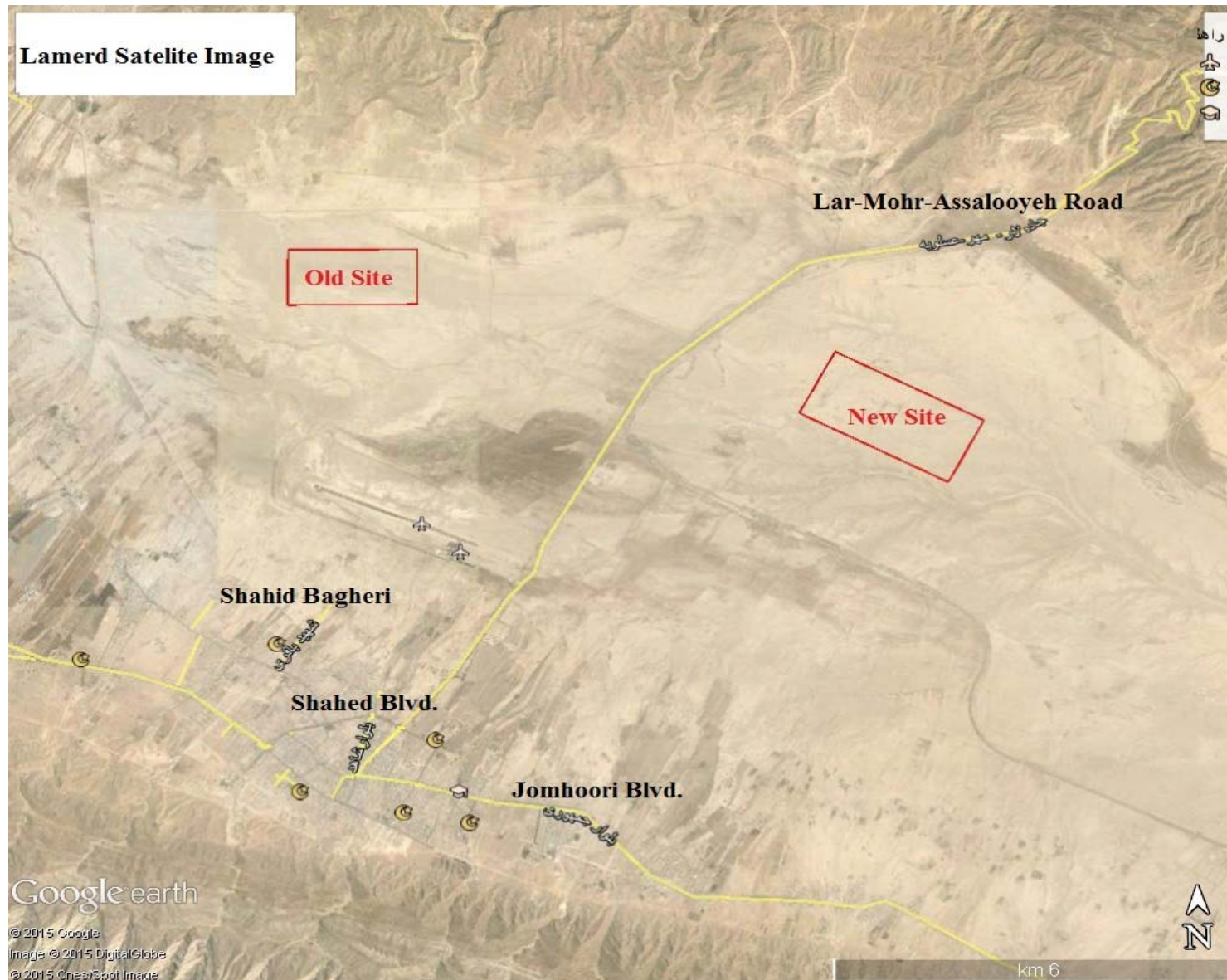


	SOIL ENGINEERING SERVICES (SES) خدمات مهندسی مکانیک خاک	
	PROJ NO: 1347-EE-PEP-GEO-001-B	REV: B
	SUBJECT: GEOTECHNICAL INVESTIGATION, PHASE I, FACTUAL REPORT, SOUTH ALUMINIUM SMELTER (SALCO) IRAN	

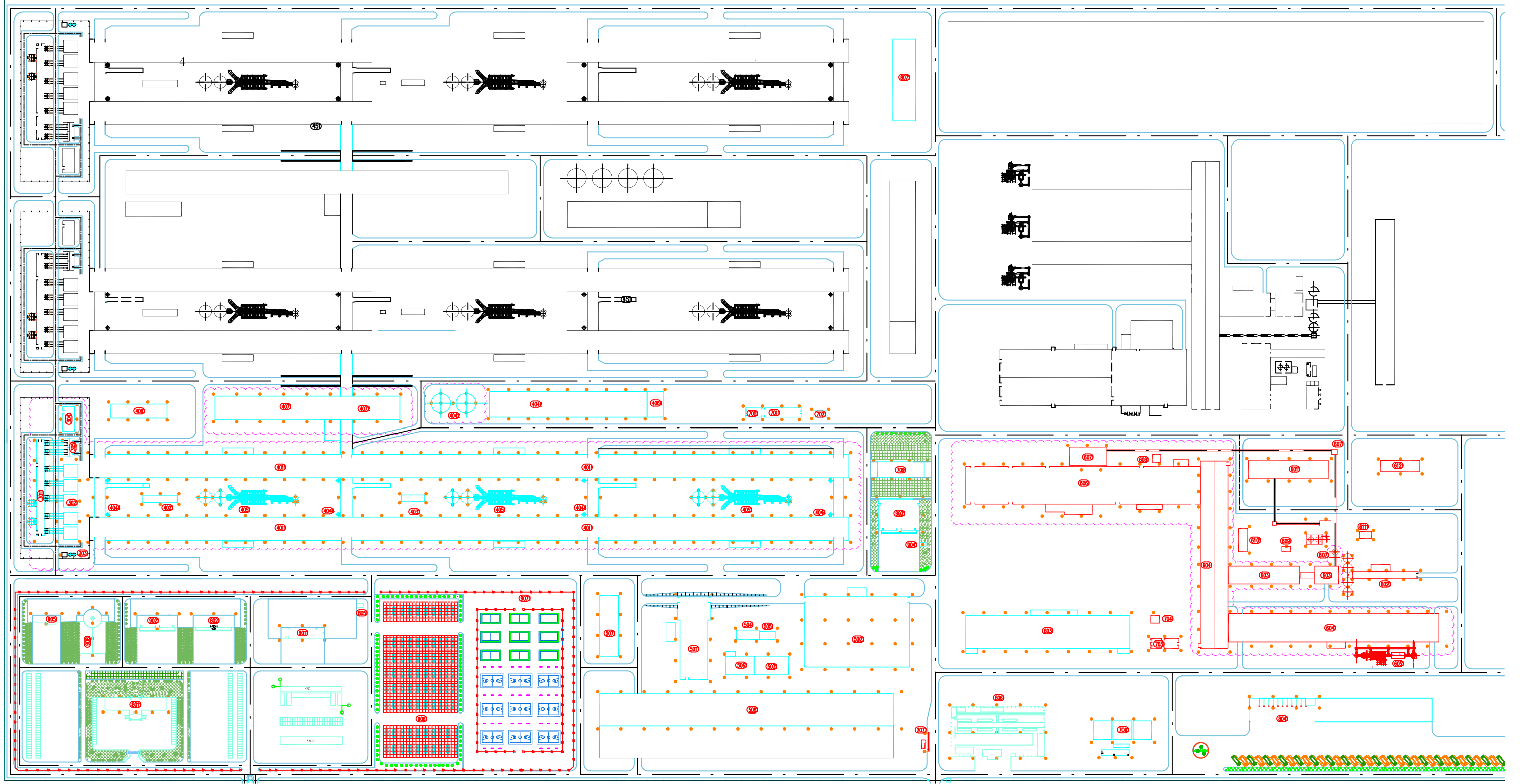
FIGURES



TITLE : Site Location

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIGURE: 1
	CLIENT: NFC	PROJ. No. : 1347

SOILS ENGINEERING SERVICES CONSULTING ENGINEERS

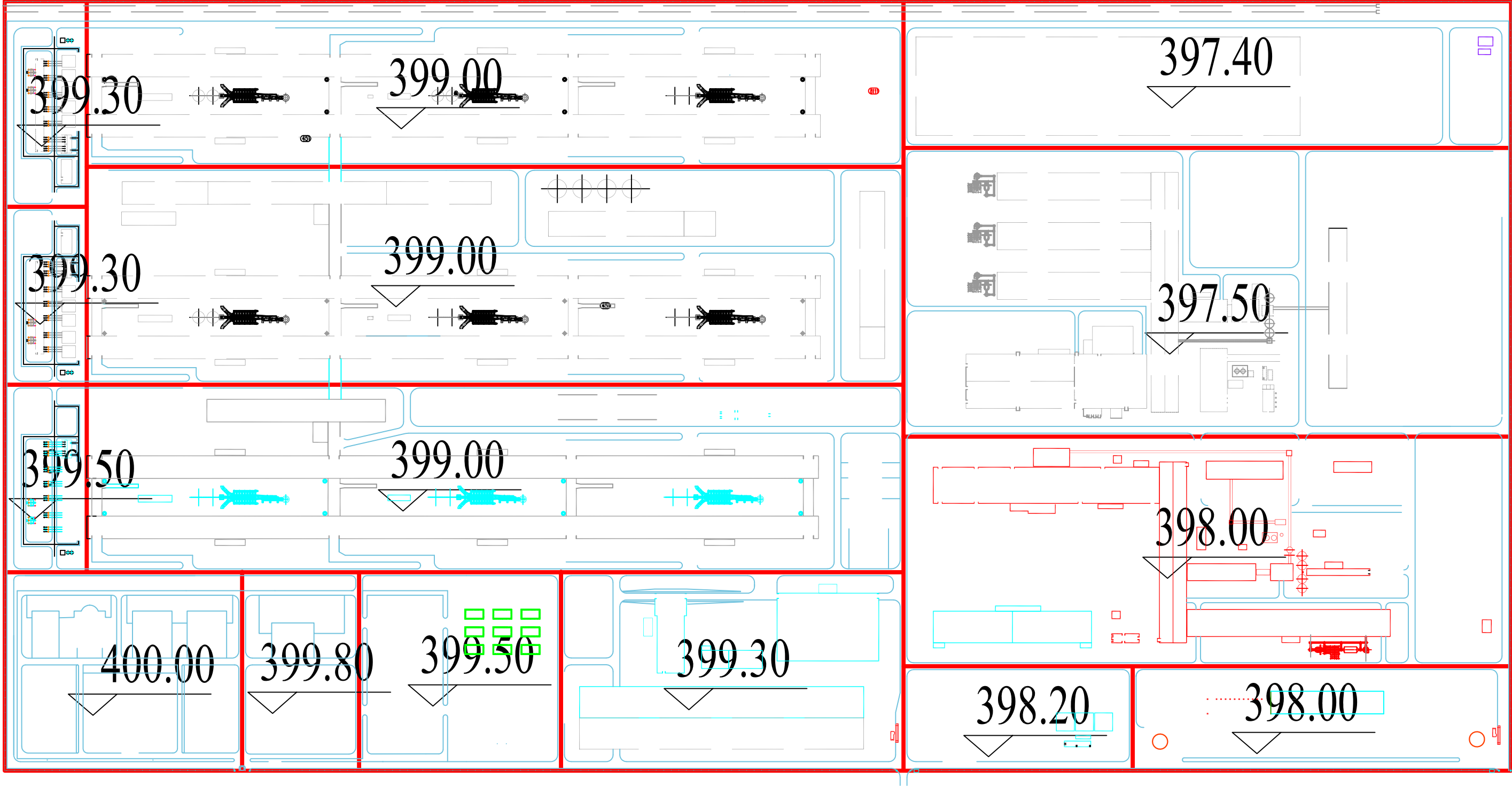


Legend

- Building
- Building of Phase I
- Water Pond
- Road
- Silo
- Fence & Gate
- Stack
- Paved Area
- PHASE 1 ZONE



SITE PLAN		FIG. No: 2
	PROJECT SOUTH ALUMINUM SMELTER PLANT	HORIZONTAL SCALE :1/5000
	CLIENT : NFC	VERTICAL SCALE :1/5000
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		PROJ. No.:1347



Legend

Building Building of Phase II

Water Pond Road

Silo Fence & Gate

Stack Paved Area



SITE FINAL GROUND LEVEL



PROJECT : SOUTH ALUMINUM SMELTER PLANT

CLIENT : NFC

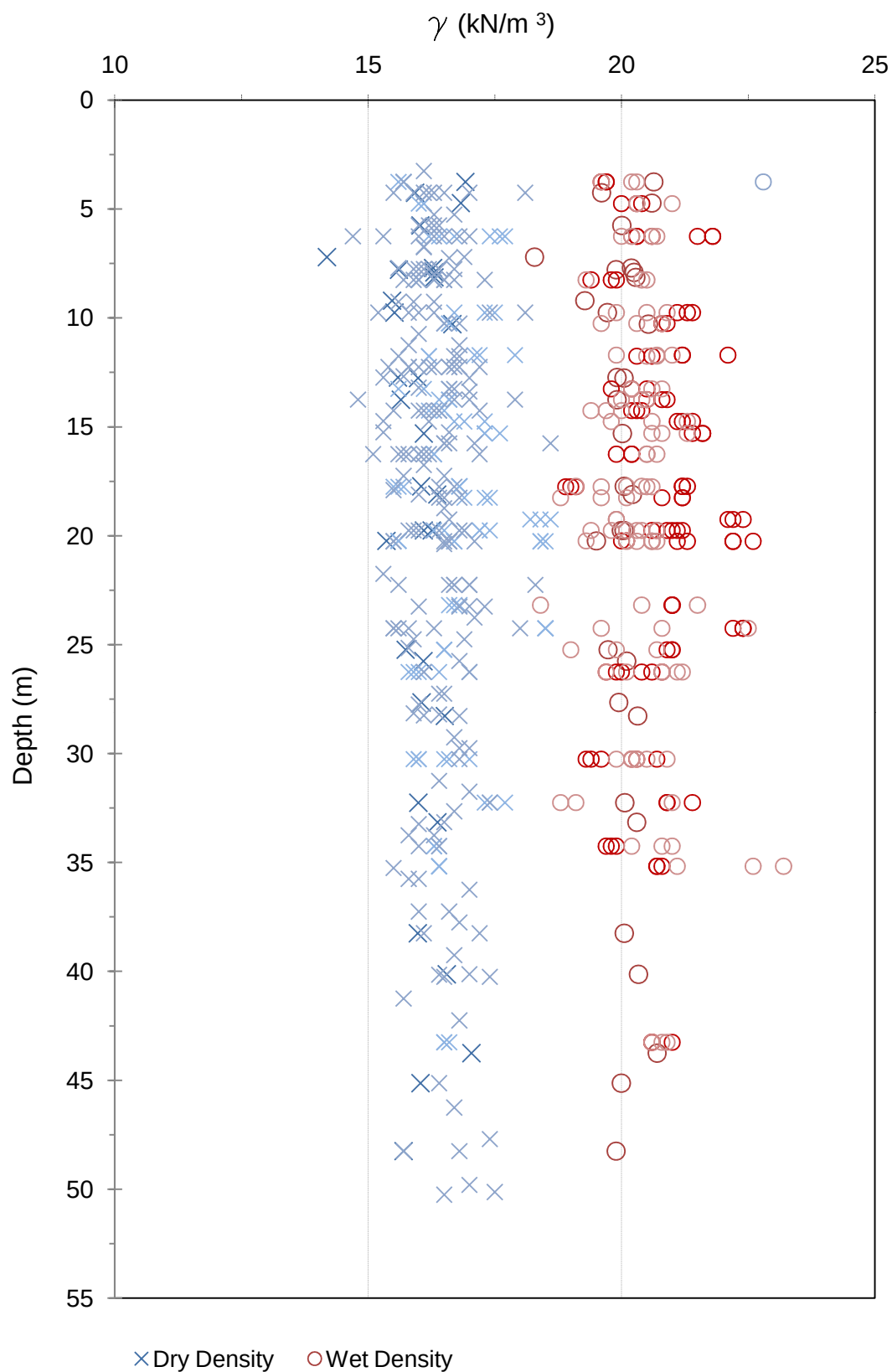
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS

FIG. No: 4

HORIZONTAL
SCALE : 1/5500

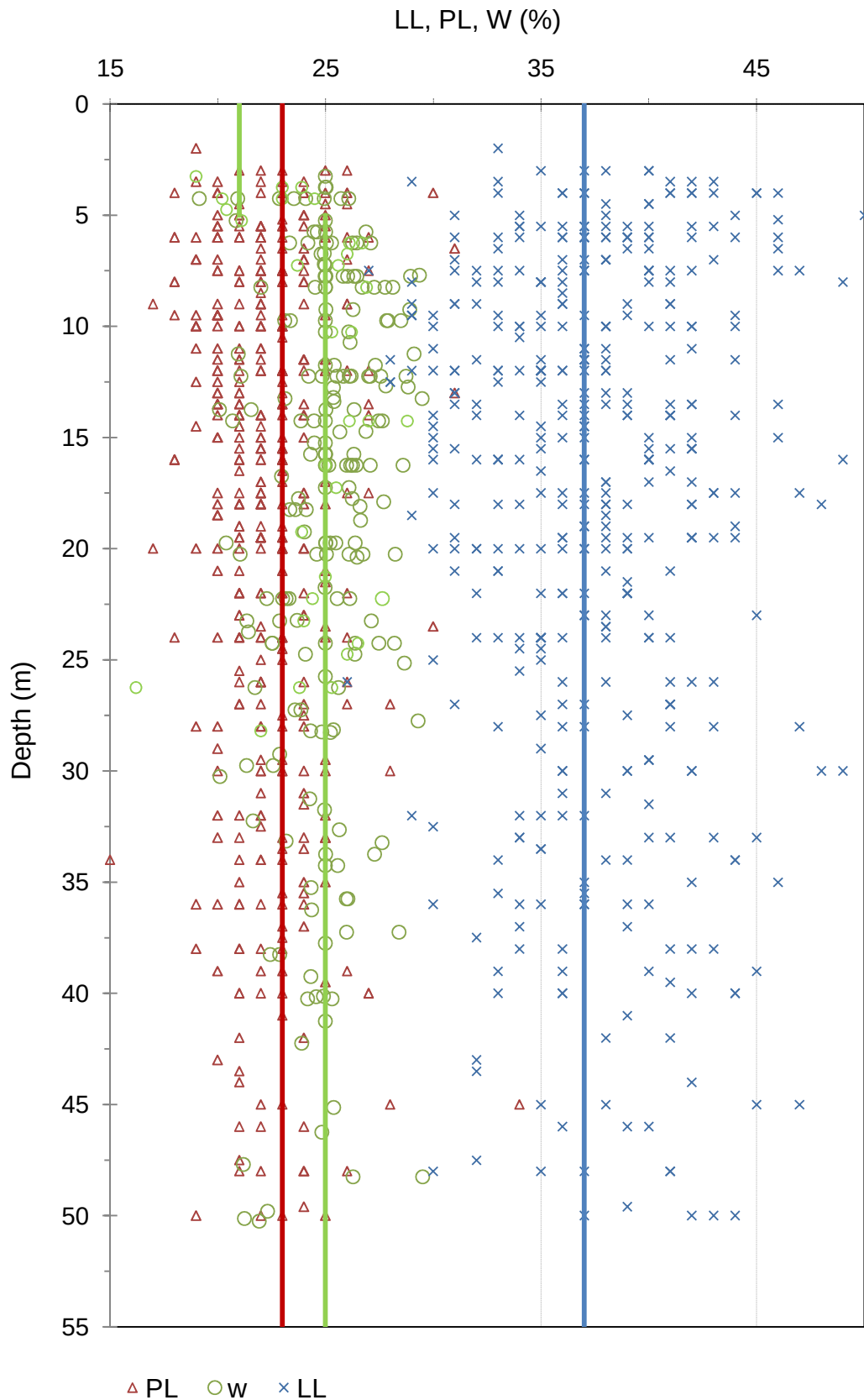
VERTICAL
SCALE : 1/5500

PROJ. No. : 1347



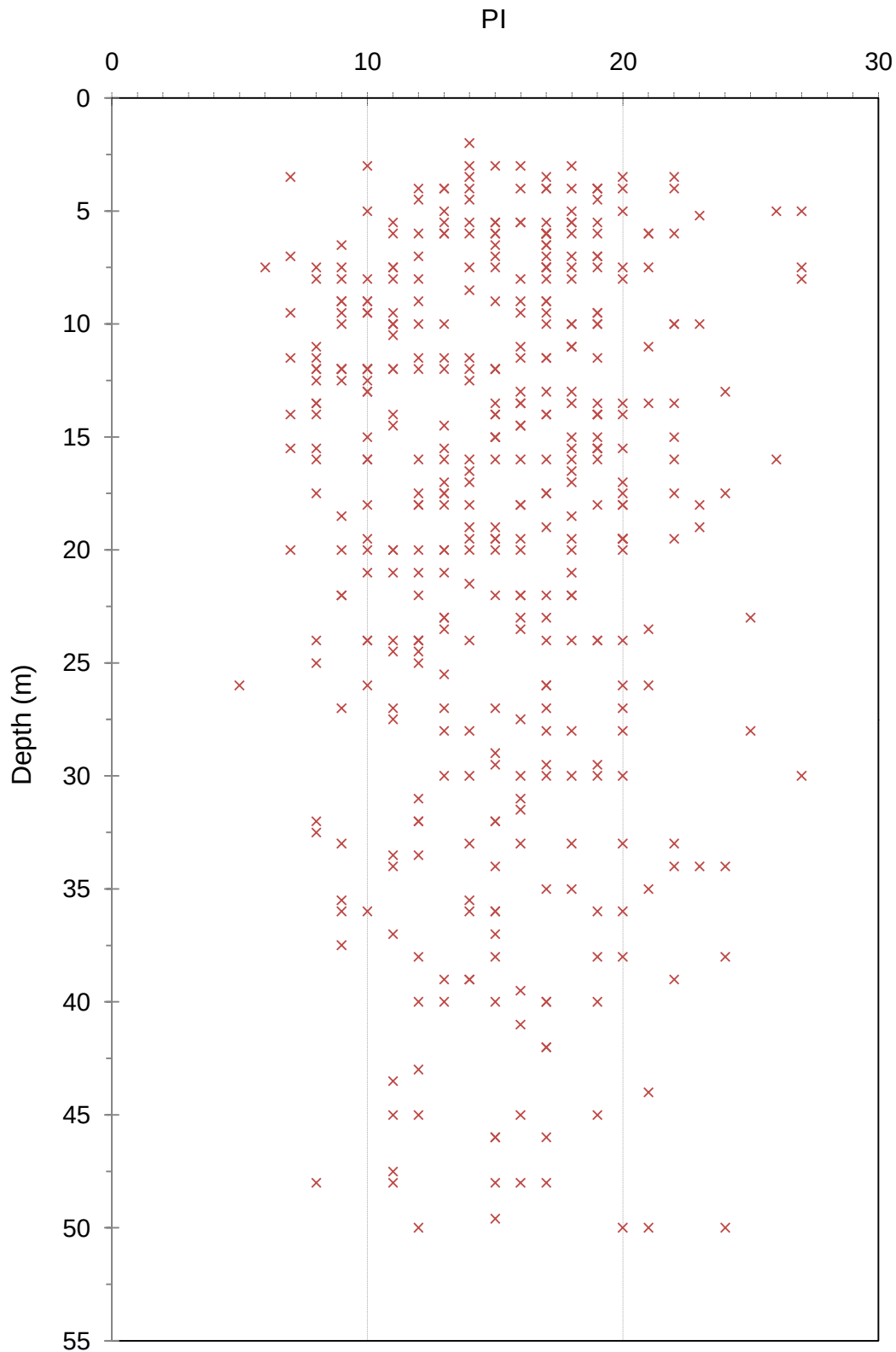
TITLE: SOIL UNIT WEIGHT Vs DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 5
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



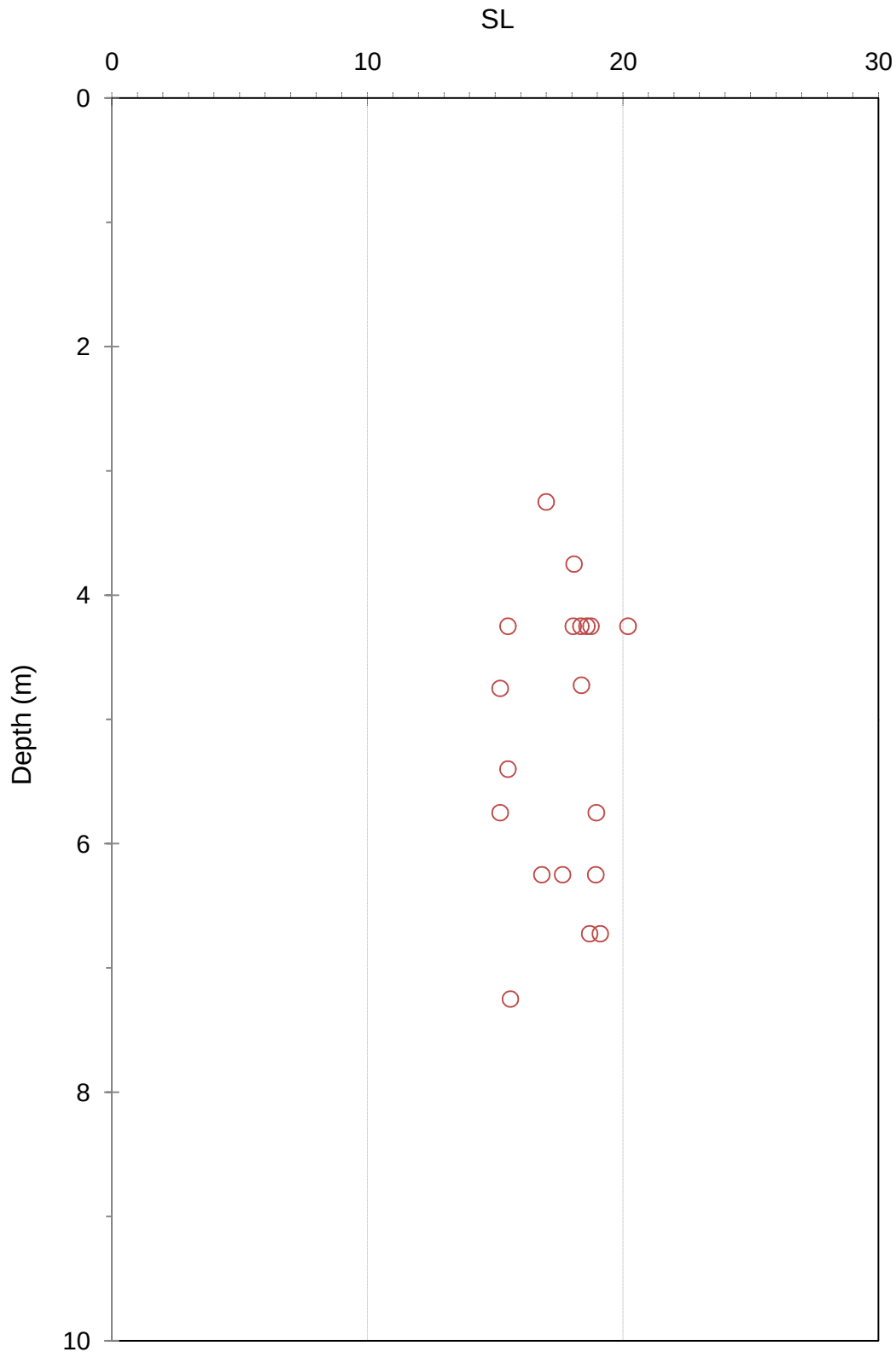
TITLE: ATTERBERG LIMITS (PL & LL) AND MOISTURE CONTENTS Vs DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 6
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



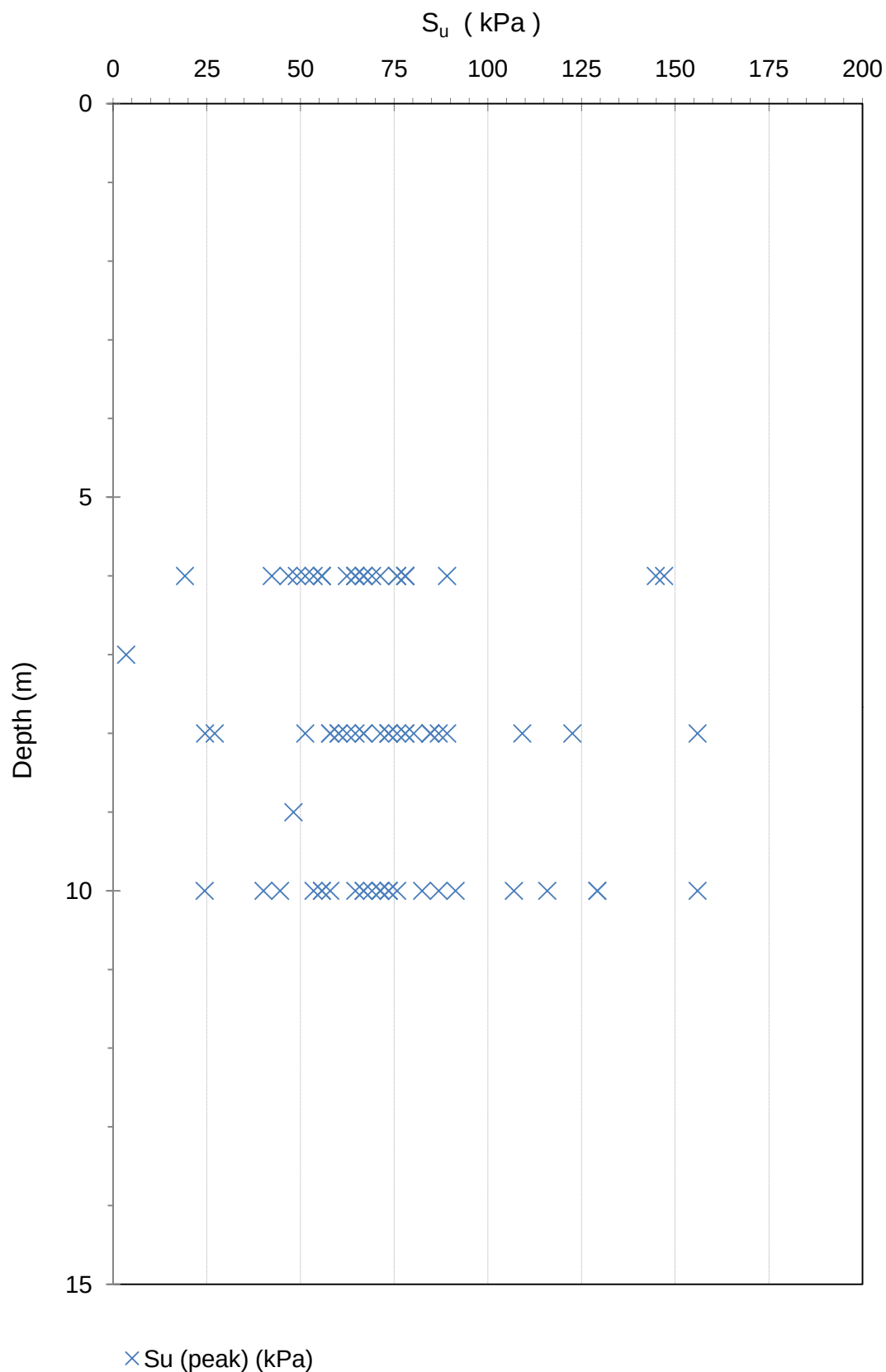
TITLE: PLACTICITY INDEX Vs DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 7
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



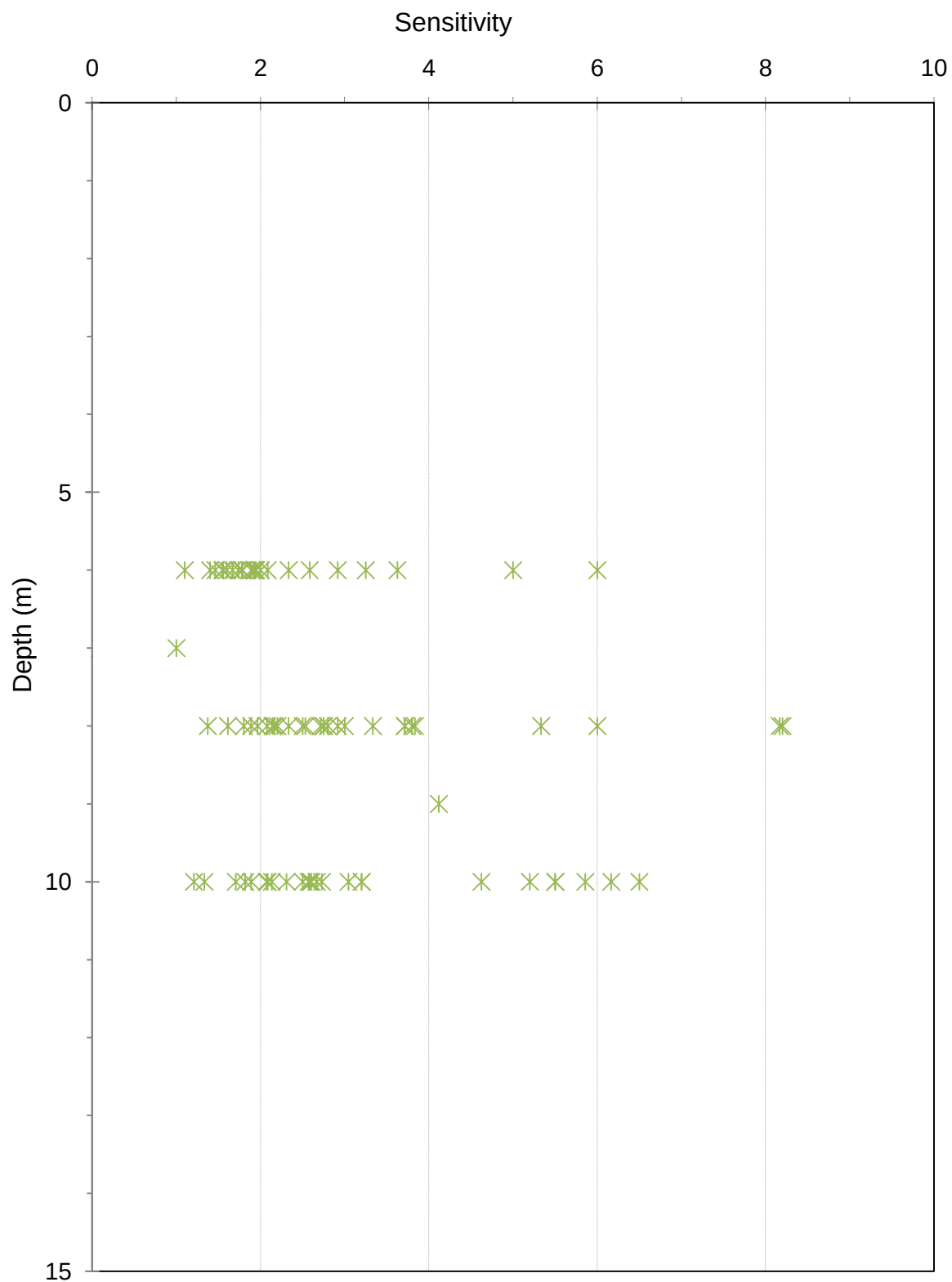
TITLE: SHRINKAGE LIMITS Vs DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 8
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: UNDRAINED SHEAR STRENGTH FROM SHEAR VANE TEST Vs DEPTH

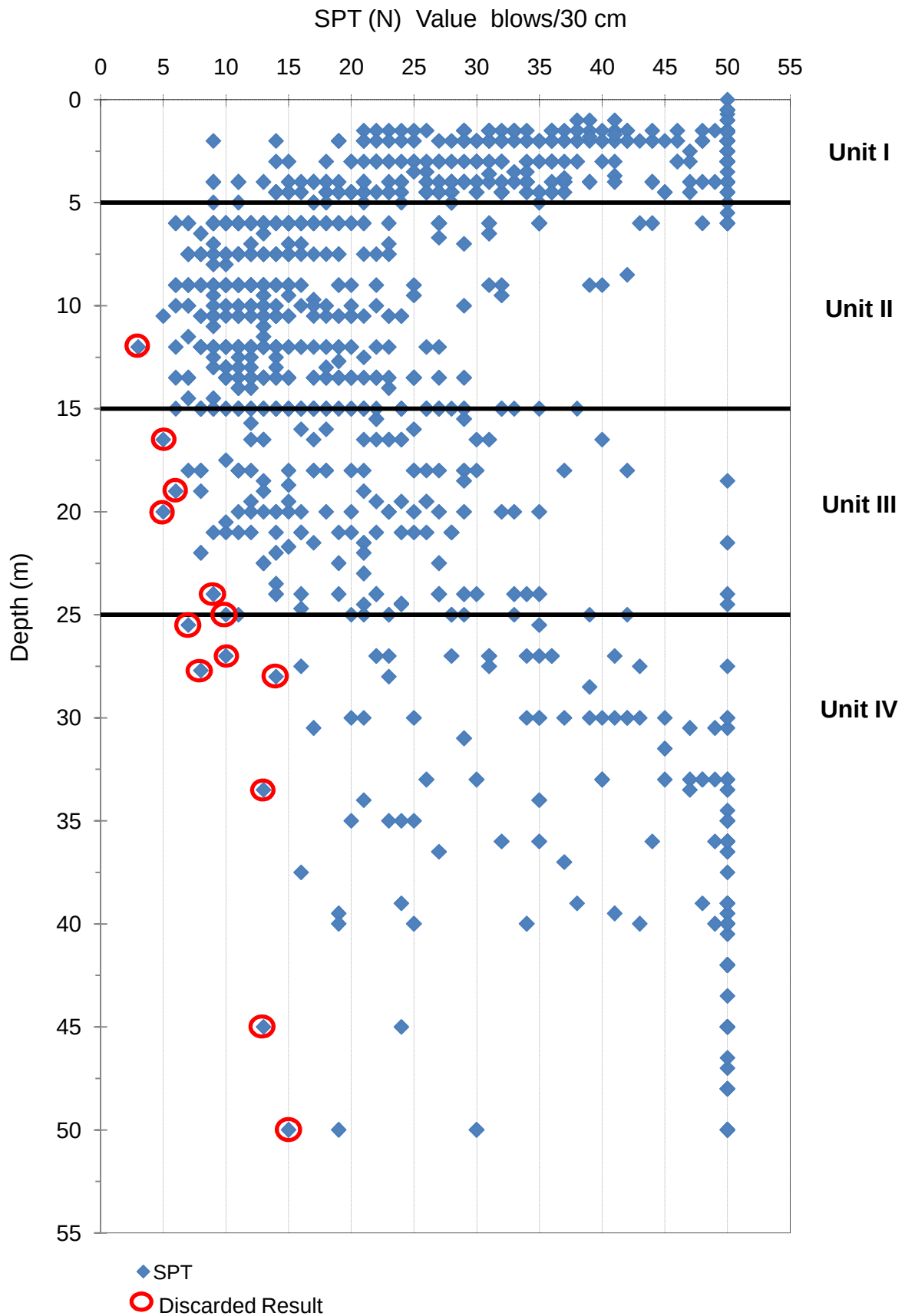
	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 9
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: SENSITIVITY VS DEPTH FROM SHEAR VANE TESTS

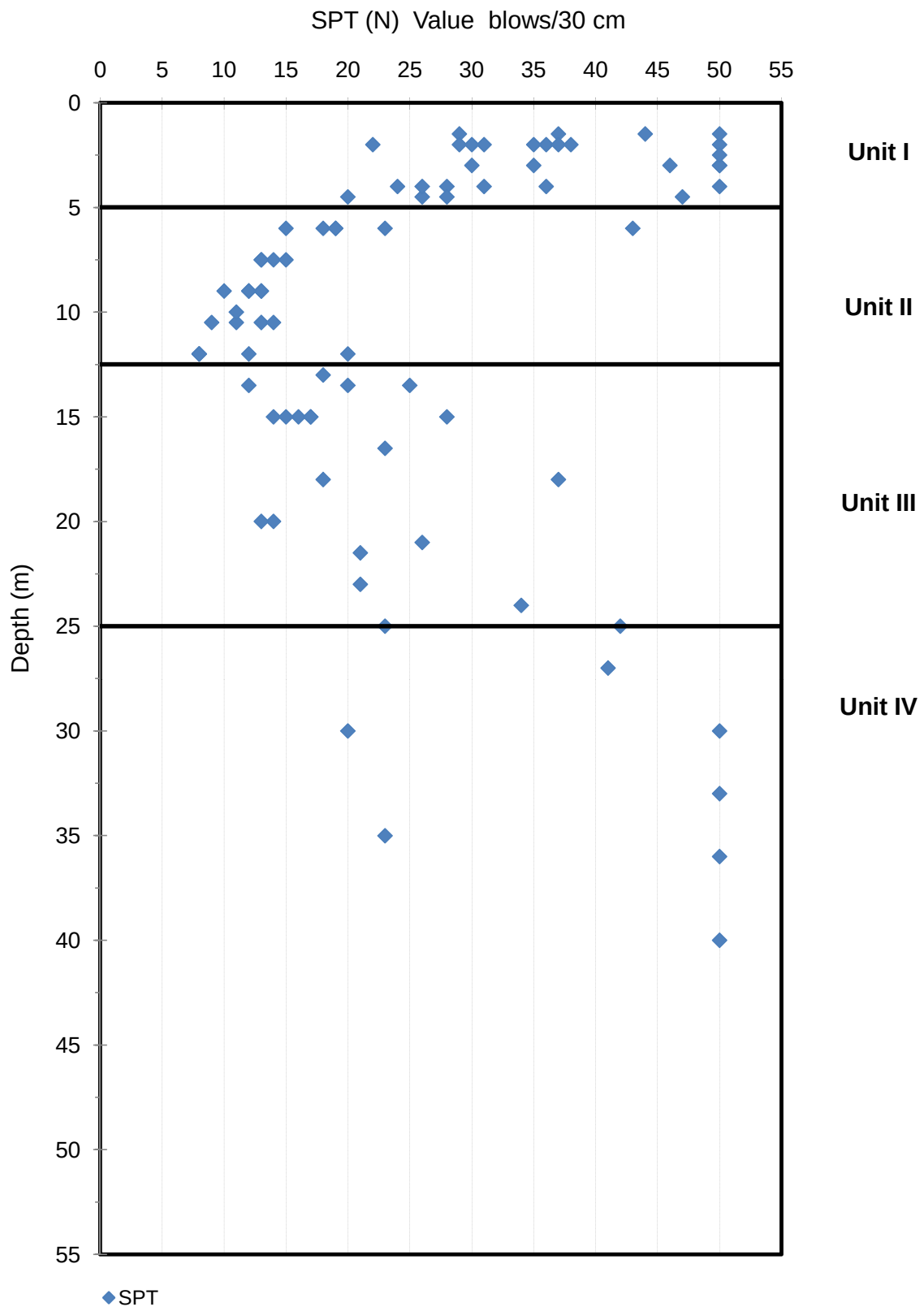
	Project: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 10
	CLIENT : NFC	PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: SPT NUMBERS Vs. DEPTH (ALL DATA)

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 11
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: SPT NUMBERS Vs. DEPTH

LOCATION: Zone Z1



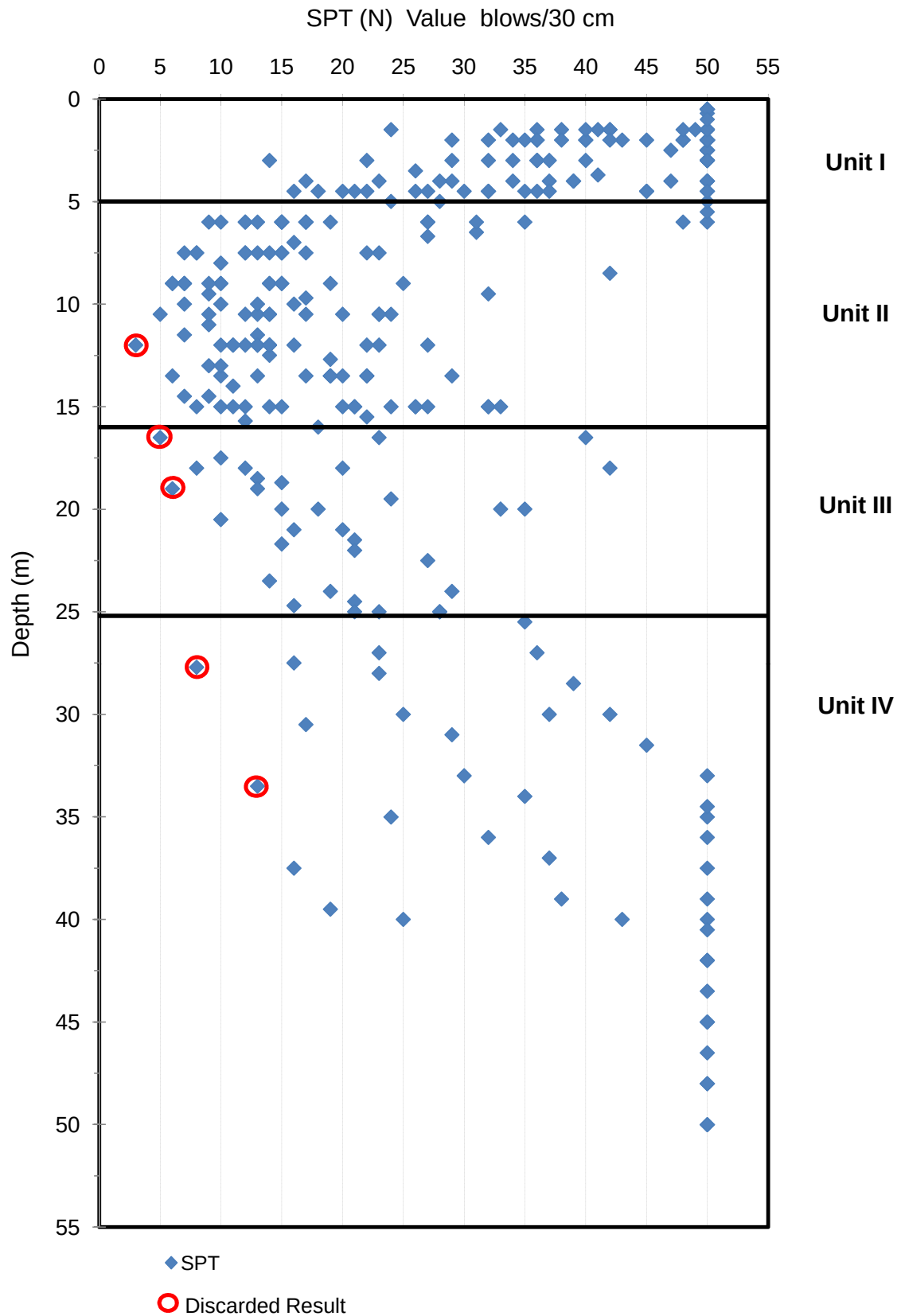
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 12

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: SPT NUMBERS Vs. DEPTH

LOCATION: Zone Z2



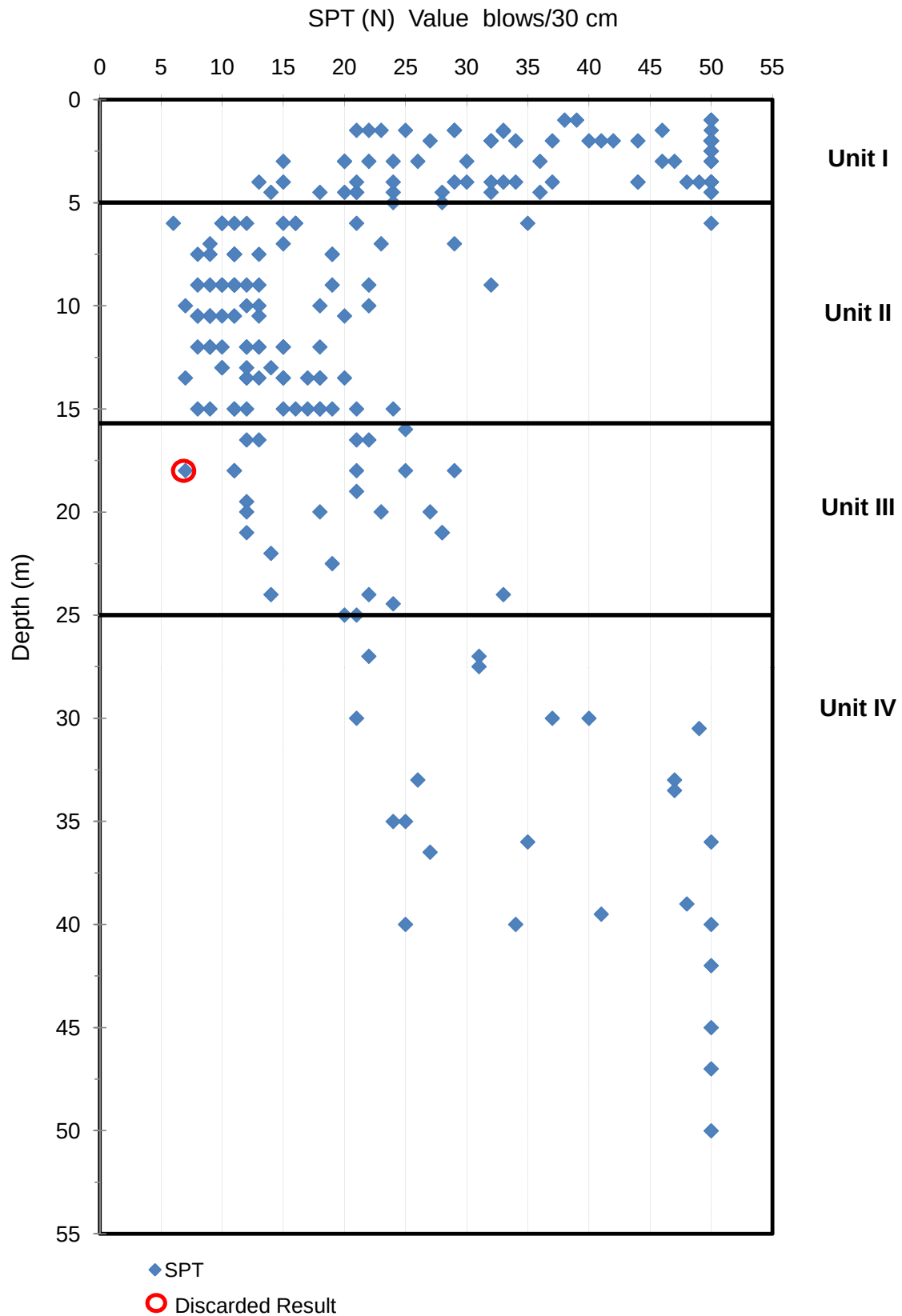
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 13

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: SPT NUMBERS Vs. DEPTH

LOCATION: Zone Z3



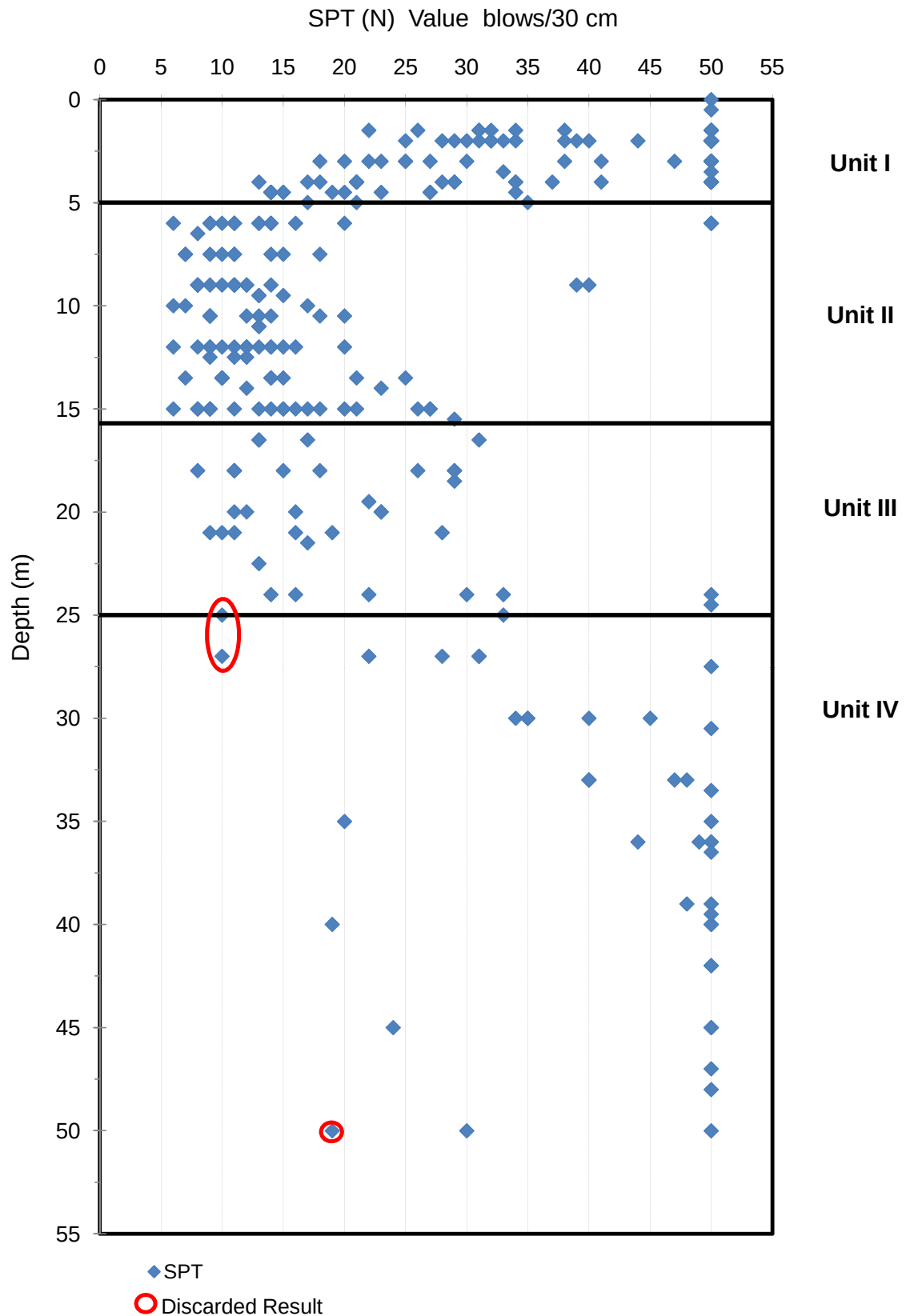
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 14

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: SPT NUMBERS Vs. DEPTH

LOCATION: Zone Z4



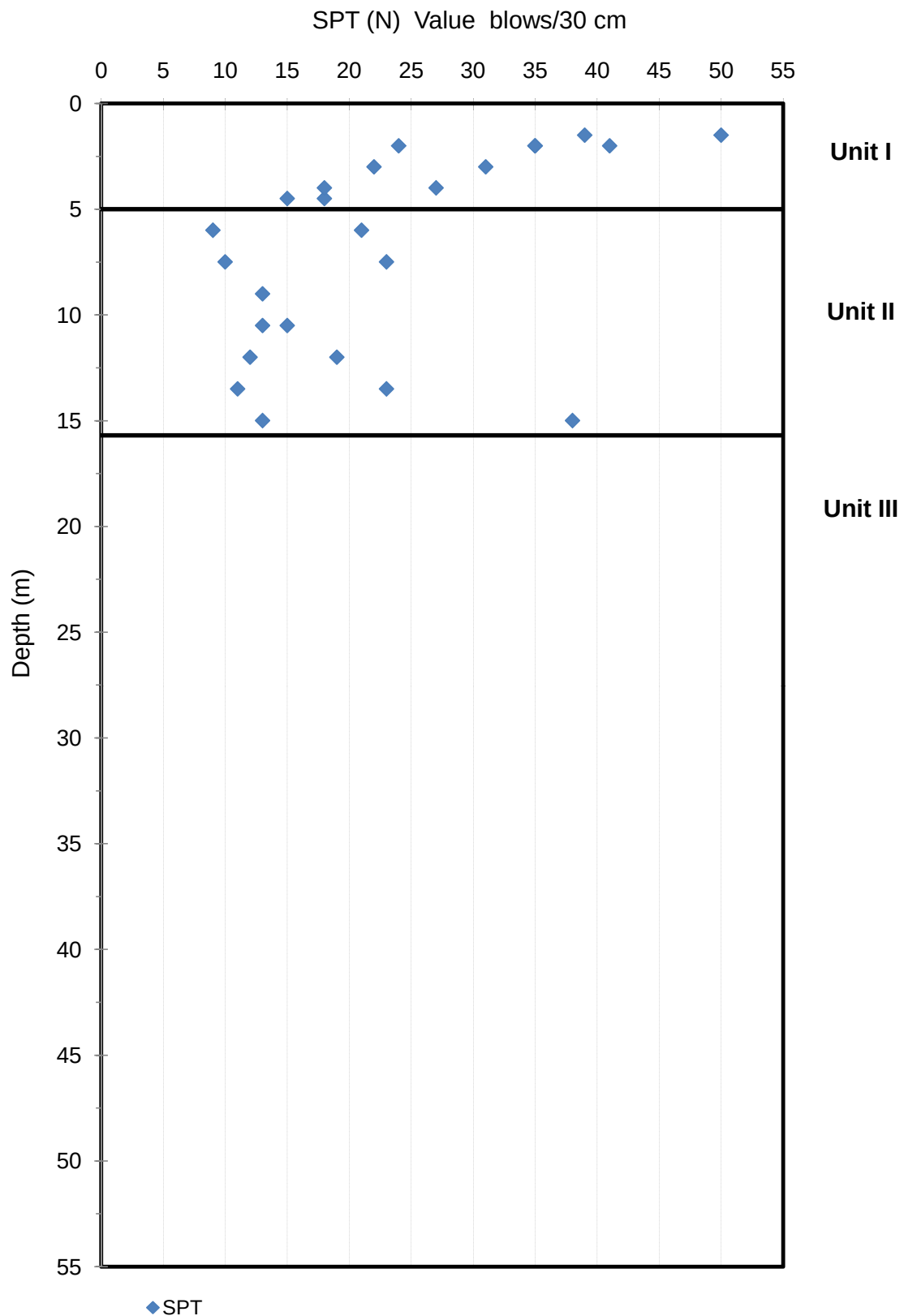
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 15

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: SPT NUMBERS Vs. DEPTH

LOCATION: Zone Z5



Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 16

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS

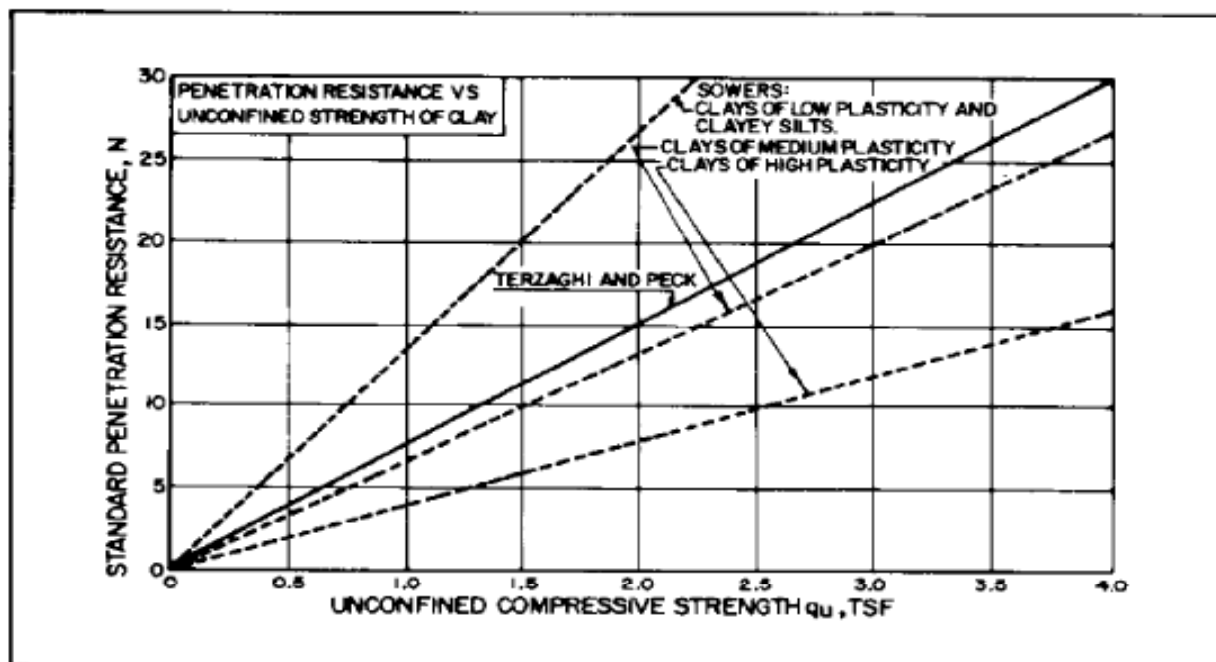
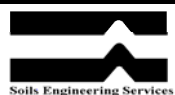


FIGURE 4
Correlations of Standard Penetration Resistance

Reference:

Design Manual for Soil Mechanics NAVFAC DM-7.1, 1986

TITEL: NAVFAC REFERENCE FOR RELATIONSHIP BETWEEN N AND Q_u



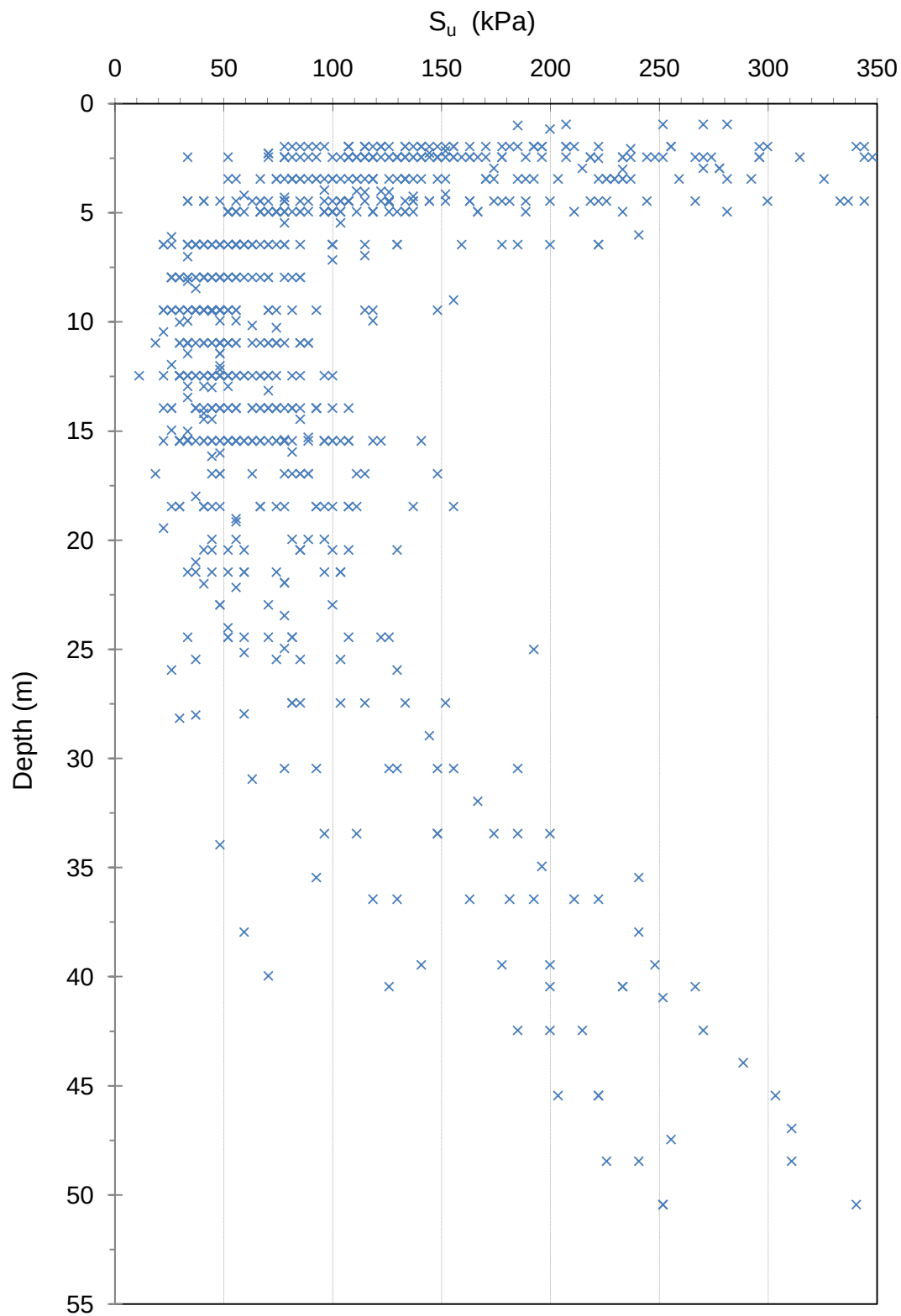
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 17

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: UNDRAINED SHEAR STRENGTH CORRELATED FROM SPT Vs DEPTH



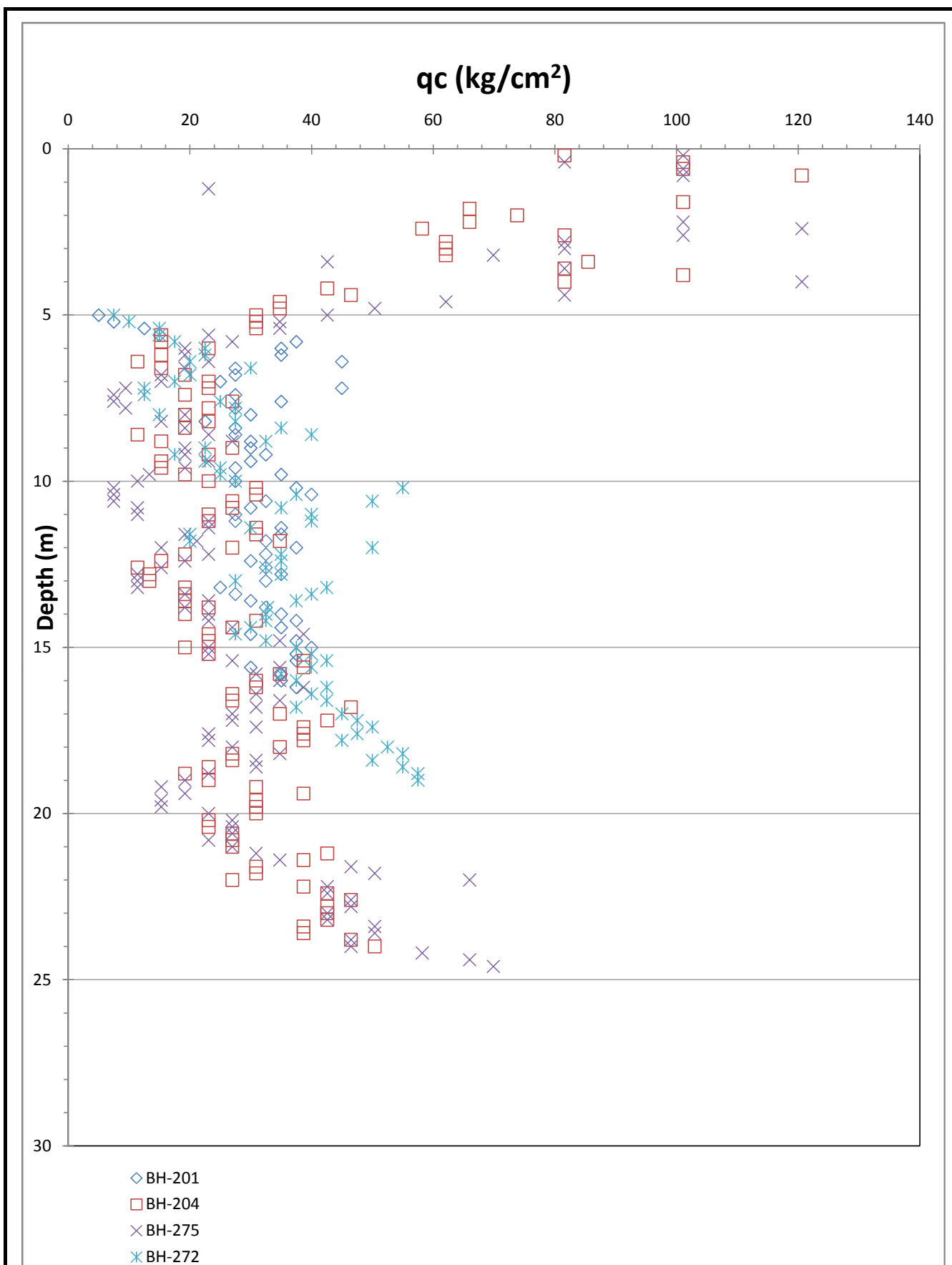
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 18

CLIENT : NFC

PROJ. No. : 1347

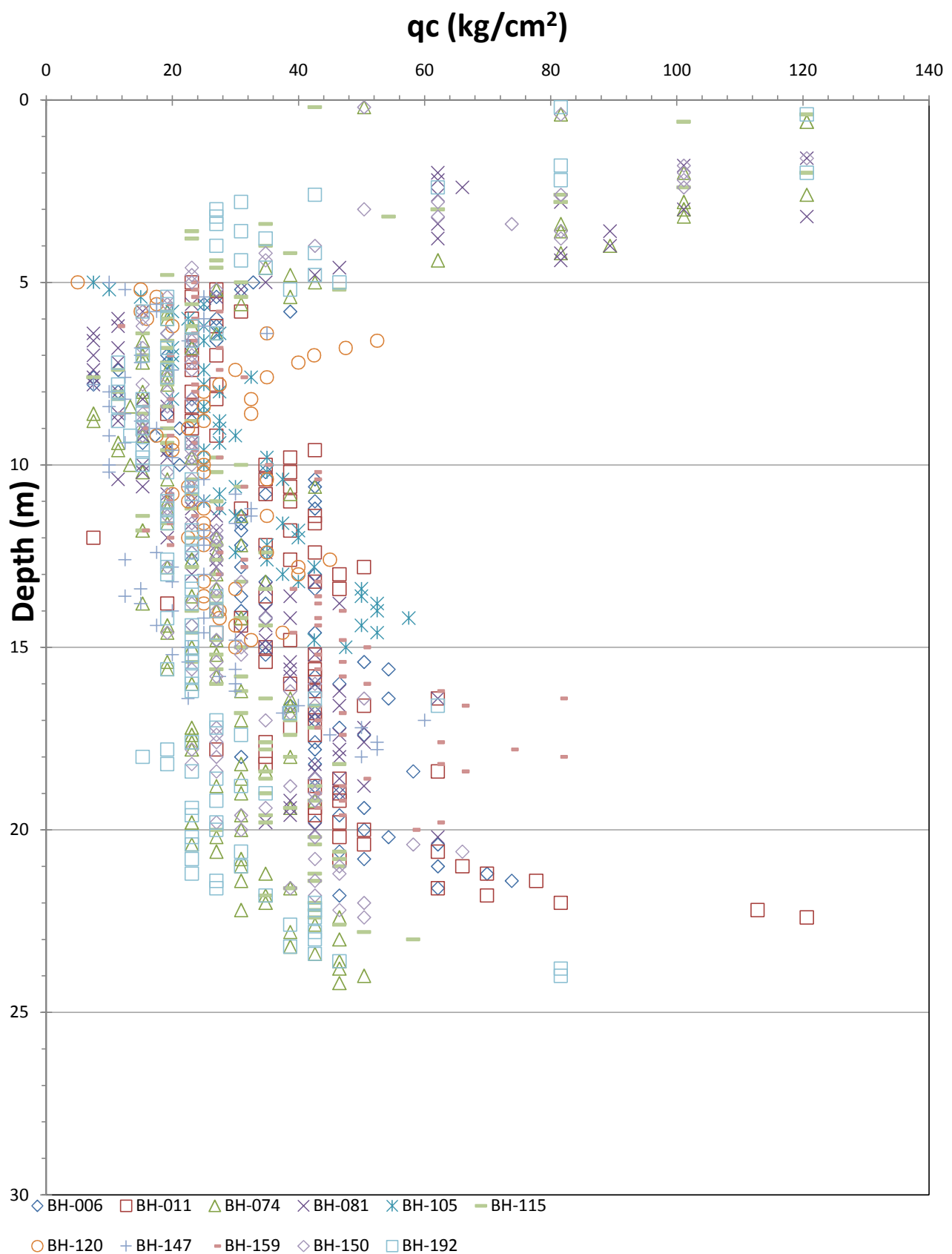
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: Q_c VARIATIONS WITH DEPTH (FROM CPT TESTS)

LOCATION: Zone Z1

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 19
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: Q_c VARIATIONS WITH DEPTH (FROM CPT TESTS)

LOCATION: Zone Z2



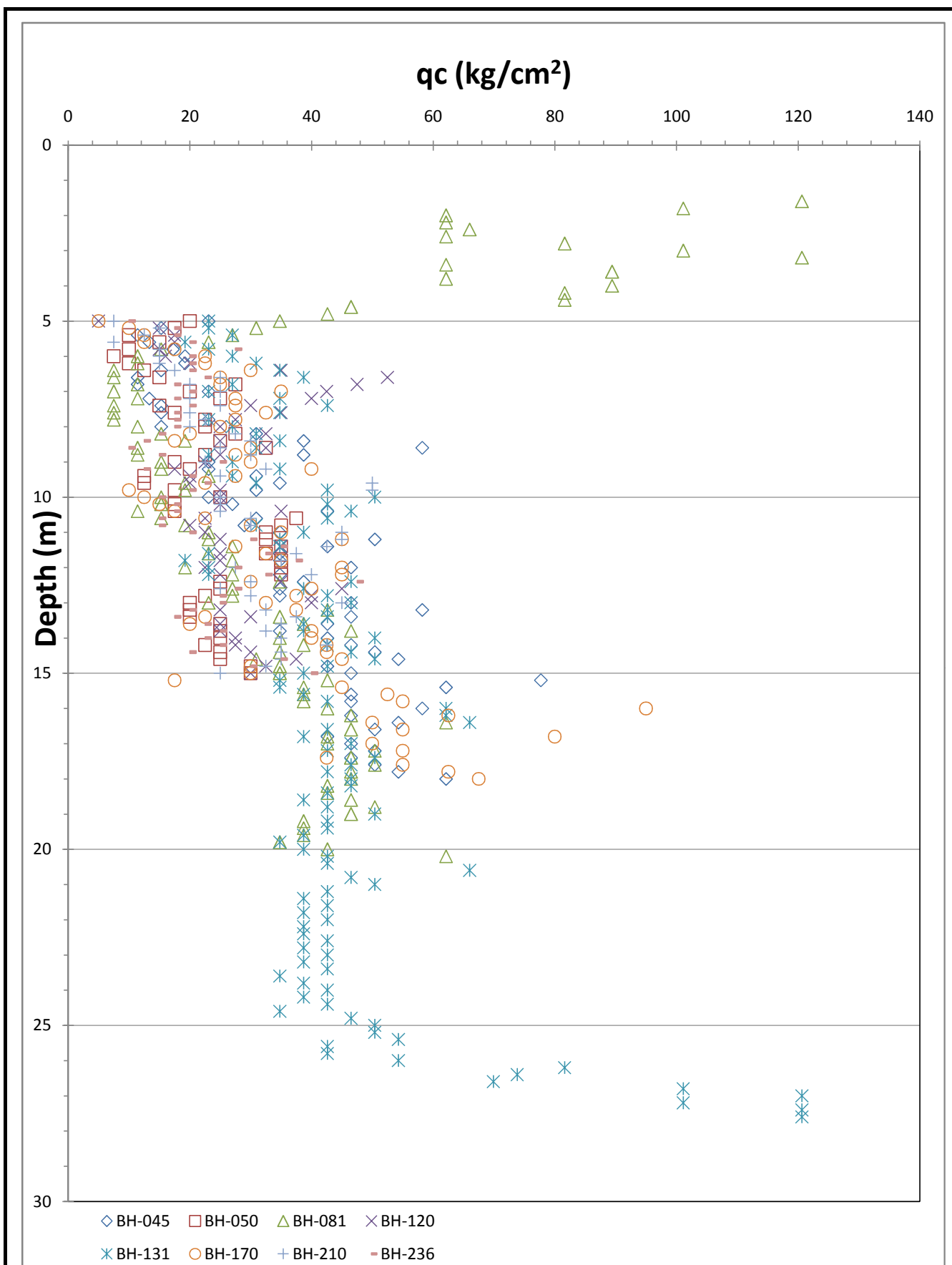
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 20

CLIENT : NFC

PROJ. No. : 1347

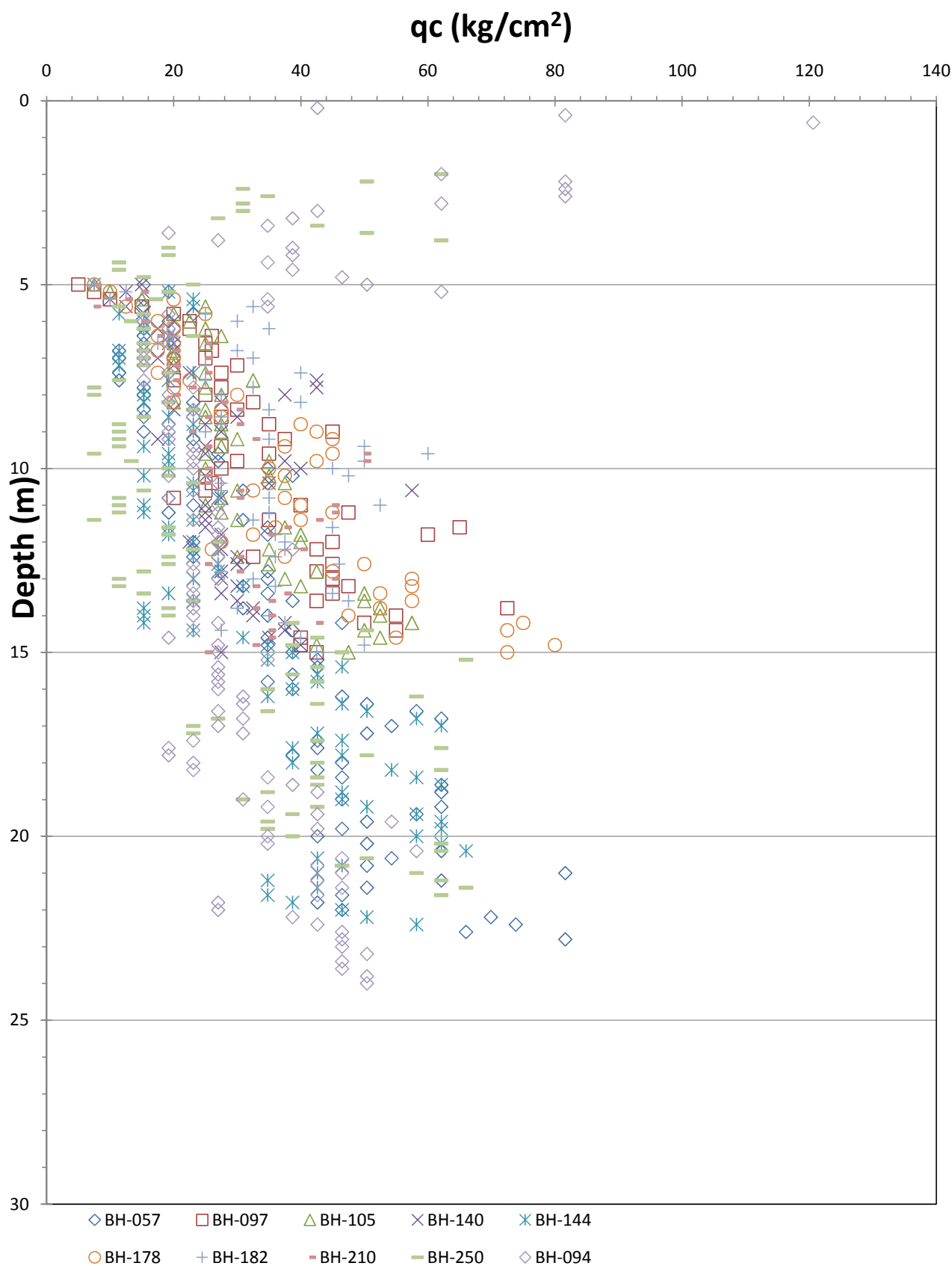
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: Q_c VARIATIONS WITH DEPTH (FROM CPT TESTS)

LOCATION: Zone Z3

 Soils Engineering Services	PROJECT: SOUTH ALUMINUM SMELTER PLANT		FIG. No.: 21
	CLIENT : NFC		PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS			



TITLE: Q_c VARIATIONS WITH DEPTH (FROM CPT TESTS)

LOCATION: Zone Z4



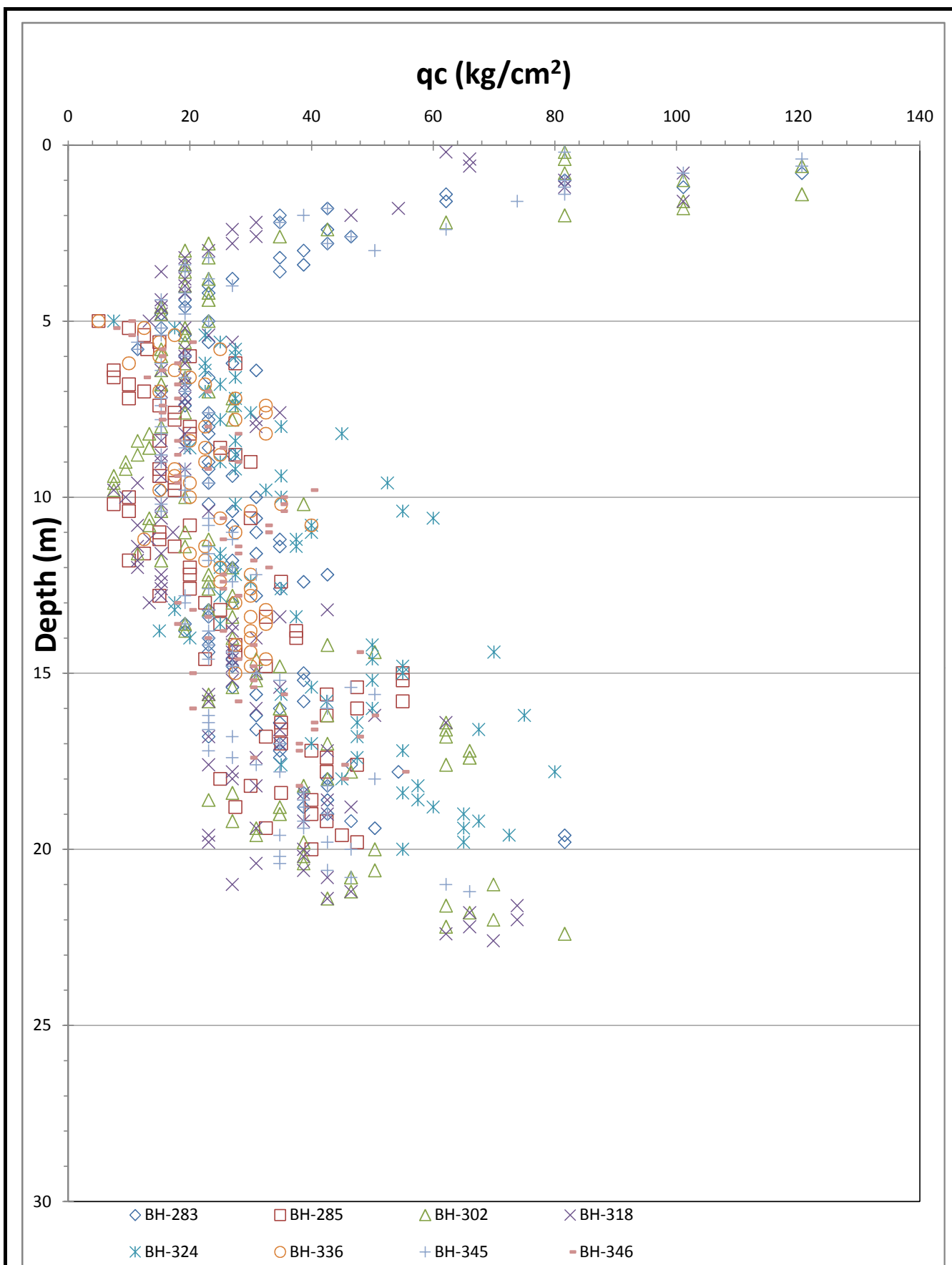
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 22

CLIENT : NFC

PROJ. No. : 1347

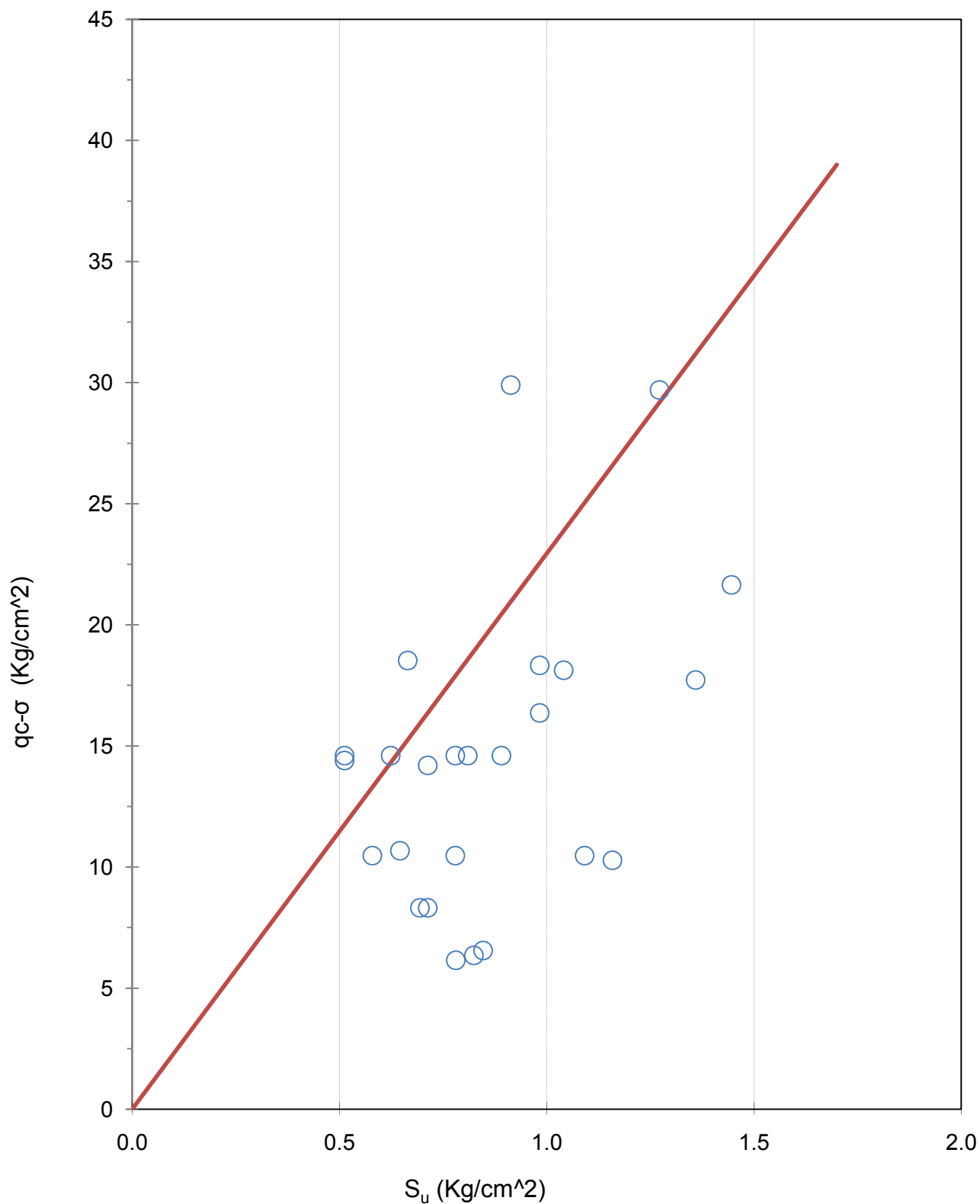
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: Q_c VARIATIONS WITH DEPTH (FROM CPT TESTS)

LOCATION: Zone Z5

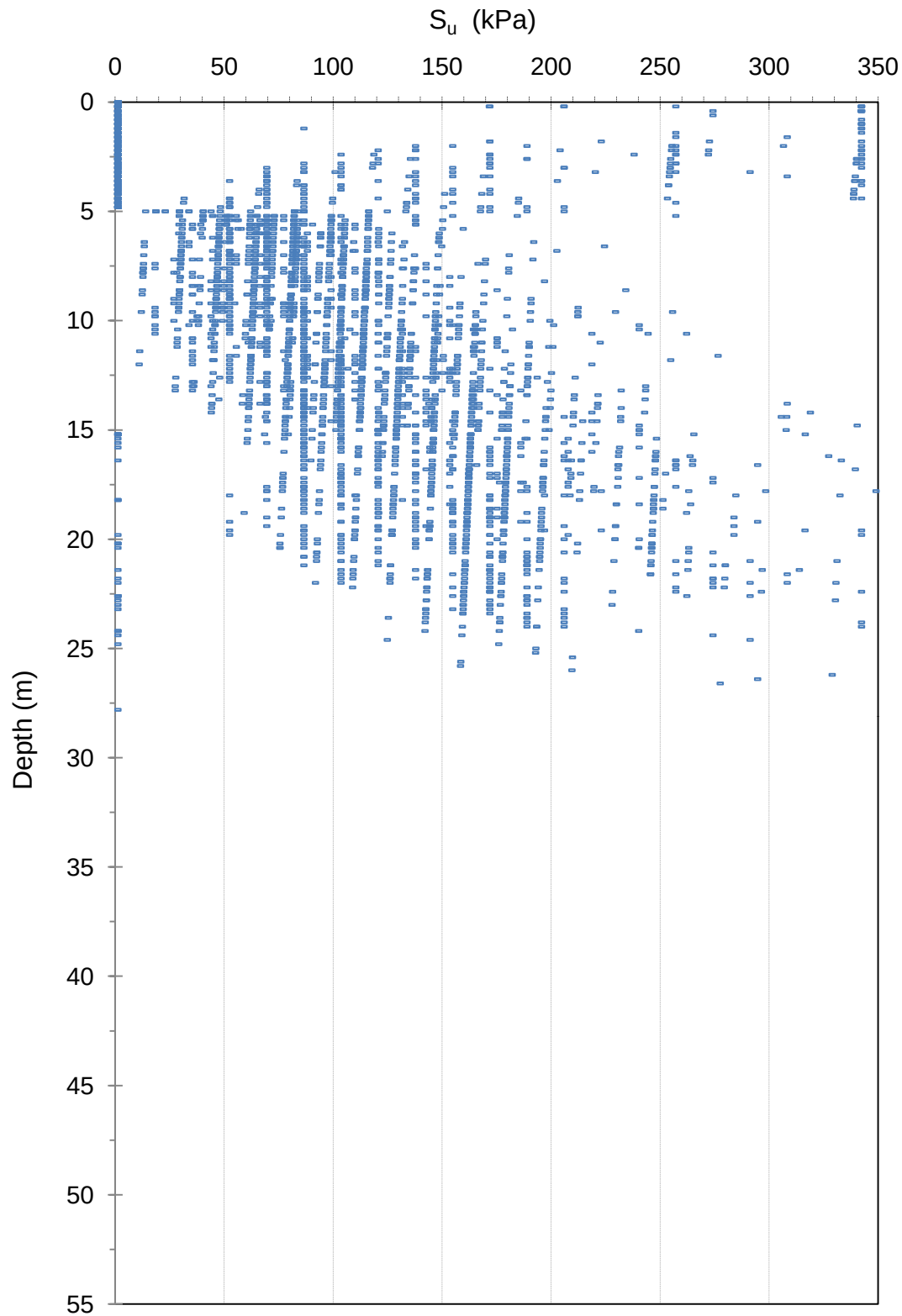
 Soils Engineering Services	PROJECT: SOUTH ALUMINUM SMELTER PLANT		FIG. No.: 23
	CLIENT : NFC		PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS			



NOTE: N_k is adopted as 23

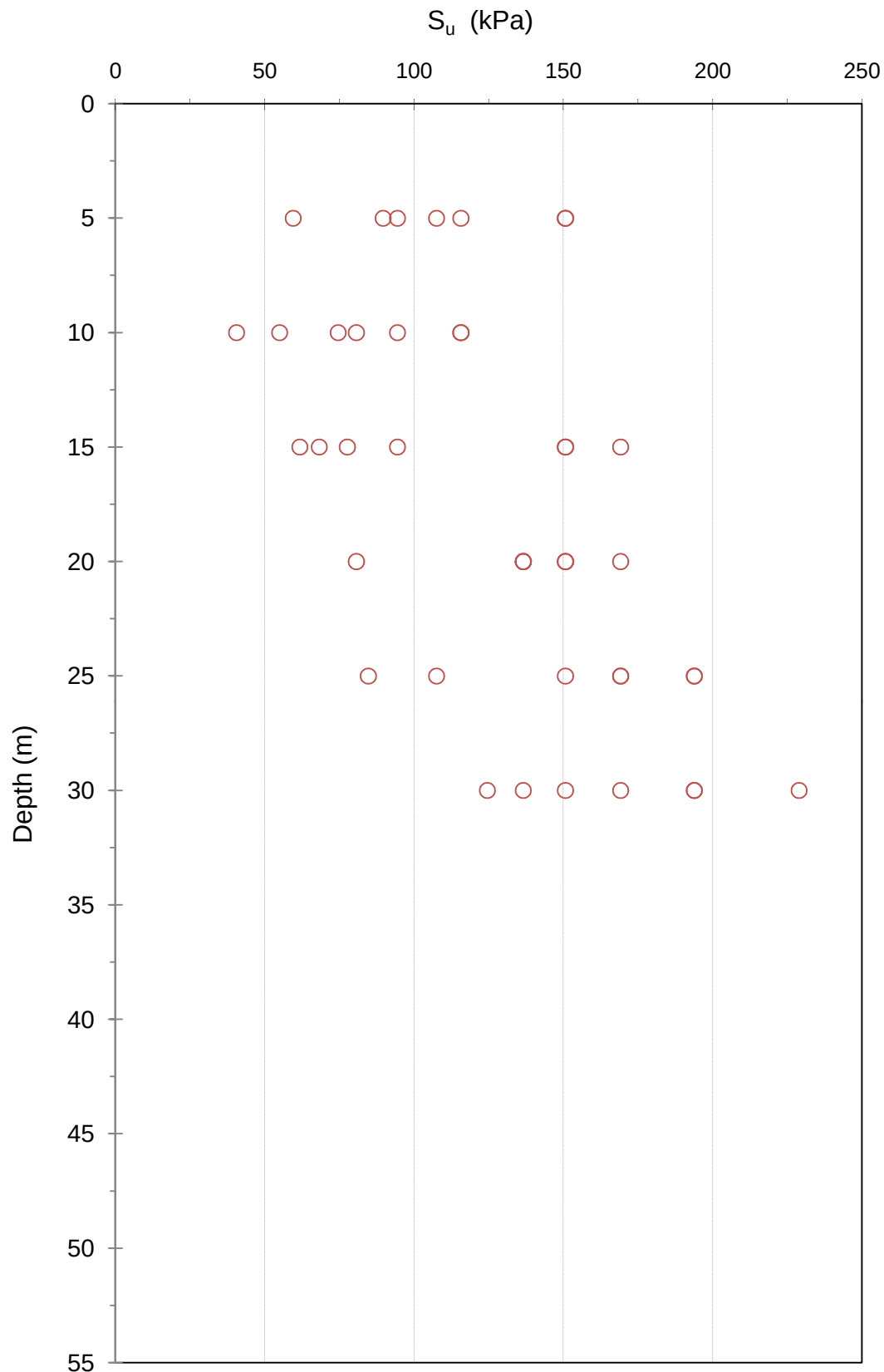
TITLE: CORRELATION FOR CONE FACTOR, N_k , FROM S_u SHEAR VANE TEST vs ($q_c - \sigma$)

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 24
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: UNDRAINED SHEAR STRENGTH CORRELATED FROM CPT Vs DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 25
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: UNDRAINED SHEAR STRENGTH VS DEPTH FROM PRESSUREMETER RESULTS



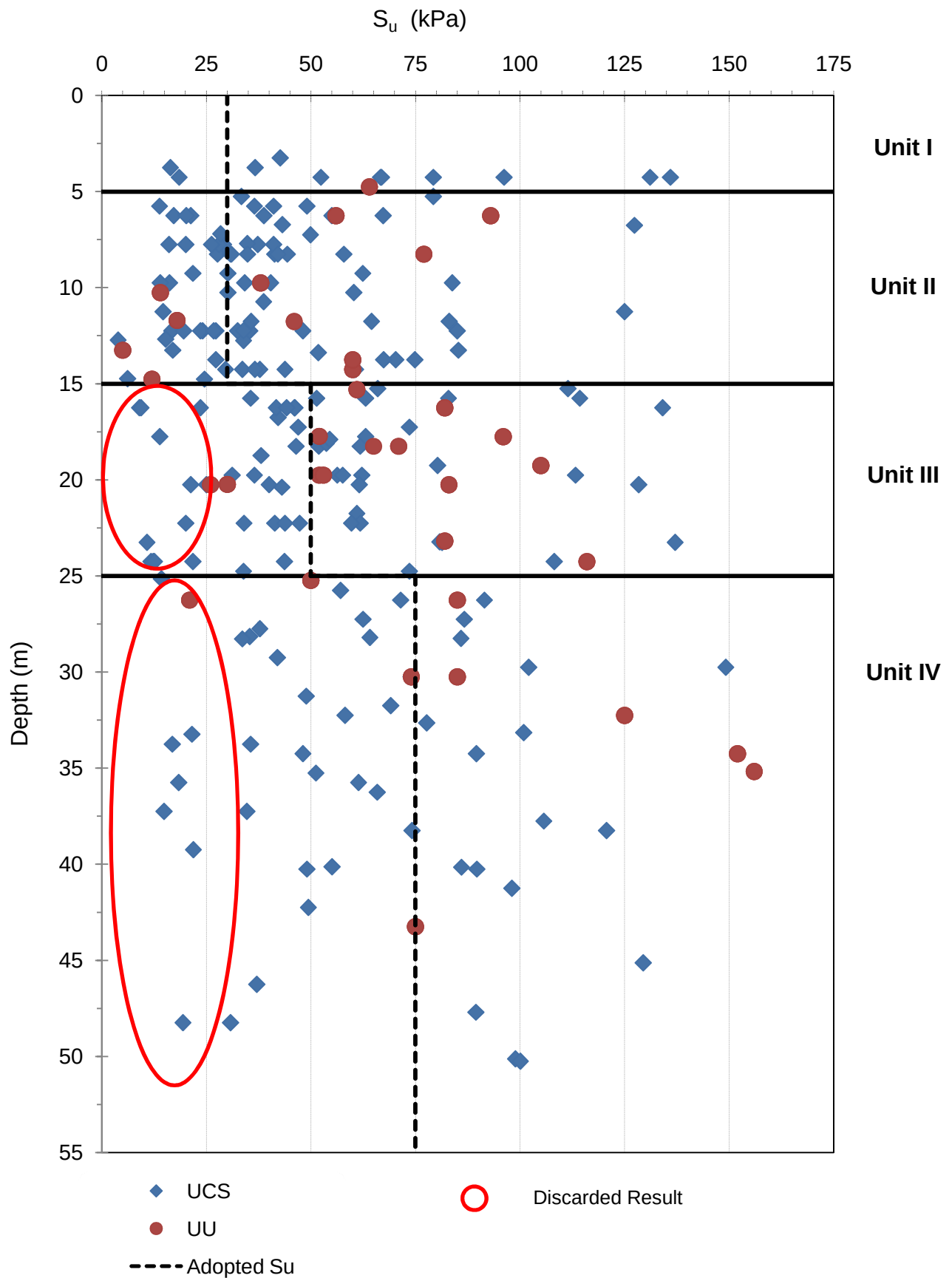
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 26

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: UNDRAINED SHEAR STRENGTHS FROM UCS AND UU VS DEPTH (ALL DATA)



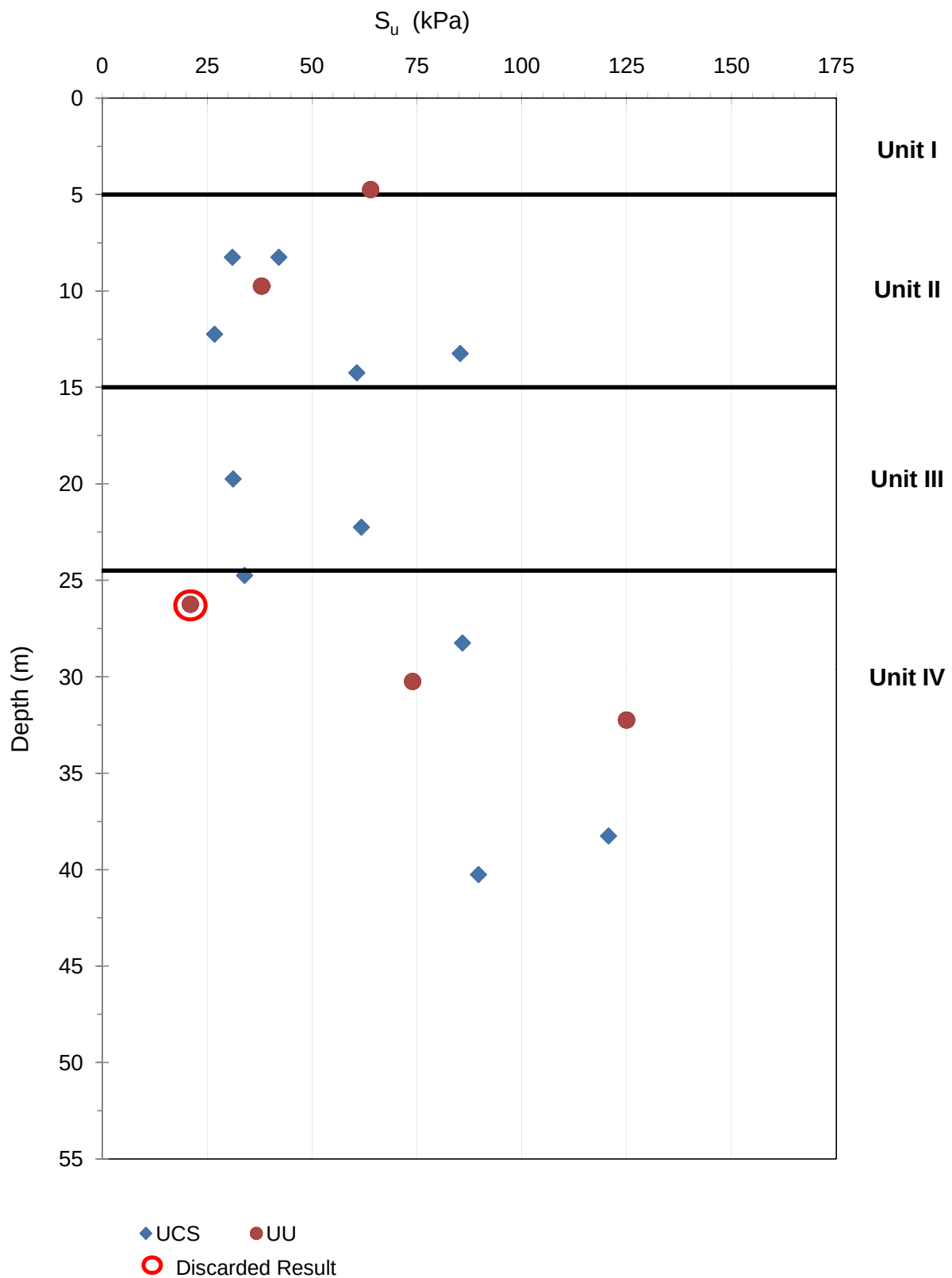
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 27

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: UNDRAINED SHEAR STRENGTHS VS DEPTH

LOCATION: Zone Z1



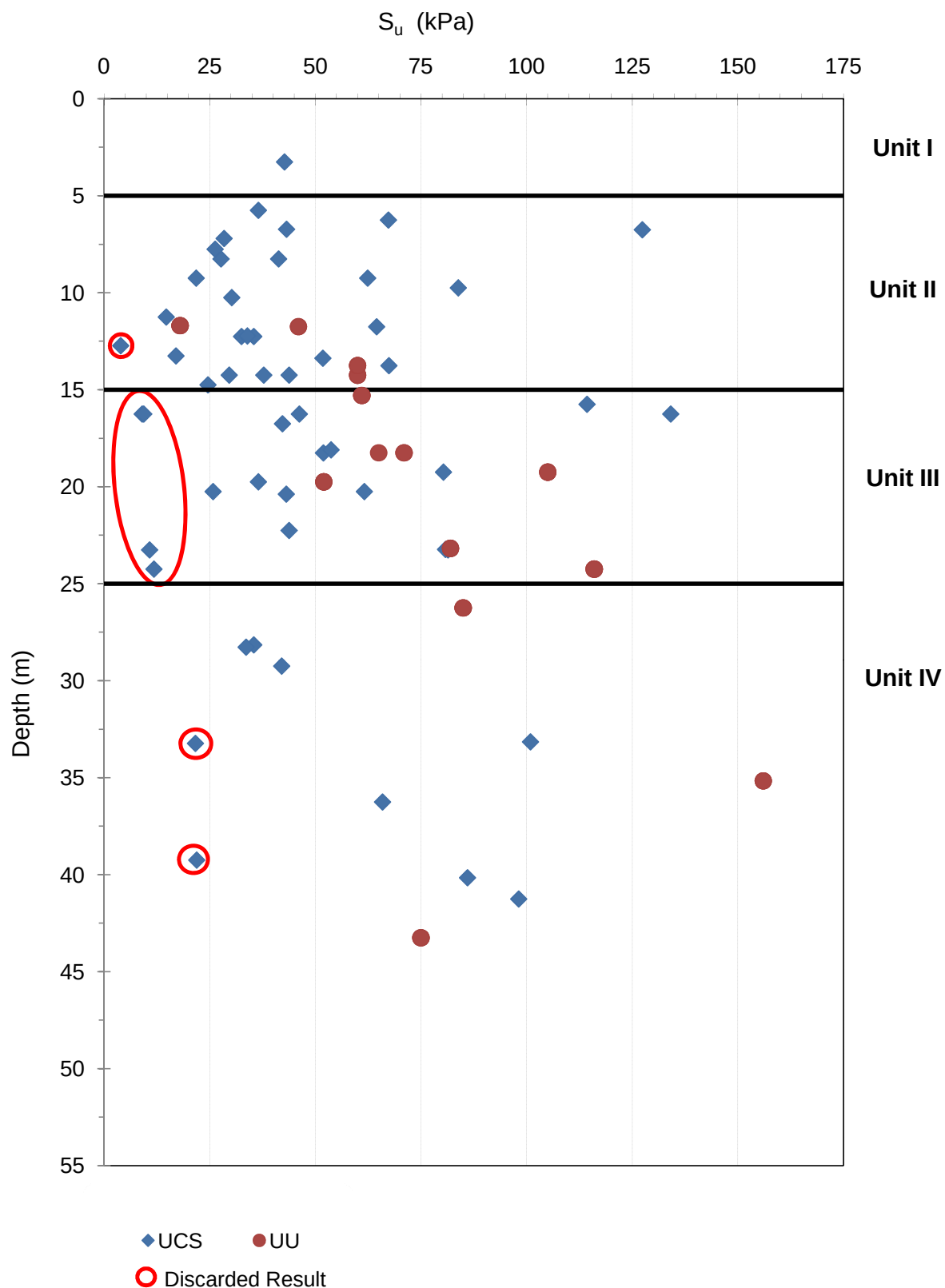
Project: SOUTH ALUMINUM SMELTER PLANT

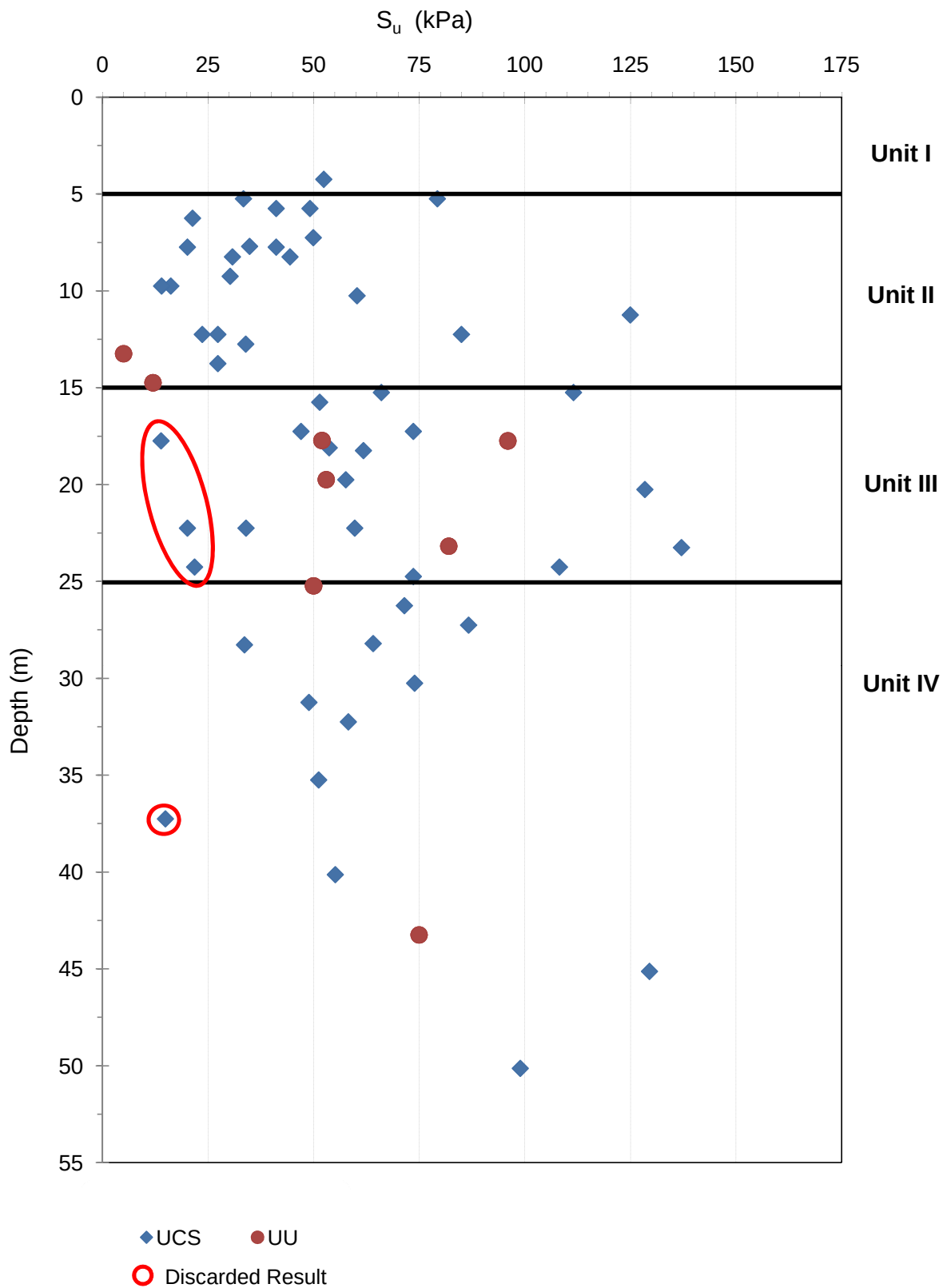
FIG. No.: 28

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS





TITLE: UNDRAINED SHEAR STRENGTHS VS DEPTH

LOCATION: Zone Z3



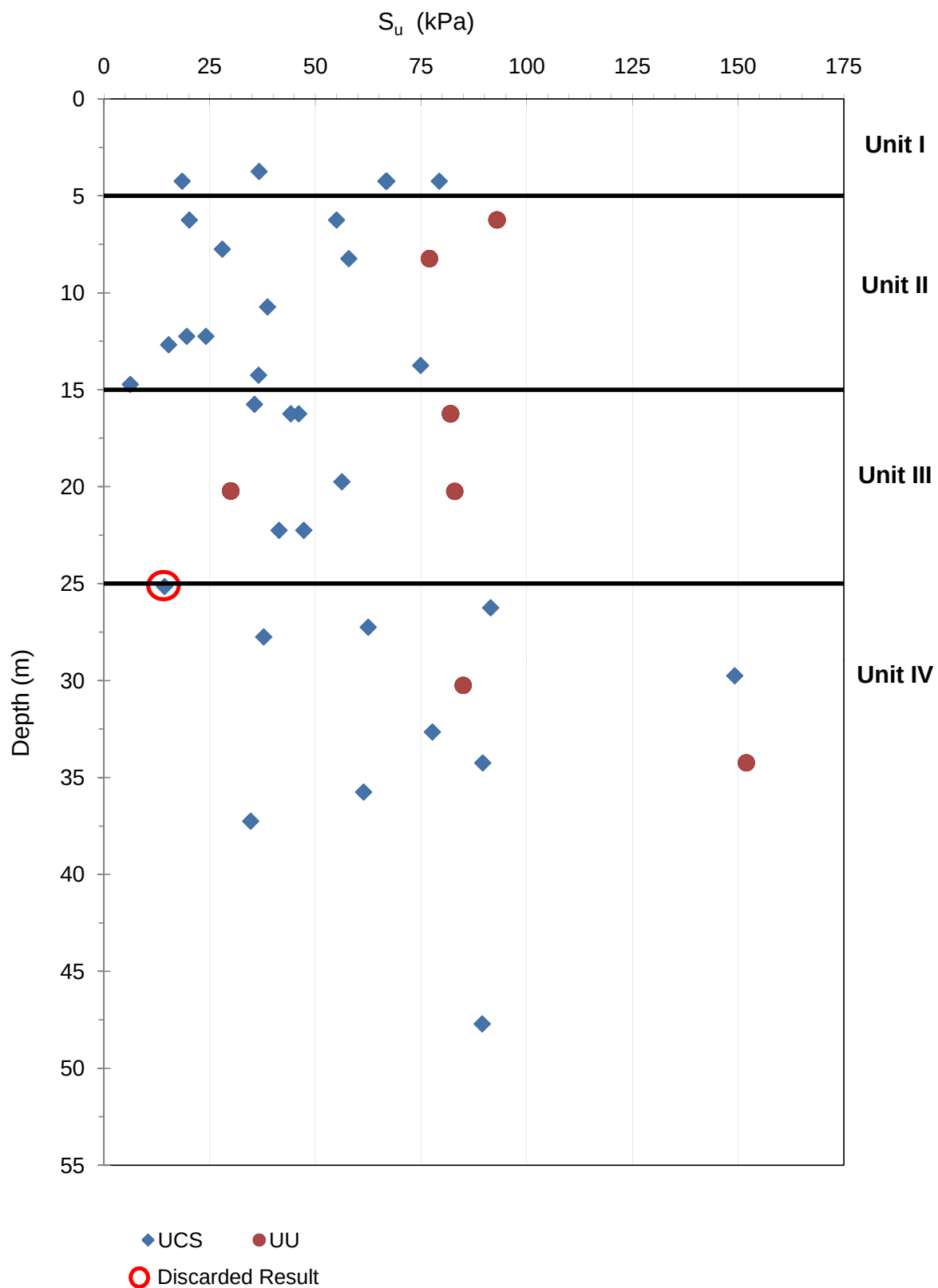
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 30

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: UNDRAINED SHEAR STRENGTHS VS DEPTH

LOCATION: Zone Z5



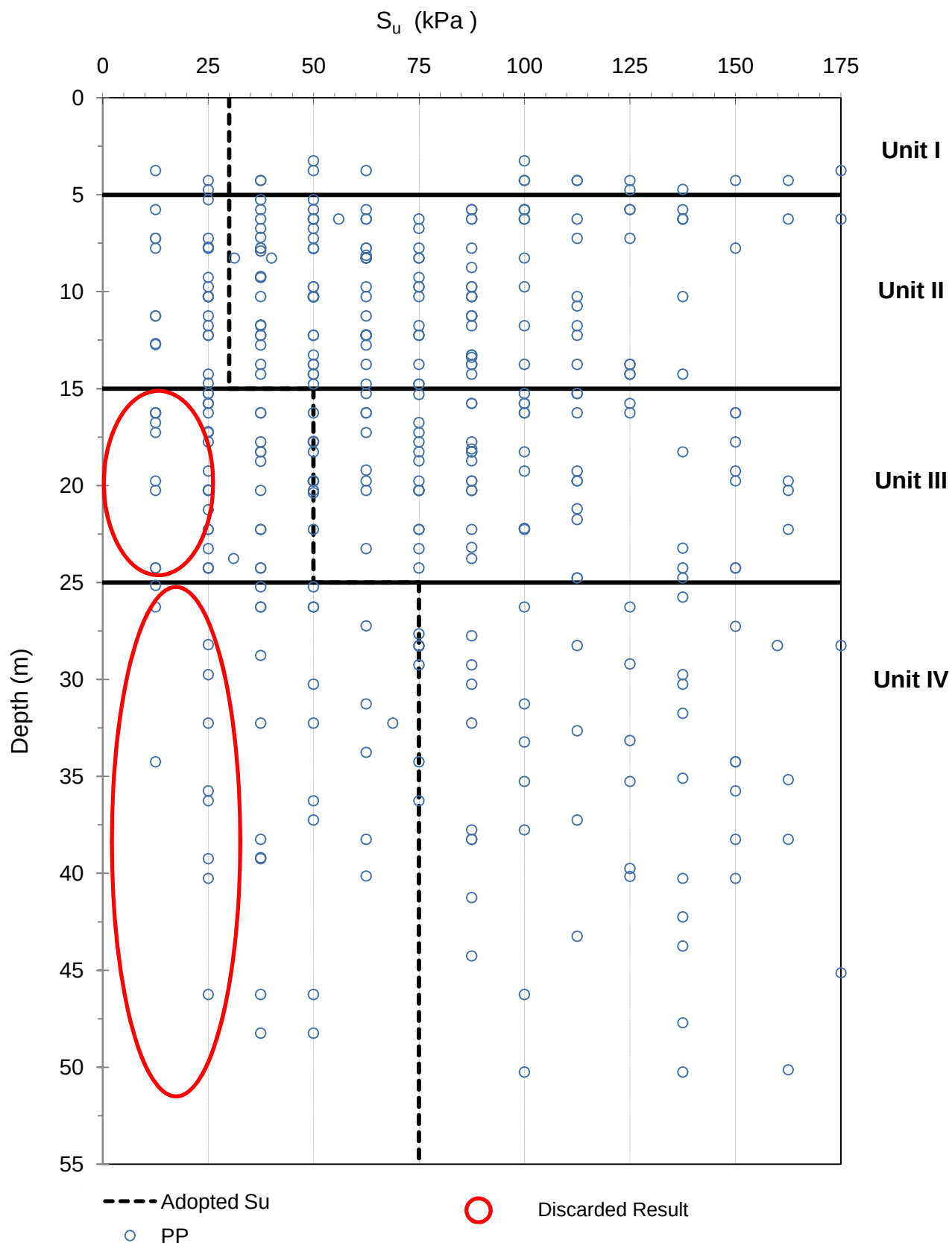
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 32

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: UNDRAINED SHEAR STRENGTHS FROM POCKET PENETROMETER VS DEPTH (ALL DATA)



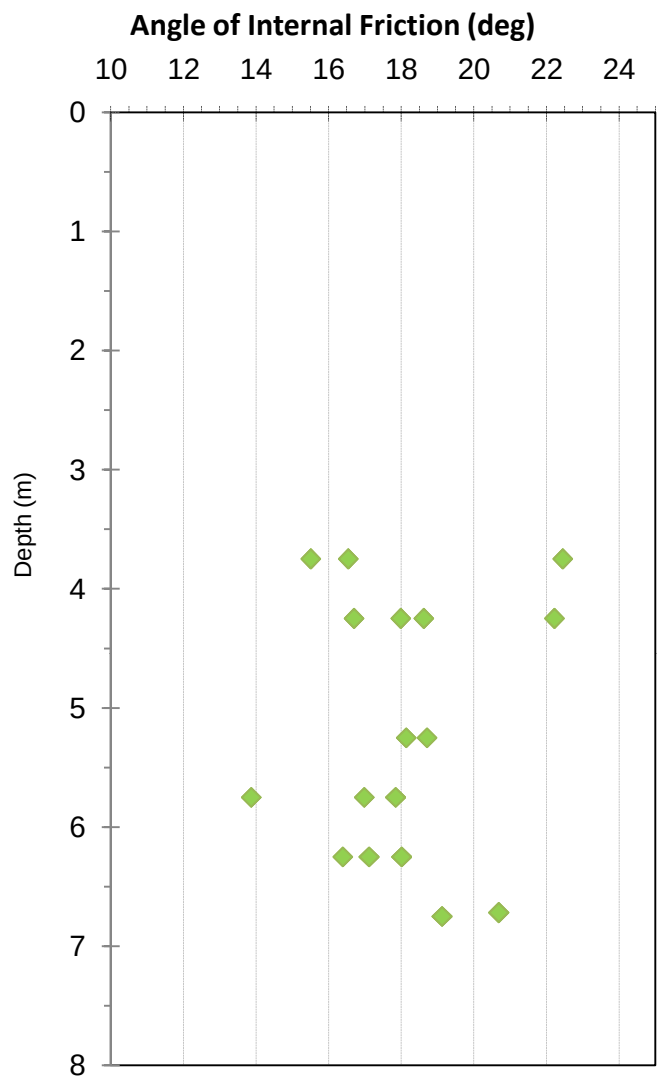
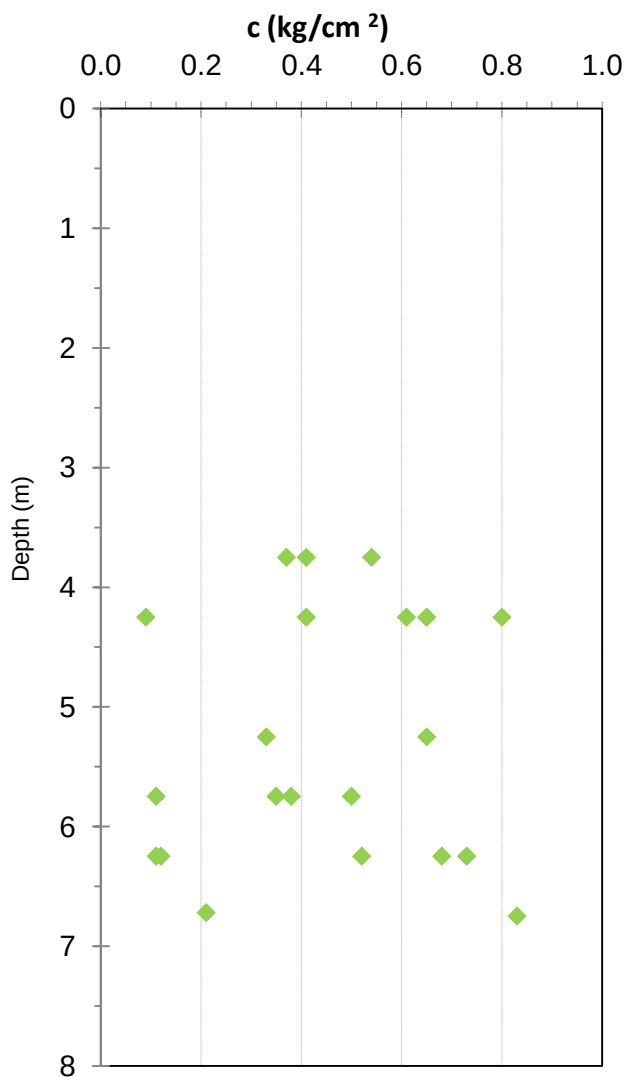
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 33

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: ANGLE OF INTERNAL FRICTION AND COHESION Vs DEPTH FROM QUICK DIRECT SHEAR TESTS



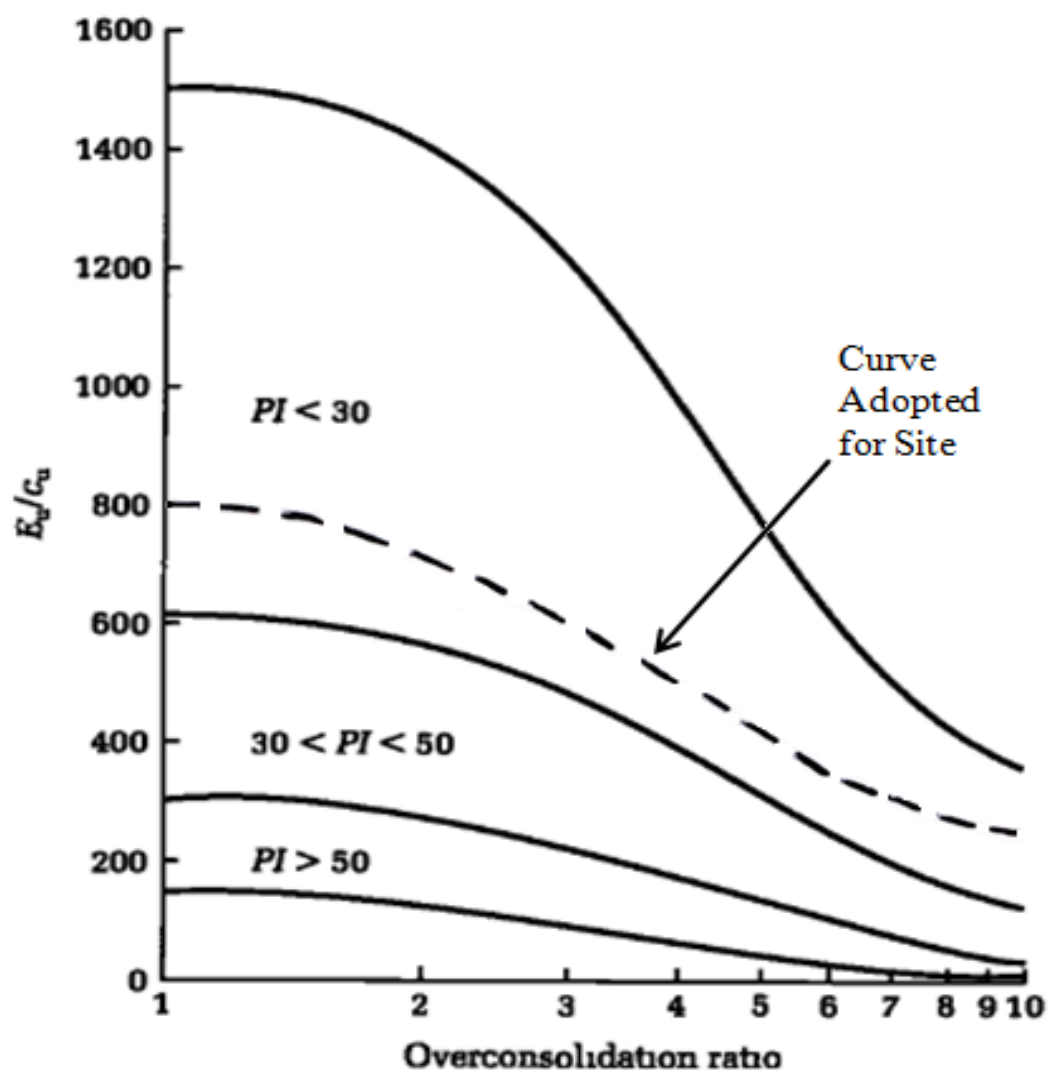
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 34

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



Reference:
Foundation Design and Construction
MJ.Tomlinson - Seventh Edition

TITLE: CORRELATION OF MODULUS OF ELASTICITY OF CLAY AND OCR



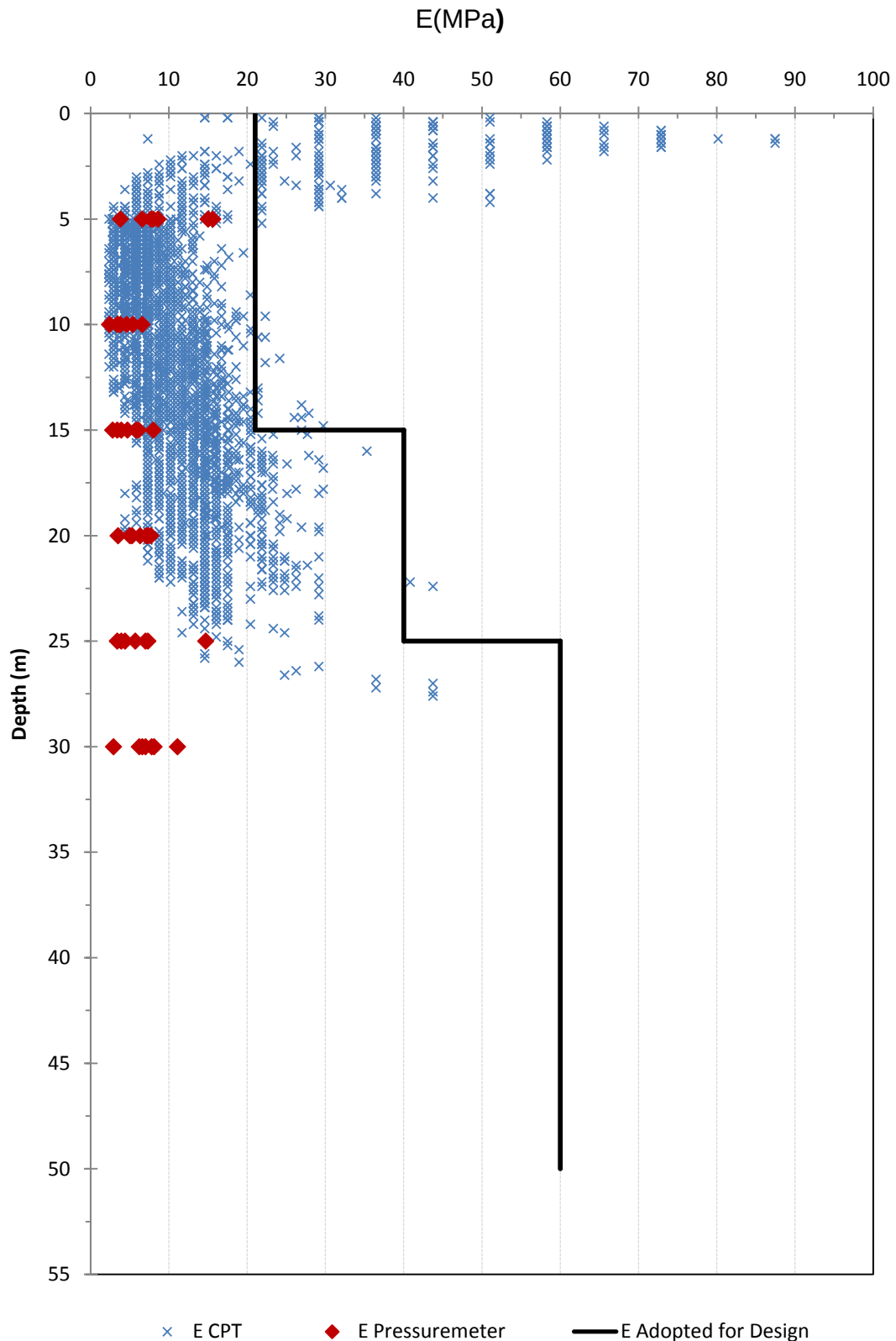
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIGURE: 35

CLIENT : NFC

PROJ. No. : 1347

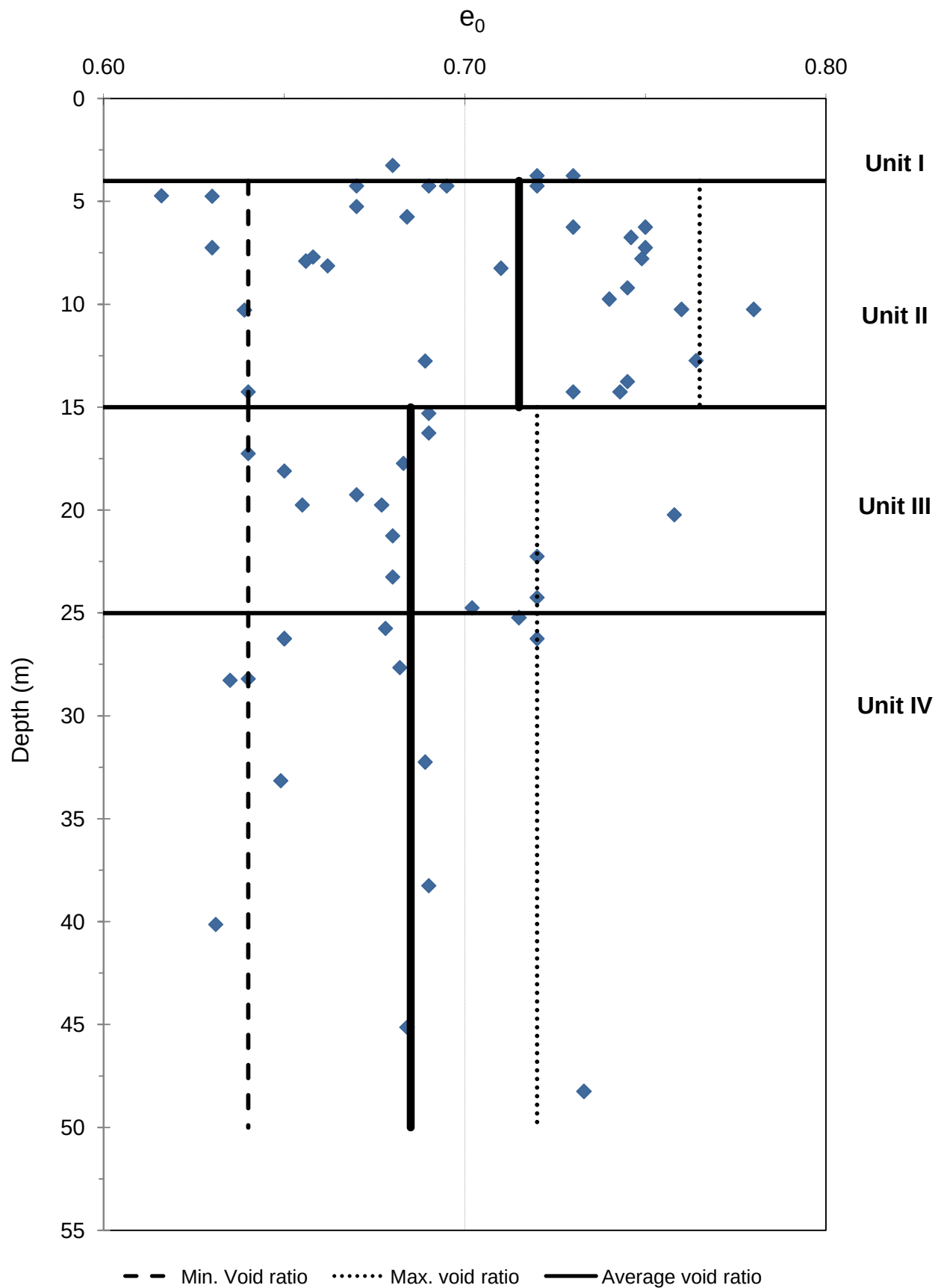
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: YOUNG'S MODULUS OF ELASTICITY VS DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 36
	CLIENT : NFC	PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: INITIAL VOID RATIO Vs DEPTH



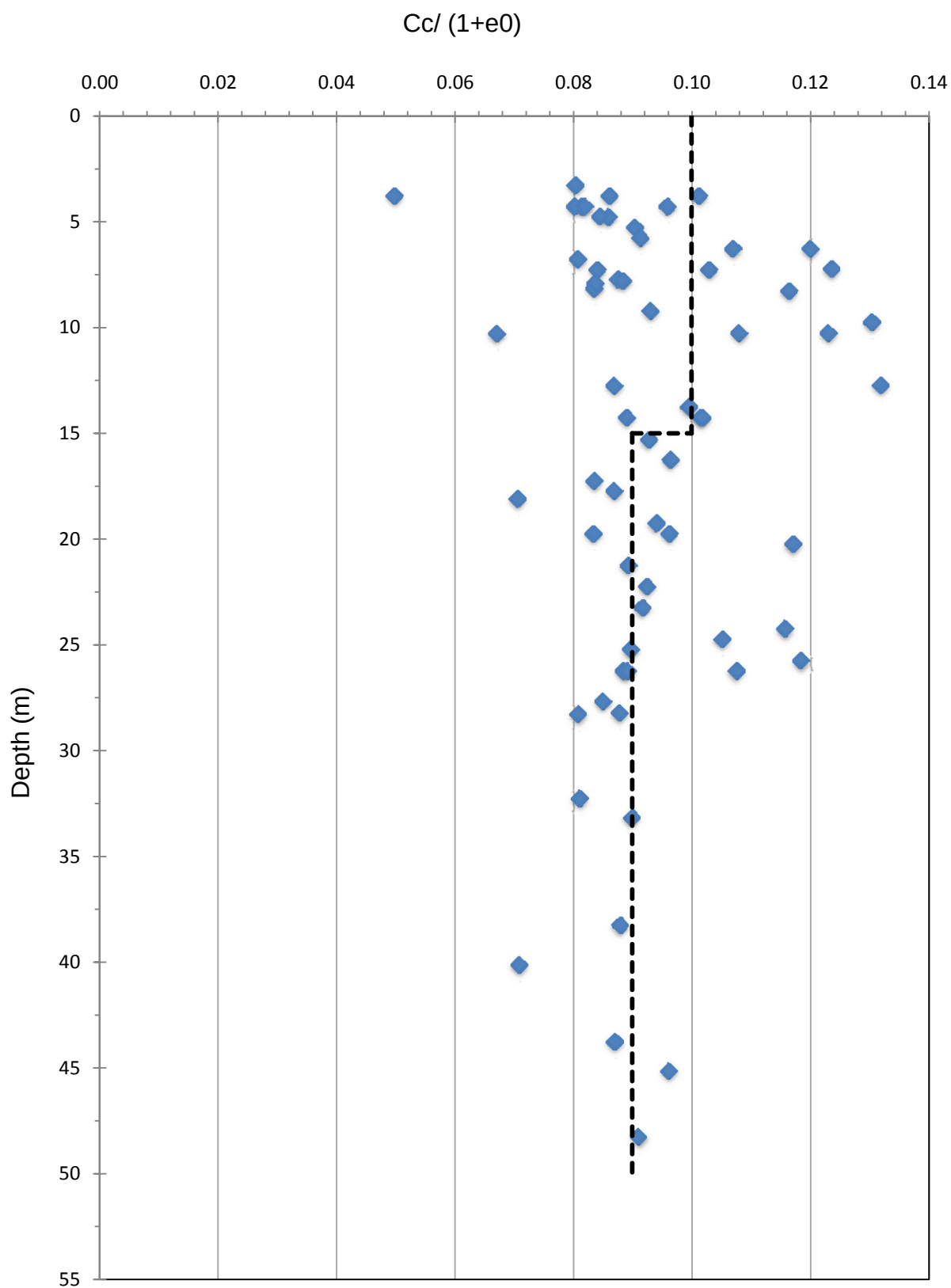
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 37

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: COMPRESSION INDICES VS DEPTH



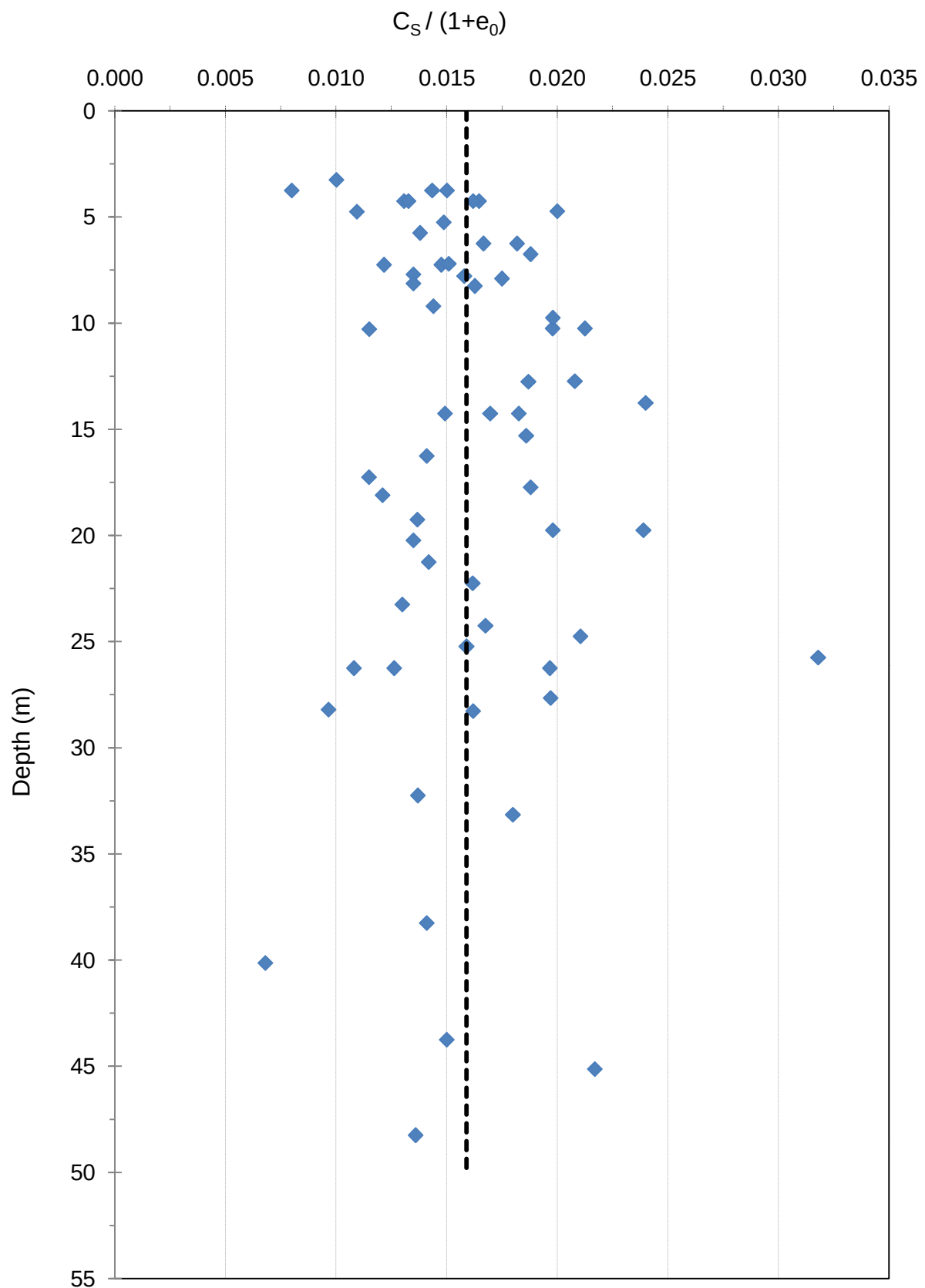
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 38

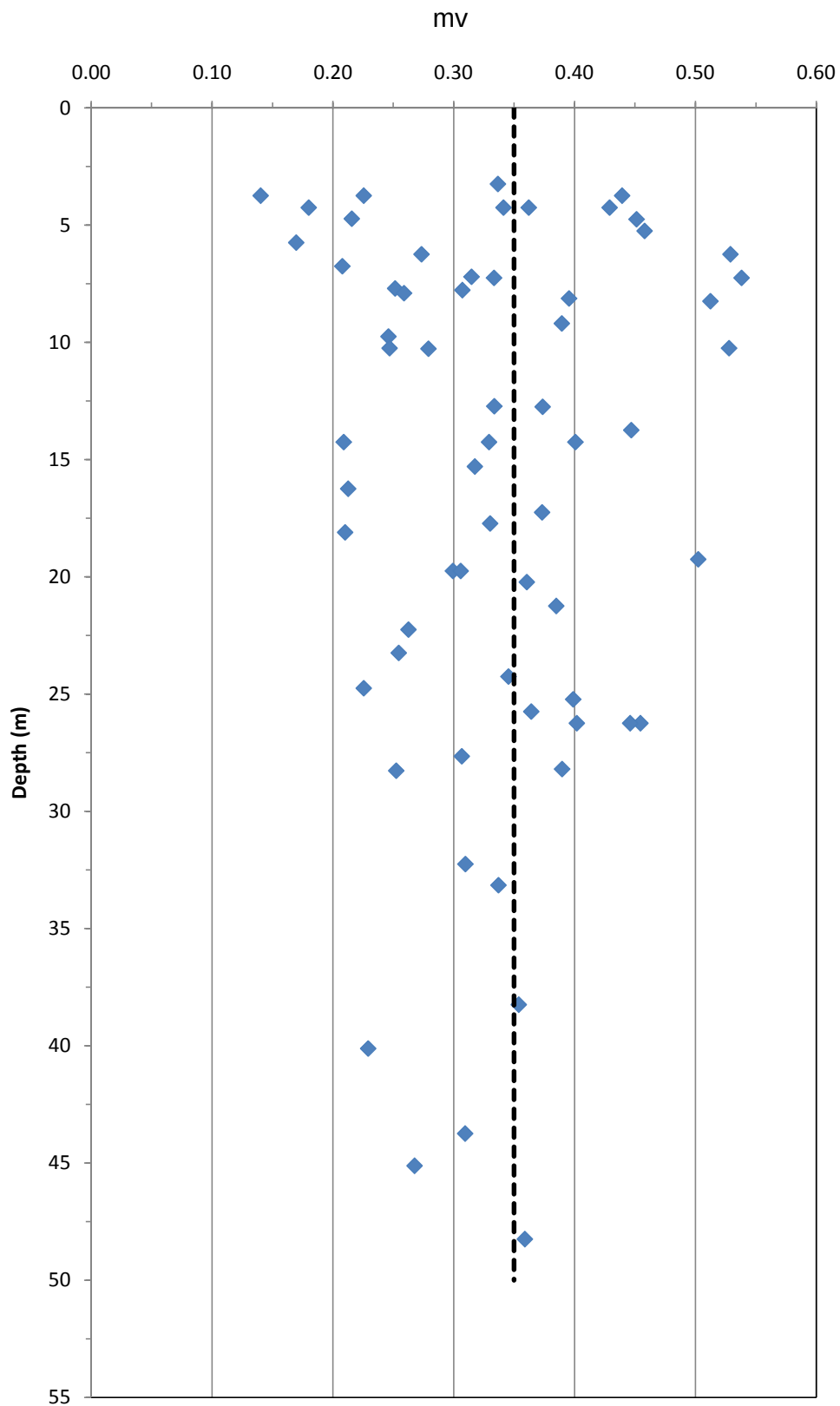
CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



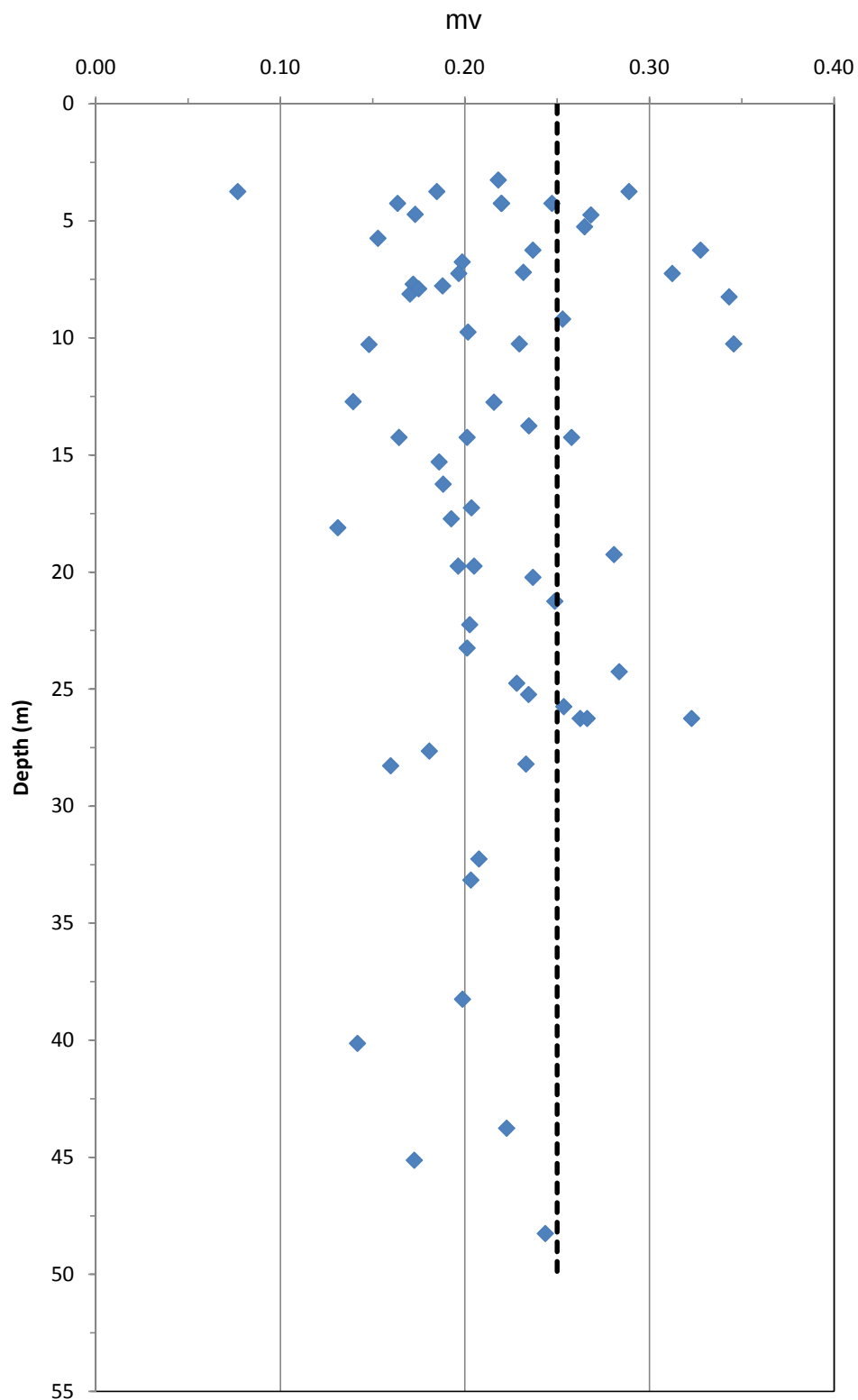
Borehole No.	Depth From	Depth To	e ₁ (50 kPa)	e ₂ (100 kPa)	m _v (MPa ⁻¹)
BH-002	16	16.5	0.66	0.65	0.21
BH-008	8	8.5	0.65	0.60	0.51
BH-008	14	14.5	0.62	0.59	0.33
BH-021	6.5	7	0.73	0.71	0.21
BH-021	24	24.5	0.69	0.66	0.35
BH-025	3	3.5	0.63	0.61	0.34
BH-027	4	4.5	0.65	0.62	0.43
BH-035	19.5	20	0.60	0.58	0.30
BH-044	4.5	5	0.56	0.53	0.45
BH-044	7	7.5	0.60	0.58	0.33
BH-044	17	17.5	0.60	0.57	0.37
BH-048	7.5	7.9	0.59	0.57	0.25
BH-048	17.5	17.95	0.64	0.61	0.33
BH-048	25	25.45	0.65	0.62	0.40
BH-048	40	40.25	0.57	0.55	0.23
BH-048	45	45.25	0.64	0.62	0.27
BH-049	23	23.5	0.66	0.64	0.25
BH-059	3.5	4	0.70	0.68	0.23
BH-069	14	14.5	0.72	0.70	0.21
BH-073	33	33.3	0.60	0.58	0.34
BH-107	4	4.5	0.62	0.59	0.34
BH-109	7	7.4	0.84	0.81	0.31
BH-109	9	9.4	0.69	0.66	0.39
BH-111	12.5	12.95	0.68	0.65	0.33
BH-112	10	10.55	0.58	0.55	0.28
BH-112	15	15.6	0.64	0.61	0.32
BH-112	27.5	27.8	0.63	0.61	0.31
BH-114	5	5.5	0.62	0.59	0.46
BH-119	3.5	4	0.70	0.66	0.44
BH-119	26	26.5	0.60	0.56	0.45
BH-119	6	6.5	0.69	0.65	0.53
BH-119	21	21.5	0.64	0.61	0.38
BH-133	7	7.5	0.71	0.67	0.54
BH-133	19	19.5	0.61	0.57	0.50
BH-139	26	26.5	0.65	0.61	0.45
BH-139	10	10.5	0.72	0.68	0.53
BH-139	48	48.5	0.67	0.64	0.36
BH-139	22	22.5	0.70	0.68	0.26
BH-161	8	8.25	0.62	0.59	0.40
BH-161	18	18.2	0.62	0.60	0.21
BH-161	28	28.55	0.58	0.56	0.25
BH-161	38	38.5	0.64	0.61	0.35
BH-164	5.5	6	0.65	0.64	0.17
BH-169	9.5	10	0.71	0.69	0.25
BH-173	28	28.4	0.62	0.59	0.39
BH-173	10	10.5	0.72	0.70	0.25
BH-185	3.5	4	0.57	0.56	0.14
BH-185	25.5	26	0.65	0.62	0.36
BH-256	7.5	8.3	0.62	0.60	0.26
BH-256	12.5	13	0.61	0.58	0.37
BH-273	24.5	25	0.69	0.67	0.23
BH-286	13.5	14	0.70	0.66	0.45
BH-286	43.5	44	0.55	0.53	0.31
BH-288	4	4.5	0.67	0.64	0.36
BH-288	26	26.5	0.61	0.58	0.40
BH-288	14	14.5	0.66	0.63	0.40
BH-317	7.5	8.05	0.69	0.67	0.31
BH-317	20	20.45	0.72	0.69	0.36
BH-320	4.5	4.95	0.58	0.56	0.22
BH-329	4	4.5	0.67	0.65	0.18
BH-329	32	32.5	0.61	0.59	0.31
BH-337	6	6.5	0.71	0.69	0.27
BH-354	19.5	20	0.64	0.61	0.31
TITLE : Modulus of Volume Compressibility (m _v) From Consolidation Test For Pressures Between 50 and 100 kPa					
	PROJECT: SOUTH ALUMINUM SMELTER PLANT				FIG. No.: 40
	CLIENT : NFC				PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS					



TITLE: Modulus of Volume Compressibility (mv) For Pressures Between 50 and 100 kPa Vs Depth

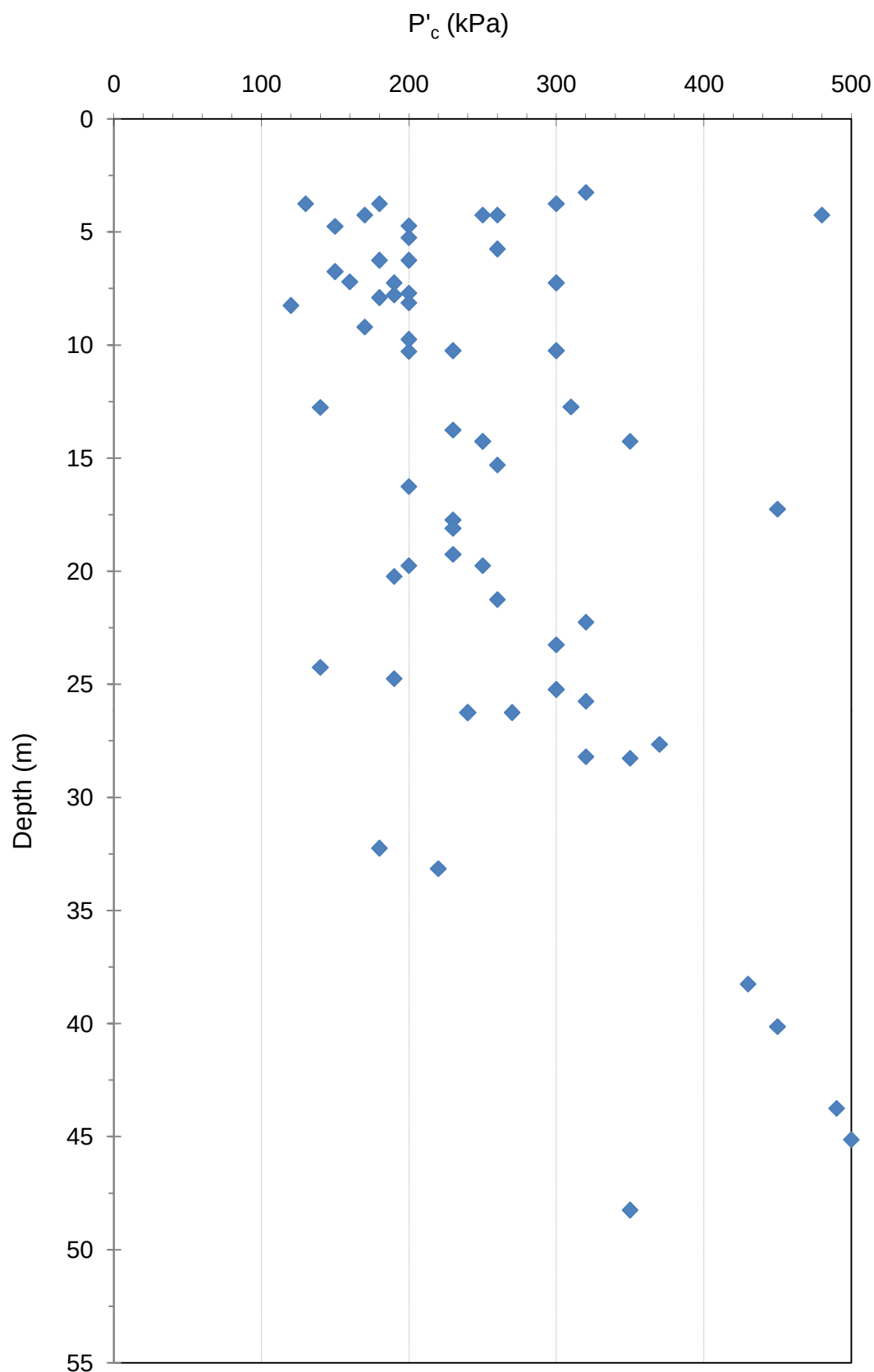
	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 41
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		

Borehole No.	Depth From	Depth To	e ₁ (100 kPa)	e ₂ (200 kPa)	m _v (MPa ⁻¹)
BH-002	16	16.5	0.65	0.62	0.19
BH-008	8	8.5	0.60	0.55	0.34
BH-008	14	14.5	0.59	0.56	0.20
BH-021	6.5	7	0.71	0.68	0.20
BH-021	24	24.5	0.66	0.61	0.28
BH-025	3	3.5	0.61	0.57	0.22
BH-027	4	4.5	0.62	0.58	0.25
BH-035	19.5	20	0.58	0.55	0.20
BH-044	4.5	5	0.53	0.49	0.27
BH-044	7	7.5	0.58	0.55	0.20
BH-044	17	17.5	0.57	0.54	0.20
BH-048	7.5	7.9	0.57	0.54	0.17
BH-048	17.5	17.95	0.61	0.58	0.19
BH-048	25	25.45	0.62	0.58	0.23
BH-048	40	40.25	0.55	0.53	0.14
BH-048	45	45.25	0.62	0.59	0.17
BH-049	23	23.5	0.64	0.61	0.20
BH-059	3.5	4	0.68	0.65	0.18
BH-069	14	14.5	0.70	0.68	0.16
BH-073	33	33.3	0.58	0.54	0.20
BH-107	4	4.5	0.59	0.56	0.22
BH-109	7	7.4	0.81	0.77	0.23
BH-109	9	9.4	0.66	0.62	0.25
BH-111	12.5	12.95	0.65	0.63	0.14
BH-112	10	10.55	0.55	0.53	0.15
BH-112	15	15.6	0.61	0.58	0.19
BH-112	27.5	27.8	0.61	0.58	0.18
BH-114	5	5.5	0.59	0.54	0.26
BH-119	3.5	4	0.66	0.61	0.29
BH-119	26	26.5	0.56	0.52	0.26
BH-119	6	6.5	0.65	0.59	0.33
BH-119	21	21.5	0.61	0.57	0.25
BH-133	7	7.5	0.67	0.61	0.31
BH-133	19	19.5	0.57	0.52	0.28
BH-139	26	26.5	0.61	0.56	0.32
BH-139	10	10.5	0.68	0.62	0.35
BH-139	48	48.5	0.64	0.60	0.24
BH-139	22	22.5	0.68	0.64	0.20
BH-161	8	8.25	0.59	0.56	0.17
BH-161	18	18.2	0.60	0.58	0.13
BH-161	28	28.55	0.56	0.54	0.16
BH-161	38	38.5	0.61	0.58	0.20
BH-164	5.5	6	0.64	0.61	0.15
BH-169	9.5	10	0.69	0.65	0.20
BH-173	28	28.4	0.59	0.55	0.23
BH-173	10	10.5	0.70	0.66	0.23
BH-185	3.5	4	0.56	0.55	0.08
BH-185	25.5	26	0.62	0.58	0.25
BH-256	7.5	8.3	0.60	0.57	0.17
BH-256	12.5	13	0.58	0.54	0.22
BH-273	24.5	25	0.67	0.63	0.23
BH-286	13.5	14	0.66	0.62	0.23
BH-286	43.5	44	0.53	0.49	0.22
BH-288	4	4.5	0.64	0.60	0.22
BH-288	26	26.5	0.58	0.54	0.27
BH-288	14	14.5	0.63	0.59	0.26
BH-317	7.5	8.05	0.65	0.62	0.19
BH-317	20	20.45	0.69	0.65	0.24
BH-320	4.5	4.95	0.56	0.53	0.17
BH-329	4	4.5	0.65	0.62	0.16
BH-329	32	32.5	0.59	0.56	0.21
BH-337	6	6.5	0.69	0.65	0.24
BH-354	19.5	20	0.61	0.58	0.20
TITLE : Modulus of Volume Compressibility (m _v) From Consolidation Test For Pressures Between 100 and 200 kPa					
	PROJECT: SOUTH ALUMINUM SMELTER PLANT				FIG. No.: 42
	CLIENT : NFC				PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS					



TITLE: Modulus of Volume Compressibility (mv) For Pressures Between 100 and 200 kPa Vs Depth

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 43
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: PRECONSOLIDATION (P'_c) VS DEPTH



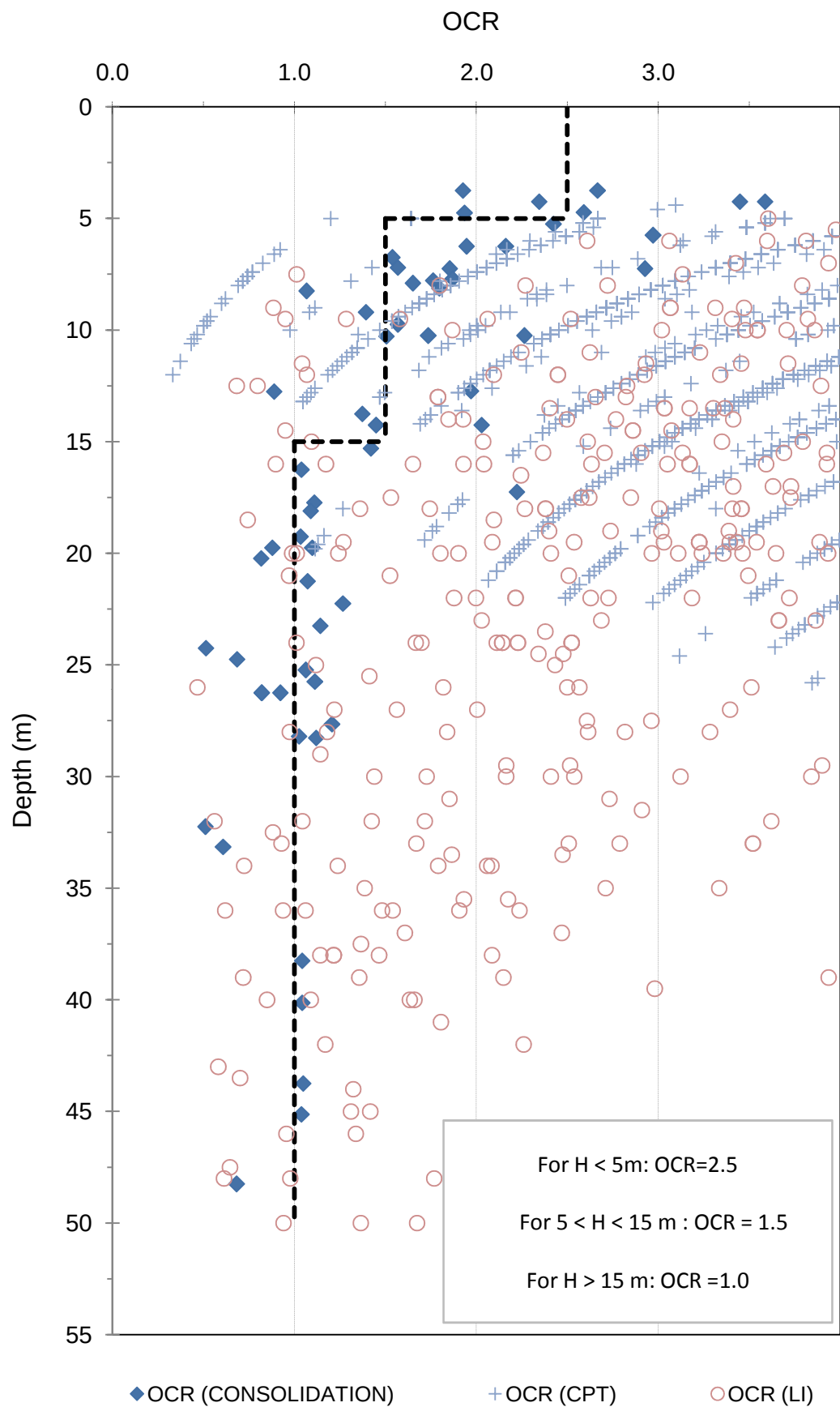
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 44

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: OVERCONSOLIDATION RATIO (OCR) VS DEPTH (WATER TABLE CONSIDERED AT 3.m FROM G.L.)



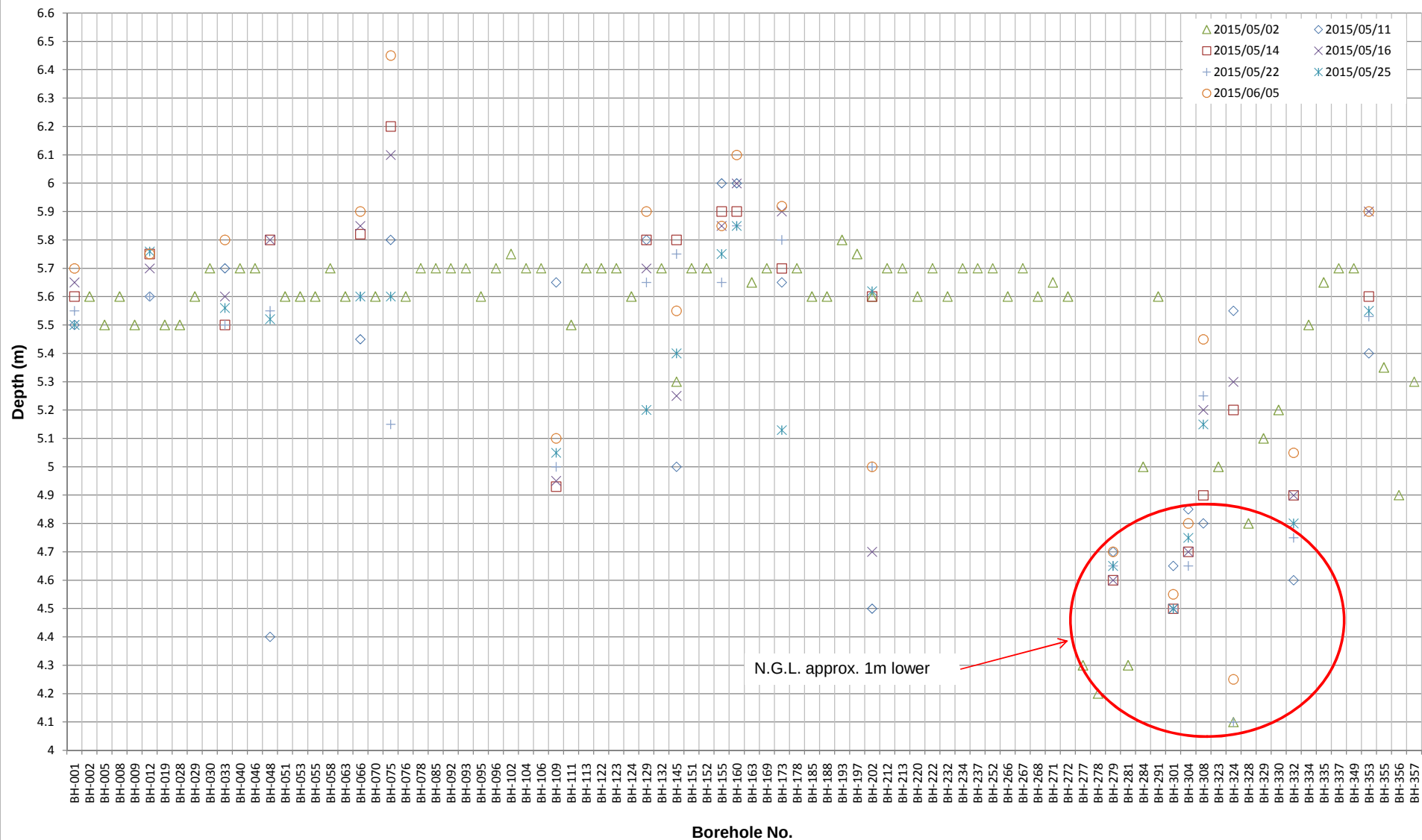
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 45

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE : WATER LEVEL RECORDS FOR MONTH OF MAY TO JUNE 2015



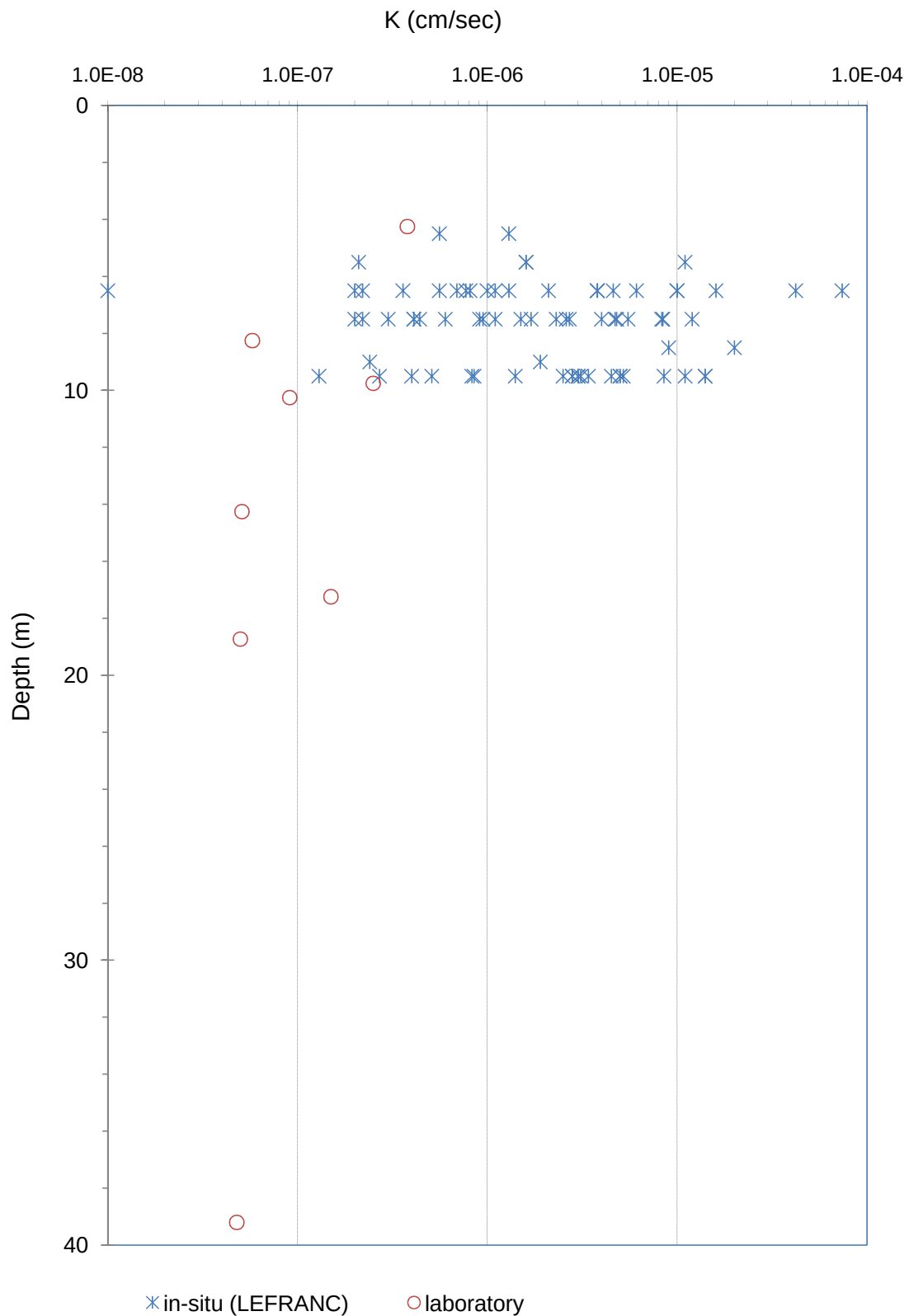
PROJECT: SOUTH ALUMINUM SMELTER PLANT

CLIENT : NFC

FIG. No.: 46

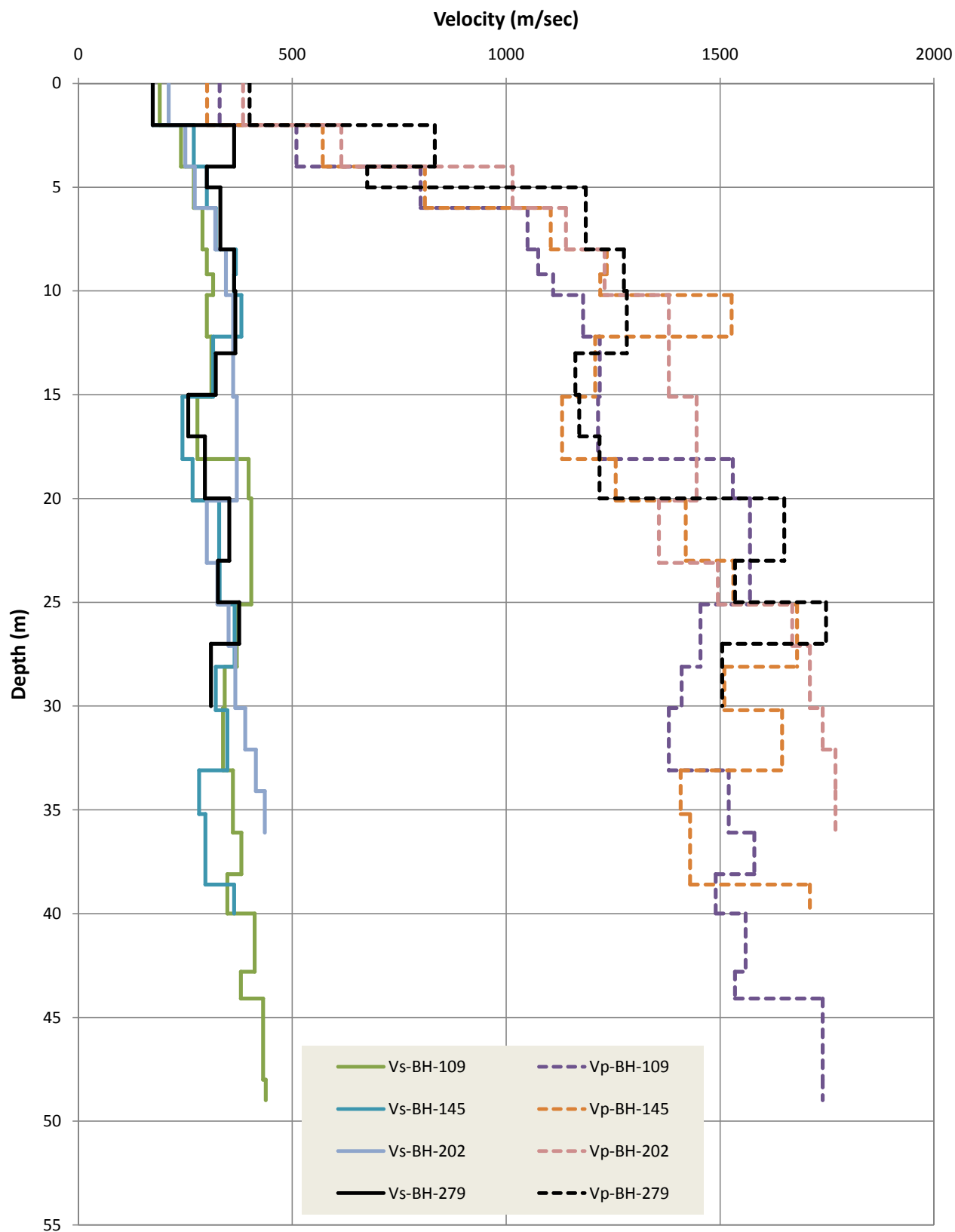
PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: LEFRANC AND LABORATORY PERMEABILITY VS DEPTH

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 47
	CLIENT : NFC	PROJ. No. : 1347
SOIL ENGINEERING SERVICES CONSULTING ENGINEERS		



TITLE: DOWNHOLE SEISMIC TESTS RESULT



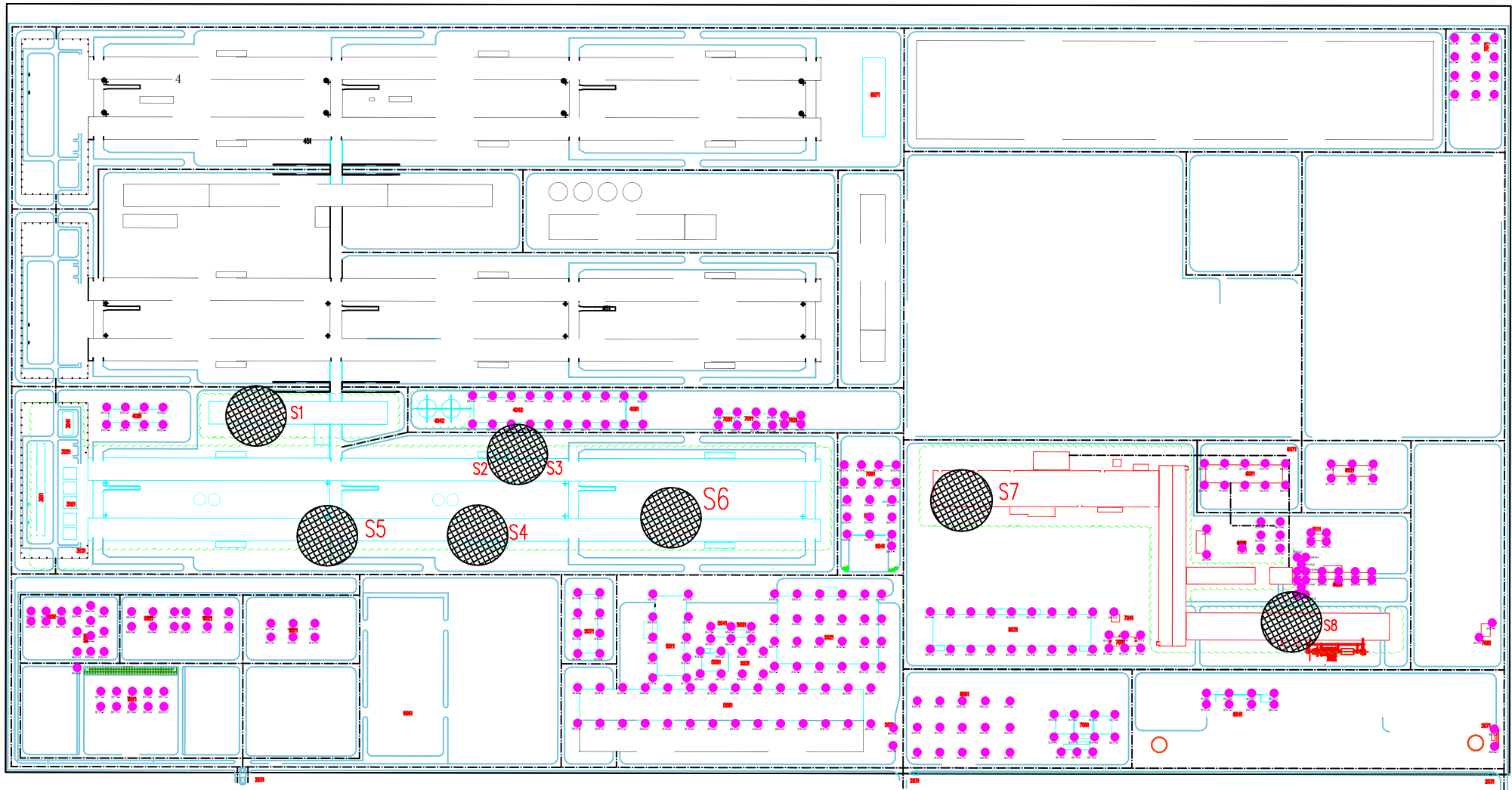
Project: SOUTH ALUMINUM SMELTER PLANT

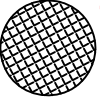
FIG. No.: 48

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



Legend :  S6
Test Location

TITLE : ELECTRICAL RESISTIVITY TEST LOCATION



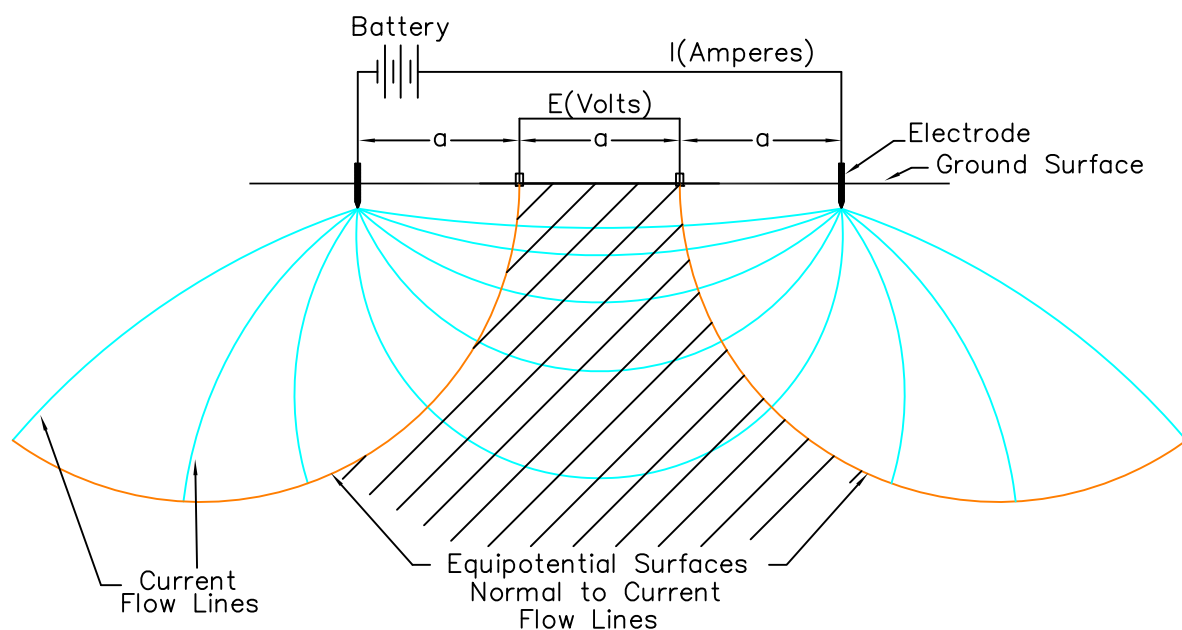
PROJECT : SOUTH ALUMINUM SMELTER PLANT

CLIENT : NFC

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS

FIG. No. : 49

PROJ. No.: 1347



$$\text{Apparent Resistivity, } \rho = \frac{2\pi a E}{I}$$

ρ = Electrical resistivity, ohm-m
 a = Electrode spacing, m
 R = Electrical resistivity, ohm
 E = Potential difference, mV
 I = current, mA

TITLE : SKETCH OF WENNER FOUR ELECTRODE METHOD



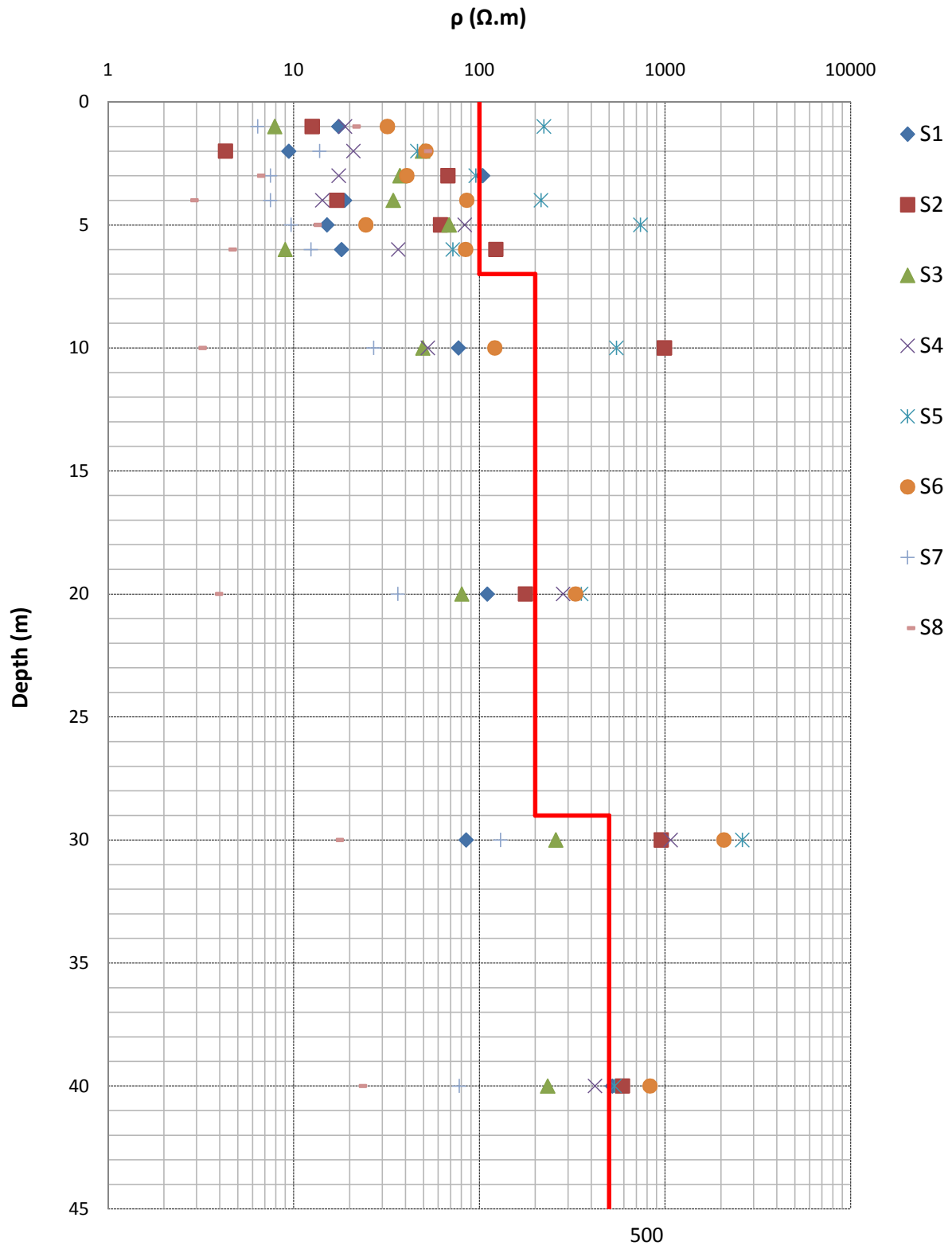
PROJECT : SOUTH ALUMINUM SMELTER PLANT

CLIENT : NFC

FIG. No. : 50

PROJ. No.: 1347

SOILS ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE: VARIATIONS OF ELECTRICAL RESISTIVITY WITH DEPTH



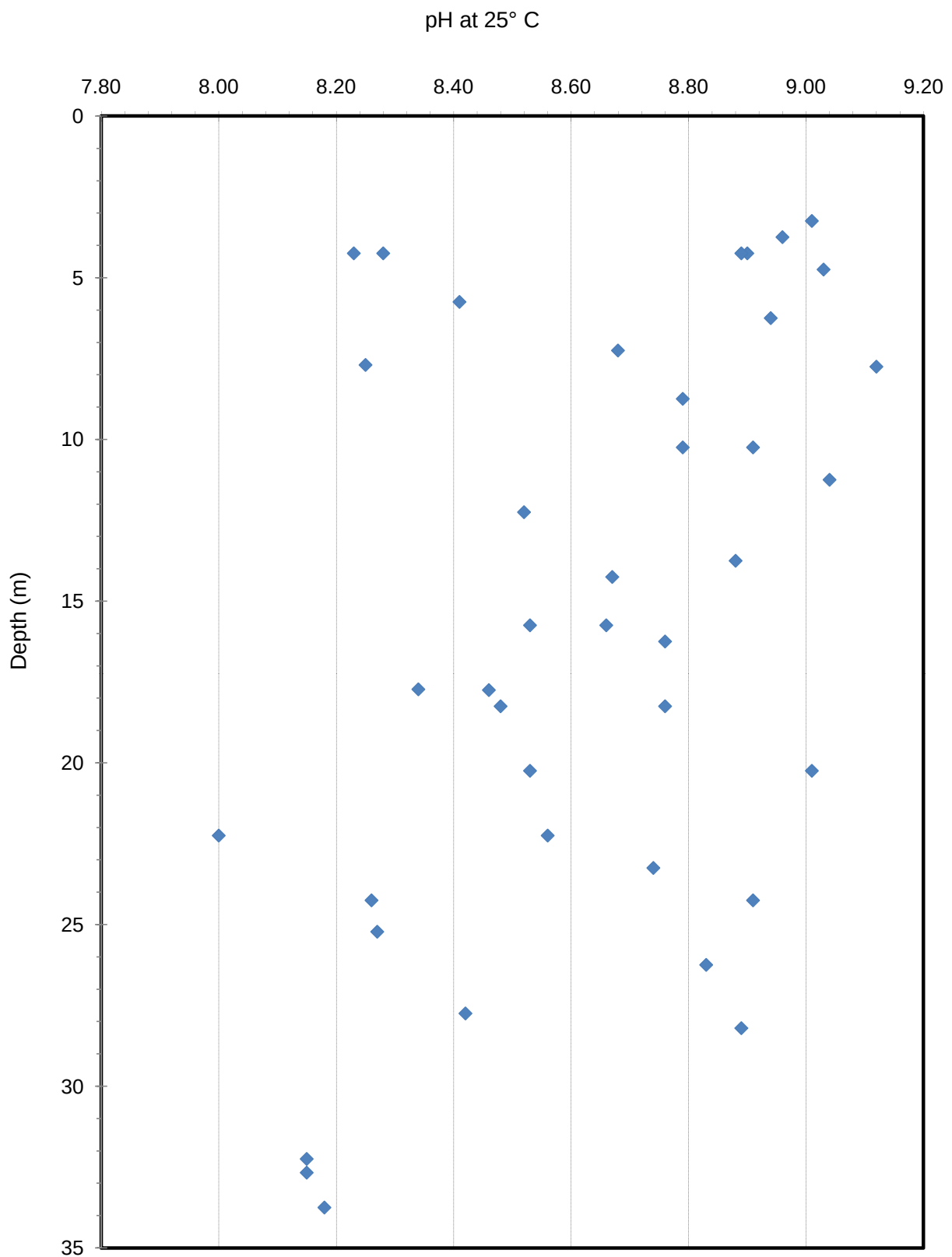
Project: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 51

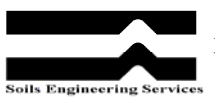
CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE : PH Vs DEPTH (SOIL)



**S
E
S**

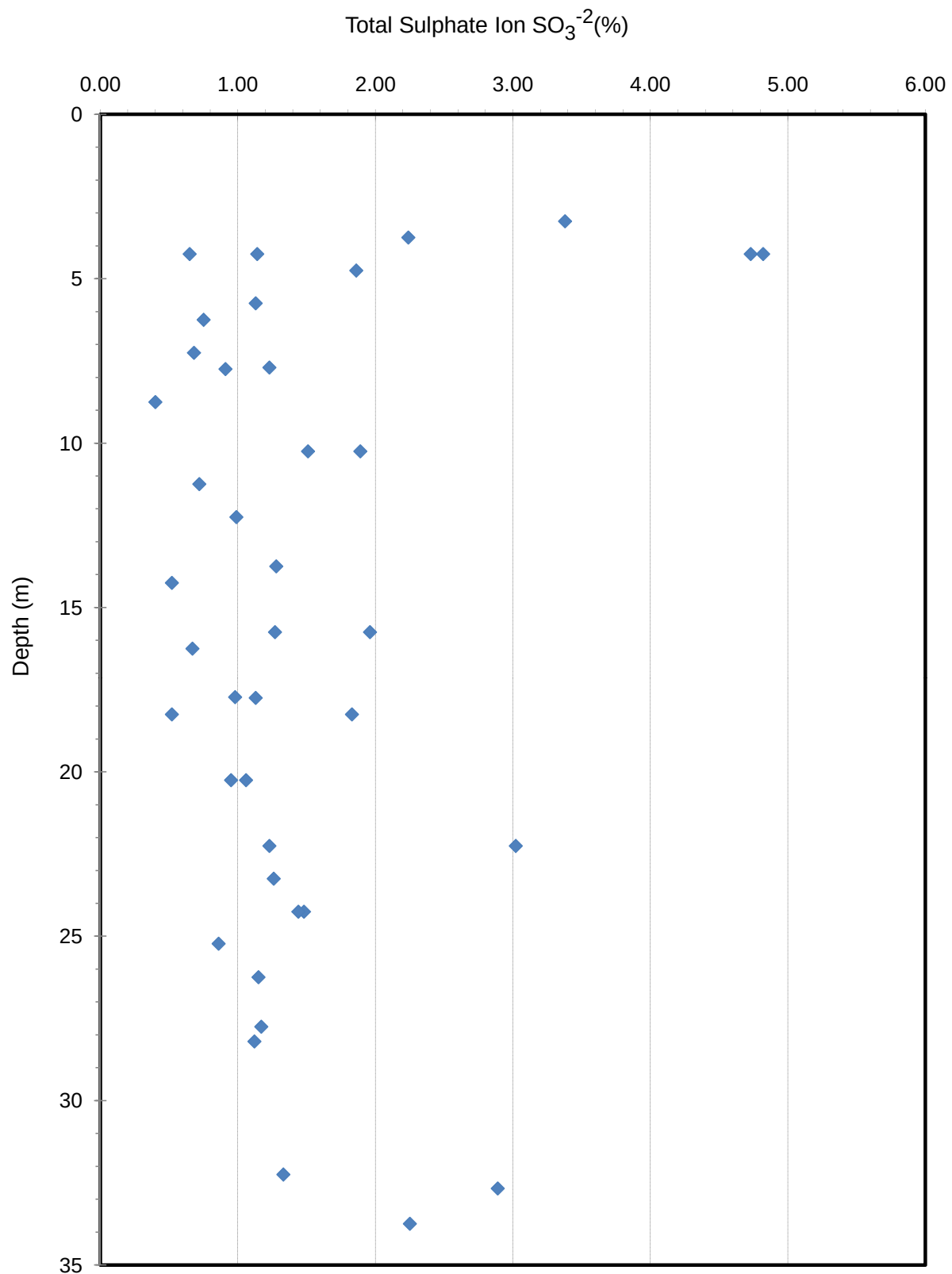
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 52

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE : TOTAL SULPHATE ION Vs DEPTH (SOIL)



**S
E
S**

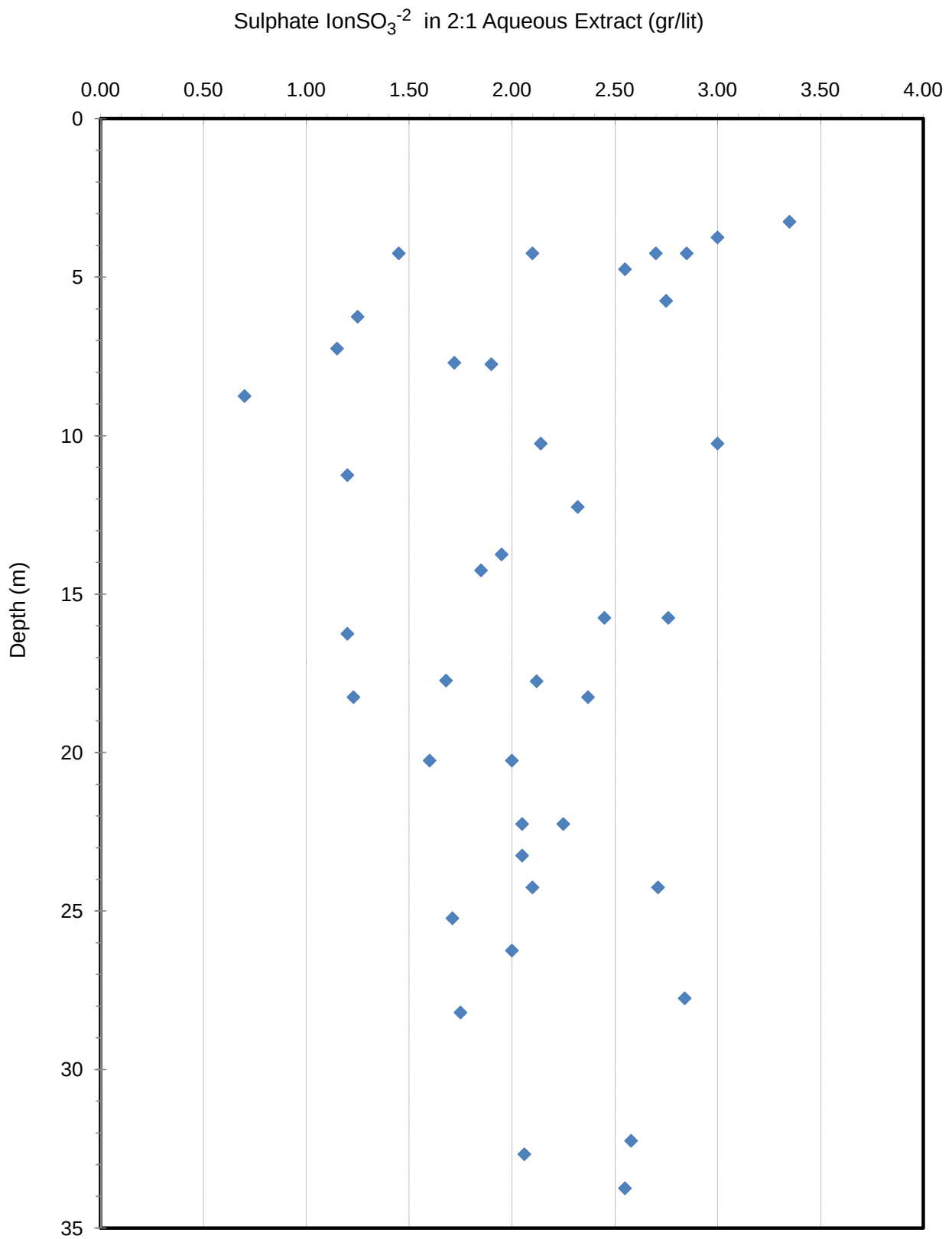
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 53

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE : SULPHATE ION (gr/lit) Vs DEPTH (SOIL)



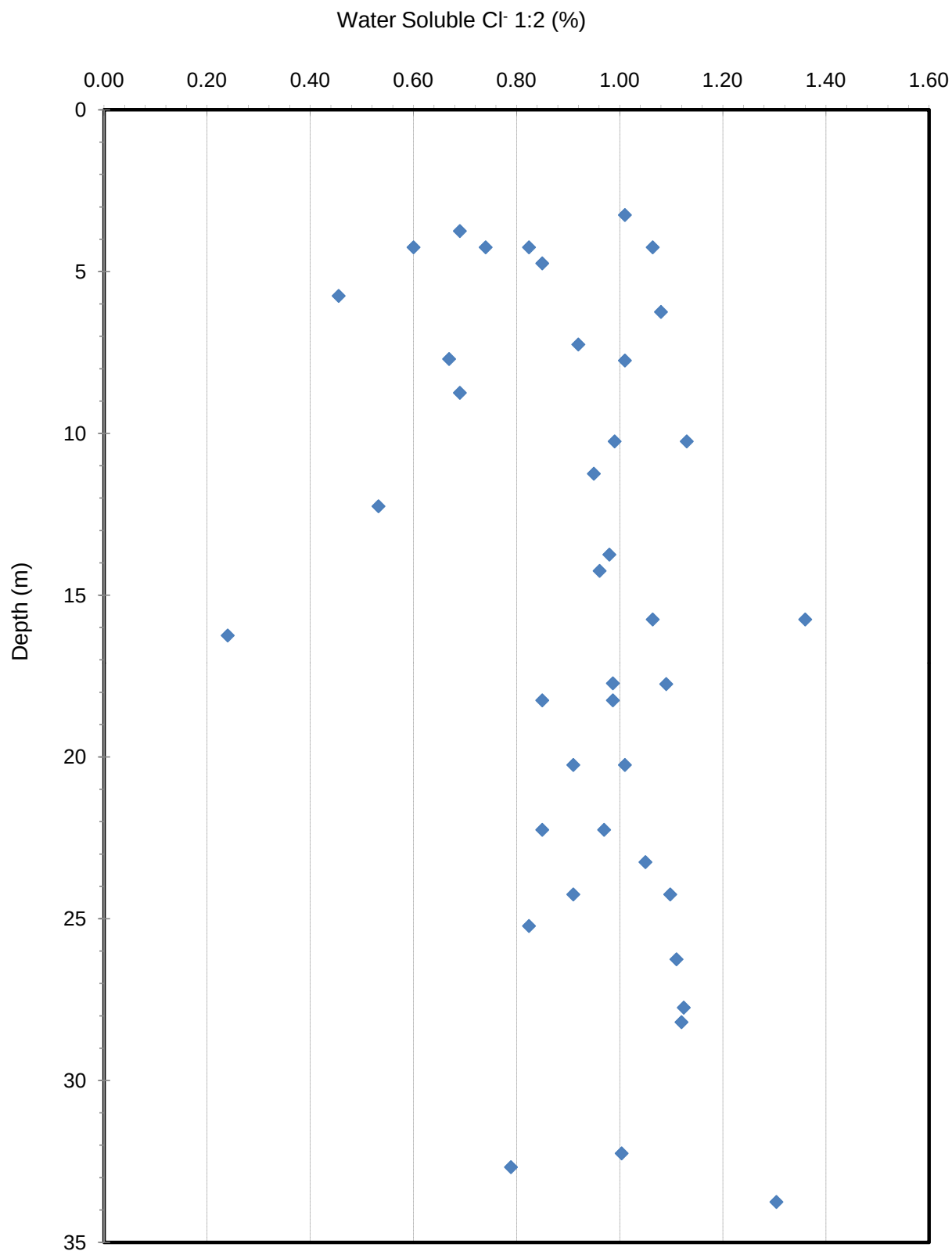
PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 54

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS



TITLE : WATER SOLUBLE CHLORINE Vs DEPTH (SOIL)



**S
E
S**

PROJECT: SOUTH ALUMINUM SMELTER PLANT

FIG. No.: 55

CLIENT : NFC

PROJ. No. : 1347

SOIL ENGINEERING SERVICES CONSULTING ENGINEERS

Sample No.	T.D.S ppm	E _c μmhos/cm	Cl ⁻ ppm	pH	SO ₄ ⁻² ppm
BH-009	58070	70700	33678	7.29	5748
BH-082	66330	80400	32348	7.43	7126
BH-100	69120	85300	38995	7.29	5875
BH-124	52140	65200	26588	7.15	5455
BH-287	98200	113000	53618	7.27	7373
BH-291	76620	93400	41654	7.44	6544
BH-329	19255	26744	8862	7.16	3848

TITLE : WATER CHEMICAL TEST RESULTS

	PROJECT: SOUTH ALUMINUM SMELTER PLANT	FIG. No.: 56
	CLIENT : NFC	PROJ. No. : 1347

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