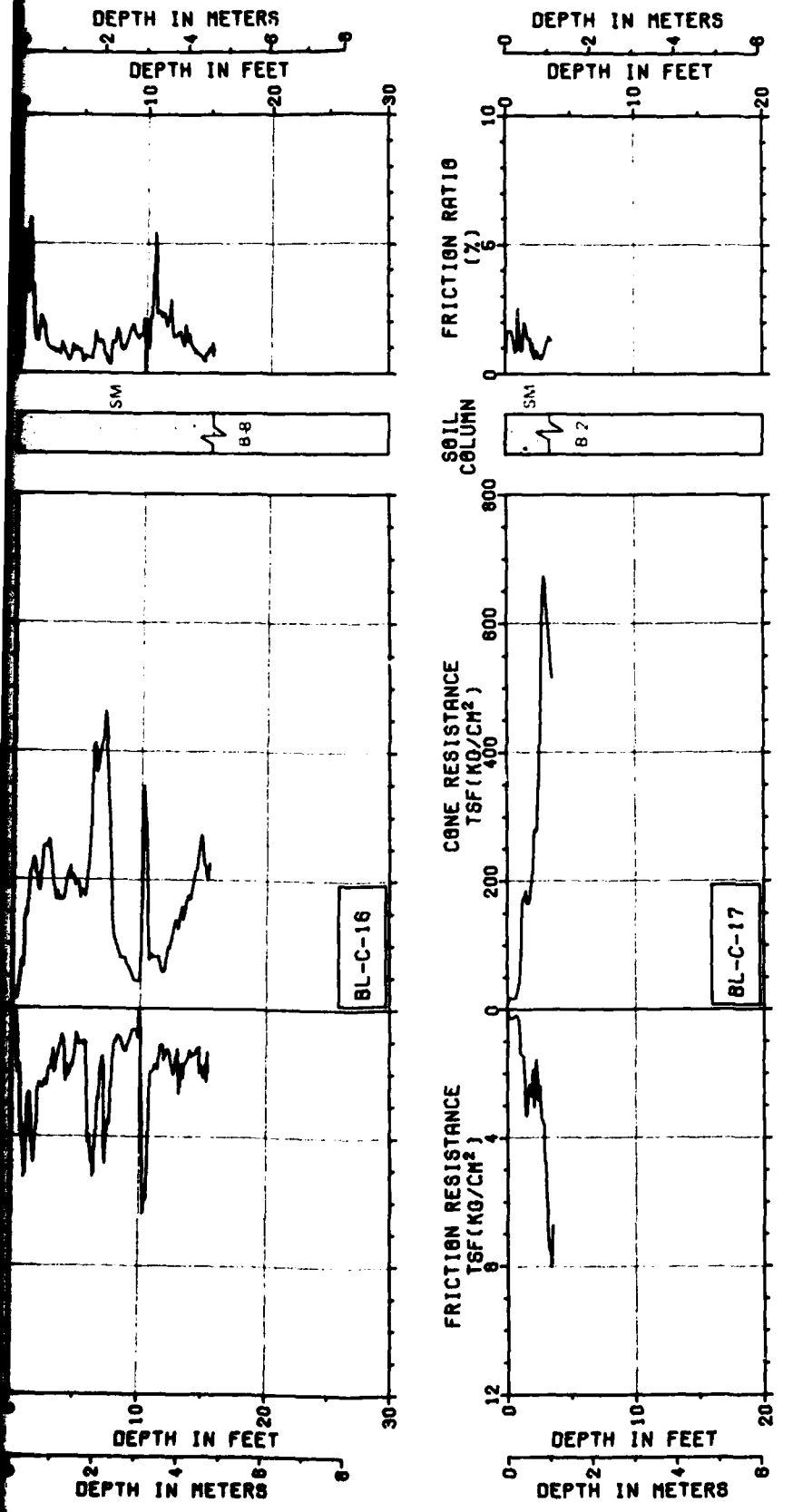
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-6-1
2 OF 15

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
GW-GM
B-5
T-4
T-6
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
CPT SOUNDING TERMINATED AT 0.7' DUE TO STAGE IV CALICHE CEMENTATION
BL-C-11
BL-C-12
F_-C-13


BL-C-13
FRICTION RESISTANCE TSF(KG/CM²)
CONE RESISTANCE TSF(KG/CM²)
SOIL COLUMN
FRICTION RATIO (%)
DEPTH IN METERS
DEPTH IN FEET
BL-C-14
SM
SW
T-5
BL-C-15
SM
SW-SM
B-1
BL-C-16
SM
B-8
SM

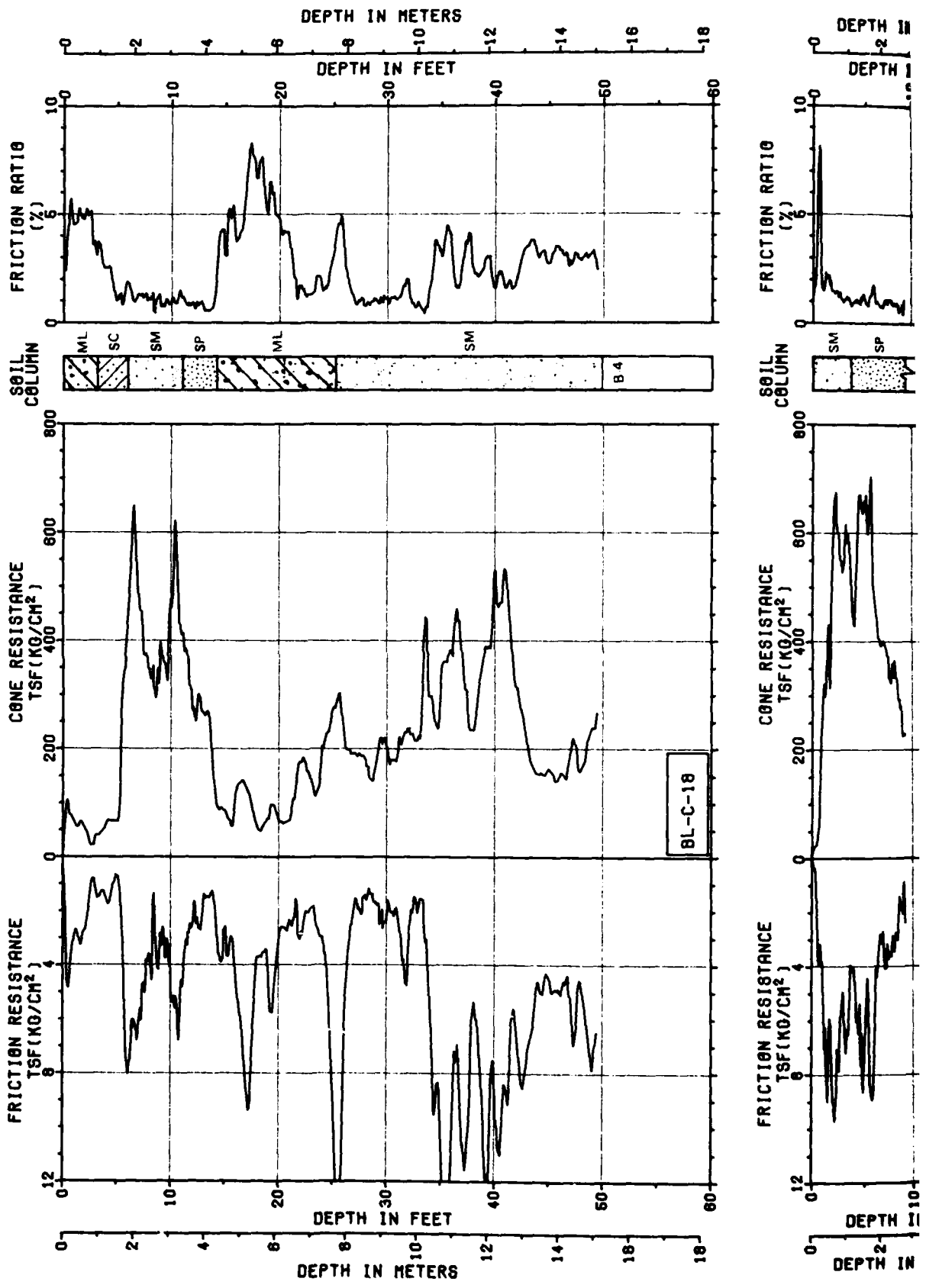


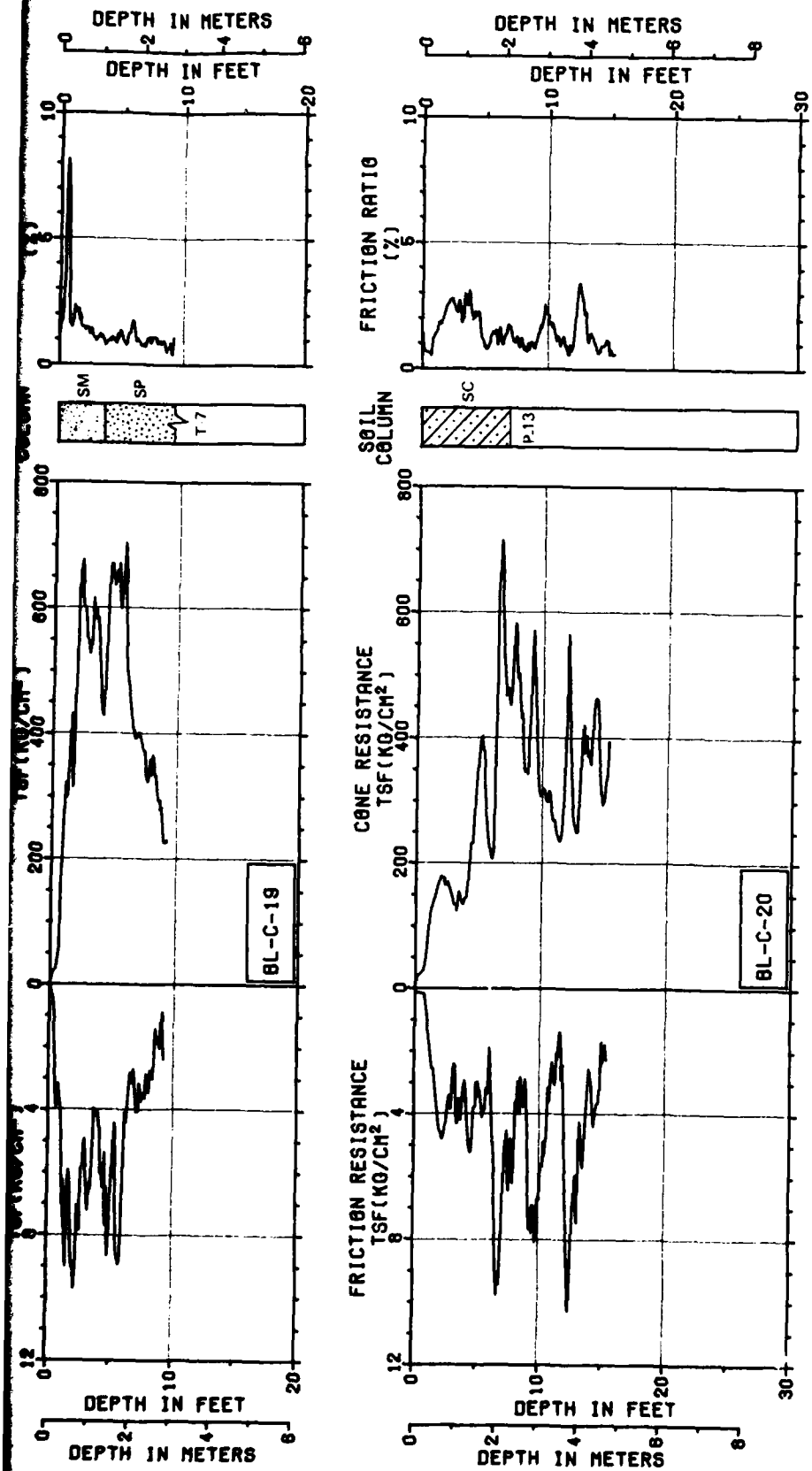
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-6-1
3 OF 18

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
ML
SC
SM
SP
ML
SM
B4
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-18
DEPTH IN FEET
DEPTH IN METERS



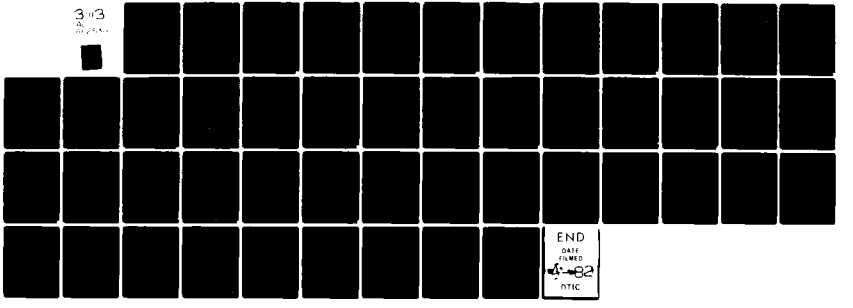
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

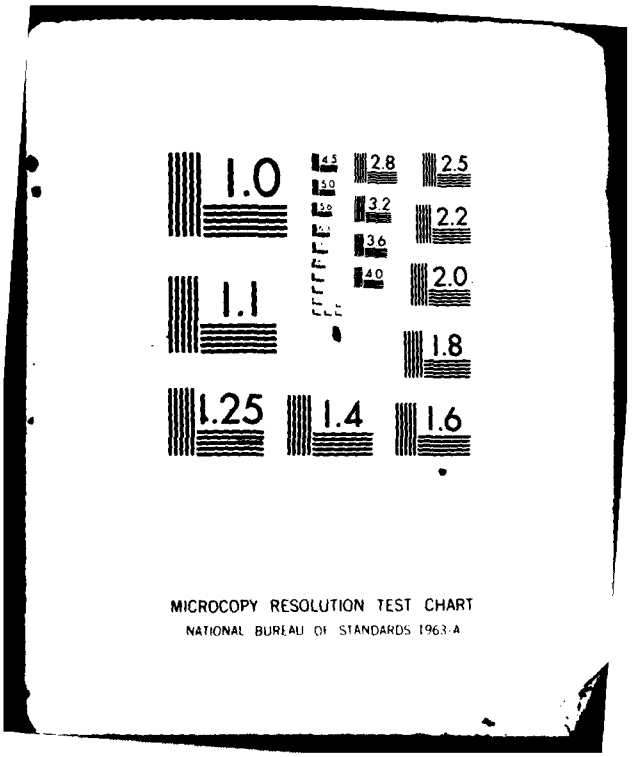
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

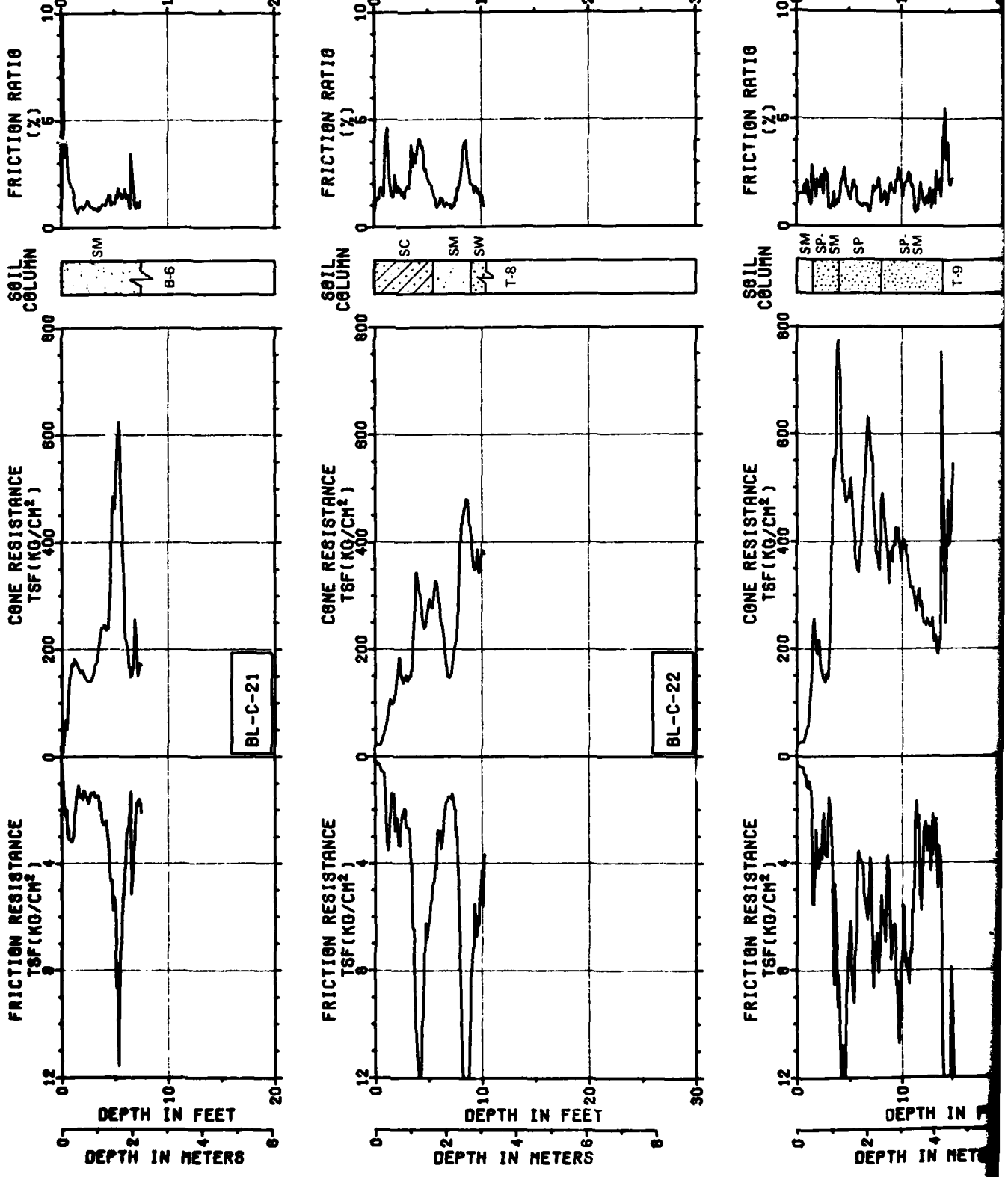
FIGURE
II-6-1
4 OF 18

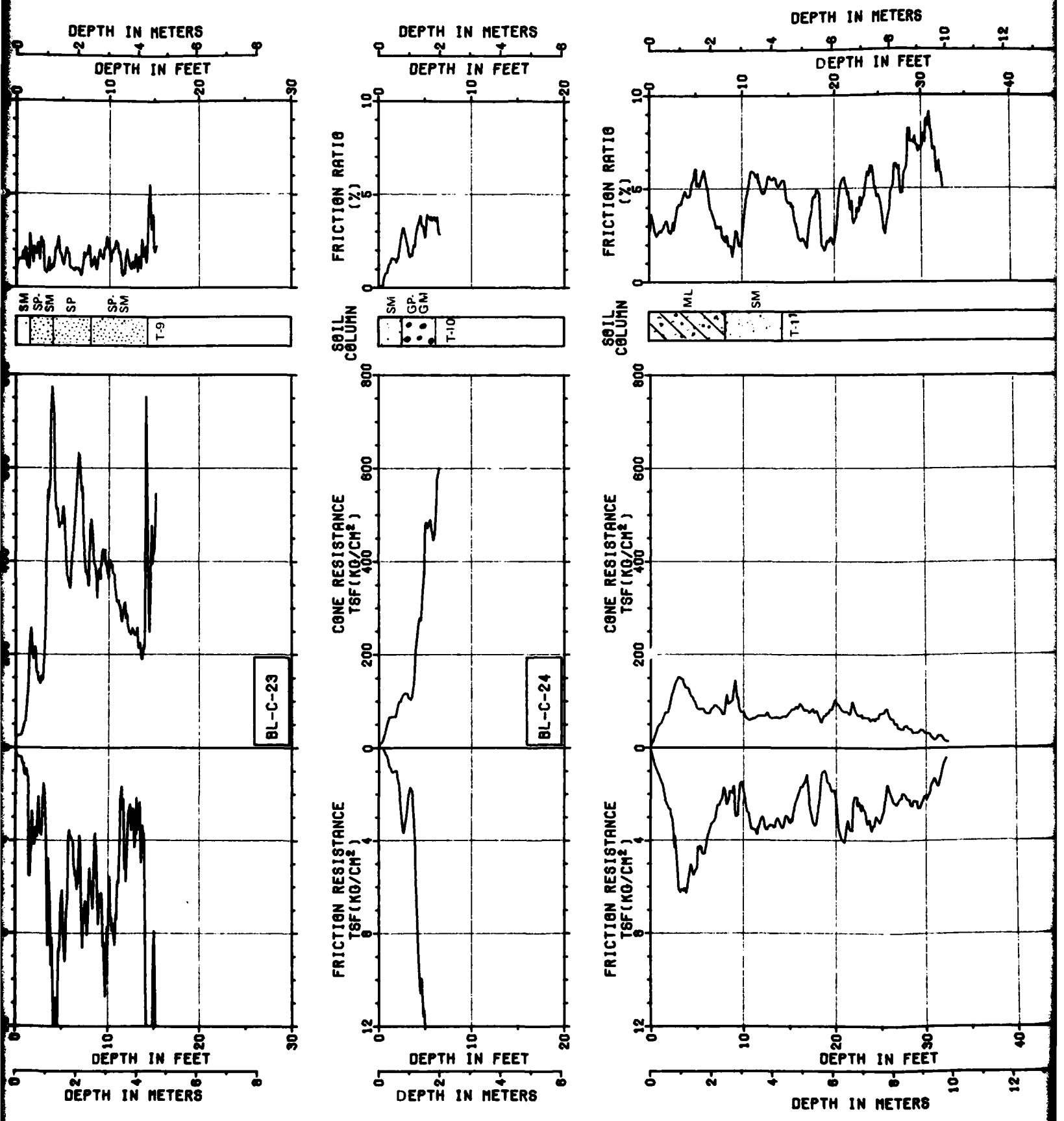
UBRO NATIONAL, INC.

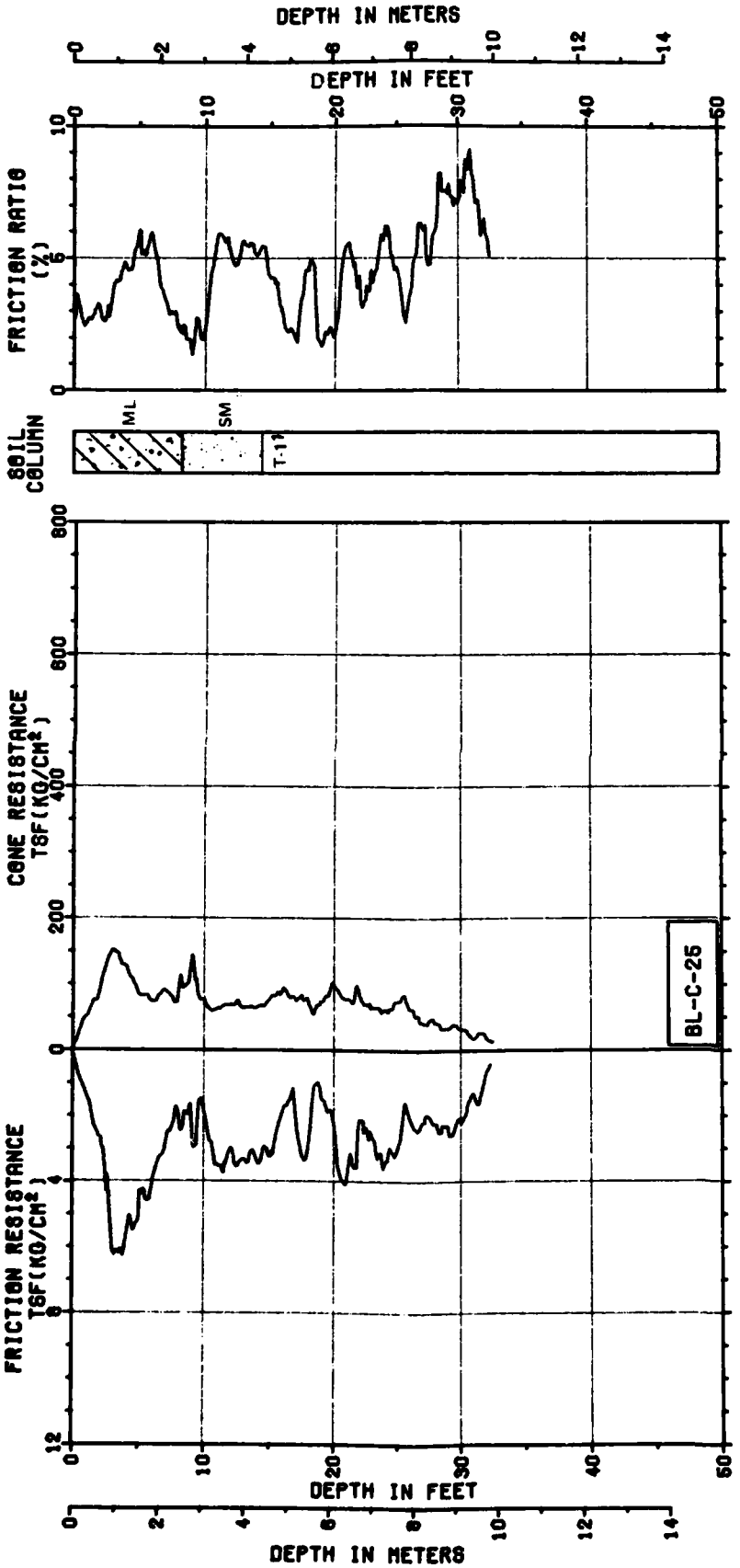
AD-A112 830 FUGRO NATIONAL INC LONG BEACH CA F/G 8/13
MX SITING INVESTIGATION. PRELIMINARY GEOTECHNICAL INVESTIGATION--ETC(U)
MAR 81 F04704-80-C-0006
UNCLASSIFIED FN-TR-45-VOL-2 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
B-6
SC
SW
T-8
SP-SM
SP
T-9
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-21
BL-C-22


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SP-SM
SP
SP-SM
T-9
SM
GP-GM
T-10
ML
SM
T-11
BL-C-23
BL-C-24
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)



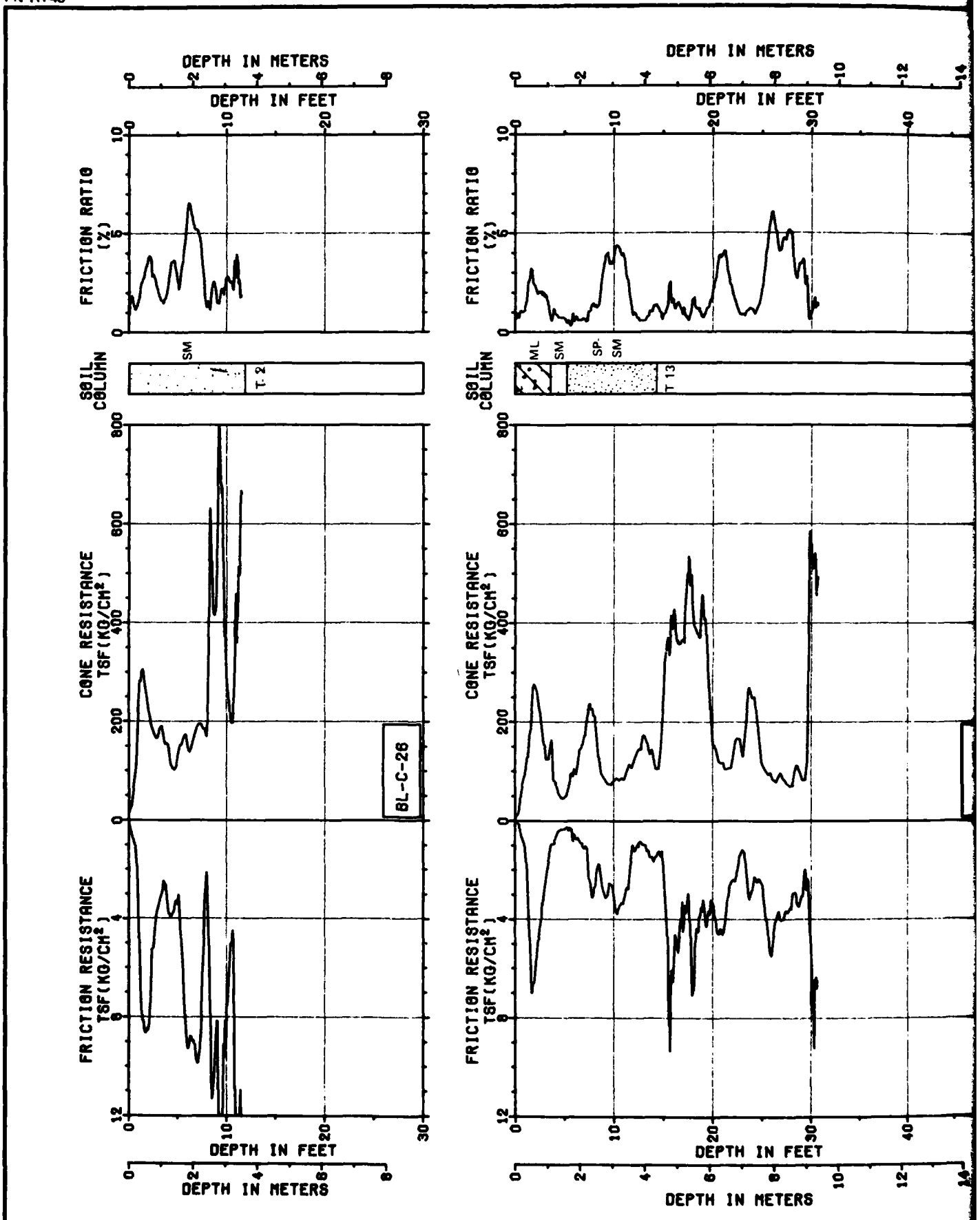
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

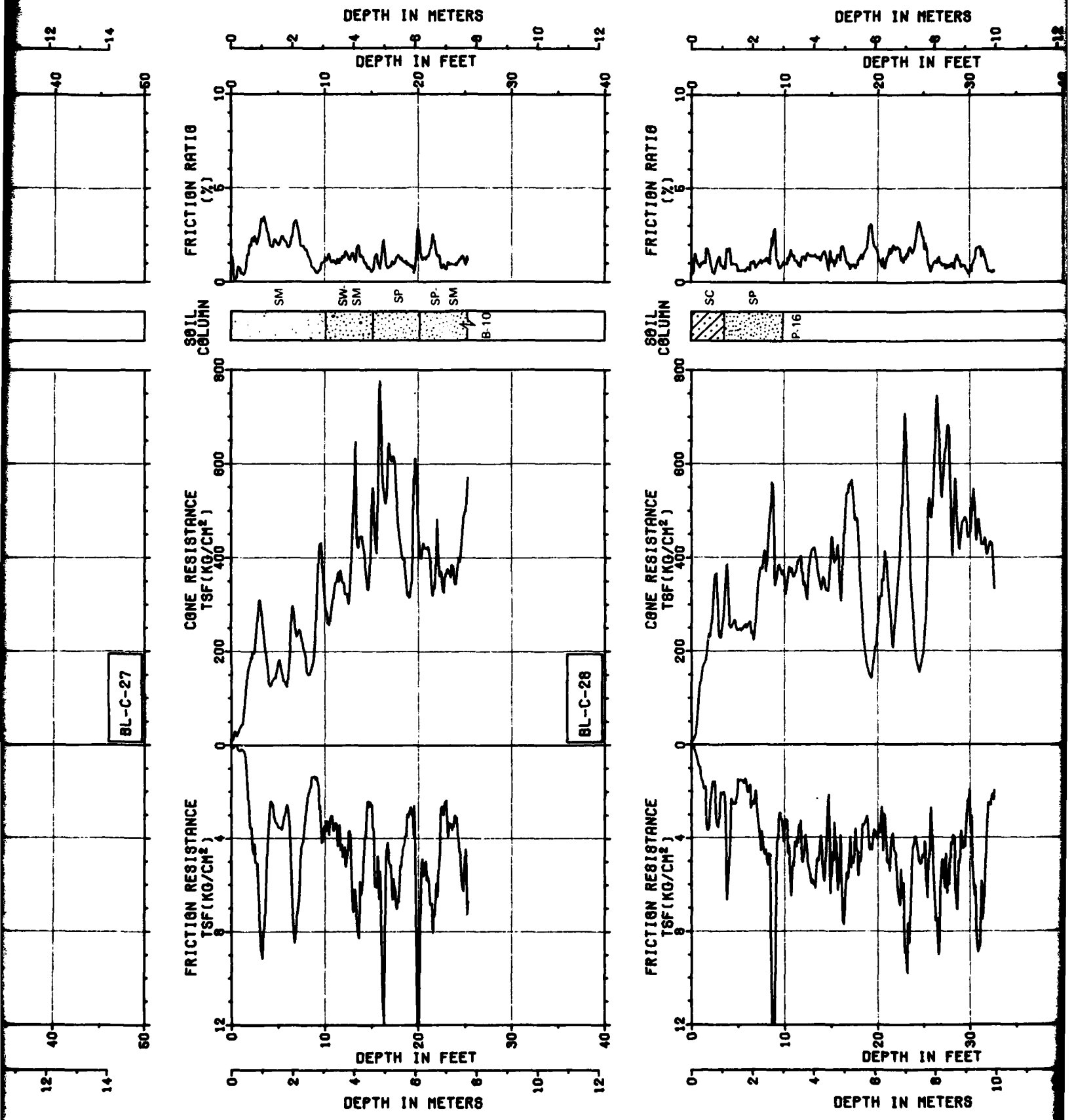
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

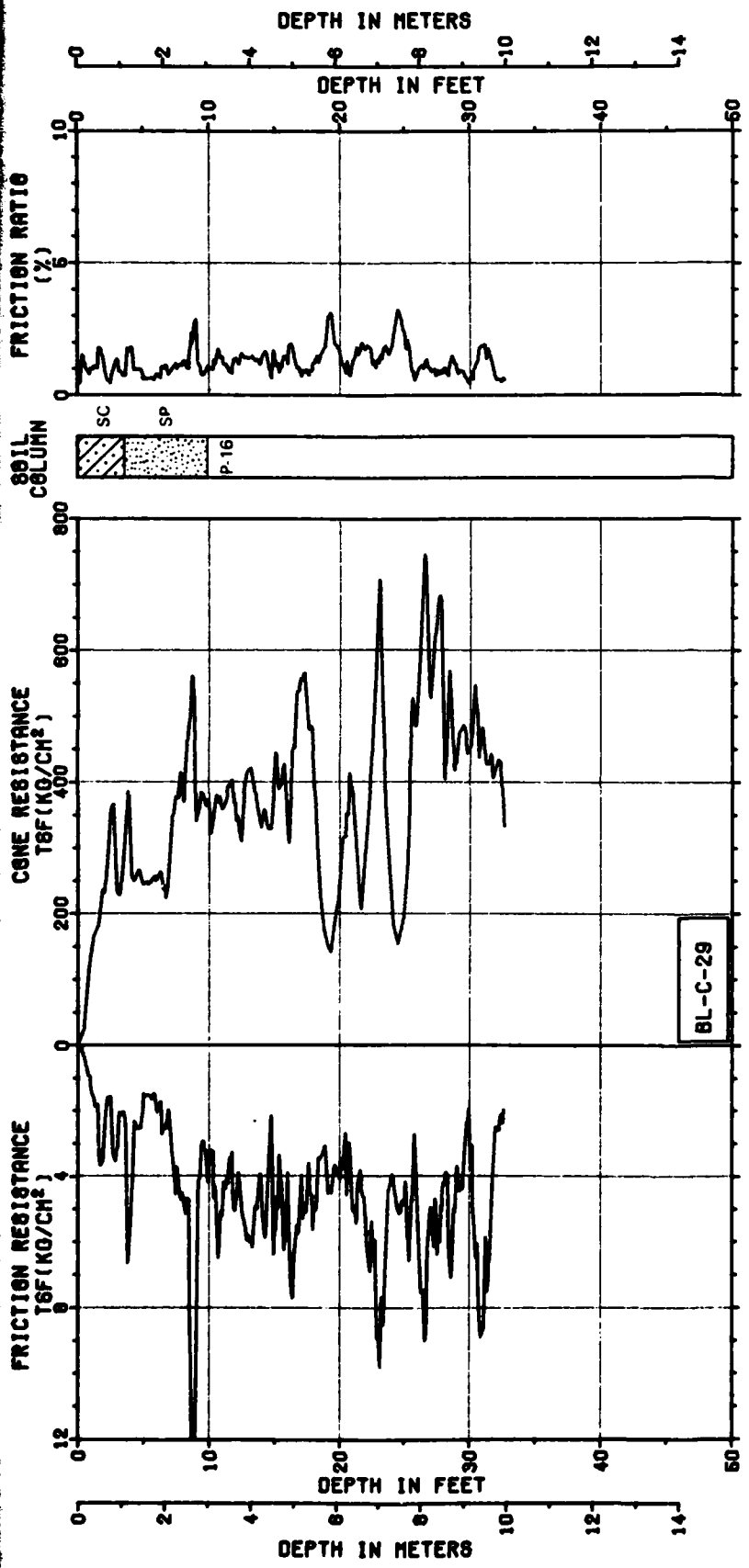
FIGURE
II-6-1
5 OF 19

FUGRO NATIONAL, INC.

3


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
T-2
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-26
DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
ML
SM
SP-
SM
T 13
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
DEPTH IN FEET
DEPTH IN METERS


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SW-SM
SP
SP-SM
B-10
SC
SP
P-16
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-27
BL-C-28

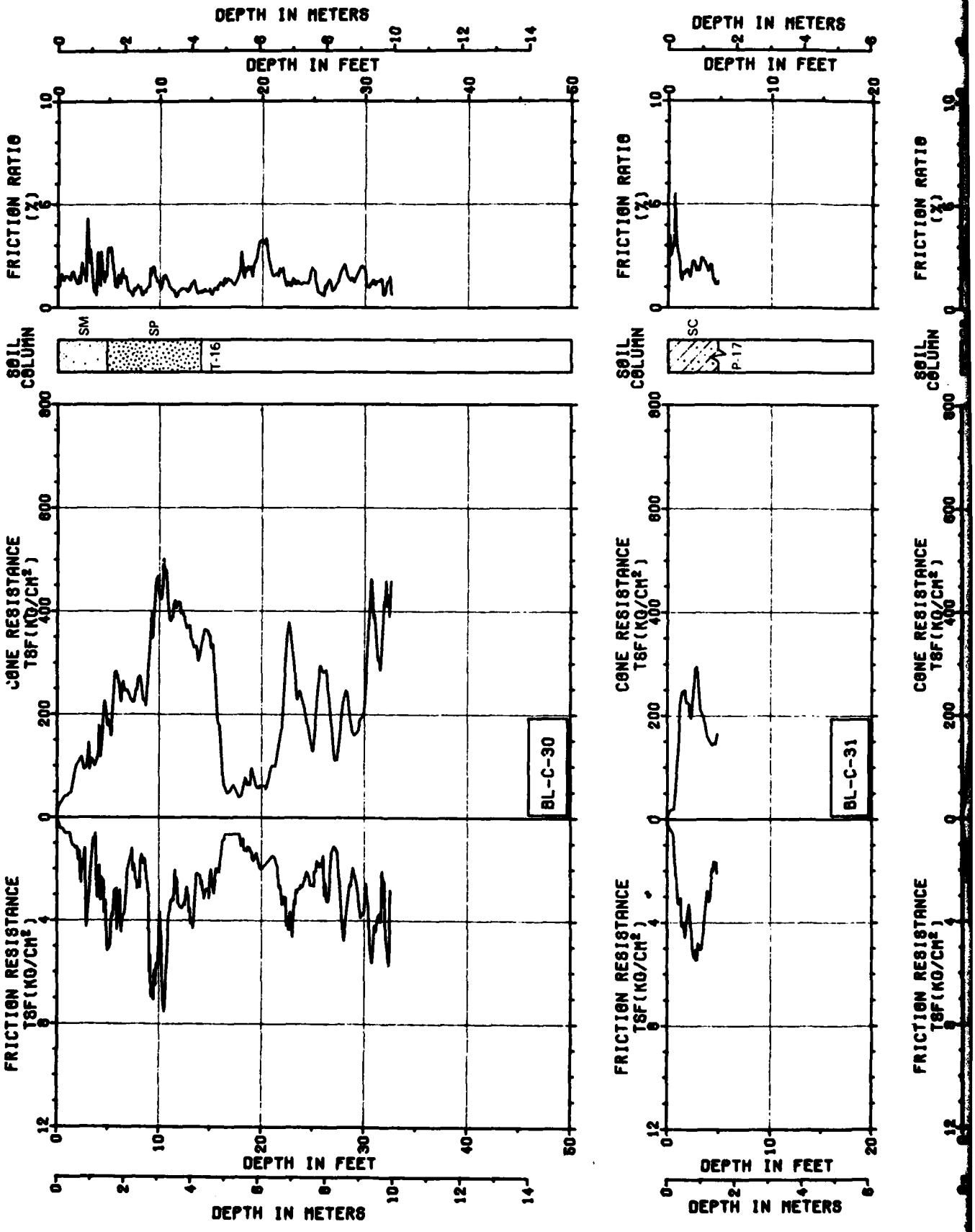


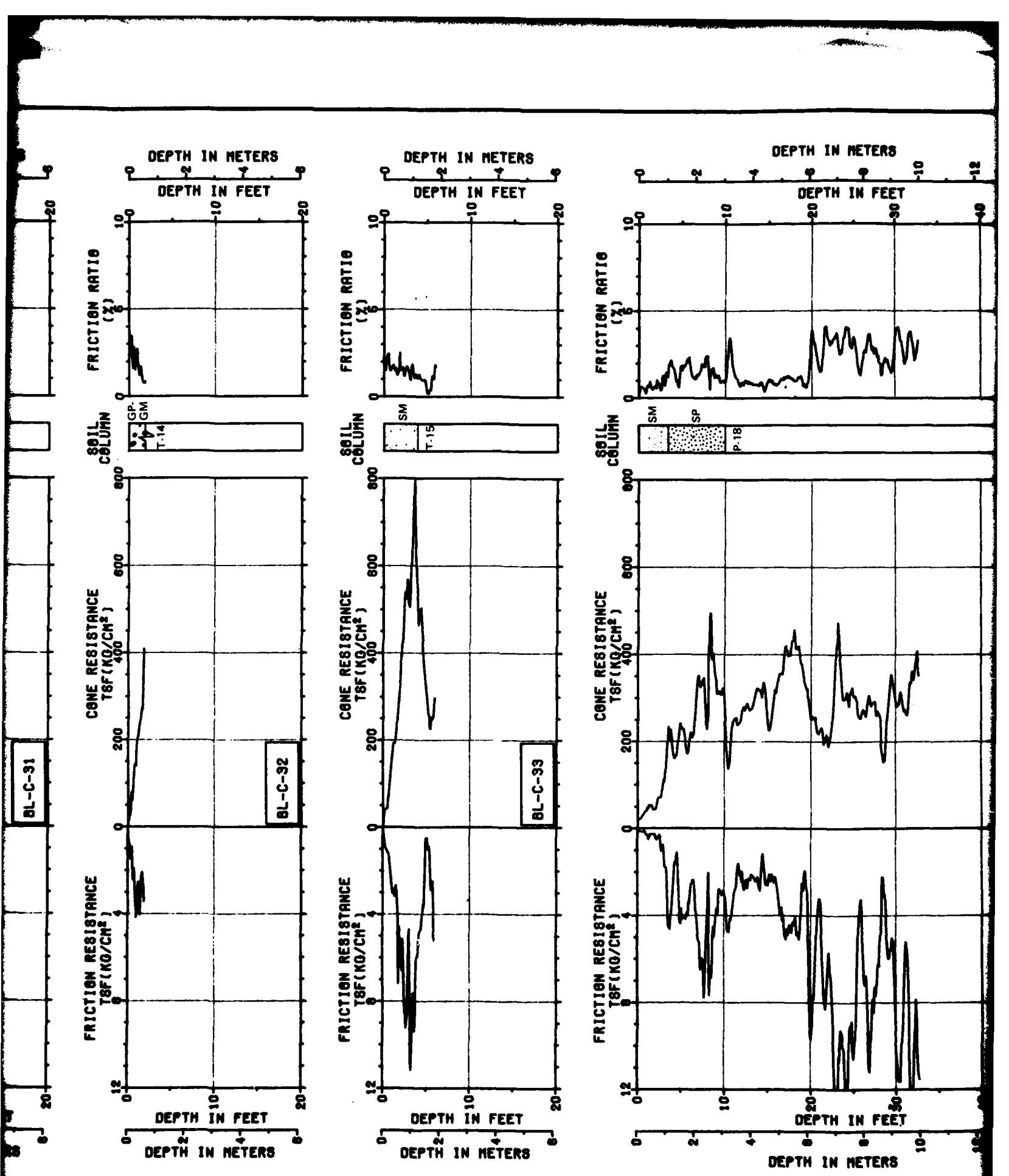
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-6-1
6 OF 18

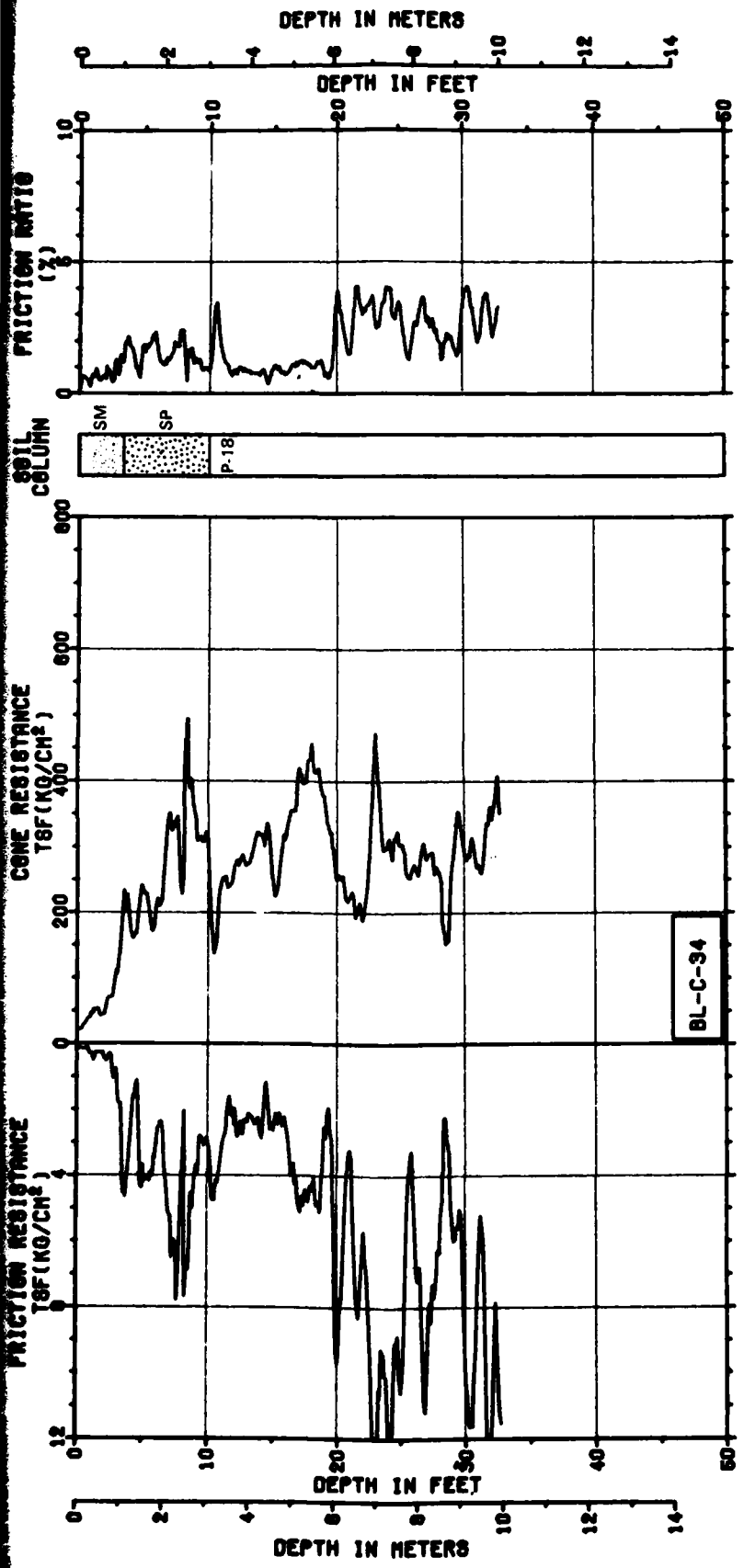
FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SP
T-16
SC
P-17
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-30
BL-C-31


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
GP-GM
T-14
SM
T-15
SM
SP
P-18
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-31
BL-C-32
BL-C-33

1

2



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE II-6-1
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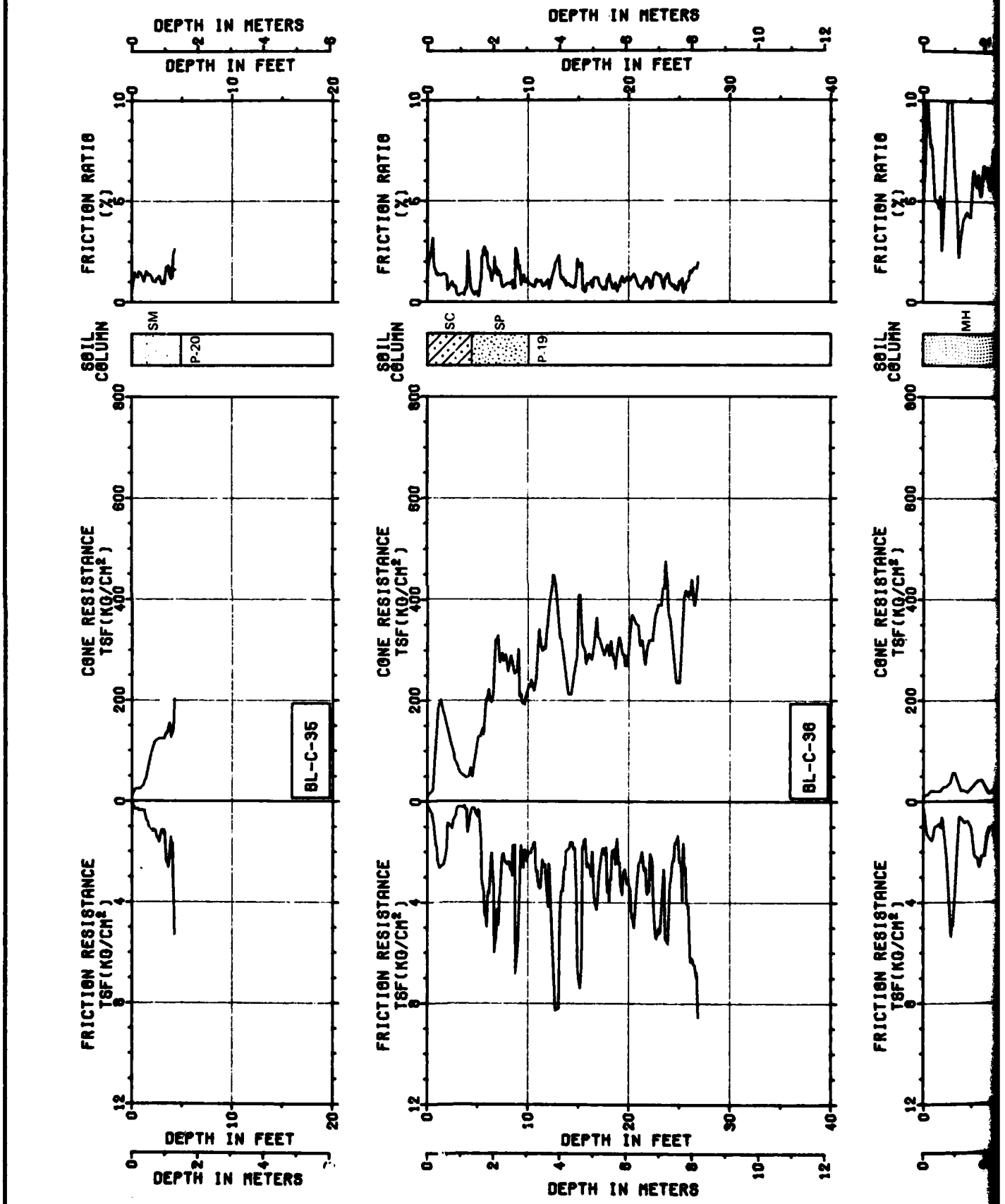
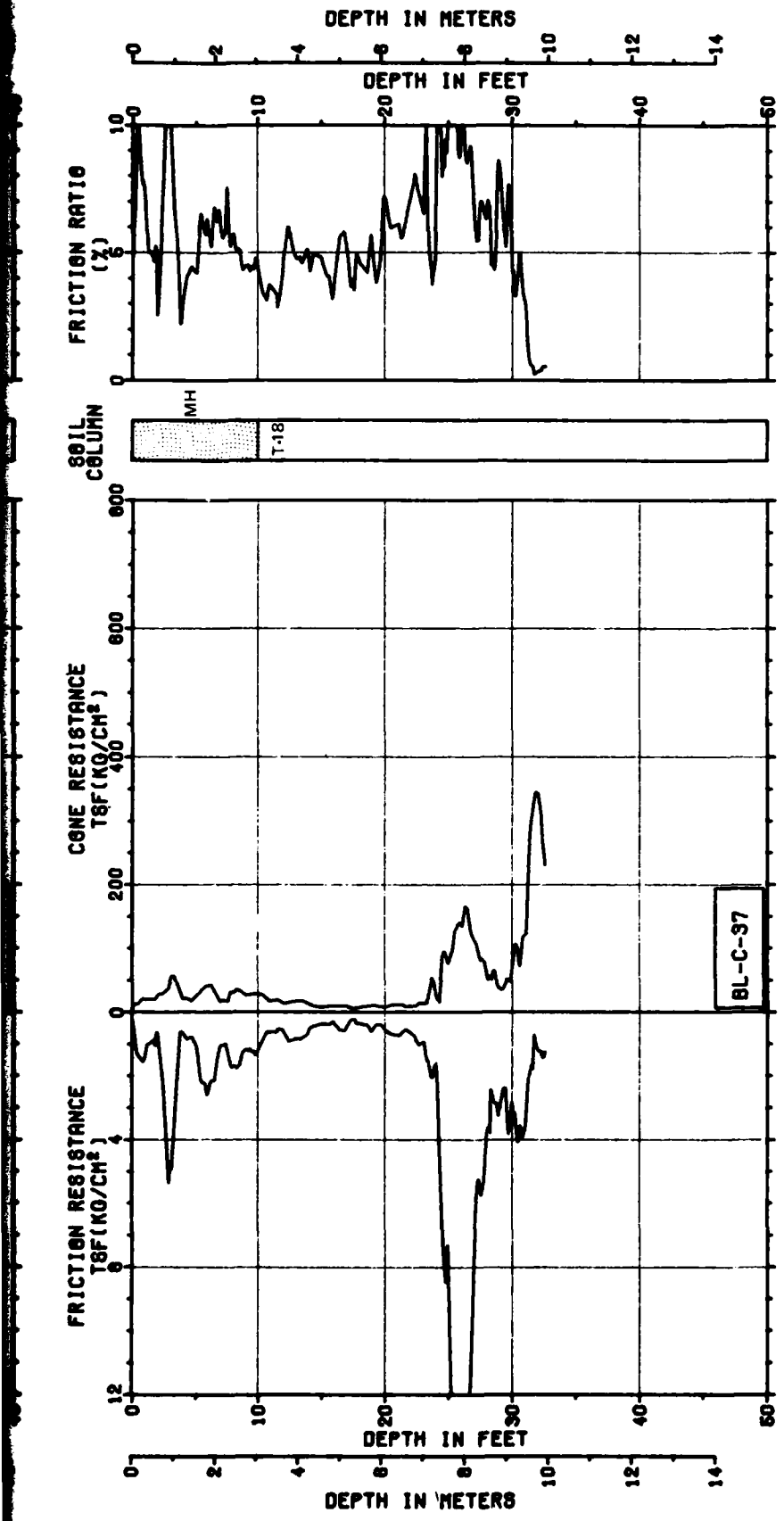
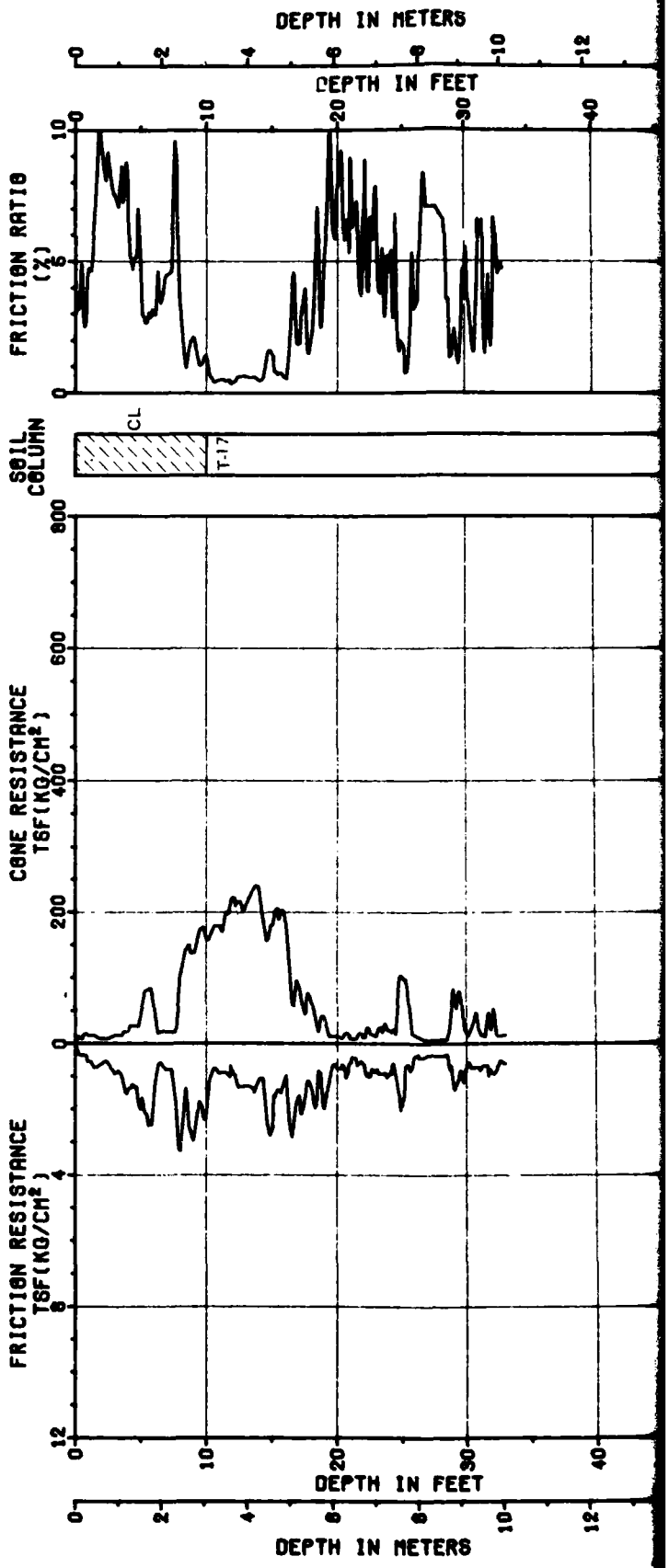
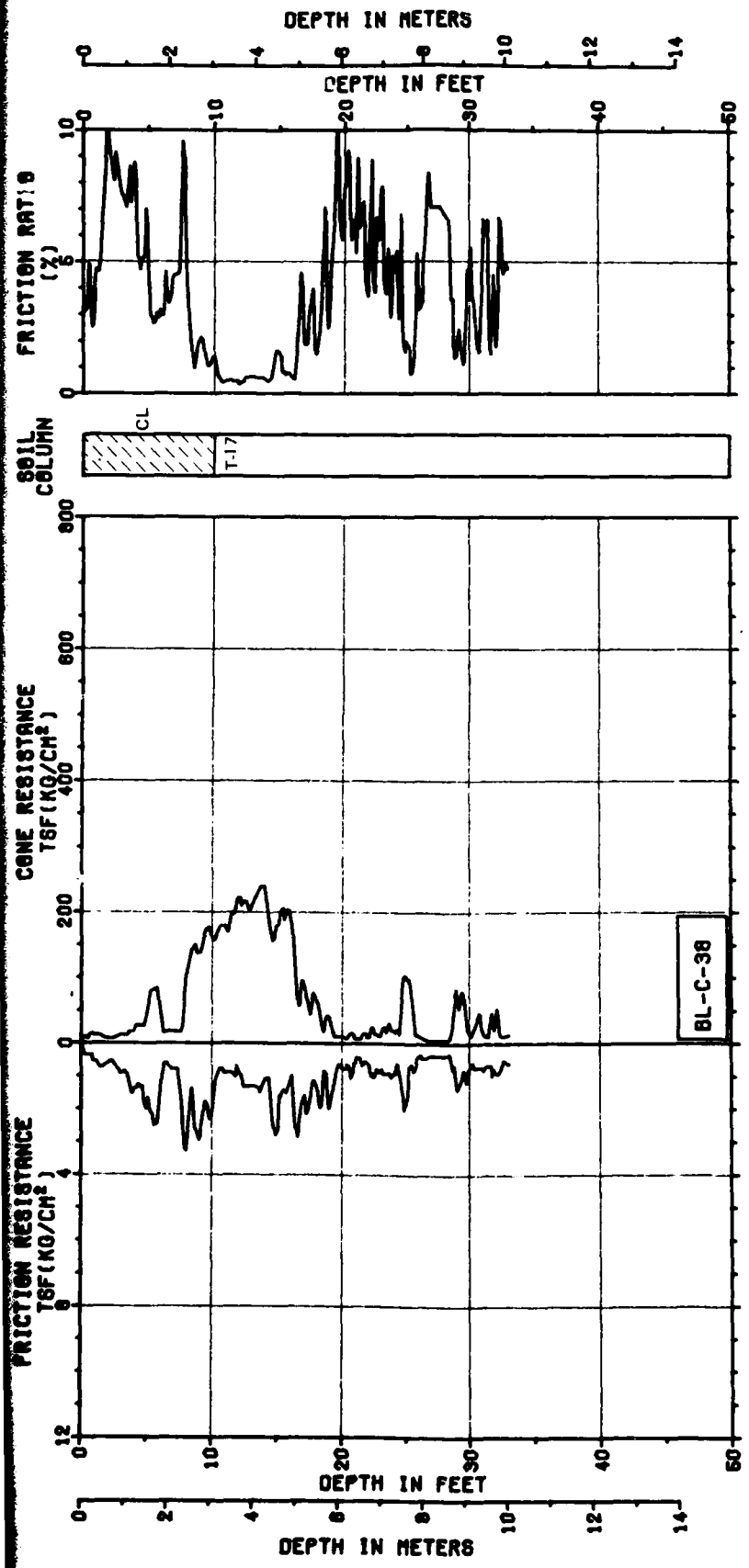
FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
P-20
SC
SP
P-19
MH
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-35
BL-C-36


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
MH
T-18
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-37


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
CL
T-17
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
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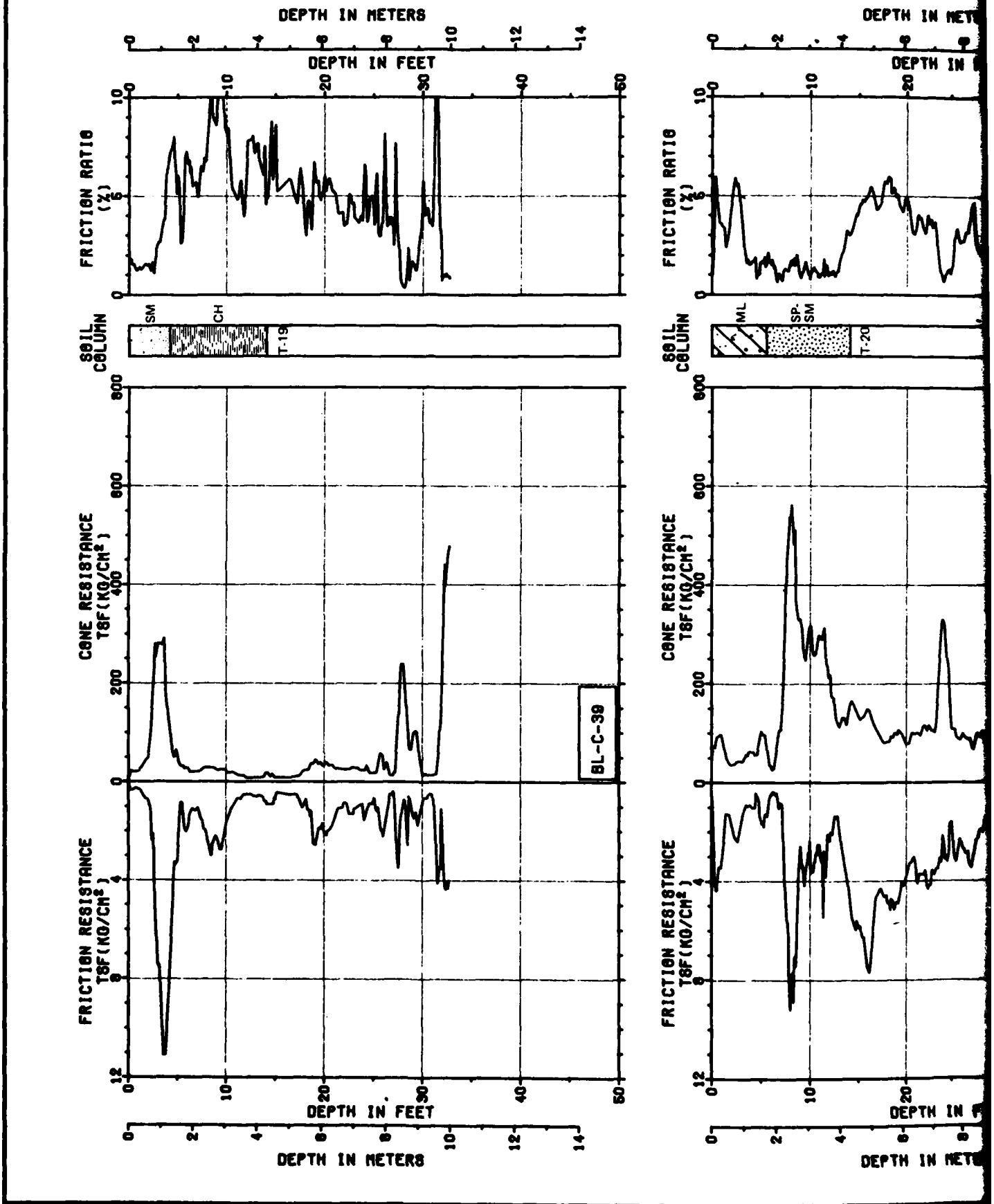
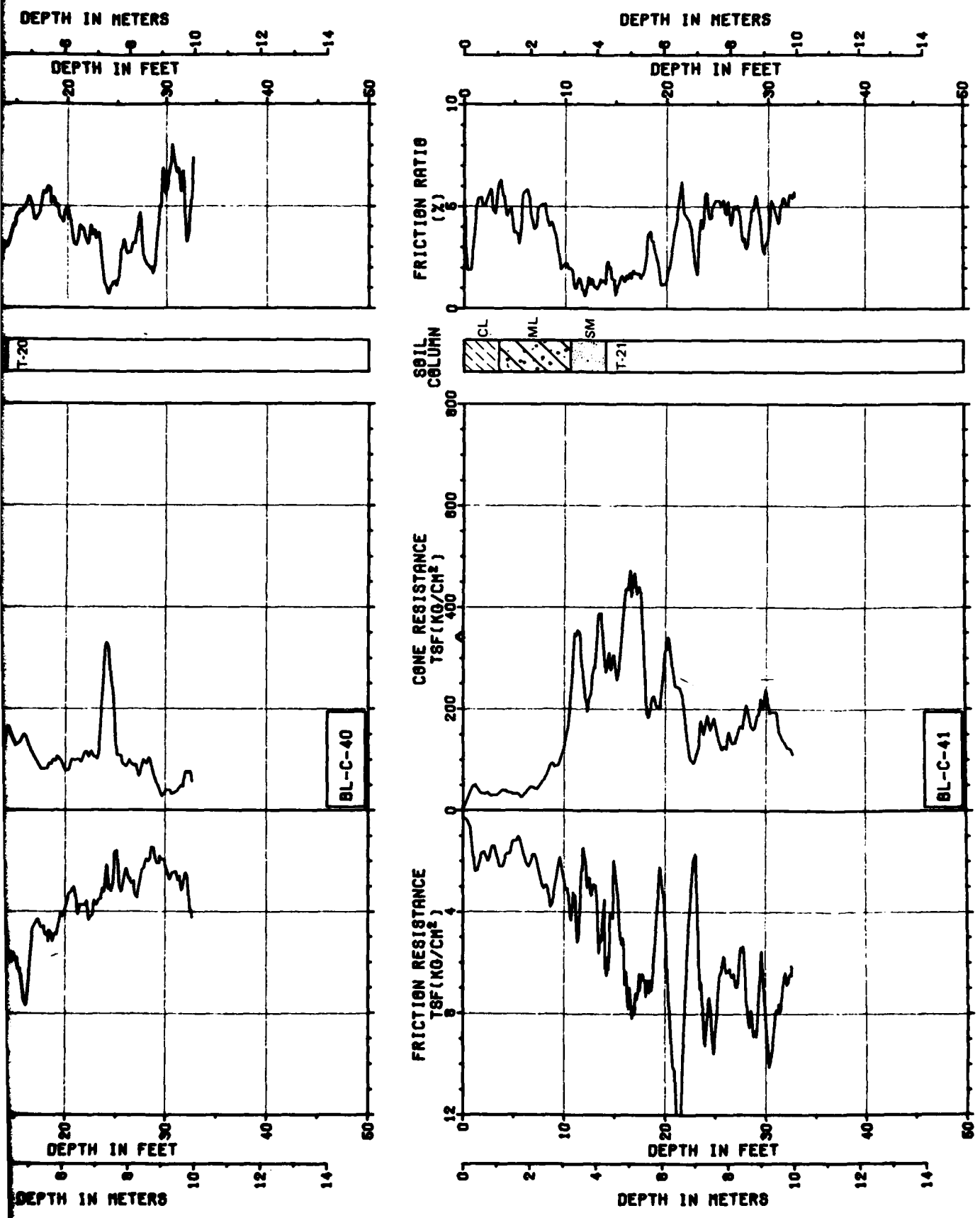
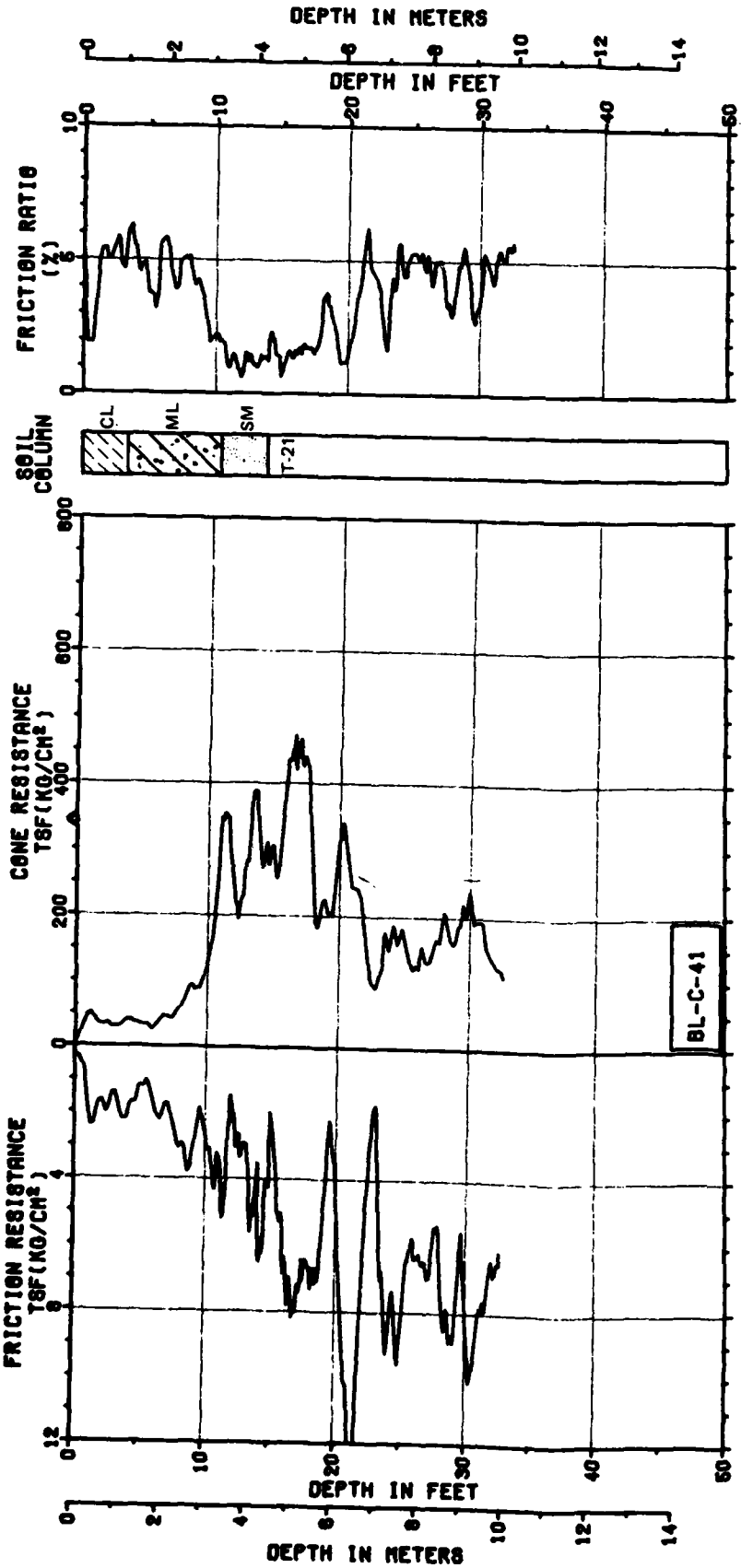
FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
CH
T-19
ML
SP-SM
T-20
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-39


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
CL
ML
SM
T-20
T-21
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-40
BL-C-41



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
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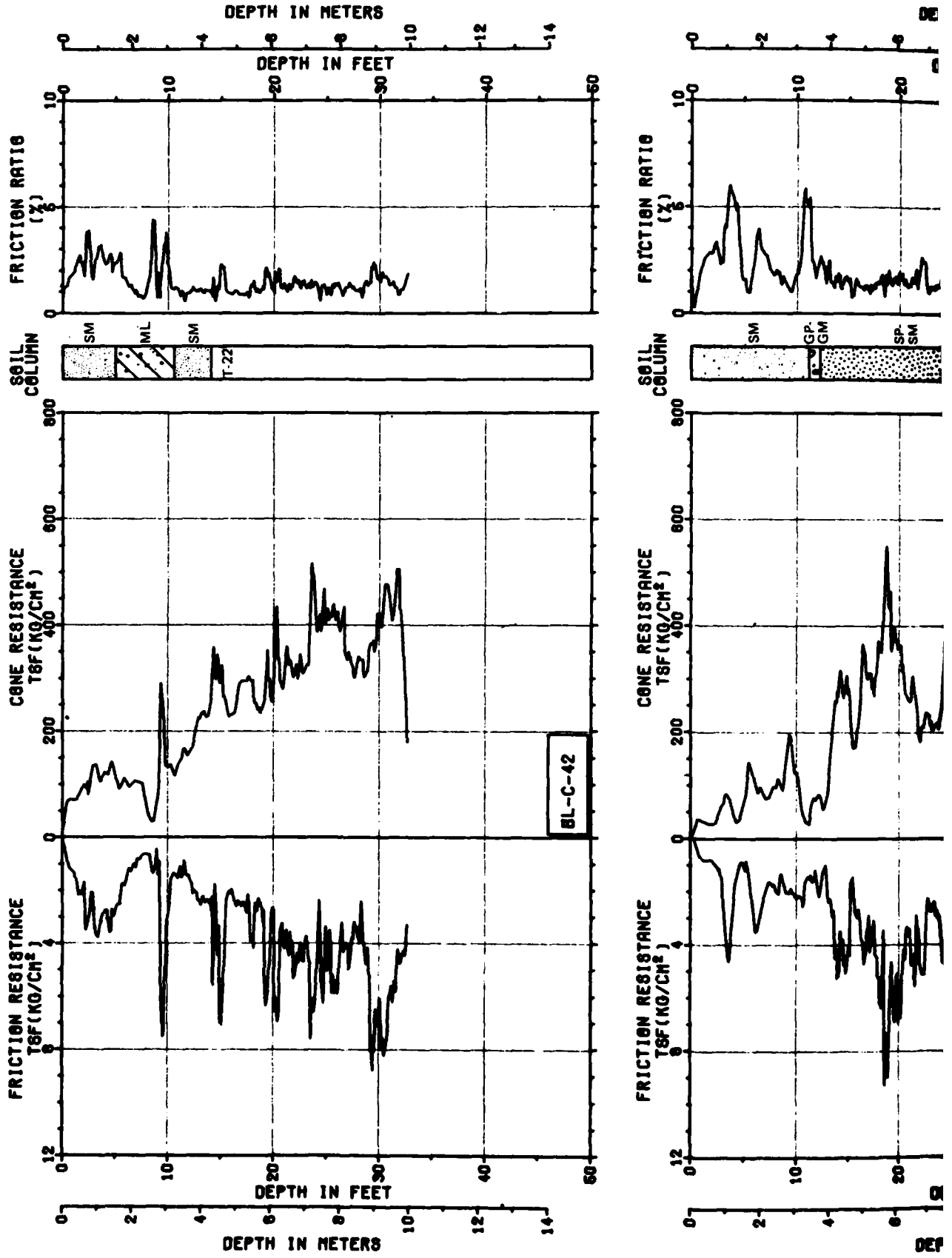
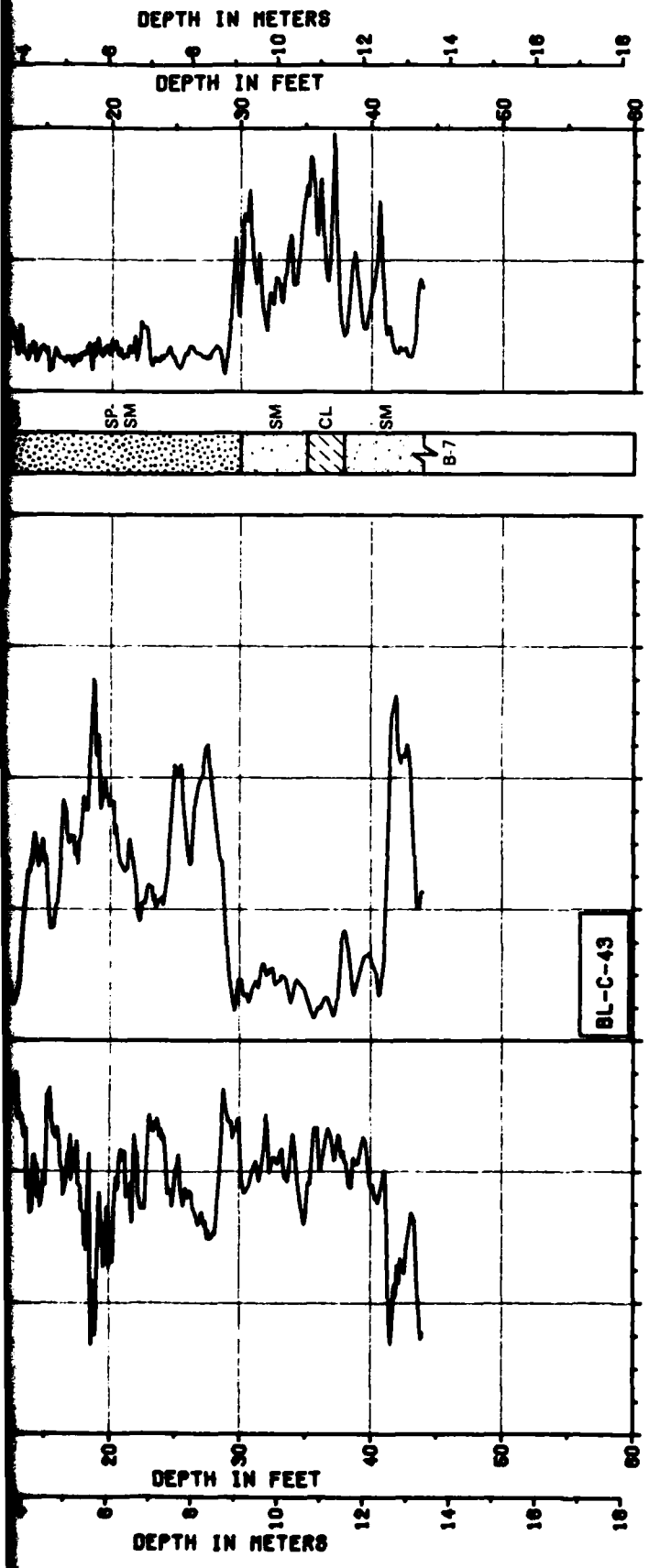
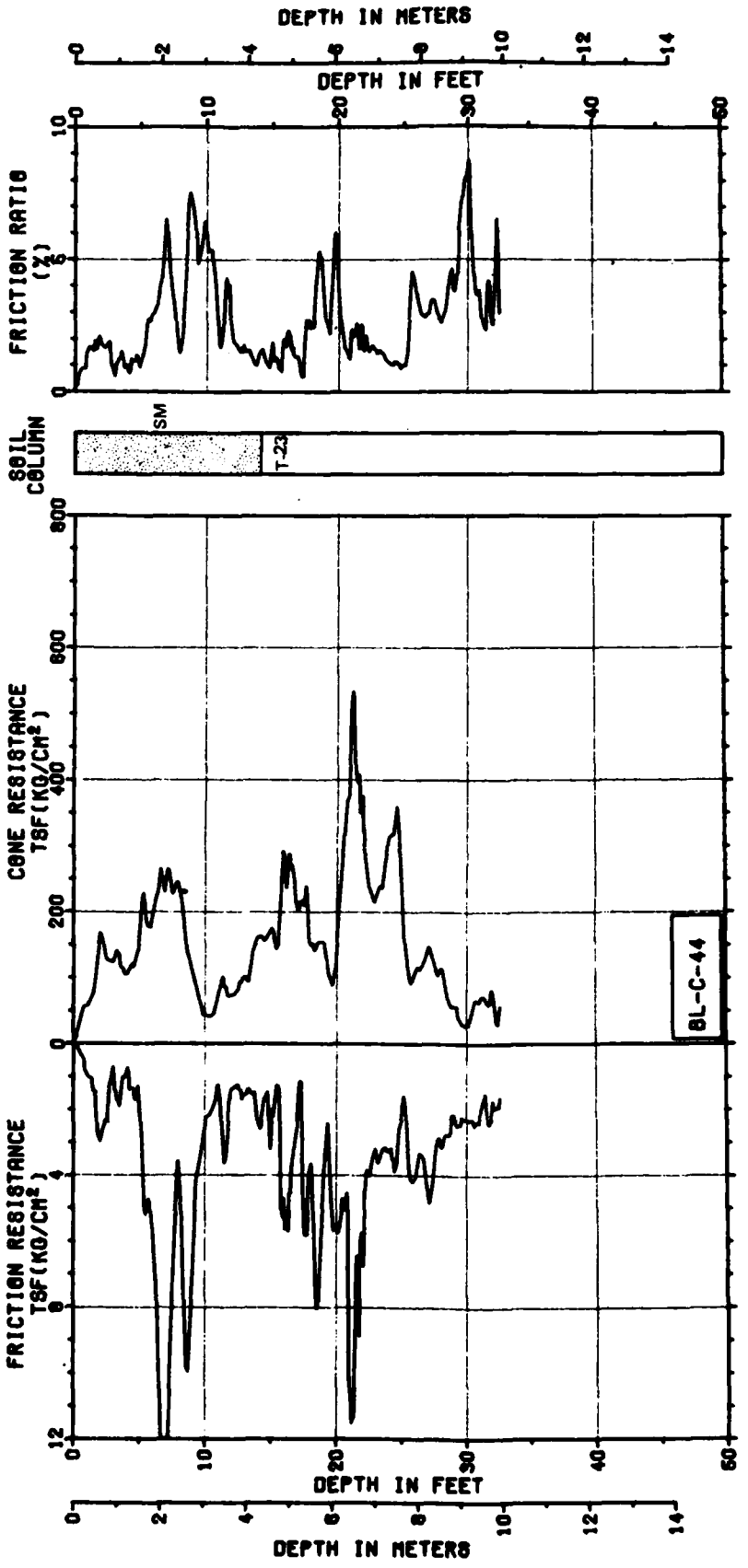
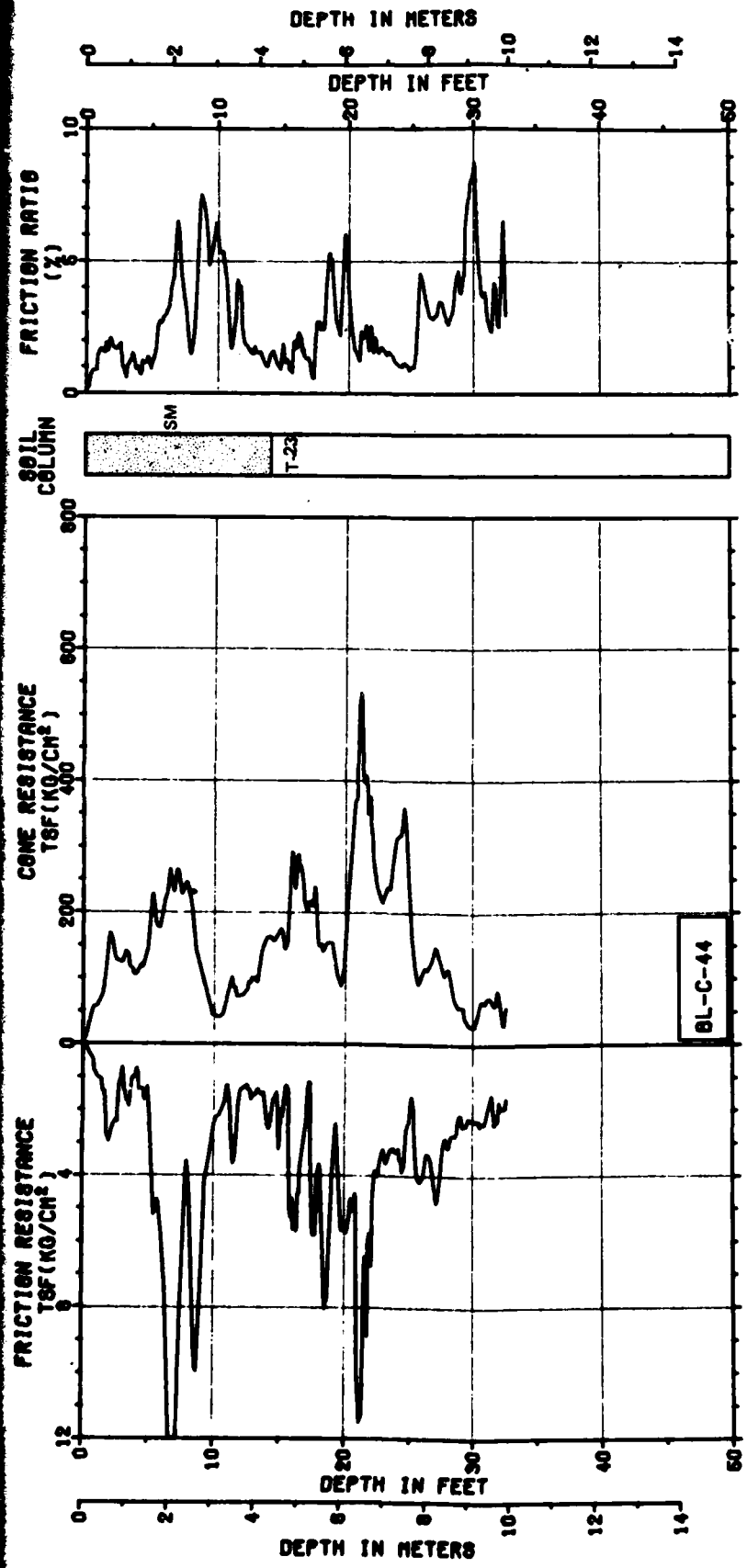
FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
ML
SM
T-22
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-42
DEPTH IN FEET
DEPTH IN METERS
SM
GP-GM
SP-SM


DEPTH IN METERS
DEPTH IN FEET
SP
SM
SM
CL
SM
B-7
BL-C-43
DEPTH IN FEET
DEPTH IN METERS


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
T-23
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-44
DEPTH IN FEET
DEPTH IN METERS



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
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FIGURE
II-6-1
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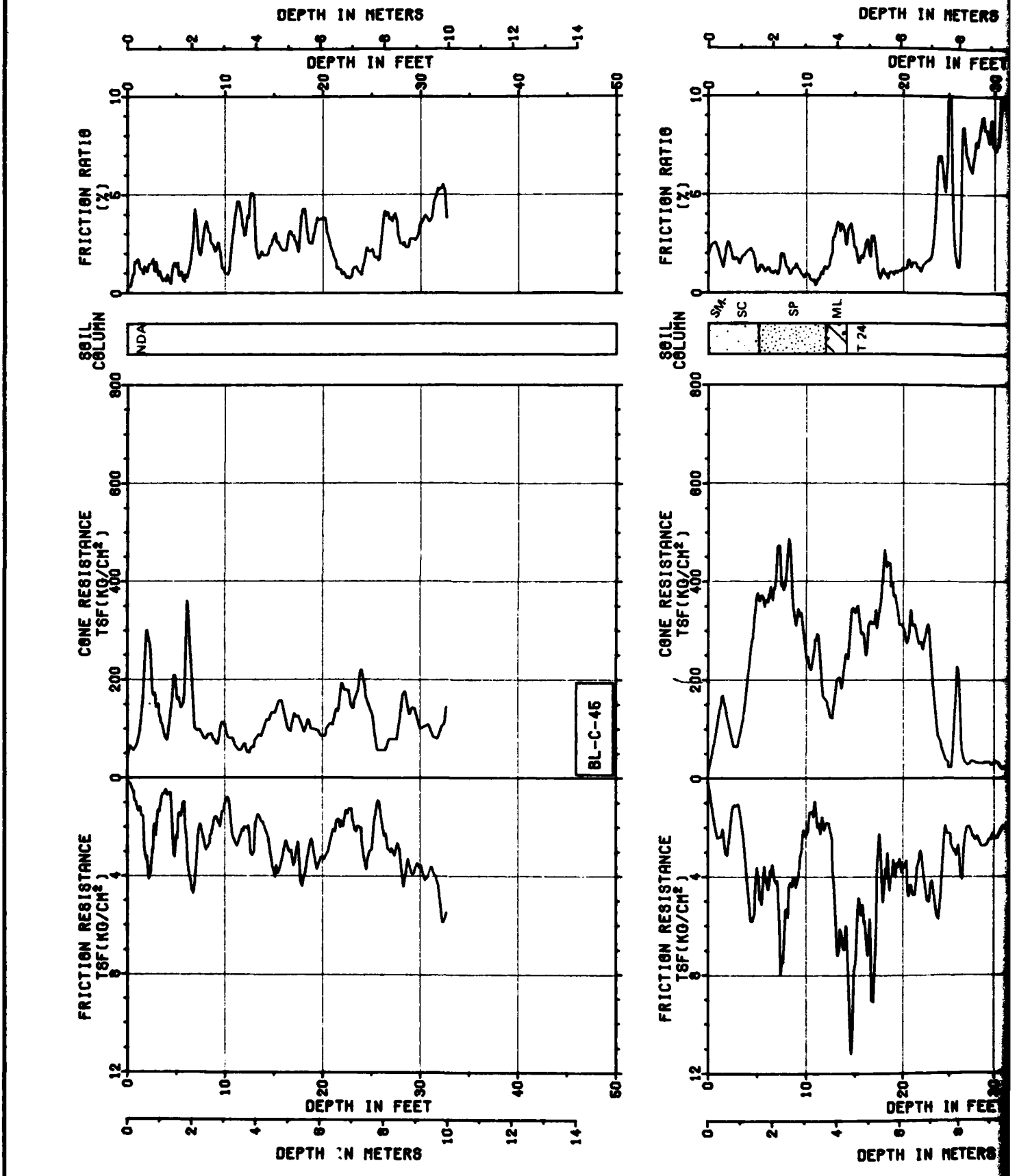
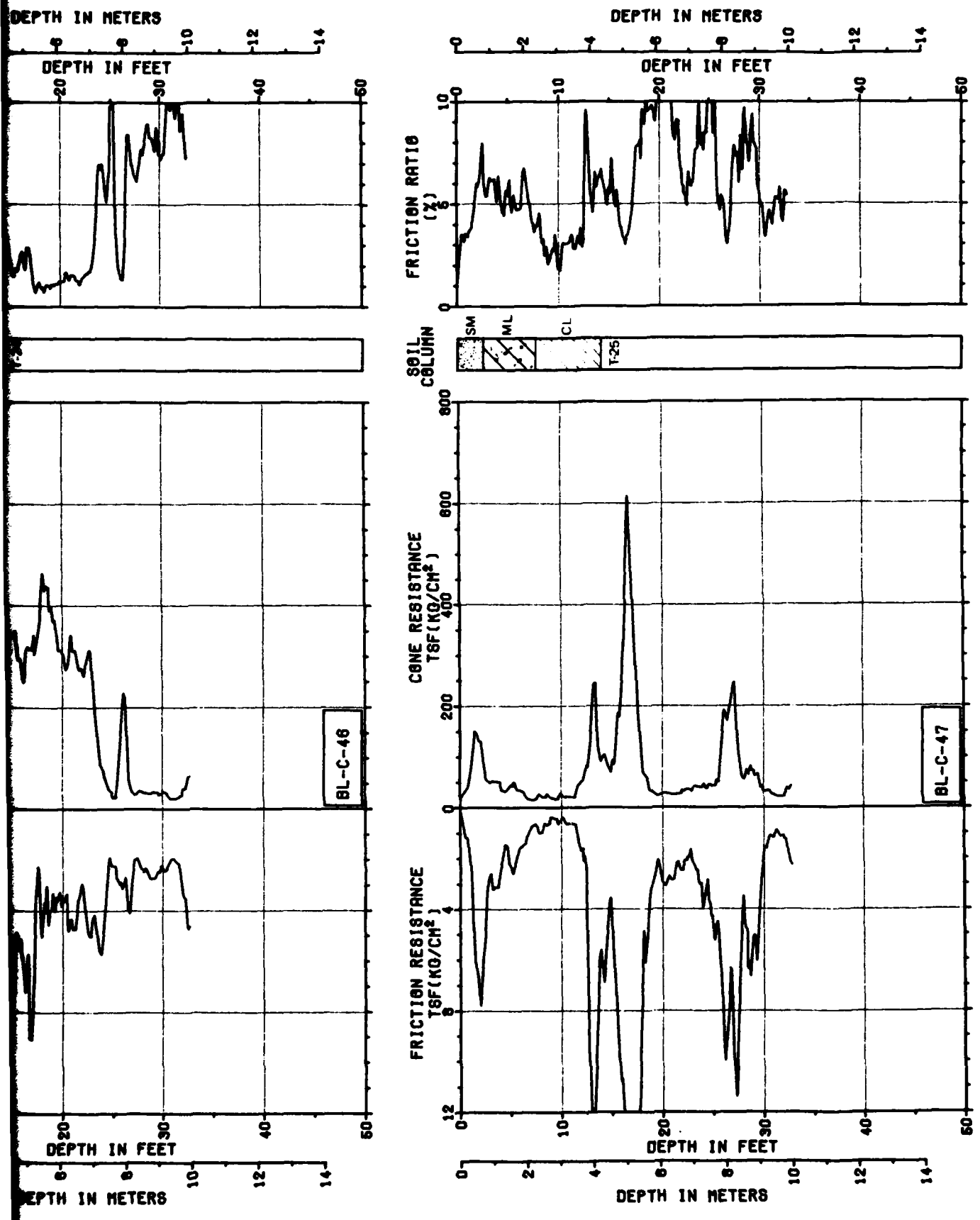
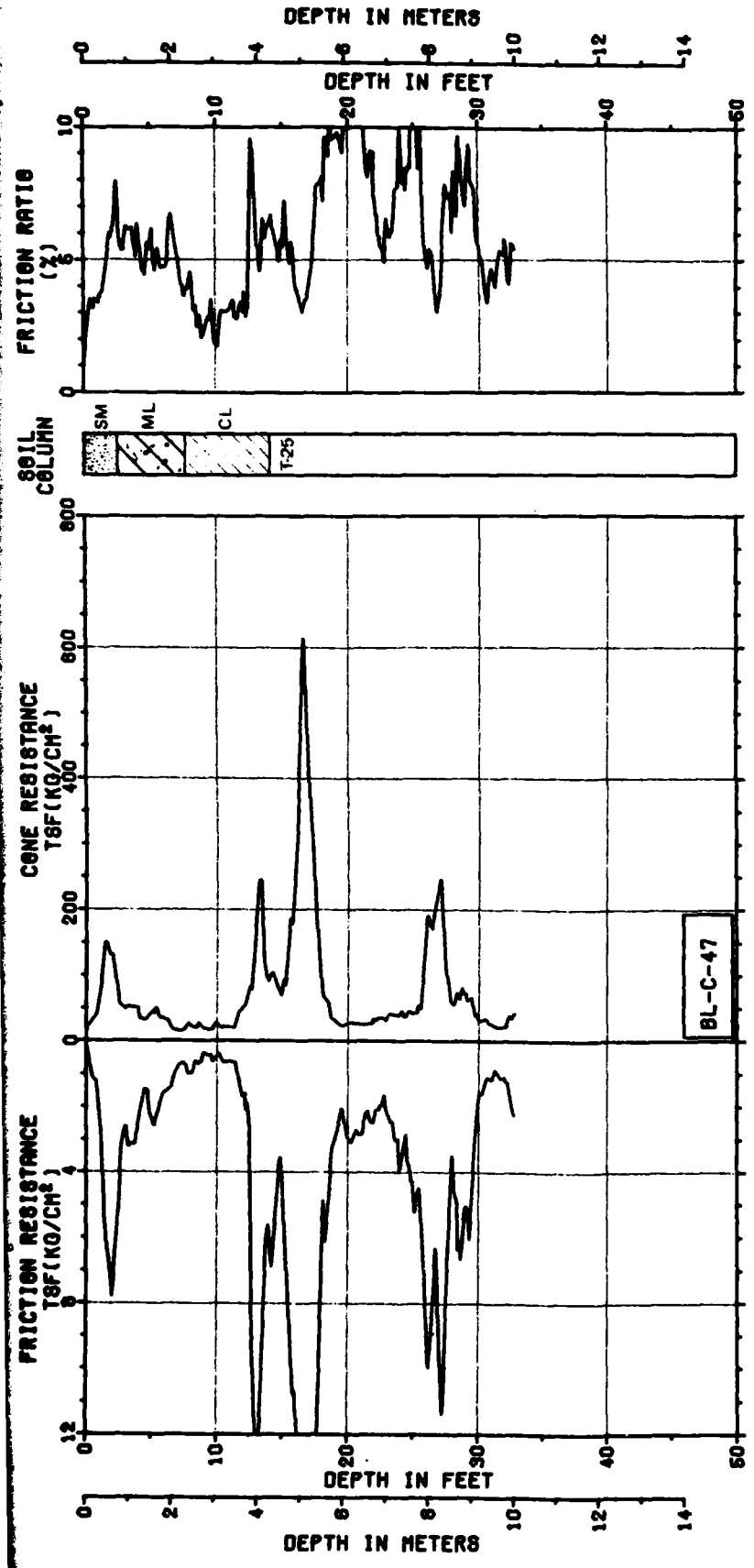
FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
NDA
SM
SC
SP
ML
T 24
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-45


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
ML
CL
T-25
BL-C-46
BL-C-47
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)

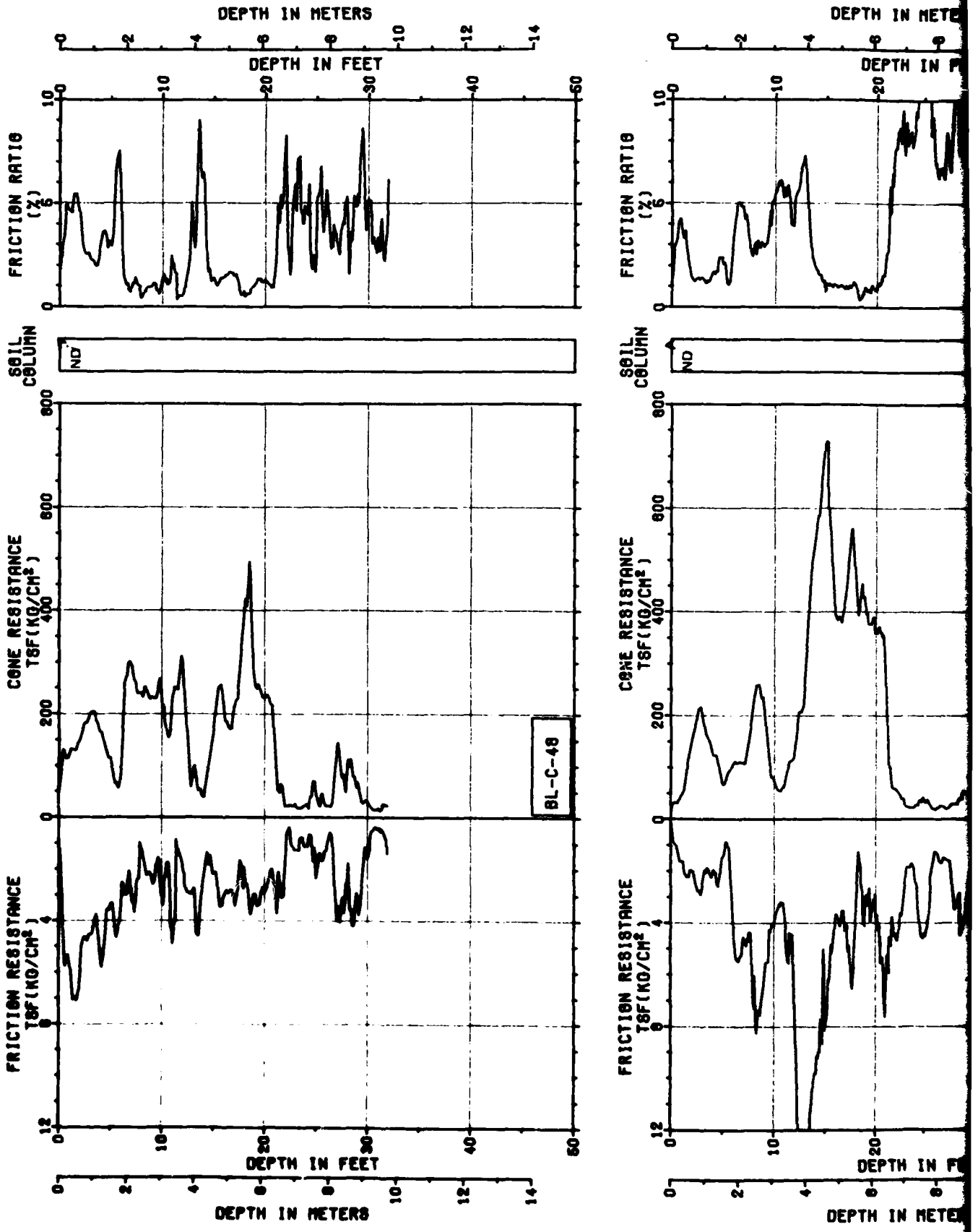


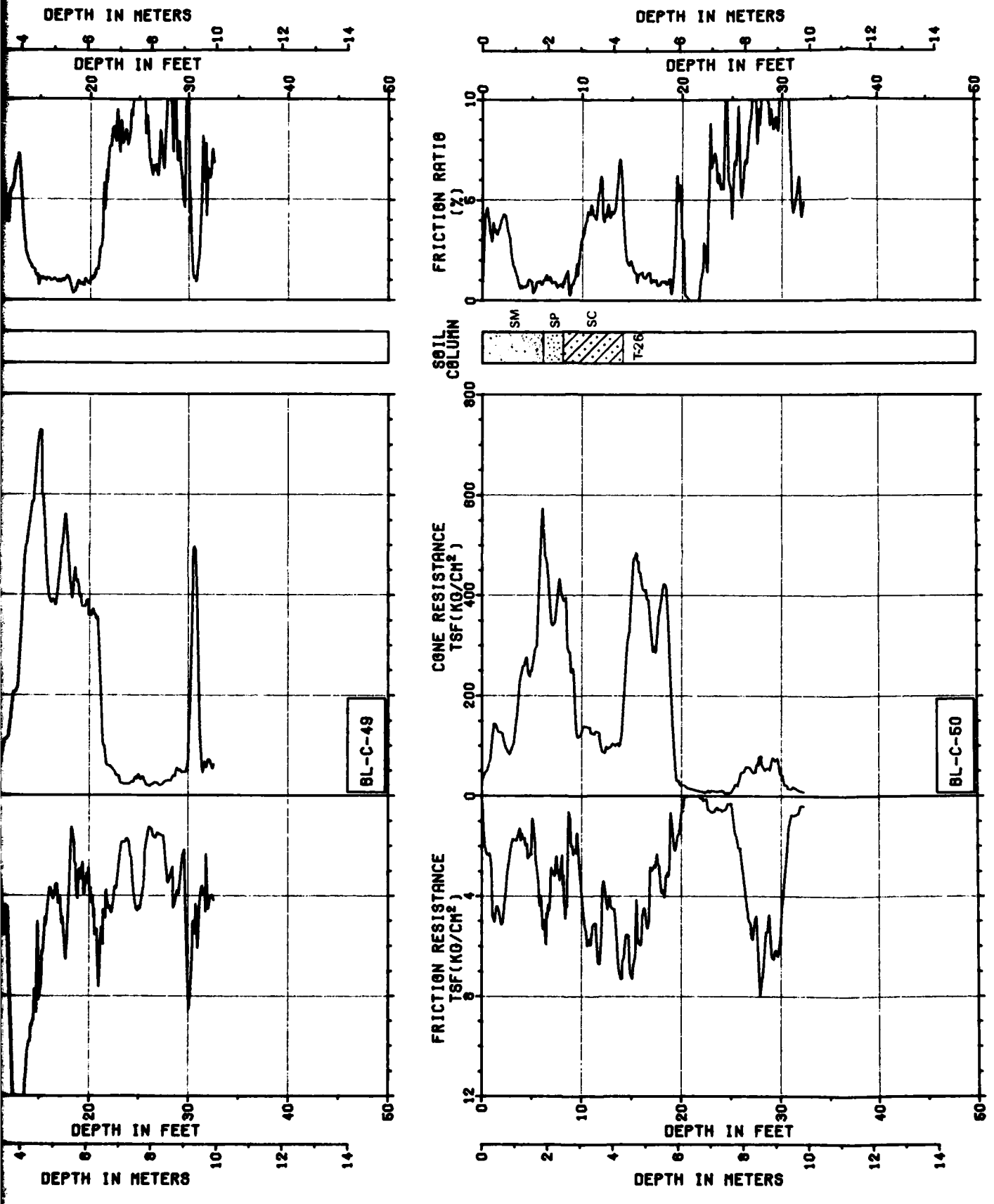
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

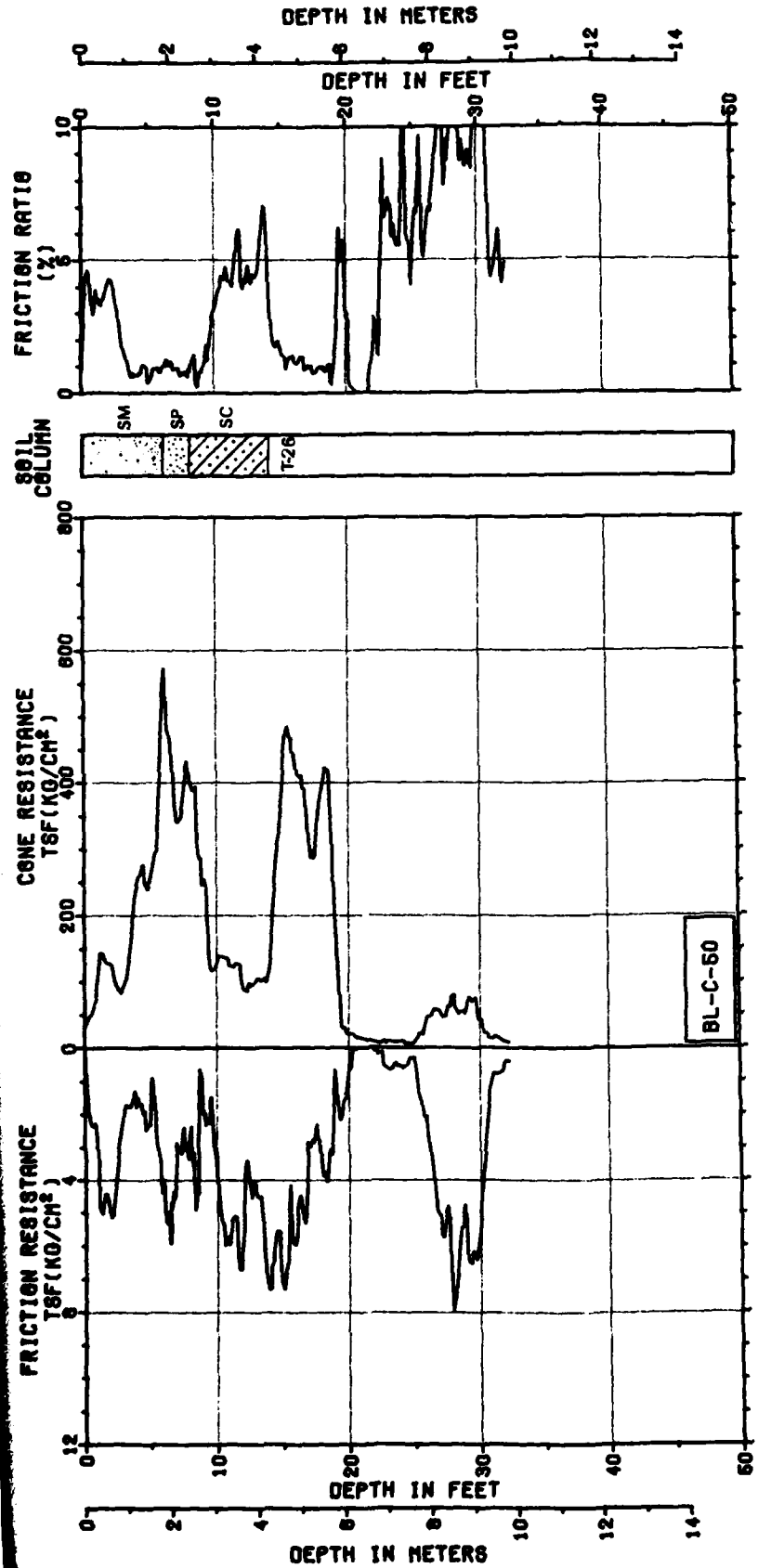
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
11 OF 18

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
ND
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-48
DEPTH IN METERS
DEPTH IN FEET


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
SP
SC
T-26
BL-C-49
BL-C-50
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)

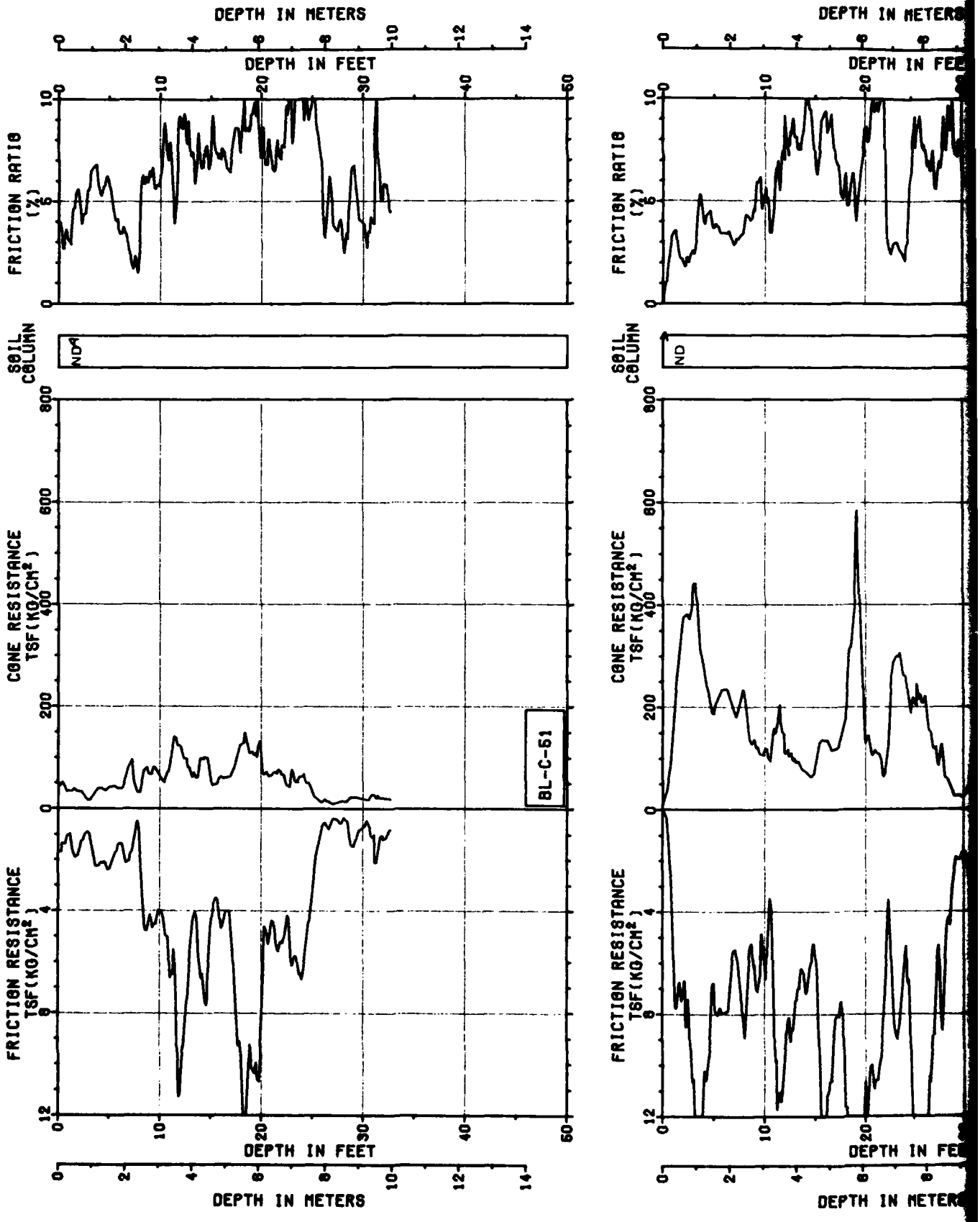


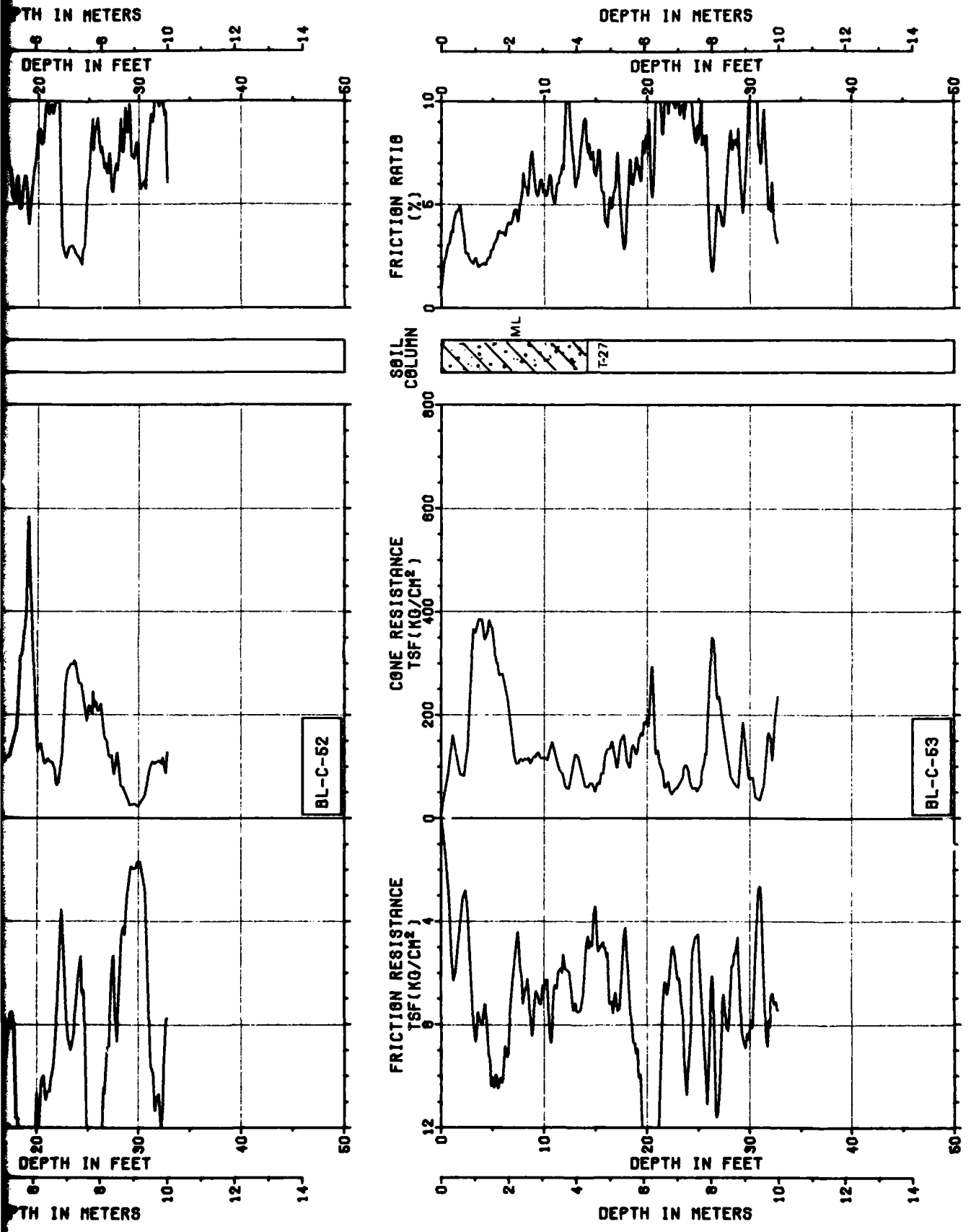
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
12 OF 15

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
ND
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-61



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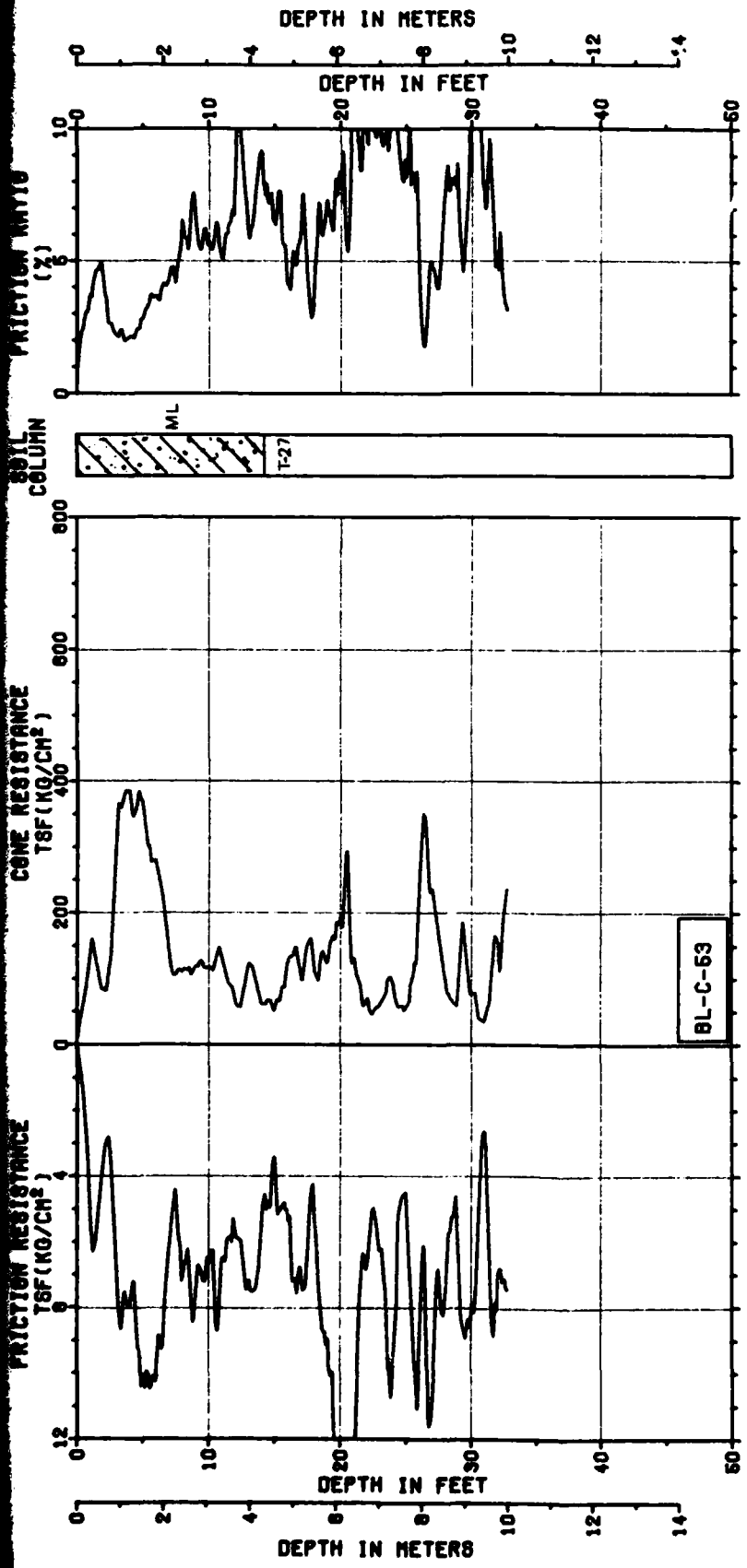
fugr

1

2

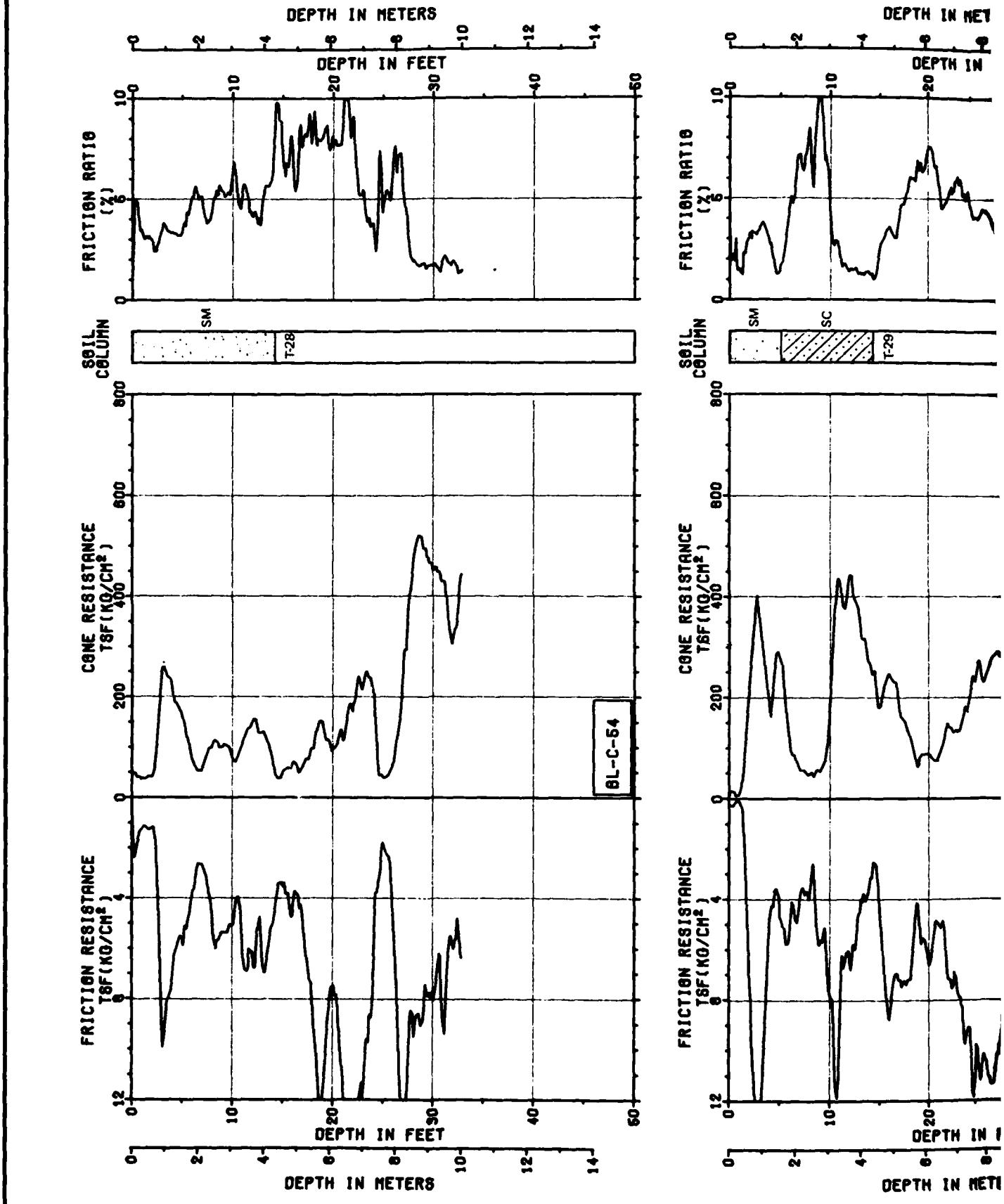


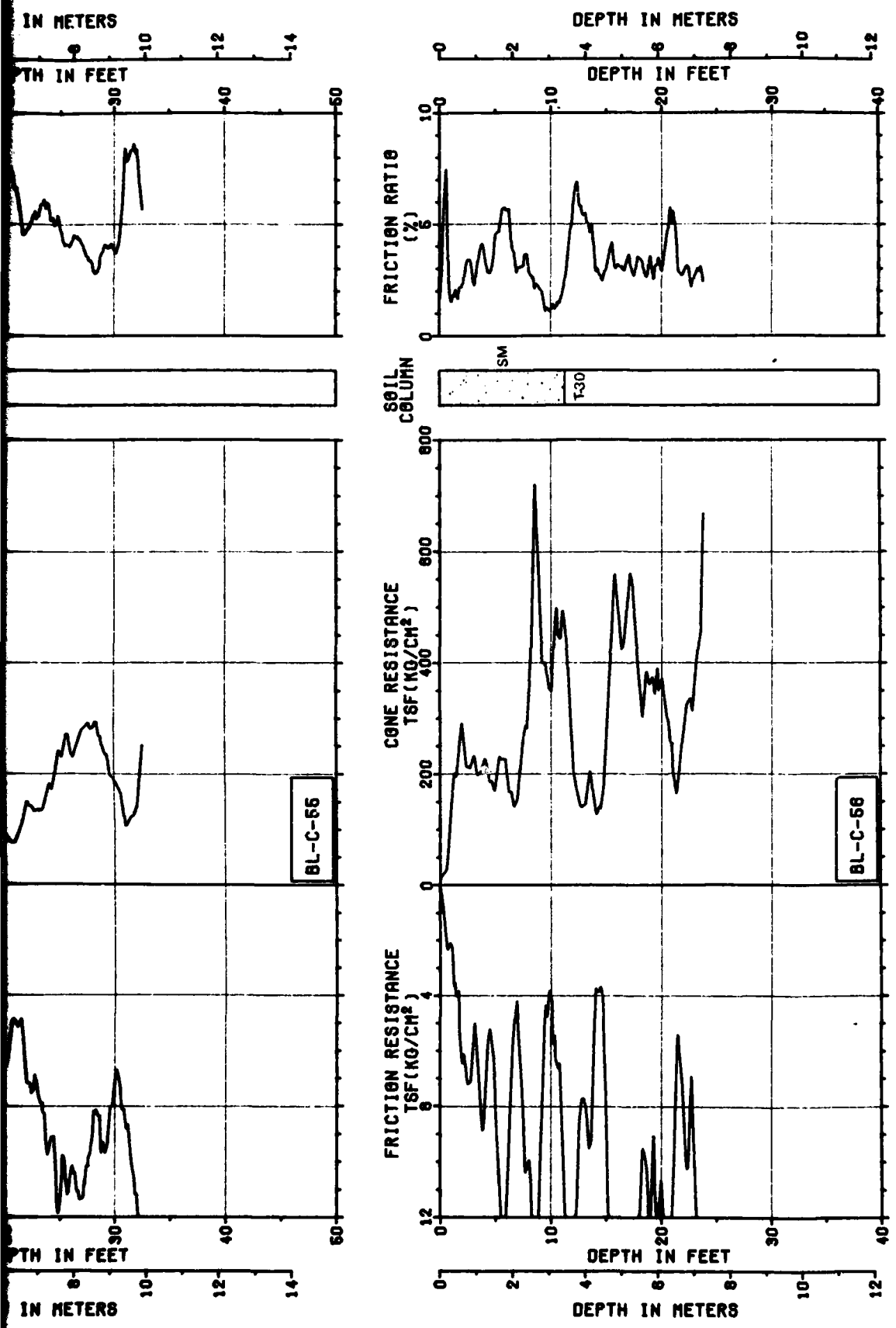
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-6-1
63 OF 18

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
T-28
SC
T-29
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-54



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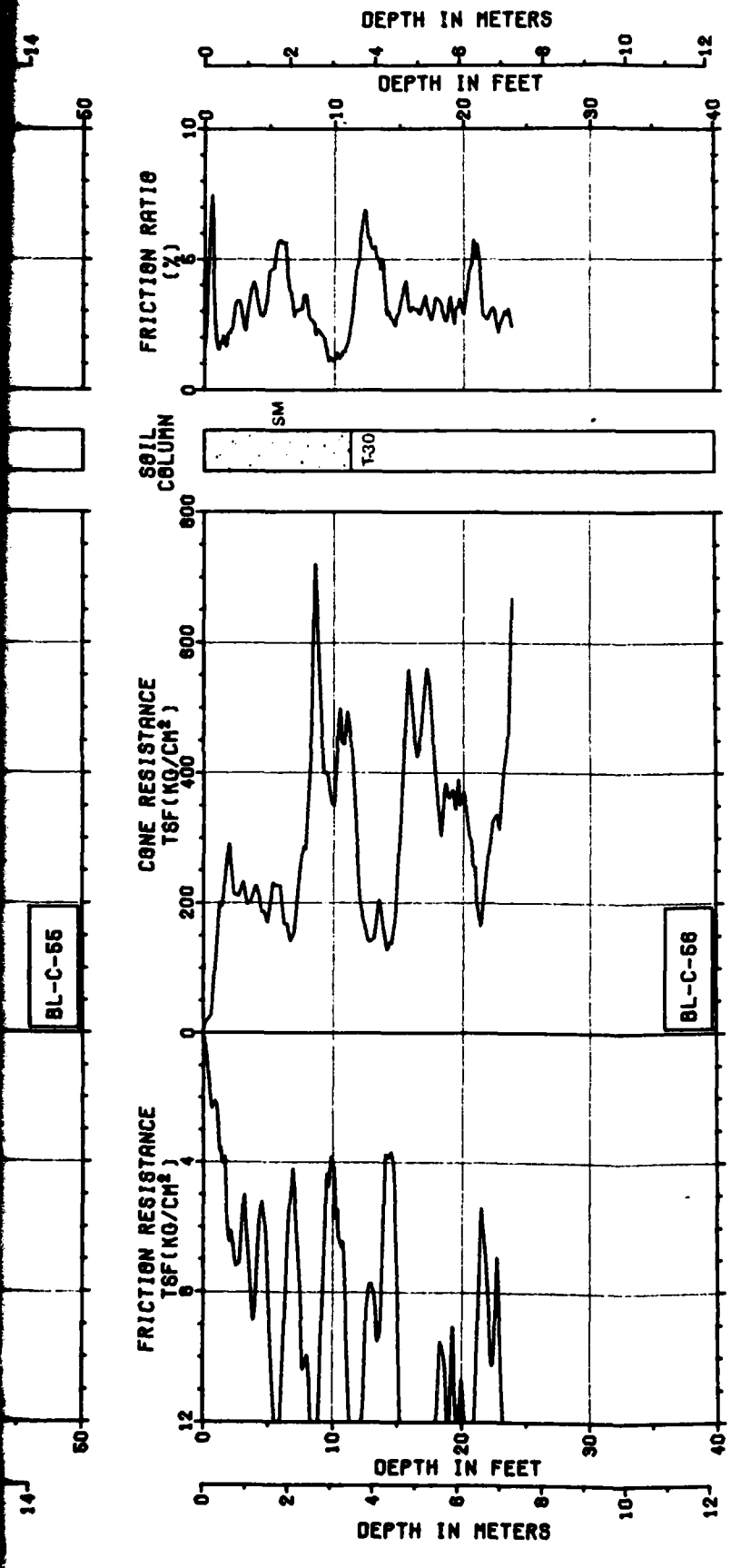
OPERATIONAL
BERYL, UT

MX SITING INVESTIGATI

DEPARTMENT OF THE AIR FOR

FUGRO NATI

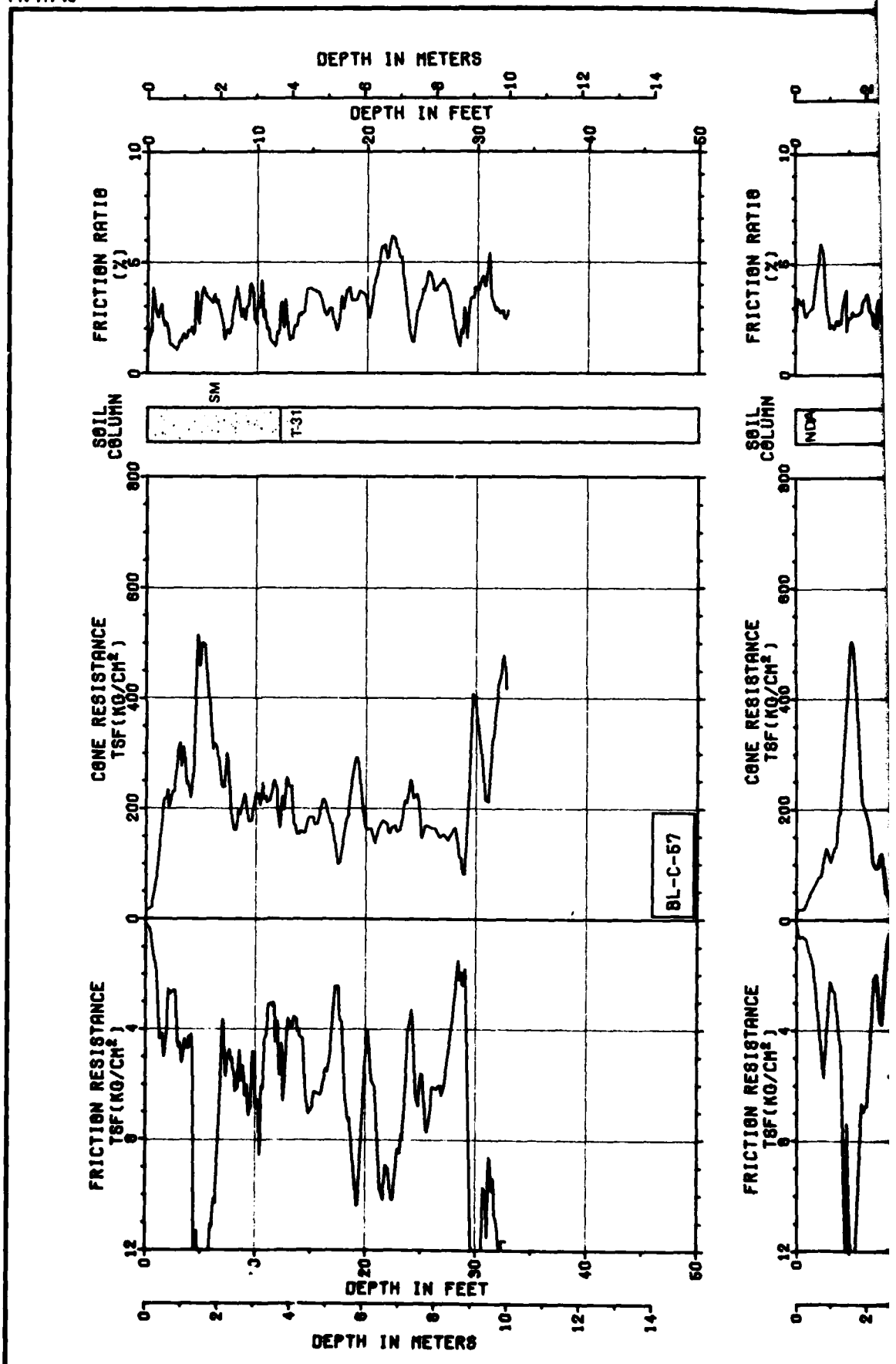


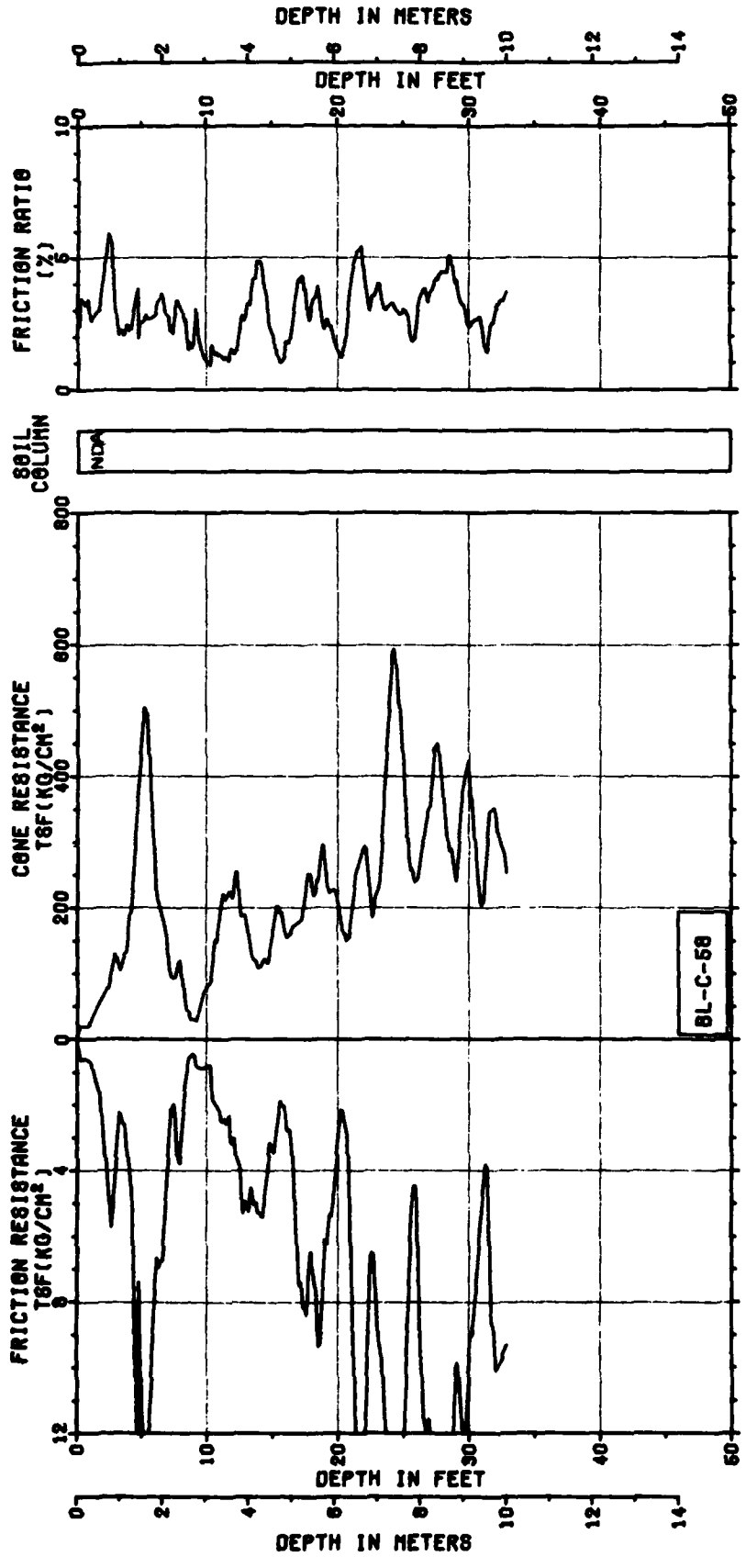
CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
14 OF 18

FUGRO NATIONAL, INC.


DEPTH IN METERS
DEPTH IN FEET
FRICTION RATIO (%)
SOIL COLUMN
SM
T-31
NDA
CONE RESISTANCE TSF(KG/CM²)
FRICTION RESISTANCE TSF(KG/CM²)
BL-C-57



CONE PENETROMETER TEST RESULTS
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-6-1
15 OF 15

FUGRO NATIONAL, INC.

SECTION 7.0

EXPLANATION OF SEISMIC REFRACTION DATA

7.0 EXPLANATION OF SEISMIC-REFRACTION DATA

Each figure shows seismic wave travel times plotted versus surface distance between the energy source (shot) and the detector (geophone) for a single seismic line. Distances are measured along the line from geophone number 1 which is designated as zero distance. Distances to the right (on the paper) of geophone 1 are positive. The direction arrow gives the approximate direction along the geophone array from geophone 1 to geophone 24.

Travel Time Versus Distance Graph (Upper Half of Figure)

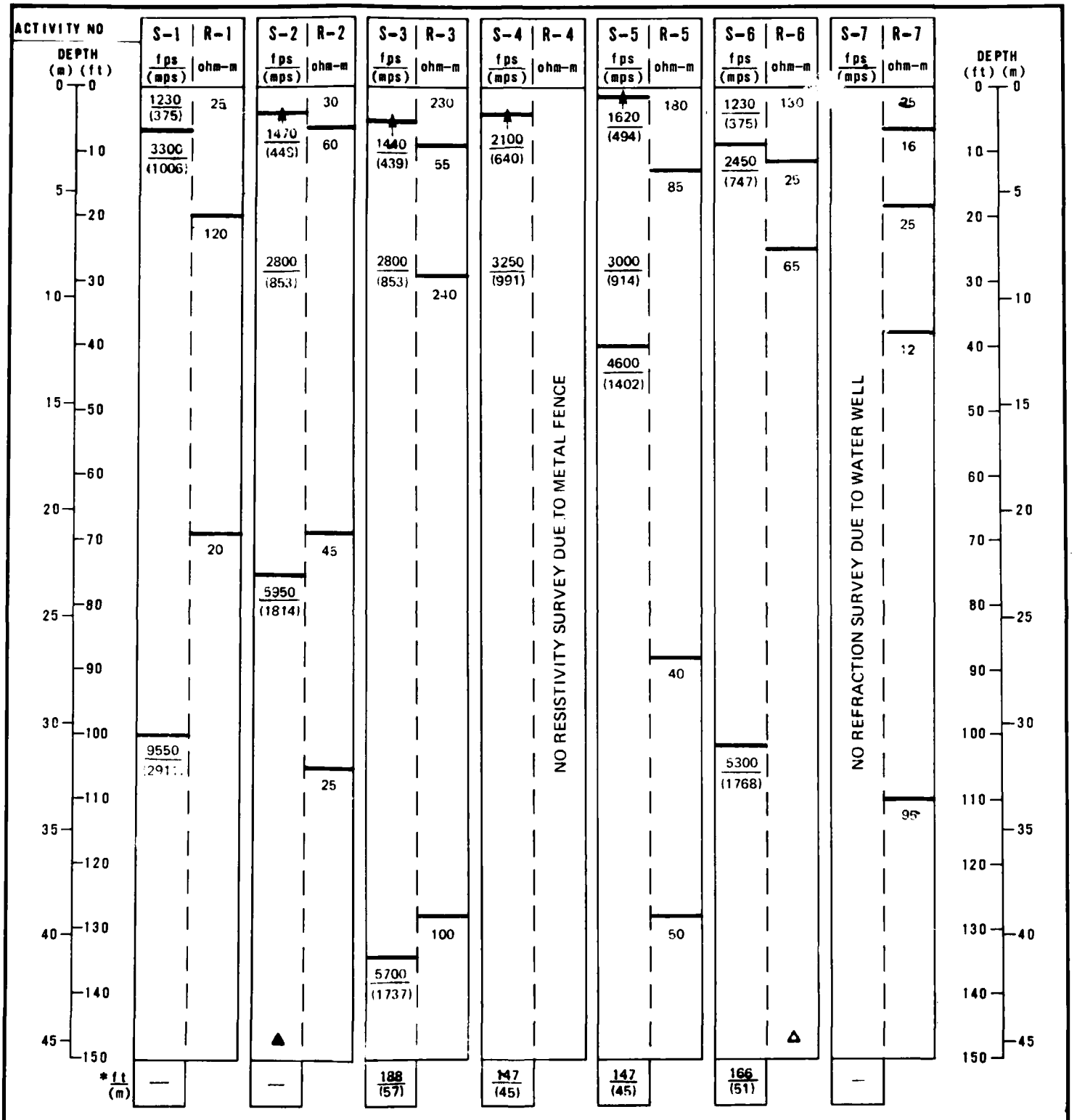
This is a travel time versus distance graph. The abscissa represents distance; the ordinate, time. The six vertical lines represent the locations of shots (designated as F, G, H, I, J, and K). The symbol, X, denotes travel times at geophones that were located to the right of a shot. The symbol, ⊖, denotes travel times that were located to the left of shots.

Velocity Cross Section (Lower Half of Figure)

This is an interpreted velocity cross section beneath the seismic line. The top line represents the ground-surface profile. The short vertical lines crossing the top line mark the geophone positions. The depth scale is plotted relative to a point on the line which was arbitrarily chosen as "zero elevation" at the time the line was surveyed. The additional lines across the cross section represent the interpreted boundaries between layers of material with different compressional wave

velocities. These boundaries are commonly called "refractors." The velocity interpreted to be representative of each layer is shown.

NOTE: There was no seismic refraction line at location BL-SR-7.



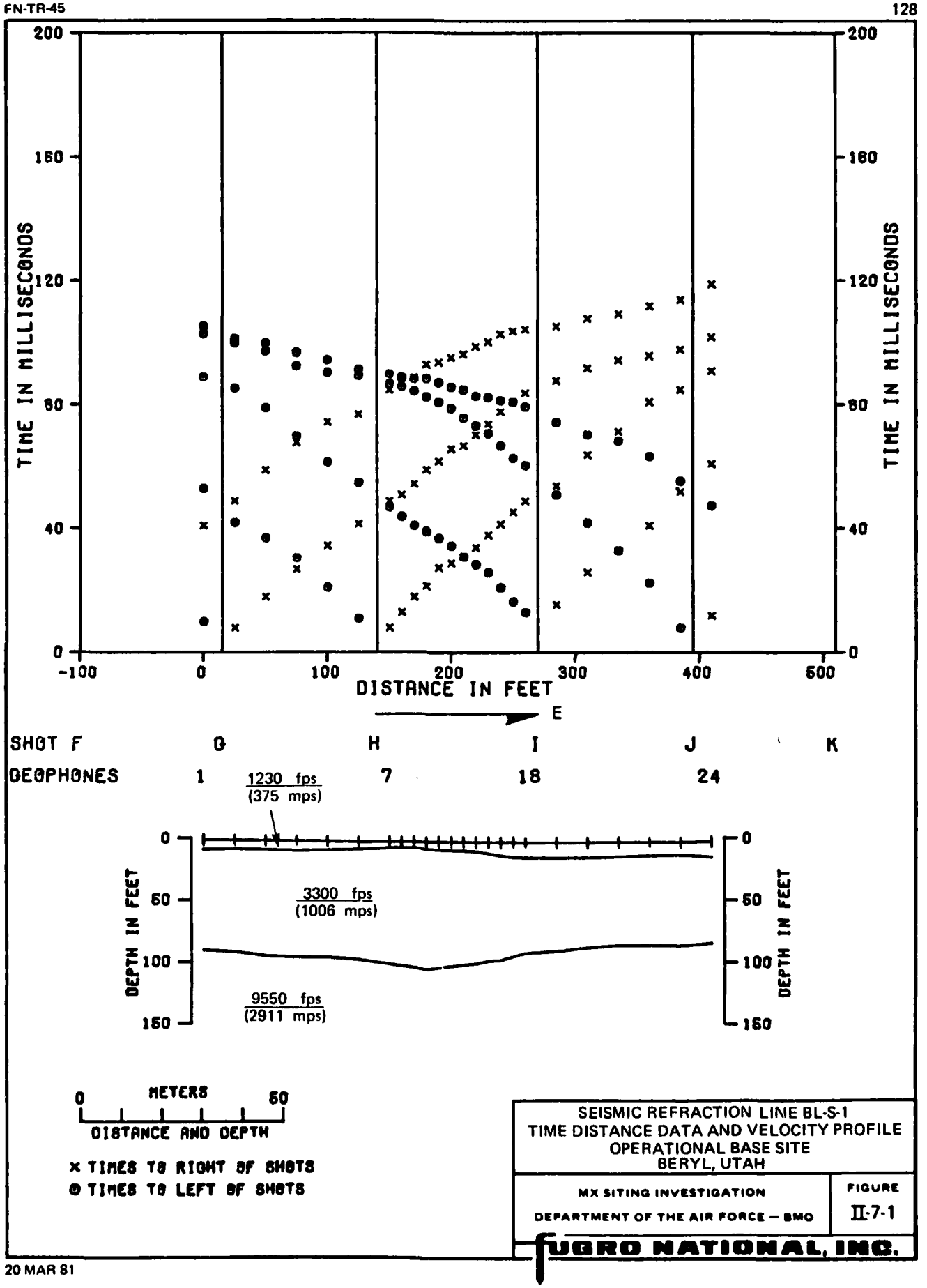
* Approximate depth above which there is no indication of material with a velocity as great as 7000 fps (2134 mps). See Appendix A for an explanation of how this exclusion depth is calculated when the observed velocities are all less than 7000 fps (2134 mps).

SHALLOW SEISMIC REFRACTION
VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

TABLE II-7-1

FUGRO NATIONAL, INC.

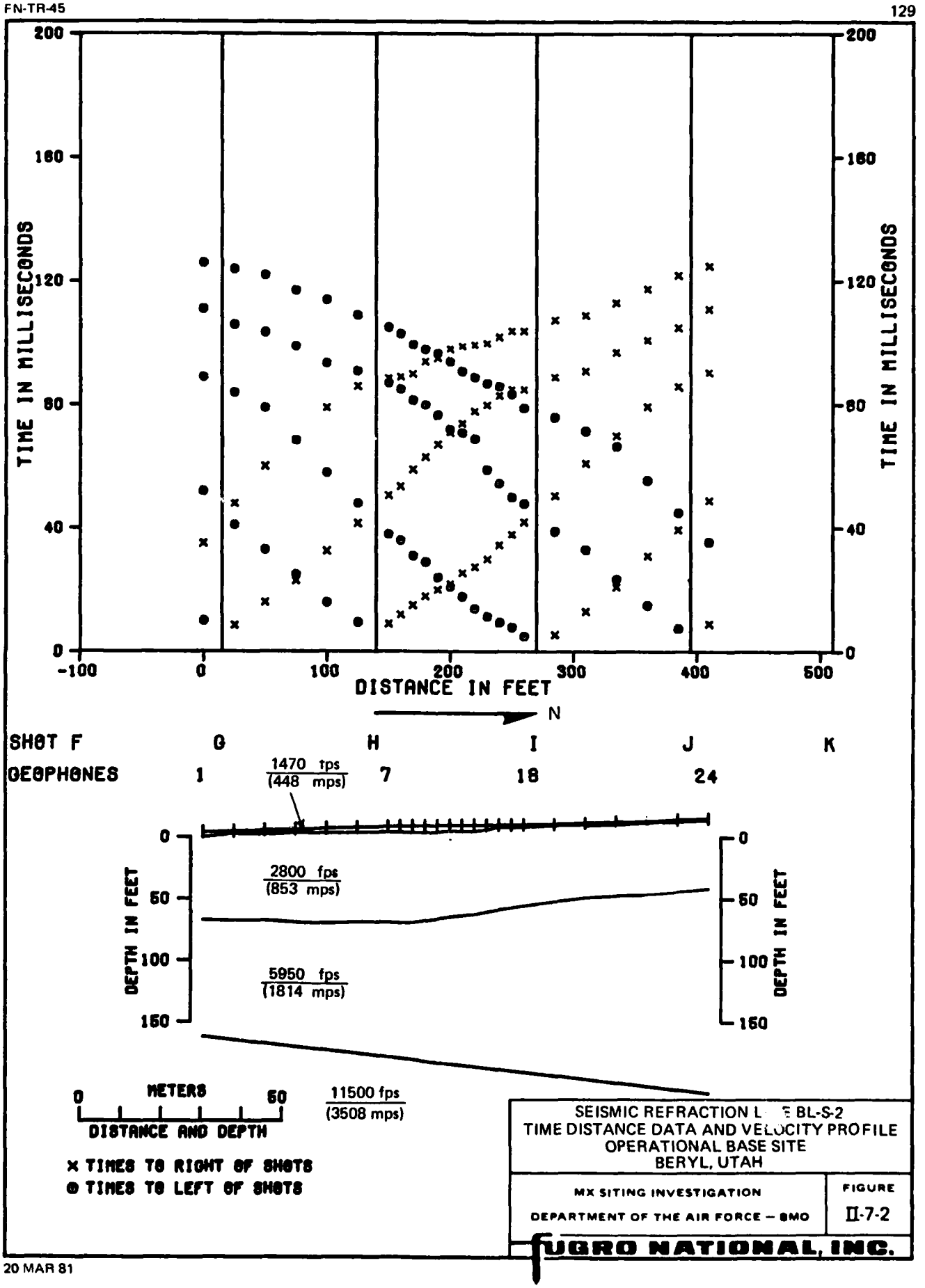


SEISMIC REFRACTION LINE BL-S-1
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-1

FUGRO NATIONAL, INC.



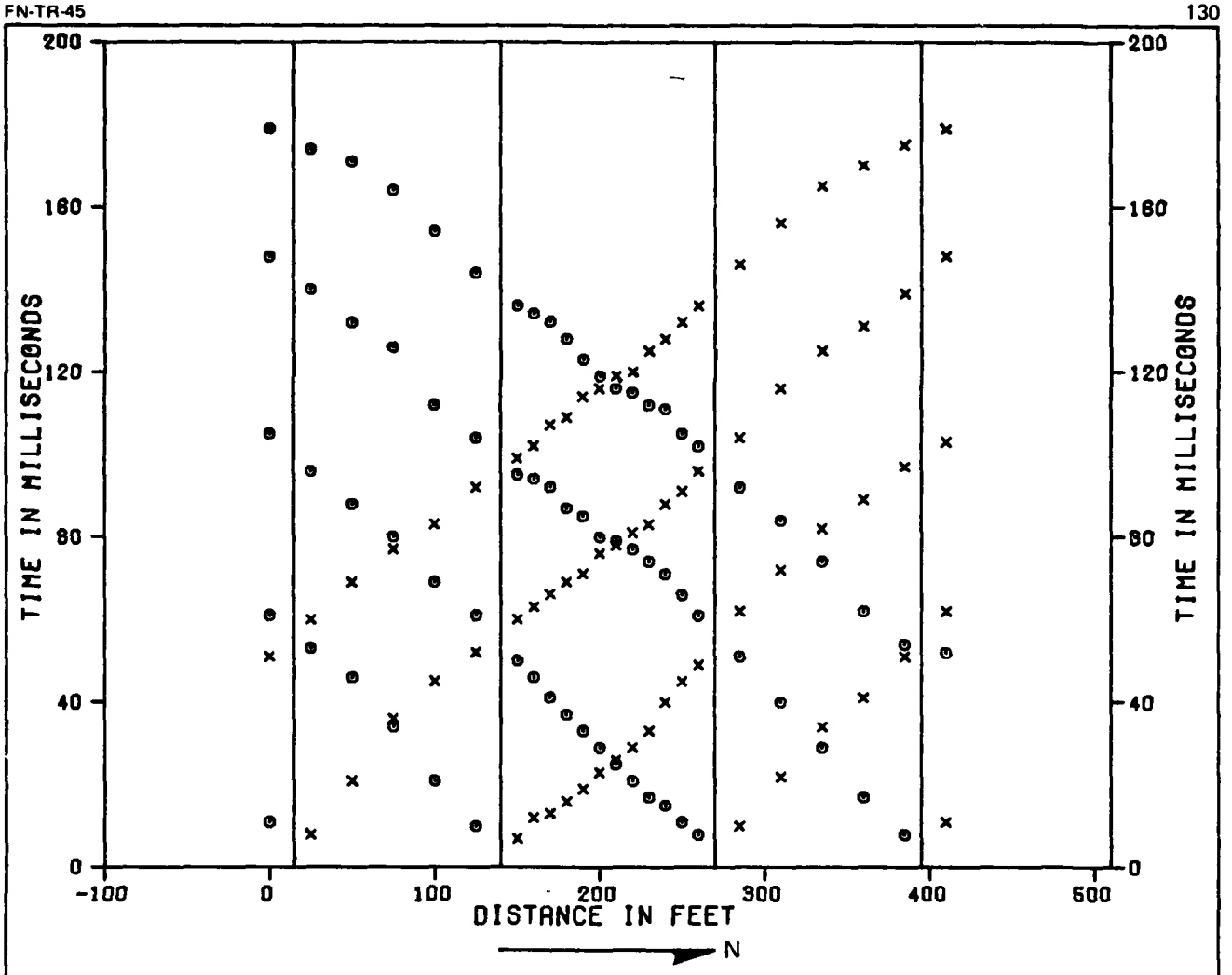
SEISMIC REFRACTION L[illegible]E BL-S-2
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-2

FUGRO NATIONAL, INC.

20 MAR 81



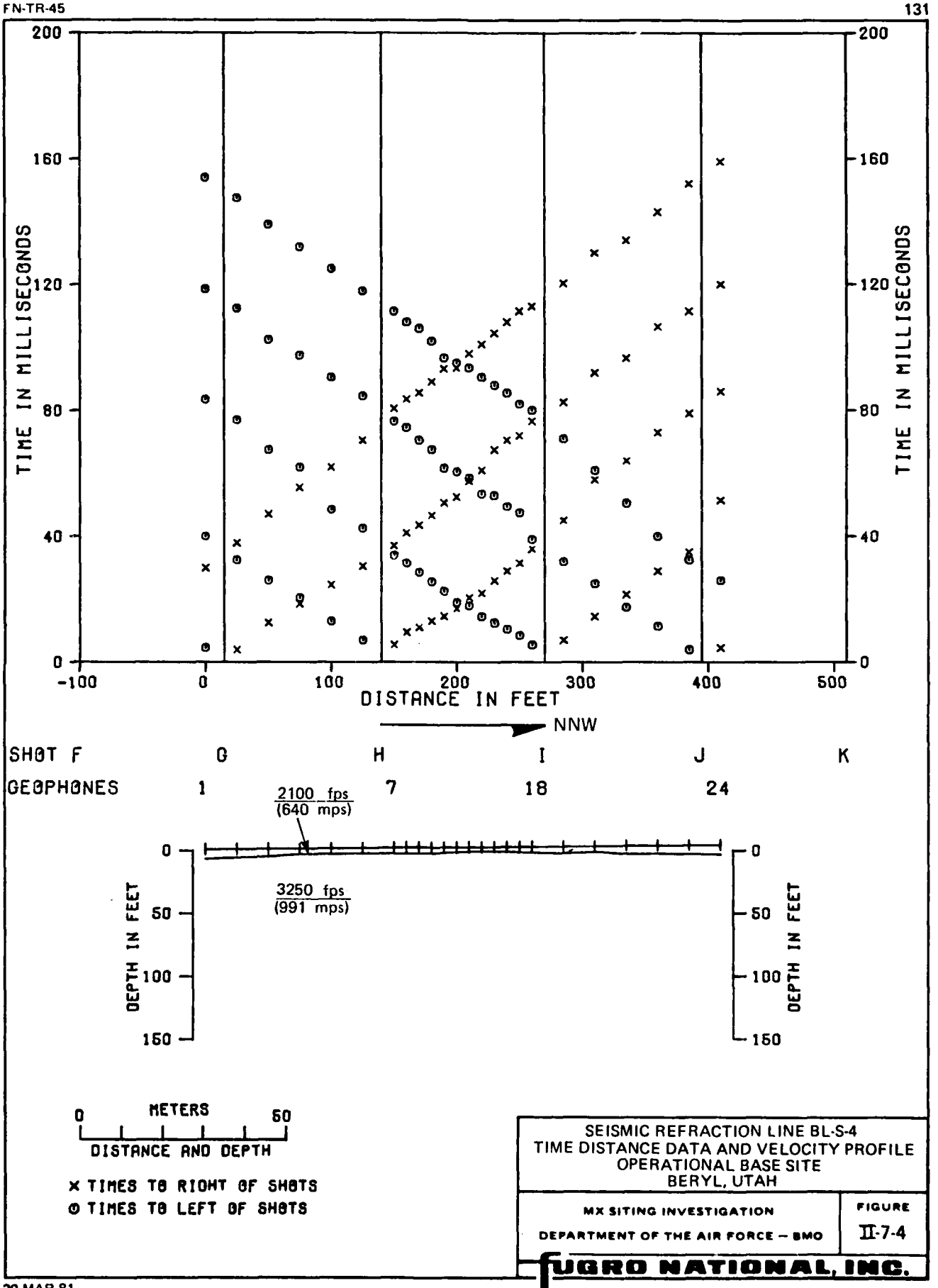
SEISMIC REFRACTION LINE BL-S-3
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-3

FUGRO NATIONAL, INC.

20 MAR 81



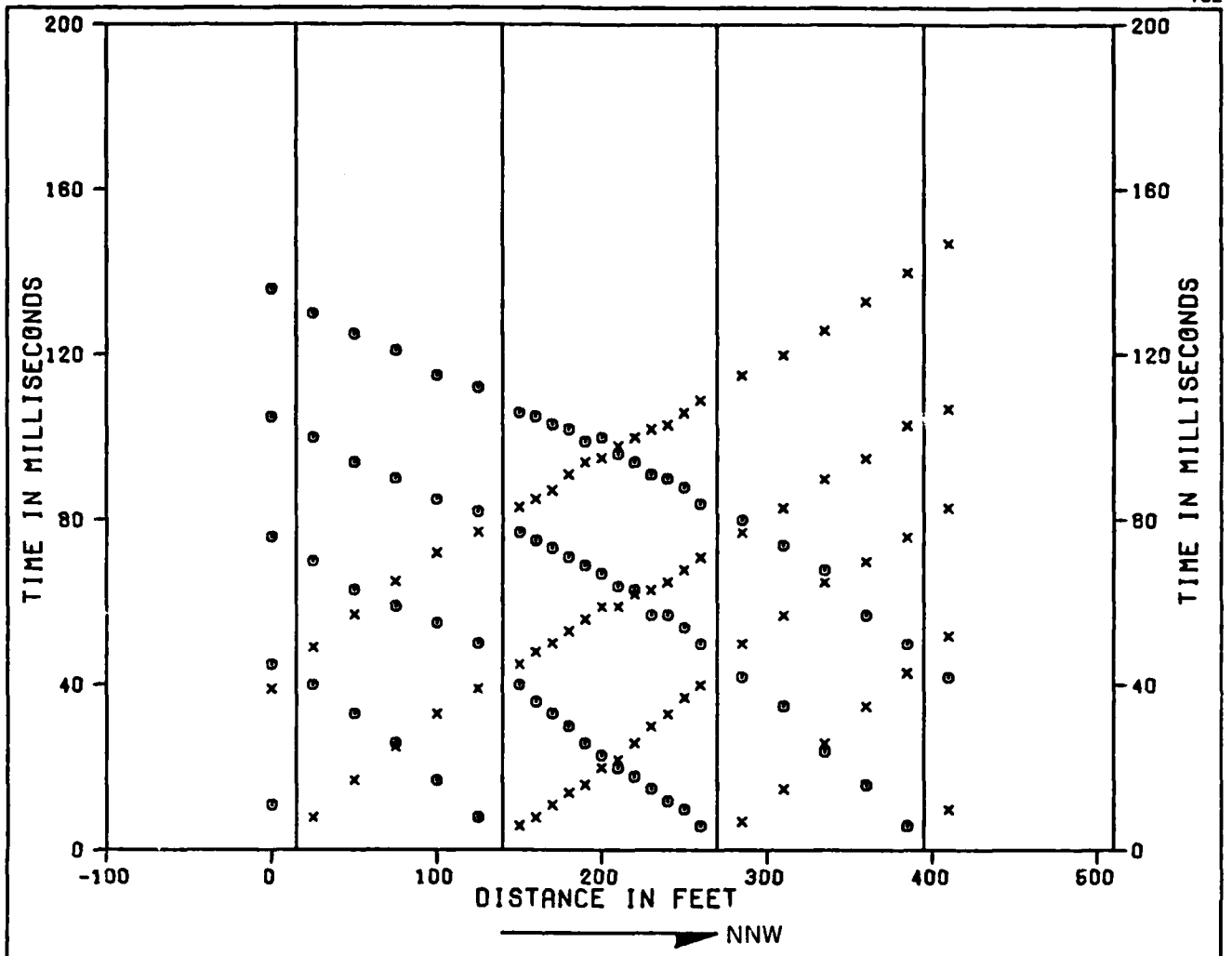
SEISMIC REFRACTION LINE BL-S-4
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-4

FUGRO NATIONAL, INC.

20 MAR 81



0 METERS 50

DISTANCE AND DEPTH

× TIMES TO RIGHT OF SHOTS

⊙ TIMES TO LEFT OF SHOTS

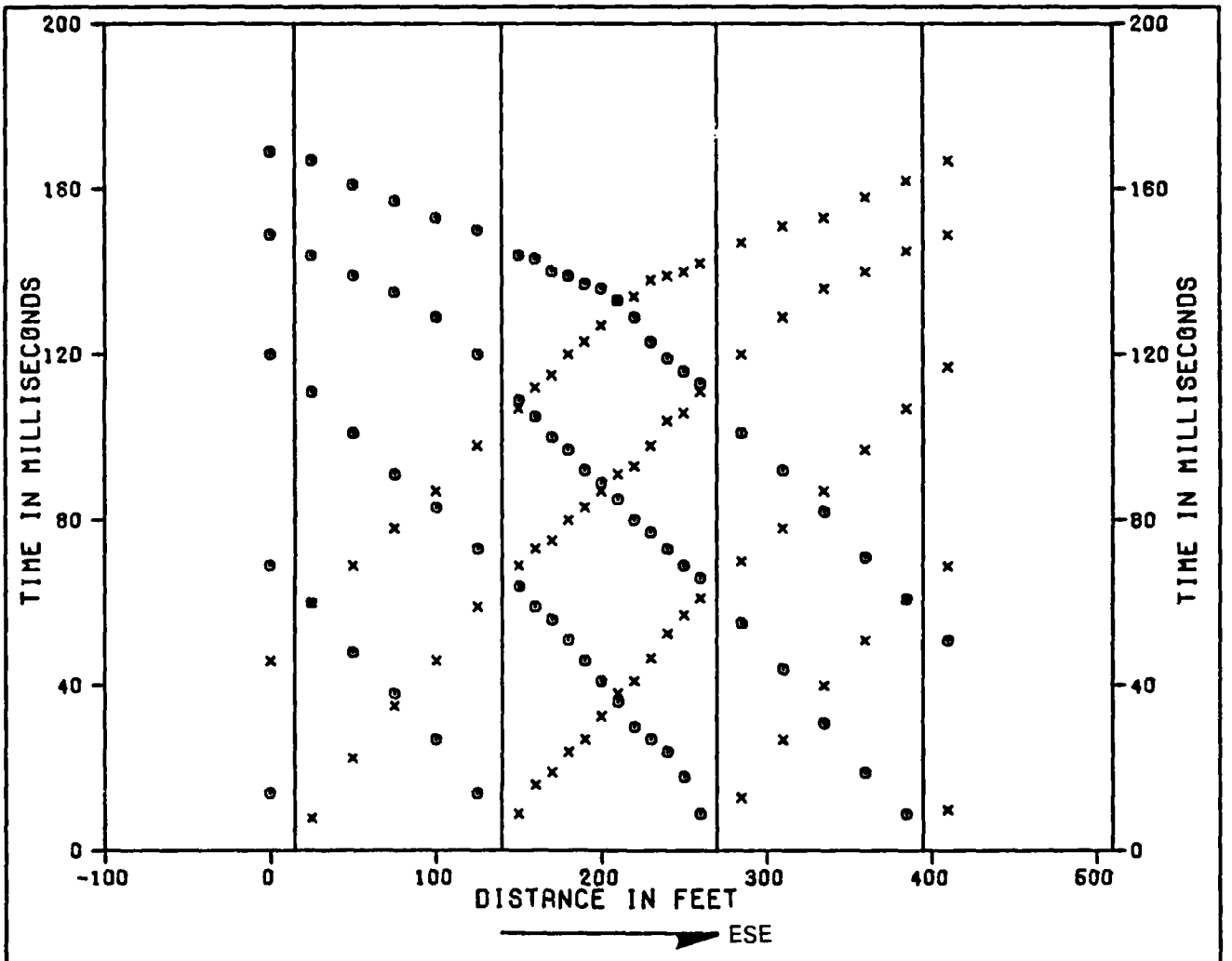
SEISMIC REFRACTION LINE BL-S-5
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

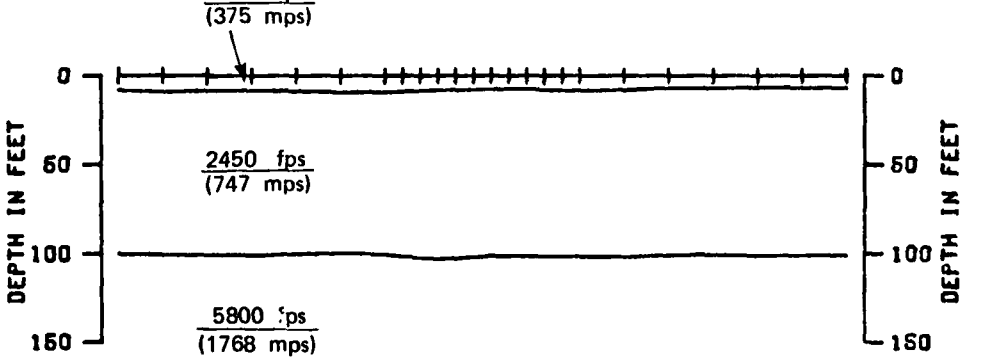
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-5

FUGRO NATIONAL, INC.

20 MAR 81





0 METERS 50

DISTANCE AND DEPTH

× TIMES TO RIGHT OF SHOTS

○ TIMES TO LEFT OF SHOTS

SEISMIC REFRACTION LINE BL-S-6
TIME DISTANCE DATA AND VELOCITY PROFILE
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE – BMO

FIGURE
II-7-6

FUGRO NATIONAL, INC.

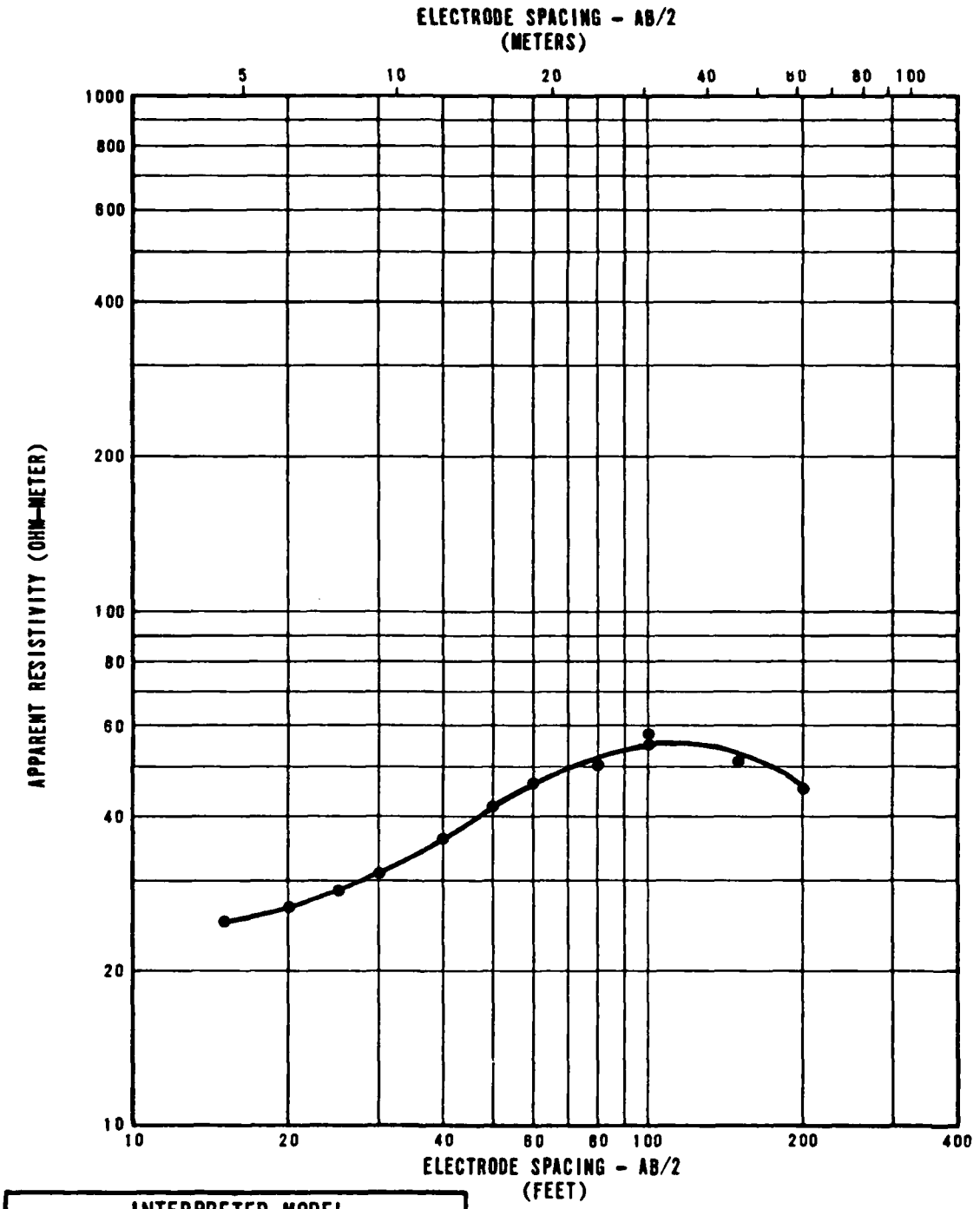
20 MAR 81

8.0 EXPLANATION OF ELECTRICAL RESISTIVITY DATA

Each figure in this section presents the data obtained from a resistivity sounding and a tabulated model of resistivity layers that would produce a curve similar to the observed curve. The upper portion of the figures is a graph in which measured apparent resistivity values in ohm-meters are plotted versus one-half the distance between the current electrodes.

The interpreted model tabulated at the bottom of the figures shows a combination of true resistivity layers and thicknesses obtained by matching theoretical curves to the field curve.

NOTE: There was no resistivity sounding done at location BL-SR-4.



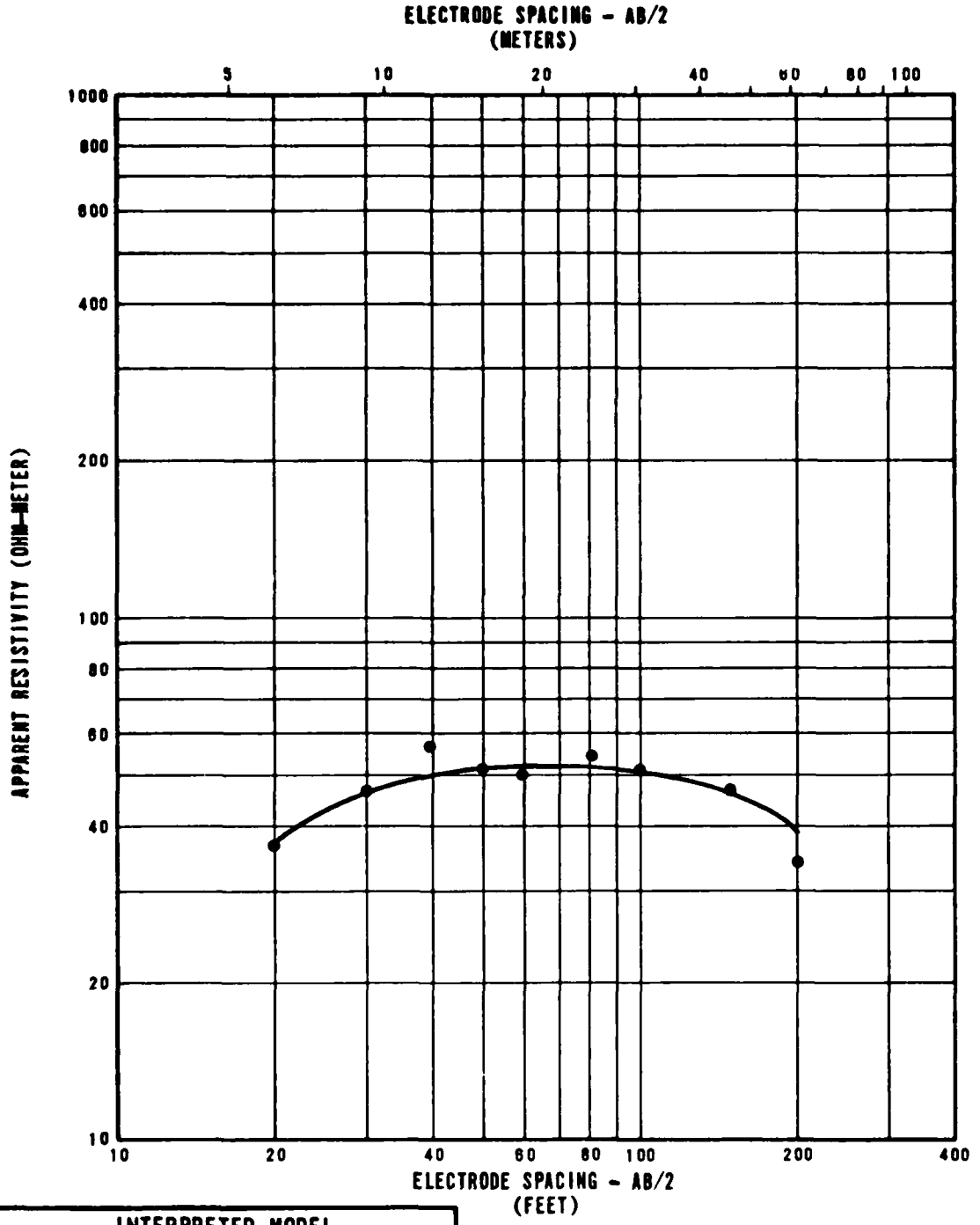
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	25
21	6	120
68	21	20

RESISTIVITY SOUNDING BL-R-1
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-1

FUGRO NATIONAL, INC.



INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	30
6	2	60
68	21	45
104	32	25

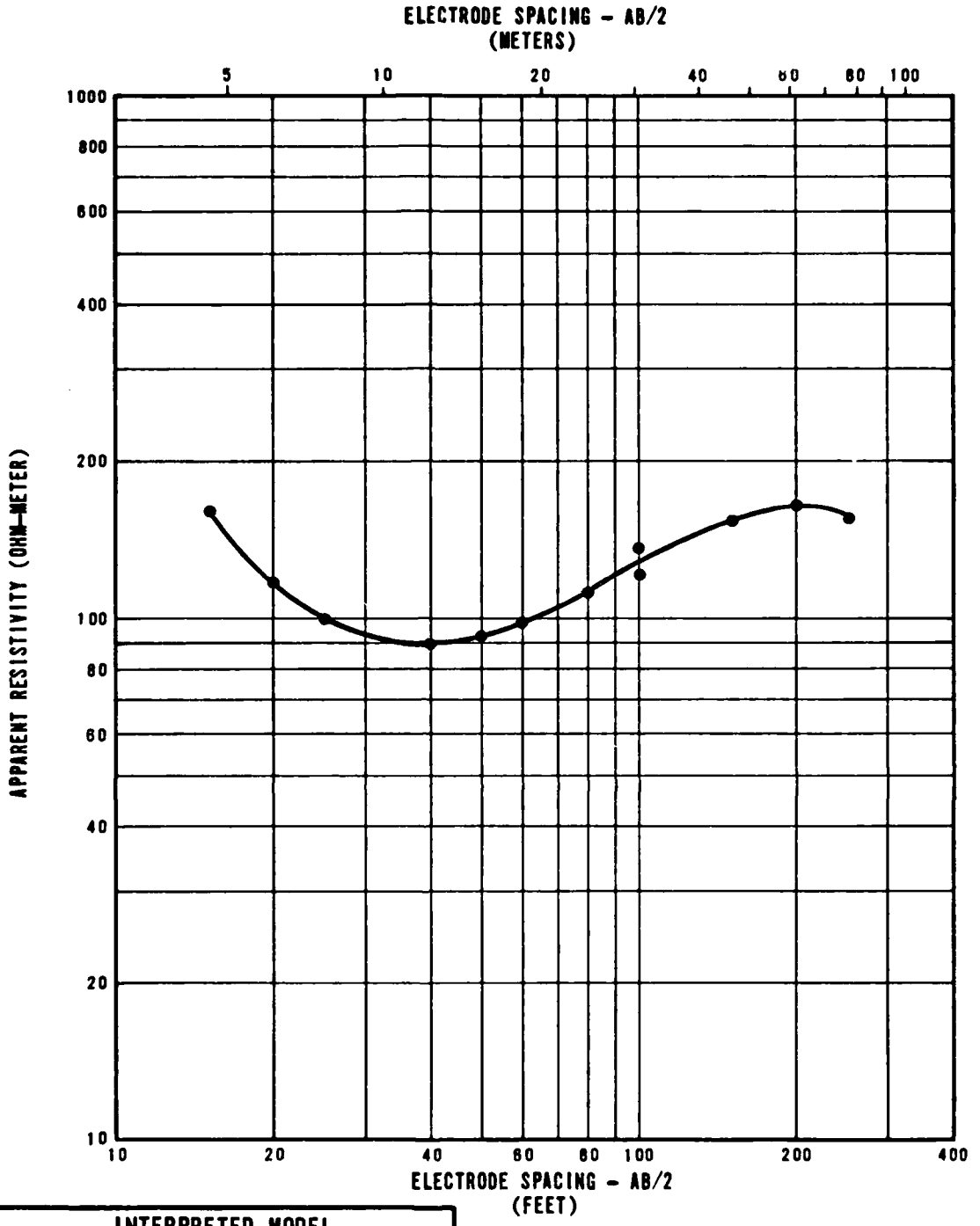
RESISTIVITY SOUNDING BL-R-2
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-2

FUGRO NATIONAL, INC.

20 MAR 81



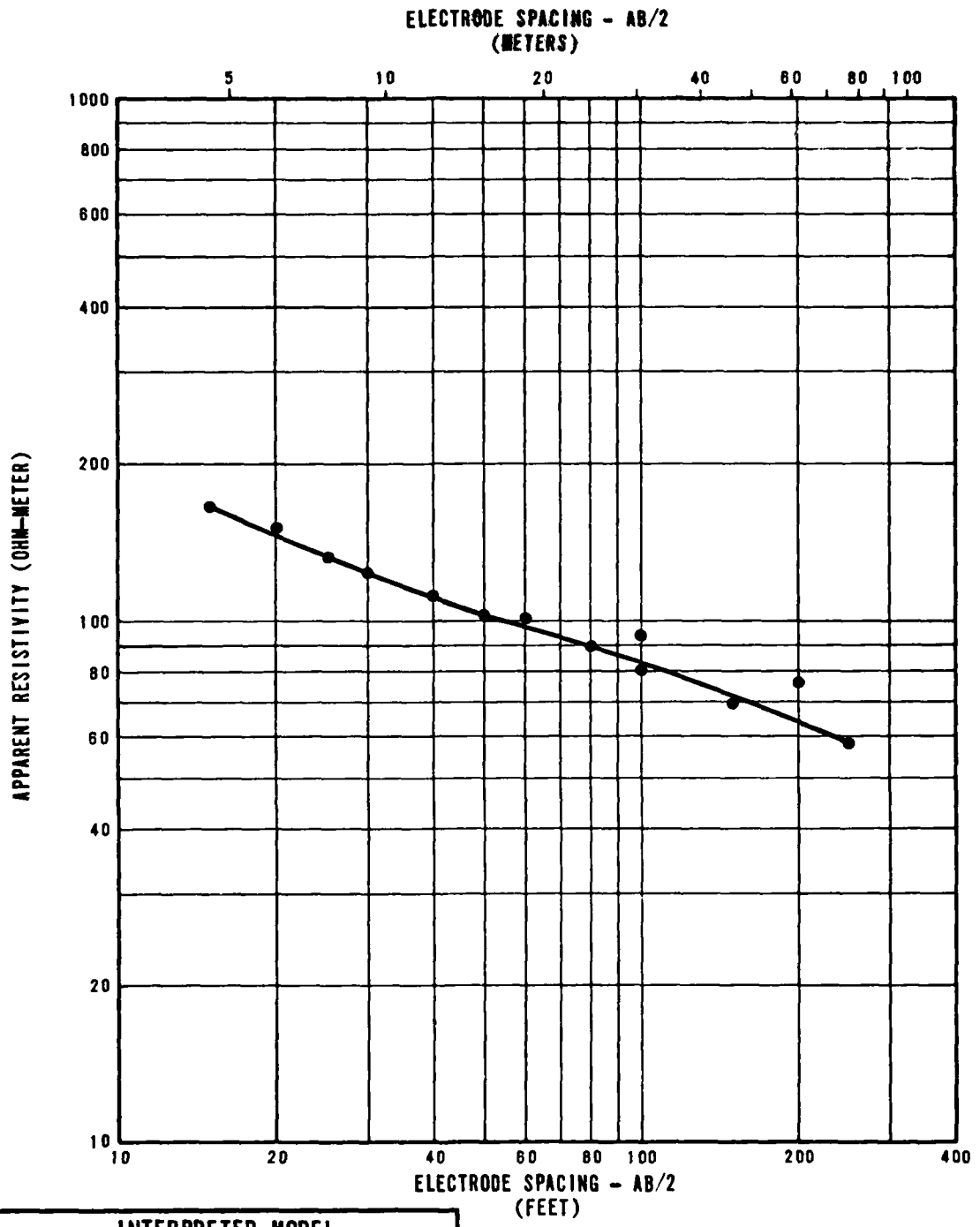
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	230
8	2	55
28	9	240
128	39	100

RESISTIVITY SOUNDING BL-R-3
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-3

FUGRO NATIONAL, INC.



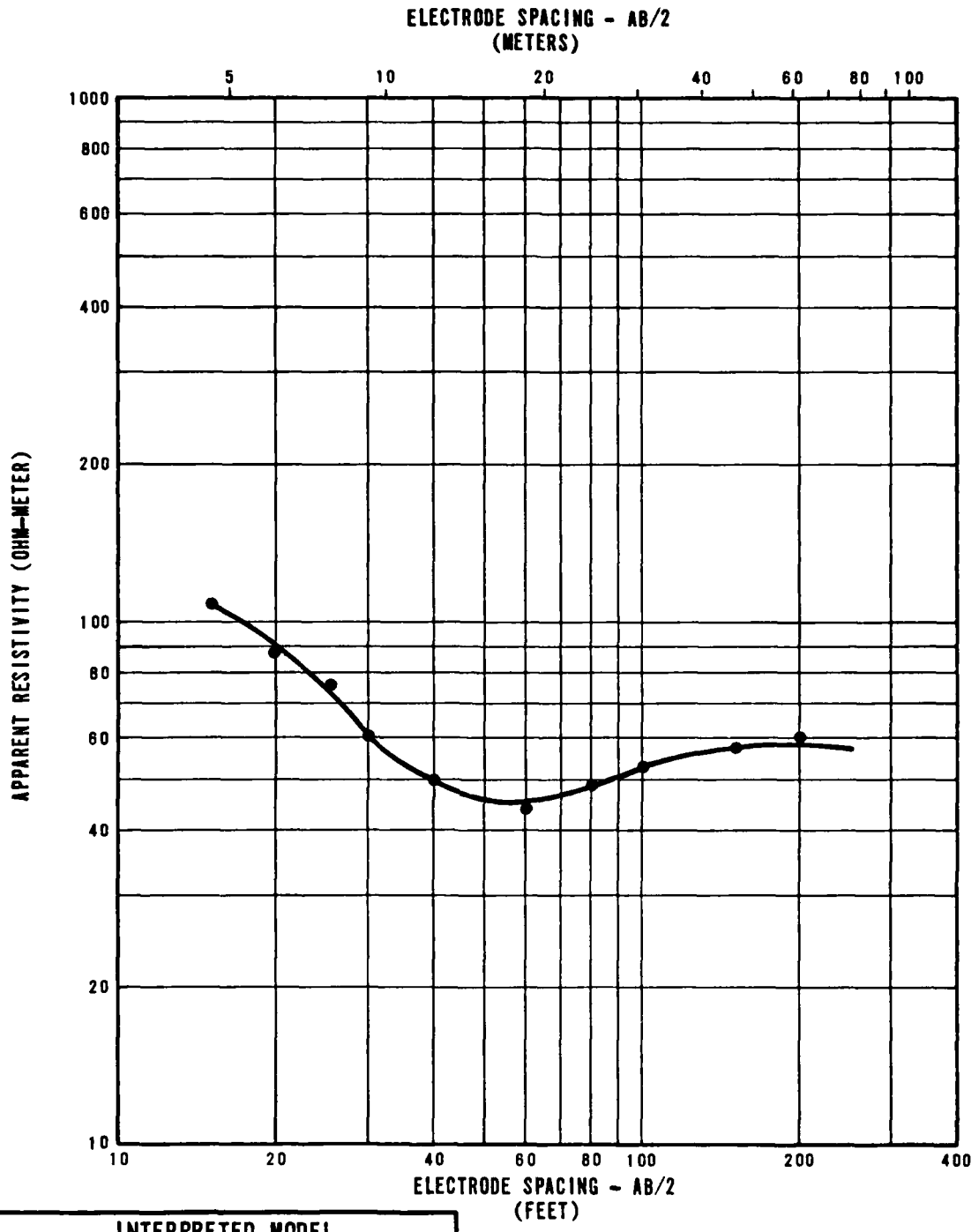
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	180
13	4	85
88	27	40
128	39	50

RESISTIVITY SOUNDING BL-R-5
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-4

FUGRO NATIONAL, INC.



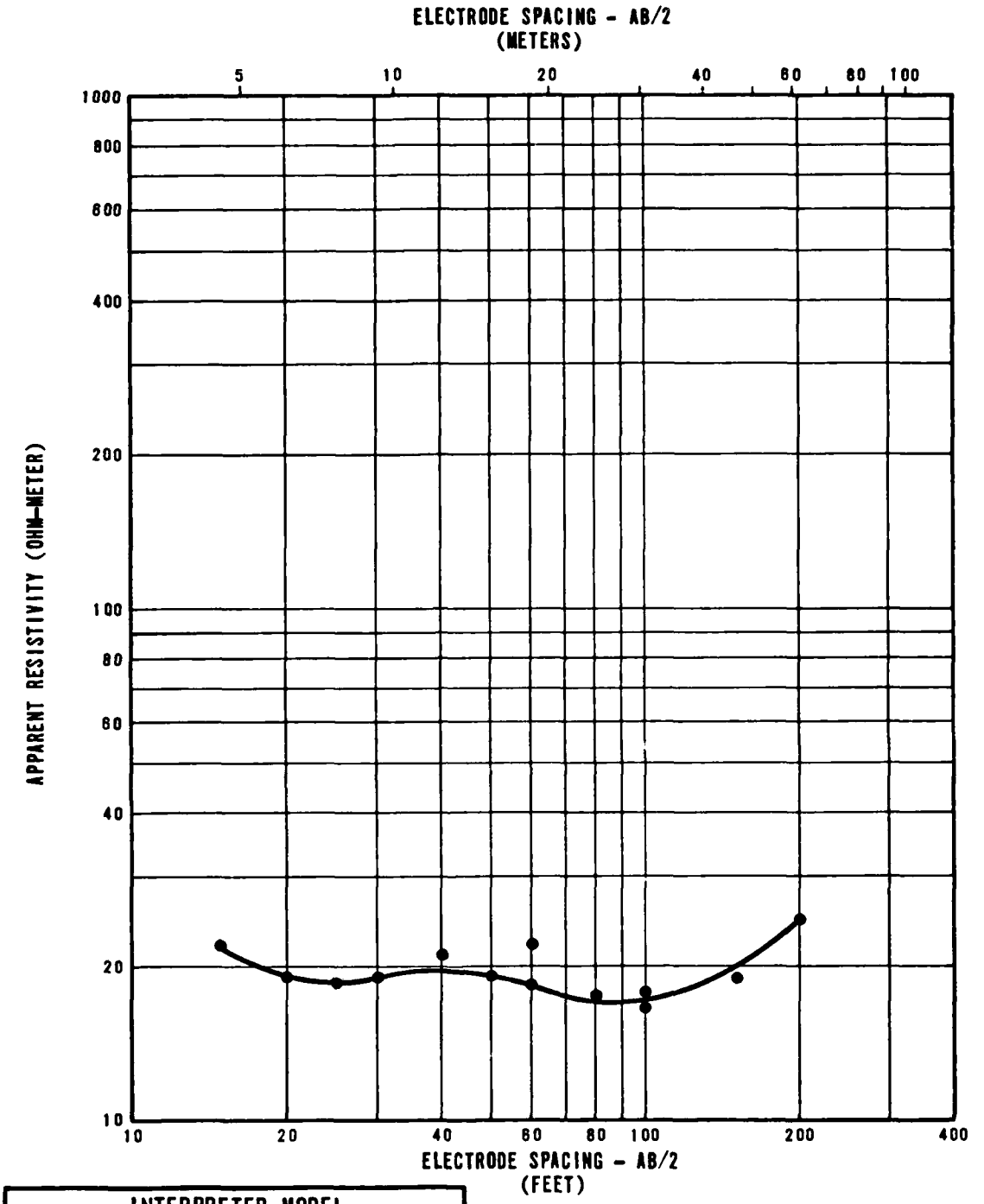
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	130
12	4	25
24	7	65
177	54	30

RESISTIVITY SOUNDING BL-R-6
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-5

FUGRO NATIONAL, INC.



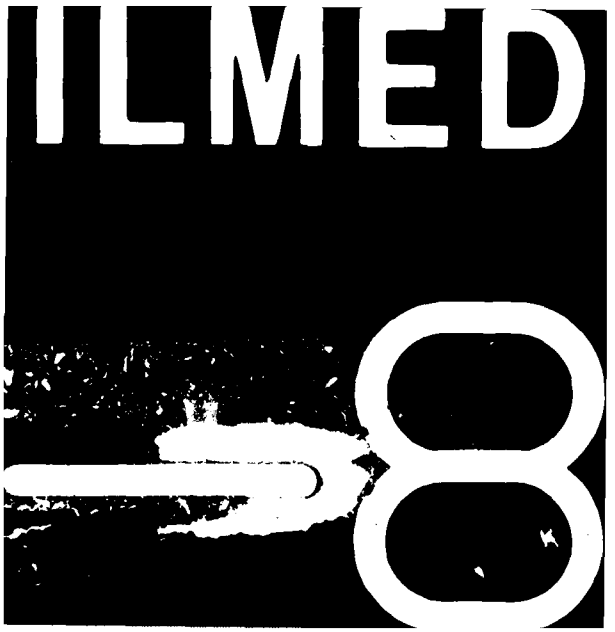
INTERPRETED MODEL		
LAYER DEPTH		RESISTIVITY VALUES
FEET	METERS	OHM-METER
0	0	25
7	2	16
20	6	25
37	11	12
110	34	95

RESISTIVITY SOUNDING BL-R-7
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE
BERYL, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE
II-8-6

FUGRO NATIONAL, INC.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