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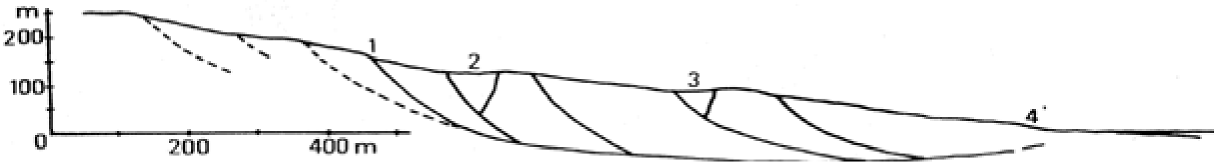


RISTRUTTURAZIONE EDILIZIA OTTENUTA MEDIANTE DEMOLIZIONE E RICOSTRUZIONE DI FABBRICATO RESIDENZIALE SITO IN VIALE DA VINCI – COMUNE DI CESENATICO (FC).

LOCALITÁ:	Viale Da Vinci
COMUNE	Cesenatico (FC)
COMMITTENTE:	Immobiliare Cesena Nord

RELAZIONE GEOLOGICA

Dicembre 2022

IL COMMITTENTE:	IL TECNICO:
Immobiliare Cesena Nord	Dottore Geologo Bucci Aride

INDICE

PREMESSA

La Società Immobiliare Cesena Nord, mi ha incaricato di redigere il presente elaborato tecnico relativo al progetto di ristrutturazione edilizia di fabbricato mediante demolizione ricostruzione di struttura residenziale in Viale Da Vinci, Comune di Cesenatico (FC).

L' intervento sarà realizzato ai sensi delle normative tecniche vigenti.

E' stato eseguito un rilevamento preliminare atto a delineare le condizioni geomorfologiche e idrogeologiche dell'area.

Le indagini geotecniche sono state programmate in funzione del tipo di intervento, hanno riguardato il volume significativo, ed hanno permesso la definizione del modello geologico di sottosuolo necessario alla progettazione.

Attraverso la modellazione geologica è stato possibile evidenziare eventuali criticità di tipo idrogeologico e geomorfologico derivante dalla realizzazione delle strutture in progetto.

NORMATIVA DI RIFERIMENTO

La stesura della seguente relazione è stata compiuta in ottemperanza alle disposizioni contenute nelle normative di riferimento di seguito elencate:

- AGI: raccomandazione sulla programmazione ed esecuzione delle indagini geotecniche, Giugno 1977;
- "Norme tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione e il collaudo delle opere di sostegno delle terre e delle opere di fondazione". D.M. 11 Marzo 1988;
- Istruzioni relative alle "Norme tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilita dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione e il collaudo delle opere di sostegno delle terre e delle opere di fondazione". Circ. Min. LL.PP. n° 30483 24 Settembre 1988;
- Eurocodice 7.1 (1997) Progettazione geotecnica – Parte I : Regole Generali . – UNI;
- Eurocodice 8 (1998) Indicazioni progettuali per la resistenza fisica delle strutture. Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici (stesura finale 2003);
- Decreto del presidente della Repubblica 5 giugno 2001, n. 328 pubblicata nella G.U. n. 190 del 17-8-2001- Suppl. Ordinario n.212);
- Eurocodice 7.2 (2002) Progettazione geotecnica – Parte II : Progettazione assistita da prove di laboratorio (2002). UNI;
- Eurocodice 7.3 (2002).Progettazione geotecnica – Parte II : Progettazione assistita con prove in sito(2002). UNI;

- Ordinanza del Dipartimento della Protezione Civile e del Servizio Sismico Nazionale del 20 marzo 2003: “Nuove disposizioni per le costruzioni in zona sismica” pubblicata nella G.U. del 8 maggio 2003;
- Decreto del Ministero delle Infrastrutture e dei Trasporti: “Norme tecniche per le costruzioni” del 14 settembre 2005 geotecniche;
- Consiglio Superiore dei Lavori Pubblici Pericolosità sismica e Criteri generali per la classificazione sismica del territorio nazionale. Allegato al voto n. 36 del 27.07.2007;
- "Nuove Norme tecniche per le costruzioni ". D.M. 14 Gennaio 2008;
- Consiglio Superiore dei Lavori Pubblici Istruzioni per l’applicazione delle “Norme tecniche per le costruzioni” di cui al D.M. 14 gennaio 2008. Circolare 2 febbraio 2009;
- "Nuove Norme tecniche per le costruzioni ". 17/01/2018.
- Circolare esplicativa NTC18 del 11/02/2019.

INQUADRAMENTO GEOGRAFICO E CARTOGRAFICO

L’area in oggetto si sviluppa nell’ambito costiero di Cesenatico ad un quota altimetrica di 3 m s.l.m.

Dal punto di vista cartografico, l’area è individuabile nel foglio 100 “Forlì” scala 1 : 100.000, nella Sezione della Carta Tecnica Regionale 256 010 scala 1 : 10.000 e nell’Elemento 256011 in scala 1 : 5.000..

Le coordinate geografiche WGS 84 rilevate tramite strumento GPS rendono:

LATITUDINE: 44.19985127
LONGITUDINE: 12.40019416

Fig. 1 – Inquadramento territoriale

Fig. 2 – Inquadramento cartografico

MODELLO GEOLOGICO

INQUADRAMENTO GEOLOGICO GENERALE

La Pianura Emiliano Romagnola, di cui il territorio di Cesenatico (FC) costituisce la propaggine meridionale, è definita, dal punto di vista geologico, un bacino sedimentario subsidente connesso con l'evoluzione delle catene Alpina e Appenninica.

In origine, infatti, l'area padana costituiva un grande golfo occupato dal Mar Adriatico che, in seguito ai movimento orogenetici, ai movimenti eustatici marini e all'azione erosiva di fiumi e torrenti, si è riempito fino a divenire una vera e propria pianura alluvionale.

I sedimenti alluvionali, lagunari, deltizi e marini plio-quaternari della Pianura Emiliano –Romagnola hanno spessori notevoli (1000 – 2000 m), nonostante le limitate profondità del bacino padano (100 – 150 m), ciò a causa dei fenomeni naturali di subsidenza, in gran parte tettonica, che ha raggiunto il suo massimo nell'area ravennate.

Le vicende geologiche più recenti dell'area sono riconducibili all'inizio della glaciazione würmiano (60000 – 70000 anni fa). All'inizio del Würm, l'abbassamento della temperatura terrestre, innescò un'imponente regressione marina che portò il livello marino a circa 100m sotto di quello attuale. La regressione è documentata dal passaggio da forme fossili marine (Pleistocene sup.) a forme fossili di ambiente lagunare, per poi passare a sedimenti di tipo continentale.

I sedimenti continentali würmiani, dello spessore massimo di circa 50m, sono costituiti da limi sabbiosi e limi argillosi con intercalazioni sabbiose e argillose. Nell'ultimo stadio della glaciazione (17000 – 20000 anni fa), la linea di costa si trovava nell'area a mare tra Ancona e Pescara, perciò si può affermare che l'alto Adriatico era una vasta piana alluvionale.

Poi, ad iniziare da 150000 – 17000 anni fa, si entrò in una fase interglaciale, che innescò una trasgressione eustatica a scala mondiale (trasgressione flandriana, Olocene), piuttosto veloce, che portò il livello marino a stabilizzarsi in zona. Pertanto la vasta pianura alluvionale che si era istaurata nell'alto Adriatico fu via via invasa e ricoperta dalle acque marine, con nuove condizioni di sedimentazione. I primi sedimenti trasgressivi sono documentati a partire da 25m dal p.c..

Le sabbie si distribuivano lungo le sabbie e nelle zone immediatamente antistanti, mentre un'attiva sedimentazione di limi e argille si aveva al largo delle zone costiere, a causa dell'apporto dei fiumi (ambiente lagunare). L'apporto diminuiva allontanandosi dalla costa fin quasi ad annullarsi nella parte centrale della piattaforma continentale, lasciando scoperti i depositi würmiani.

Il territorio risulta quindi, secondo quanto detto, suddiviso in una zona, ad ovest di Cesena, non raggiunta dalla trasgressione olocenica, pertanto costituita da sedimenti marini mio - pliocenici, e una zona, da est fino alla costa, in cui si trovano sedimenti trasgressivi, sabbia di spiaggia e limi argillosi lagunari.

Dal 1° millennio A.C., ha inizio una nuova fase regressiva, tuttora in atto, non di tipo eustatico ma deposizionale, che ha portato la linea di costa fino alla posizione attuale. Dando origine ai depositi olocenici recente.

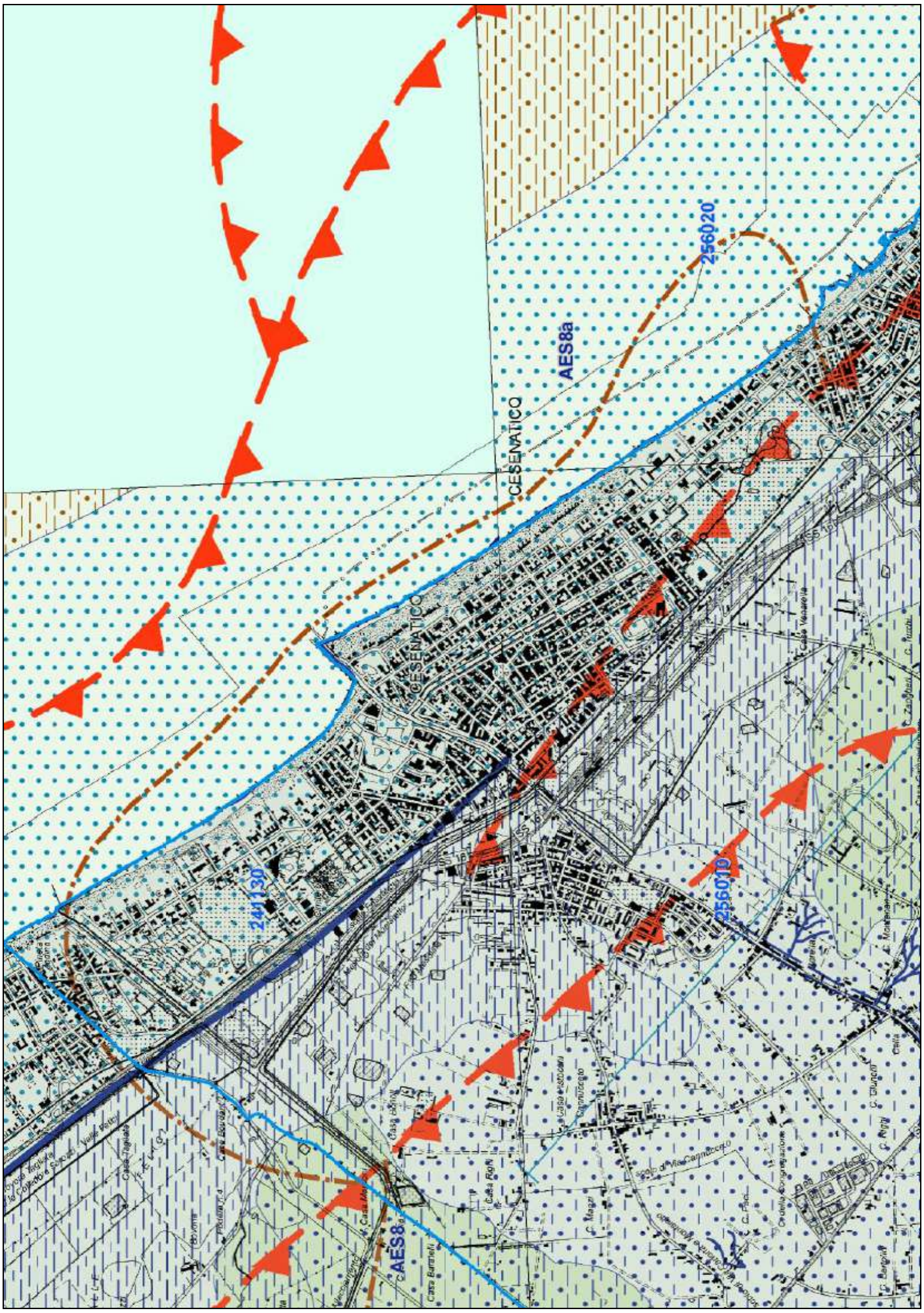


Fig. 3 – Stralcio Carta Geologica dell'ER

Legenda

Province

Comuni

Griglia 10.000

Tracciati geologici (50k)

traccia di sezione geologica

Linee geomorf./antrop. (50K)

cordone litorale certo

linea di riva alla data del rilevamento certa

traccia di alveo fluviale abbandonato certa

Isolinee di unità del sottosuolo (50k)

isobata della base del pliocene

menti strutturali (50K)

sovrascorrimento profondo post-tortoniano dedotto

Limiti di unità geologiche (50K)

contatto stratigrafico o litologico certo

contatto stratigrafico o litologico incerto

limite fra aree rilevate emerse/sommerse

Ambienti deposiz. e litologie (50K)

argilla limosa di piana alluvionale

argilla sabbiosa di prodelta e transizione alla piattaforma

sabbia di piana costiera, fronte deltizia e piana di sabbia

sabbia limosa di piana alluvionale

sabbia limoso-argillosa di piana alluvionale

Unità geologiche (50K)

AES8 - Sintema emiliano-romagnolo superiore - Subsintema di Ravenna

AES8a - Sintema emiliano-romagnolo superiore - Subsintema di Ravenna - unità di Modena

INQUADRAMENTO GEOMORFOLOGICO

Il sistema della pianura alluvionale Emiliano Romagnola si estende dal margine appenninico in direzione nord fino al fiume Po, limitato a nord est dal sistema della Pianura Costiera e dal sistema della Pianura Deltizia, ed è suddivisibile nei seguenti ambienti; Piana Pedemontana, Piana alluvionale a crescita verticale e Piana a meandri del fiume Po.

L'area in esame, si trova nella Piana alluvionale a crescita verticale, ed è costituita da depositi continentali di origine fluviale formati da sedimenti di provenienza appenninica. La formazione di questi terreni è dovuta a processi di tracimazione e rotte fluviali antecedenti alle grandi opere di regimazione idraulica. La Piana alluvionale era quindi caratterizzata dalla dinamica dei fiumi che, quando non riuscivano a contenere le ondate di piena, tracimavano inondando i territori adiacenti, depositando i sedimenti in carico che andavano così a costituire gli argini pensili. In seguito a piene eccezionali, fiumi rompevano gli argini defluendo nelle aree più depresse e, propagando verso valle, davano origine ad un nuovo percorso fluviale.

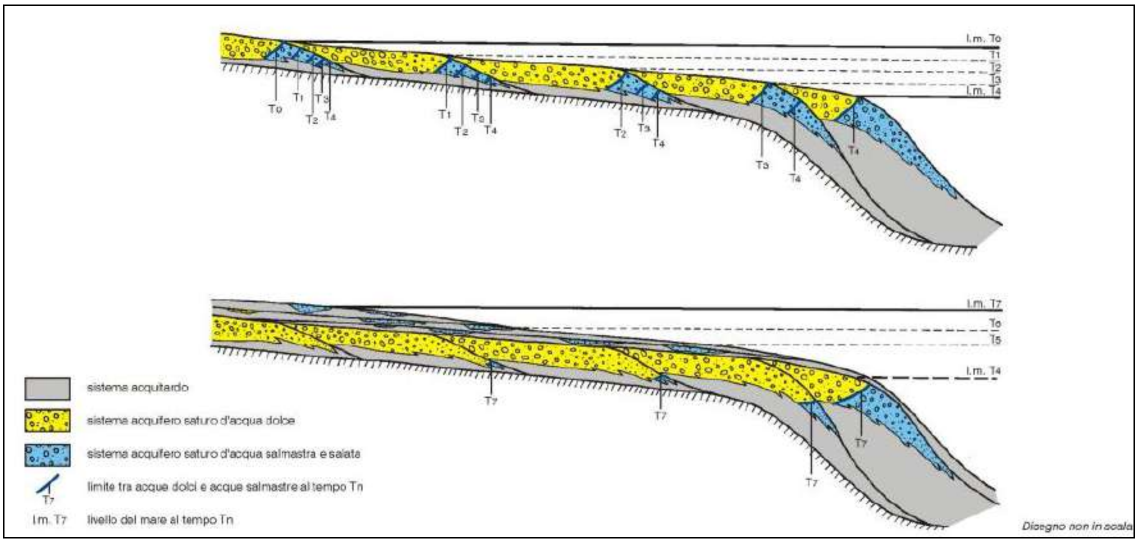


Fig. 4 – Sezione Sistema Sedimentario

La morfologia risultante era quindi data da un'alternanza di zone depresse, a sedimentazione palustre, e zone più elevate, con depositi sabbiosi intercalati a limi sabbiosi e limi argillosi (argini naturali). Tra le due zone si trovano depositi argillosi e limosi con livelli torbosi, attribuibili al reticolo idrografico minore (canali a basso regime idraulico).

CONDIZIONI TETTONICHE

I terreni appartenenti alla serie Umbro Marchigiana Romagnola, presenti nella pianura romagnola, messi in evidenza da sondaggi esplorativi profondi e da prospezioni sismiche realizzate per la ricerca di idrocarburi dell'AGIP italiana, hanno evidenziato sistemi dislocativi paralleli alla costa, di età Mio – Pliocenica, legati alle spinte tettoniche di carattere compressivo legati all'evoluzione dell' Appennino Settentrionale.

Queste indagini hanno evidenziato la presenza di due strutture tettoniche principali, l'anticlinale di Cesena dove affiorano terreni miocenici appartenenti alla formazione Marnoso Arenacea Romagnola e l'Anticlinale di Cervia che costituisce un alto struttura ricoperto dai sedimenti trasgressivi della pianura Romagnola.

CONDIZIONI IDROLOGICHE E IDROGEOLOGICHE

Nell'area insiste su un acquifero che può essere assimilato a scala regionale ad un sistema unico multistrato, costituito da orizzonti permeabili intercalati a livelli impermeabili idraulicamente collegati fra loro.

Localmente l'acquifero è esteso dal Mar Adriatico, fino ad una decina di Km dalla costa, al di sotto della copertura argillosa che lo tiene in pressione e lo preserva dalle intrusioni saline.

I depositi quaternari prevalentemente fini sono localmente ricoperti da depositi di conoide dei torrenti appenninici allo sbocco della pianura.

Il sistema acquifero si può suddividere in tre unità idrogeologiche:

- Acquifero freatico, costituito da sabbie con intercalazioni limose e argillose e locali livelli torbiditici;
- Livello impermeabile argilloso;
- Acquifero multistrato con falde in pressione, formato da una serie di orizzonti sabbiosi, intercalati a limi e argilla, idraulicamente connessi fra loro.

Il livello freatico nell'area è ubicato a profondità di circa – 2,00 m dal piano Campagna.

MODELLO GEOTECNICO

STRATIGRAFIA DEL SOTTOSUOLO

La caratterizzazione litostratigrafica e geotecnica dei terreni indagati è stata determinata attraverso la realizzazione di n. 2 prove penetrometriche statiche elettriche CPTU eseguite con penetrometro PAGANI TG-630 E.M.L.C. ubicate a fianco del fabbricato esistente e spinte alla profondità di 15 m e 10 m dal p.c.

STRATIGRAFIA CPTU1		
STRATO 1	p.c a – 1,00 m	terreno vegetale sabbioso limoso
STRATO 2	– 1,00 m a – 6,90 m	sabbie e limi sabbiosi
STRATO 3	– 6,90 m a – 7,60 m	argille
STRATO 4	– 7,60 m a – 8,60 m	sabbie e livelletti di sabbie limoso argillose
STRATO 5	– 8,60 m a – 15,00 m	argille

Livello **falda** superficiale riscontrata a ***–2,00 m*** dal p.c.

STRATIGRAFIA CPTU2		
STRATO 1	p.c a – 0,60 m	terreno vegetale sabbioso limoso
STRATO 2	– 0,60 m a – 6,70 m	sabbie e limi sabbiosi
STRATO 3	– 6,70 m a– 10,00 m	argille

Livello **falda** superficiale riscontrata a ***–2,00 m*** dal p.c.

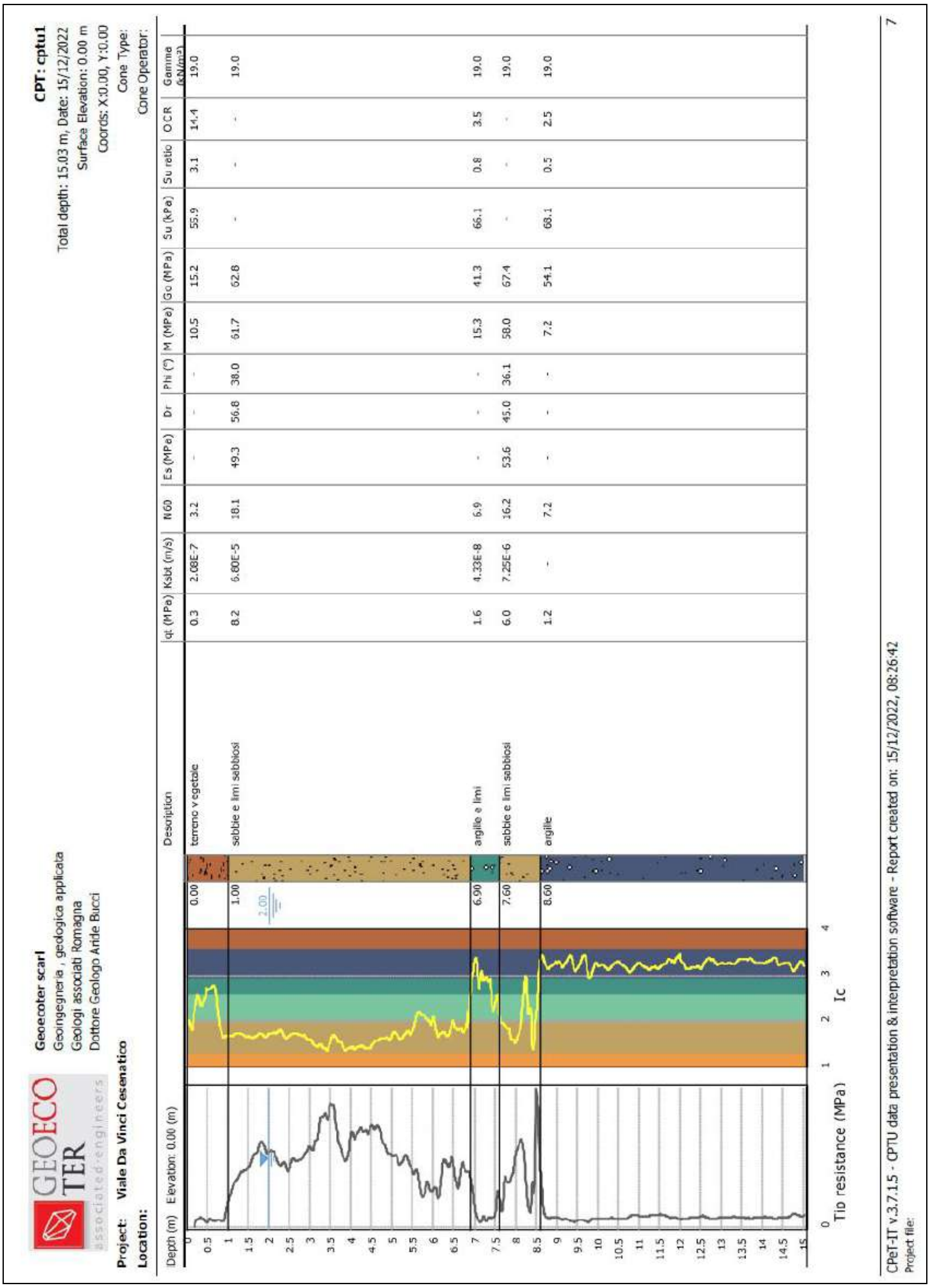


Fig. 5 – Log Stratigrafico CPTu1

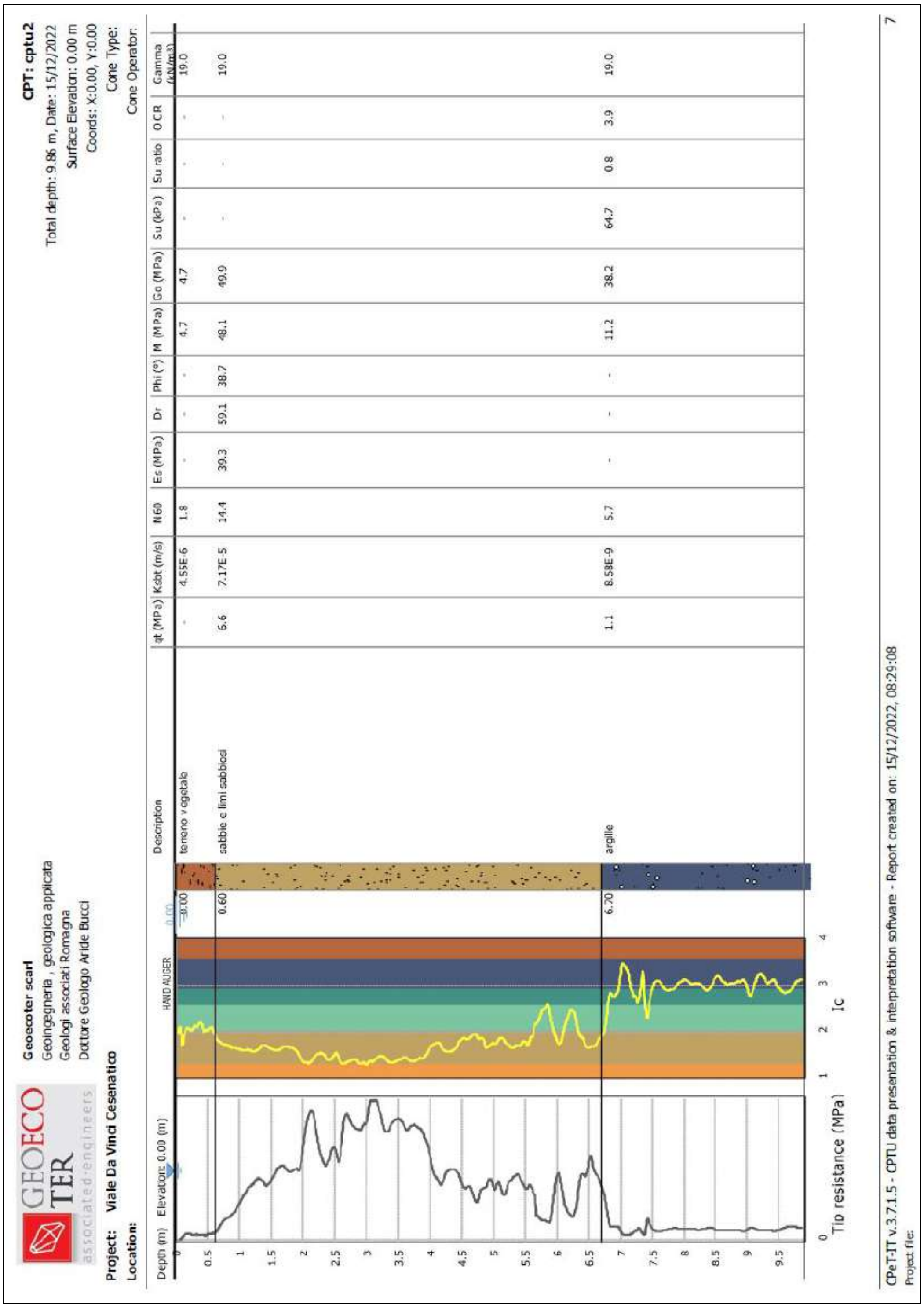


Fig. 6 – Log Stratigrafico CPTu2

PARAMETRI GEOTECNICI CARATTERISTICI

Si indicano in seguito i valori dei parametri geotecnici caratteristici dei terreni ottenuti grazie alla realizzazione delle prove penetrometriche statiche CPTU.

Nella scheda sottostante vengono indicati i parametri caratteristici:

Legenda	
Nr:	**Numero progressivo strato**
Prof:	Profondità strato (m)
Tipo:	C: Coesivo. I: Incoerente. CI: Coesivo-Incoerente
Cu:	Coesione non drenata (Kg/cm²)
C':	Coesione efficace (Kg/cm²)
Mo:	Modulo Edometrico (Kg/cm²)
K:	Costante di winkler
Puv:	Peso unità di volume (t/m³)
PuvS:	Peso unità di volume saturo (t/m³)
Fi:	Angolo di resistenza al taglio (°)
Dr	Densità relativa (%)

Nr.	**Prof.**	**Tipo**	**Cu**	**c'**	**Mo**	**K**	**Puv**	**PuvS**	**Fi**	**Dr**
1		C/I	0.40	0.02	20		1.70	1.80	14/16°	
2		I	0.00	0.00	120		1.90	2.00	30/32°	60
3		C	0.50	0.05	80		1.85	1.95	24/26°	
4		I	0.00	0.00	100		1.90	2.00	30/32°	50
5		C	0.80	0.10	70		1.80	1.90	18°	

INDICAZIONI PROGETTUALI

La scelta del tipo di fondazione, il suo dimensionamento e le verifiche geotecniche, secondo quando definito nelle NTC18, sono prerogativa del progettista.

Il progetto prevede la demolizione e ricostruzione su diverso sedime di una struttura multipiano di tipo residenziale.

La nuova struttura prevedere la realizzazione di un vano interrato adibito a garage auto e n. 5 piani fuori terra.

In sede di investigazione geognostica è stata rilevata la presenza di uno spessore di sabbie di 7/8 metri sovrastanti livelli argillosi consistenti.

La falda superficiale è stata intercettata a – 2.00 m dal piano campagna.

Si ritiene quindi sufficiente la realizzazione di una platea di fondazione impostata a circa – 3 dal piano campagna prevedendo sia gli oneri per l’abbassamento della falda durante le fasi di armatura e getto delle fondazioni e delle murature interrate, sia la realizzazione di diaframmi per contenere gli scavi lungo l’area perimetrale di confine con le strutture adiacenti.

Si consiglia di dotare la struttura di fondazioni superficiali tipo platea, posta a contatto con lo STRATO 2 ad una profondità di – 3.00 m dall’attuale piano campagna e di preparare il sistema terreno struttura secondo i punti sottoesposti:

- Scavo e asporto del terreno superficiale o di riporto per uno spessore idoneo al raggiungimento dello strato sabbioso
- Posa in opera di una soletta di calcestruzzo magro “magrone” ovvero realizzato con quantitativi ridotti di cemento (meno di 150kg/m^3), e una curva granulometrica degli inerti a dimensione abbastanza grossa,
- Posa in opera della fondazione,

Per fondazioni superficiali la capacità portante limite può essere determinata dalla relazione di Brich Hansen che in generale è espressa dalla seguente pressione di contatto limite critica Pcrit:

$$Pcrit = c*Nc*sc*dc*ic*gc*bc+q*Nq*sq*dq*iq*gq*bq+0,5*B*\gamma*N\gamma*s\gamma*d\gamma*i\gamma*g\gamma*b\gamma$$

Peso specifico del terreno sotto il piano di posa = kg/mc 1900.00

Il calcolo sarà eseguito secondo l'approccio n. 2.

Coefficiente parziale per angolo resistenza a taglio: 1

Coefficiente parziale per coesione: 1

Coefficiente parziale per resistenza non drenata: 1

Coefficiente parziale per capacità portante: 2.3

Nuovo angolo di attrito: 23

Nuova coesione: 0.00

Larghezza fondazione: 15.00

Lunghezza fondazione: 15.00

Profondità di posa: 3.00

Falda: -2.00

Fattori di capacità portante:

Ng = 9.44

Nc = 19.32

Nq = 9.60

Fattori di forma:

Sg = 0.60

Sc = 1.50

Sq = 1.45

Fattori di inclinazione carico:

Ig = 1.00

Ic = 1.00

Iq = 1.00

Fattori di inclinazione fondazione:

Bg = 1.00

Bc = 1.00

Bq = 1.00

Fattori di inclinazione piano di campagna:

Gg = 1.00

Gc = 1.00

Gq = 1.00

Fattori di profondità piano di posa:

Dc = 1.07

Dq = 1.06

Indice di rigidezza Ir = 63.032

Indice di rigidezza critico Irc = 40.265

Essendo Ir>Irc vale l'ipotesi di terreno incompressibile

I fattori correttivi di compressibilità sono unitari.

Capacità portante limite ultima = kg/mq 92810.500

Capacità portante limite ultima = kg/cmq 9.281

Resistenza di calcolo del terreno = kg/cmq 4.04

VERIFICA SECONDO LE NTC DM 17-01-2018 – CONDIZIONI CONSOLIDATE DRENATE CD

Le verifiche Geotecniche agli stati limite ultimi SLU devono soddisfare la relazione

Rd > Ed

Fondazione diretta – platea.

APPROCCIO 1 COMBINAZIONE 1 (STR) – A1 + M1 + R1

APPROCCIO 2 COMBINAZIONE 1 (STR) – A1 + M1 + R3

- **Rd1-1** = Pcrit / γr1 = 9,281 / 1 = 9,281 kg/cmq

R3 = R1 = γr = 1

APPROCCIO 2 COMBINAZIONE 1 (GEO) – A1 + M1 + R3

Rd2-1 = Pcrit/ γr3 = 9,281 / 2,3 = 4,04 kg/cmq

Il calcolo della resistenza di progetto in condizioni non drenate non viene di seguito ipotizzata essendo i terreni di base della struttura fondale incoerenti e privi quindi di coesione non drenata cu.

CONDIZIONE SISMICA LOCALE

In base alle nuove Norme Tecniche per le Costruzioni, nella fattispecie il recente D.M. del 17/01/2018, la definizione dell'azione sismica fa riferimento ad un approccio semplificato, che si basa sull'individuazione di Categorie di sottosuolo e Condizioni Topografiche.

CATEGORIE DI SOTTOSUOLO

A - *Ammassi rocciosi affioranti o terreni molto rigidi caratterizzati da valori di $V_{s,30}$ superiori a 800 m/s, eventualmente comprendenti in superficie uno strato di alterazione, con spessore massimo pari a 3 m.*
B - *Rocce tenere e depositi di terreni a grana grossa molto addensati o terreni a grana fina molto consistenti con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 360 m/s e 800 m/s*
C - *Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 180 m/s e 360 m/s*
D - *Depositi di terreni a grana grossa scarsamente addensati o di terreni a grana fina scarsamente consistenti, con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ tra 100 e 180 m/s*
E - *Terreni con caratteristiche e valori di velocità equivalente riconducibili a quelle definite per le categorie C o D con profondità del substrato non superiore a 30 m.*

CONDIZIONI TOPOGRAFICHE

Per condizioni topografiche complesse è necessario predisporre di specifiche analisi di risposta sismica locale. Per configurazioni superficiali semplici si può adottare invece la seguente classificazione:

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i ≤ 15°.
T2 - Pendii con inclinazione media i > 15°.

T3 - Rilievi con larghezza in cresta molto minore che alla base e inclinazione media 15° ≤ i ≤ 30°.	
T4 - Rilievi con larghezza in cresta molto minore che alla base e inclinazione media i > 30°.	

Nel caso in oggetto la categoria di sottosuolo è stata rilevata attraverso la realizzazione di una analisi sismica passiva a stazione singola HVSR che ha restituito una vseq = 205 m/s a cui viene fatta corrispondere categoria C.

Per quanto concerne la condizione topografica invece, l'area investigata si sviluppa in ambito di pianura rispecchiando il caso T1.

I coefficienti sismici necessari per le verifiche strutturali di progettazione del fabbricato artigianale sono invece ricavati dalle tabelle inserite nelle paragrafo 7.11.3.5.2 delle NTC del D.M. 14.01.2008 e confermate nelle NTC del 17/01/2018.

Innanzitutto occorre inquadrare l'area in esame sul Reticolo Geografico Nazionale in termini di Longitudine e Latitudine. Il sito oggetto del presente studio ricade nel Comune di Cesenatico , avente nel dettaglio come Coordinate Geografiche WGS84:

LATITUDINE: 44.19985127

LONGITUDINE: 12.40019416

Ipotizzando un'Opera Ordinaria con "vita nominale maggiore uguale di 50 anni", Classe d'uso II – "Edifici Ordinari ed industrie non pericolose, ponti secondari…" e in condizioni di Stato Limite SLV "a Salvaguardia della Vita" e per un Tempo di Ritorno Tr = 475 anni, i parametri di Pericolosità Sismica sono secondo, il Software EDILUS MS di ACCA softwares:

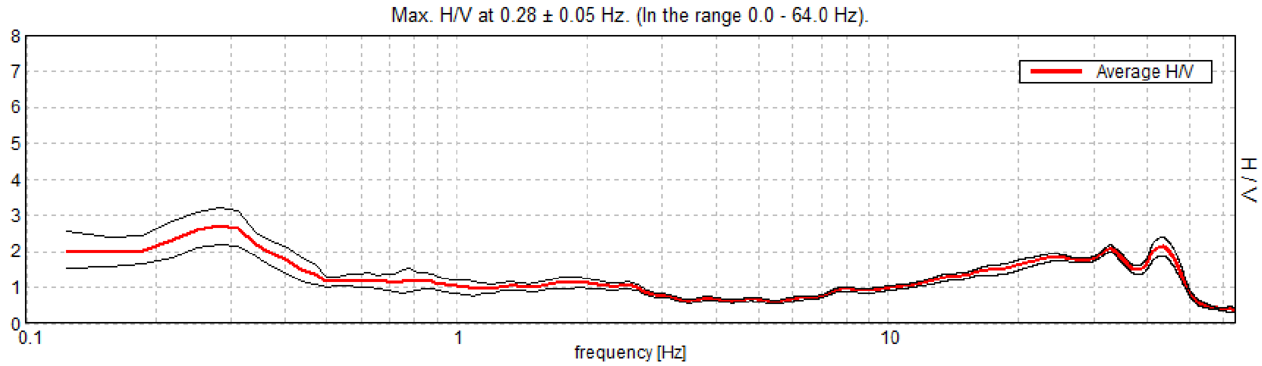
Parametri di pericolosità Sismica				
Stato Limite	**T_r**[anni]	**a_g/g**[-]	**F_o**[-]	**T^*_c**[s]
Operatività	30	0.050	2.443	0.270
Danno	50	0.064	2.466	0.280
Salvaguardia Vita	475	0.179	2.525	0.290
Prevenzione Collasso	975	0.235	2.526	0.30

dove ag = 1,757 m/s (da Sofware: Piano Spettri S.T.A. Data)

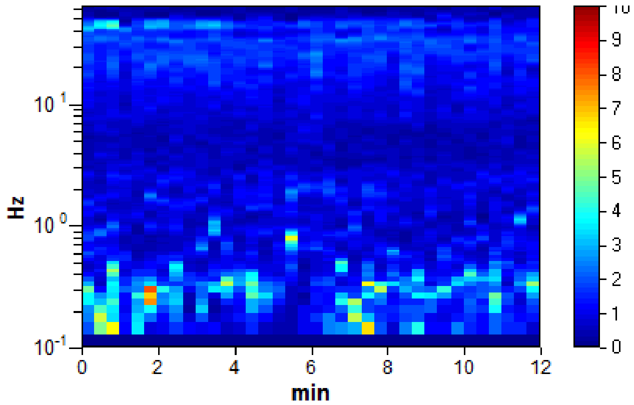
INDAGINE HVSR
VIALE DAVINCI CESENATICO,

Instrument: TRZ-0194/01-12
Data format: 16 byte
Full scale [mV]: n.a.
Start recording: 14/12/22 11:33:41 End recording: 14/12/22 11:45:41
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00". Analysis performed on the entire trace.
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

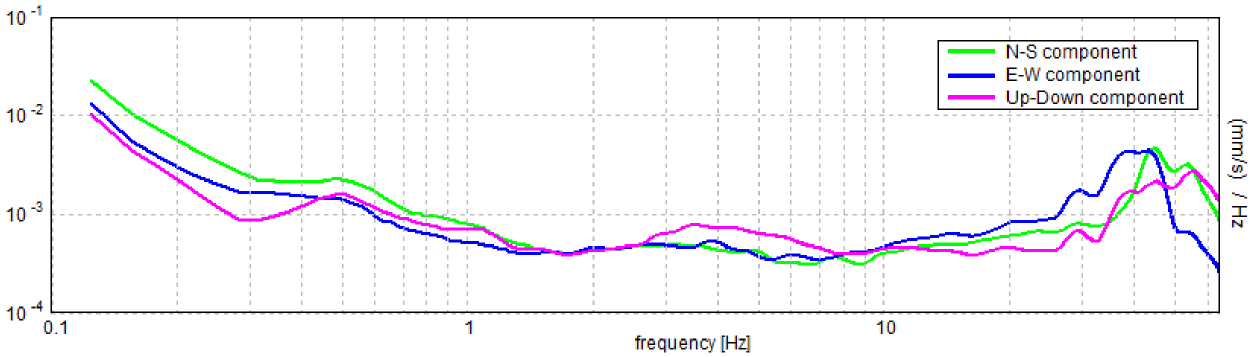
HORIZONTAL TO VERTICAL SPECTRAL RATIO



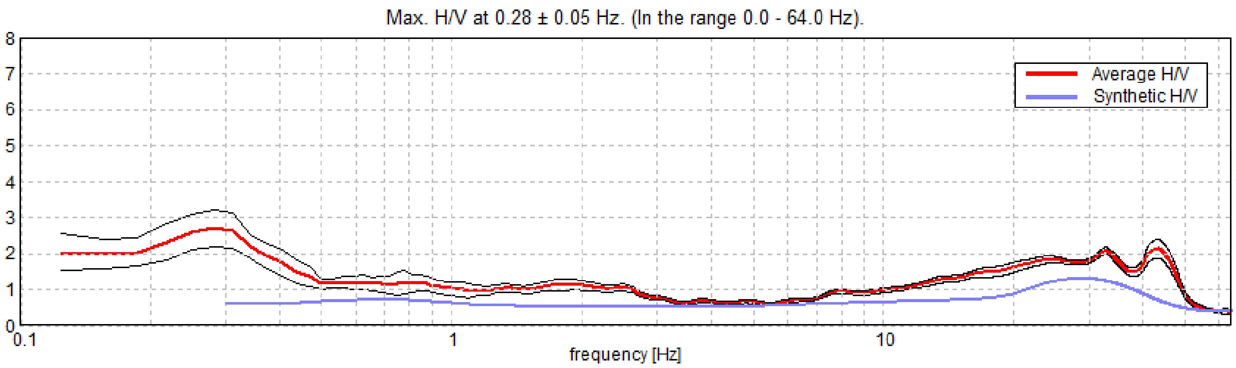
H/V TIME HISTORY



SINGLE COMPONENT SPECTRA



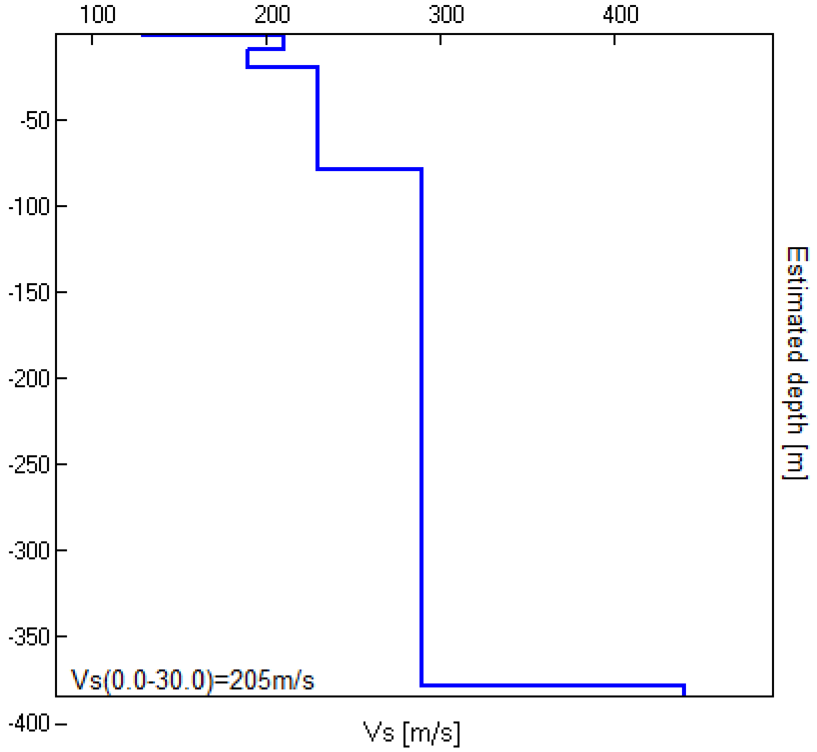
EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.00	1.00	130	0.42
8.90	7.90	210	0.42
18.90	10.00	190	0.42
78.90	60.00	230	0.42

378.90	300.00	290	0.42
inf.	inf.	440	0.42

Vs(0.0-30.0)=205m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the** *Grilla* **manual before interpreting the following tables**.]

Max. H/V at 0.28 ± 0.05 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	0.28 > 0.50		NO
$n_c(f_0) > 200$	202.5 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5Hz$ **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5Hz$**	Exceeded 0 out of 14 times	OK	

Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	0.094 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	0.5 Hz	OK	
$A_0 > 2$	2.70 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.1805| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	0.05076 < 0.05625	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.5055 < 2.5	OK	

L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

VERIFICA LIQUEFAZIONE

Con il termine liquefazione si intende la perdita di resistenza al taglio di un mezzo granulare sotto falda determinata da un aumento della pressione dell’acqua nei pori. Tale incremento può essere dovuto da varie cause, il D.M. del 17/01/2018, contiene al punto 7.11.3.4.2 le linee guida per valutare la suscettibilità alla liquefazione dei terreni.

La verifica a liquefazione può essere omessa quando si manifesti almeno una delle seguenti circostanze:

1. accelerazioni massime attese al piano campagna in assenza di manufatti (condizioni di campo libero) minori di 0,1g;

2. profondità media stagionale della falda superiore a 15 m dal piano campagna, per piano campagna sub-orizzontale e

strutture con fondazioni superficiali;

3. depositi costituiti da sabbie pulite con resistenza penetrometrica normalizzata (N1)60 > 30 oppure qc1N > 180 dove (N1)60 è il valore della resistenza determinata in prove penetrometriche dinamiche (Standard Penetration Test) normalizzata ad una tensione efficace verticale di 100 kPa e qc1N è il valore della resistenza determinata in prove penetrometriche statiche (Cone Penetration Test) normalizzata ad una tensione efficace verticale di 100 kPa;

4. distribuzione granulometrica esterna alle zone indicate nella Fig. 7.11.1(a) nel caso di terreni con coefficiente di uniformità Uc < 3,5 e in Fig. 7.11.1(b) nel caso di terreni con coefficiente di uniformità Uc > 3,5.

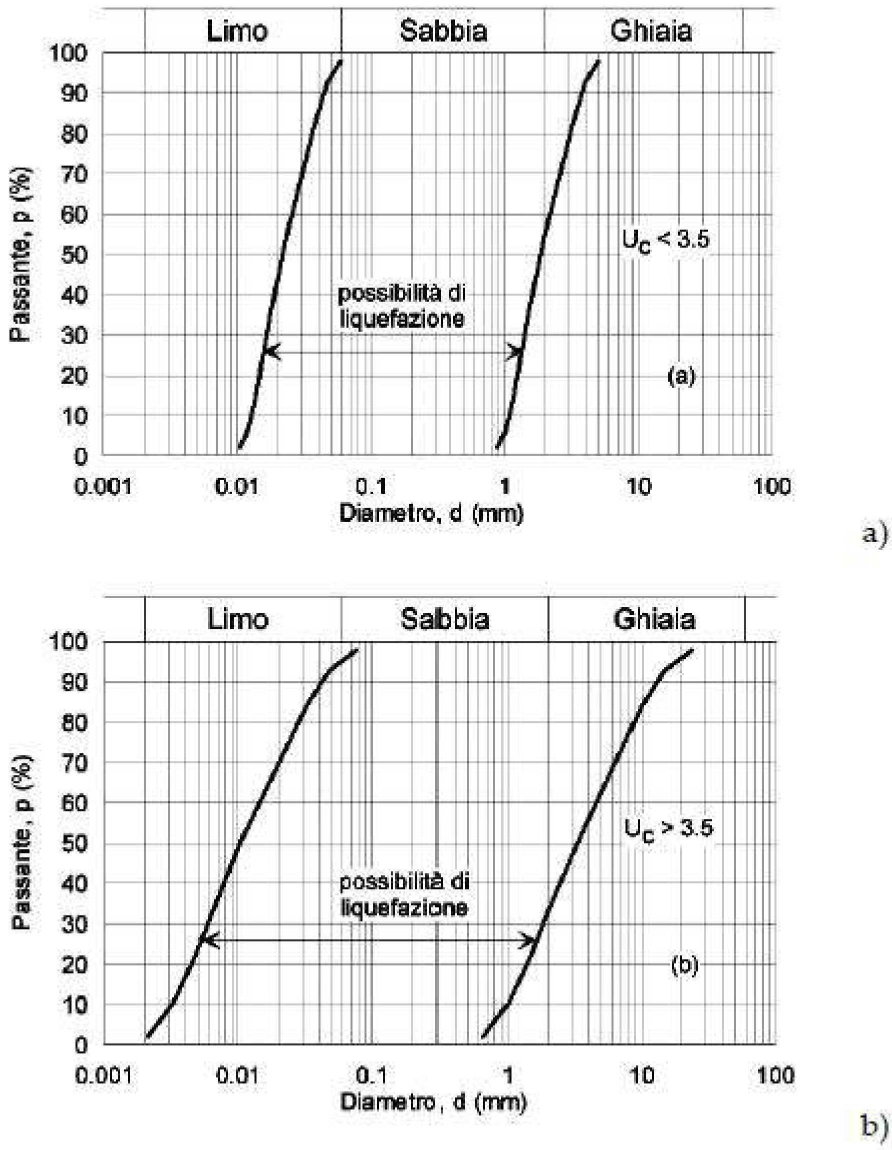


Fig. 7.11.1 – *Fusi granulometrici di terreni suscettibili di liquefazione*

Nello studio in oggetto la procedura semplificata non può essere utilizzata essendo le circostanze al di fuori del perimetro dei punti sovraesposti.

Pertanto per valutare la resistenza di un terreno alla liquefazione, si utilizza l' ANALISI QUANTITATIVA, stimando la resistenza ciclica alla liquefazione CSR e la capacità di resistenza del terreno alla liquefazione CRR. Il rapporto è espresso sotto forma di coefficiente di sicurezza FS_L .

FS_L >1.25 terreno non liquefacibile

FS_L < 1.25 terreno liquefacibile

<u>ANALISI IEB</u>

DATI DI IMPUT

- qc, fs = (da prova CPTu)
- stratigrafia (classificazione USCS)

STRATIGRAFIA CPTU1		
STRATO 2	– 3,00 m a – 6,90 m	sabbie e limi sabbiosi
STRATO 3	– 6,90 m a – 7,60 m	argille
STRATO 4	– 7,60 m a – 8,60 m	sabbie e livelletti di sabbie limoso argillose
STRATO 5	– 8,60 m a – 20,00 m	argille

Livello **falda** superficiale riscontrata a ***–2,00 m*** dal p.c.

- Magnitudo 6.0
- Livello falda 2.00 m p.c.
- Accelerazione massima SLU 0.18

<u>METODO DI CALCOLO</u>

- Idriss Boulanger

DEFINIZIONE E CALCOLO DELL'INDICE DI POTENZIALE LIQUEFAZIONE

L'indice del potenziale di liquefazione, IL, è definito dalla seguente relazione:

$$I_L = \int_0^{z_{crit}} F(z) \cdot w(z) \cdot dz$$

in cui

$$w(z) = \frac{200}{z_{crit}} \cdot \left(1 - \frac{z}{z_{crit}}\right)$$

Zcrit è la profondità critica, ovvero la profondità massima entro la quale può verificarsi la liquefazione, che di norma si assuma pari a 20 m. La variabile F(z) vale (Sonmez, 2003):

$F(z) = 0$	per	$F_L \geq 1.2$
$F(z) = 2 \cdot 10^6 \cdot \exp(-18.427 \cdot F_L)$	per	$1.2 > F_L \geq 0.95$
$F(z) = 1 - F_L$	per	$F_L \leq 0.95$

Il calcolo dell'Indice di Potenziale Liquefazione ha restituito un valore compreso tra 2 e 5

2< IL< 5 = Potenziale moderato

In particolare IL = 1.57

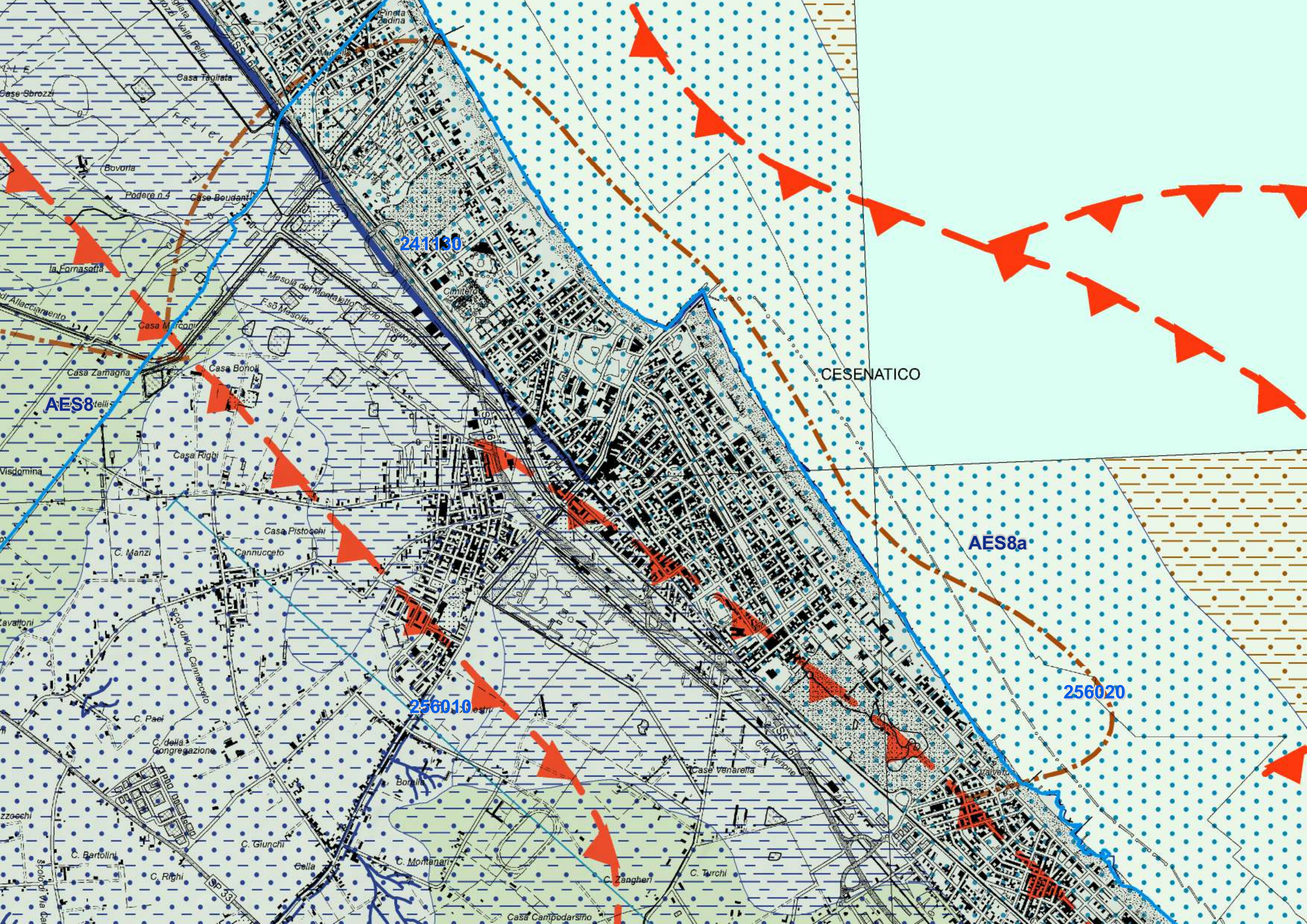
$I_L = 0$	Non liquefacibile ($F_L \geq 1.2$)
$0 < I_L \leq 2$	Potenziale basso
$2 < I_L \leq 5$	Potenziale moderato
$5 < I_L \leq 15$	Potenziale alto
$15 < I_L$	Potenziale molto alto

Il sito di intervento mostra un potenziale basso di liquefazione, per questo tipo di struttura quindi si ritiene sufficiente l'utilizzo delle fondazioni superficiali senza la necessità di interventi di mitigazione del rischio atteso.

CONCLUSIONI

Lo studio geologico, ottenuto con il supporto di n. 2 prove penetrometriche statiche CPTu ed una analisi sismica del tipo HVSR, ha permesso la definizione del modello geologico e del modello geofisico del sito.
I risultati dello studio escludono problematiche di tipo idrogeologico e geomorfologico.
Secondo quanto prescritto nella normativa in materia sismica NTC18, si sono analizzate le condizioni sismiche del sito, attraverso l'esecuzione di una prova sismica passiva a stazione singola, il quale è risultato appartenente alla categoria di sottosuolo C, mentre la condizione topografica rispecchia il caso T1.
Per la tipologia di intervento e le caratteristiche geotecniche dei terreni indagati si ritiene sufficiente l'utilizzo di fondazioni superficiali tipo platea come indicato nel modello geotecnico.
Il volume di terreno considerato, è risultato dall'analisi a basso potenziale di liquefacibilità.
Secondo quanto esposto si fornisce parere geologico favorevole sulla fattibilità degli interventi.
Qualora durante i lavori di scavo delle fondazioni emergessero situazioni non previste nel presente elaborato, occorrerà avvisare lo scrivente, il quale a seguito di ispezione

visiva, deciderà sugli eventuali interventi da eseguire , si consiglia comunque la presenza del geologo in cantiere.



241130
CESENATICO
AES8
AES8a
256010
256020
Casa Tagliata
Case Sbrozzi
Podere n 4
Case Boudant
la Fornasotta
Casa Marconi
Casa Zamagna
Casa Bonoli
Casa Righi
Visdomina
Casa Pistocchi
C. Manzi
Cannucceto
C. Paci
C. della Congregazione
Borella
C. Giunchi
C. Bartolini
C. Righi
C. Montanari
C. Zangheri
C. Turchi
Casa Campodarsino
Case Venarella
Cimitero

Legenda

Province

Comuni

Griglia 10.000

Tracciati geologici (50k)

traccia di sezione geologica

Linee geomorf./antrop. (50K)

cordone litorale certo

linea di riva alla data del rilevamento certa

traccia di alveo fluviale abbandonato certa

ventaglio di esondazione certo

Isolinee di unità del sottosuolo (50k)

isobata della base del pliocene

menti strutturali (50K)

sovrascorrimento profondo post-tortoniano dedotto

Limiti di unità geologiche (50K)

contatto stratigrafico o litologico certo

contatto stratigrafico o litologico incerto

limite fra aree rilevate

emerse/sommerse

Ambienti deposiz. e litologie (50K)

argilla limosa di piana alluvionale

argilla sabbiosa di prodelta e transizione alla piattaforma

sabbia di piana costiera, fronte deltizia e piana di sabbia

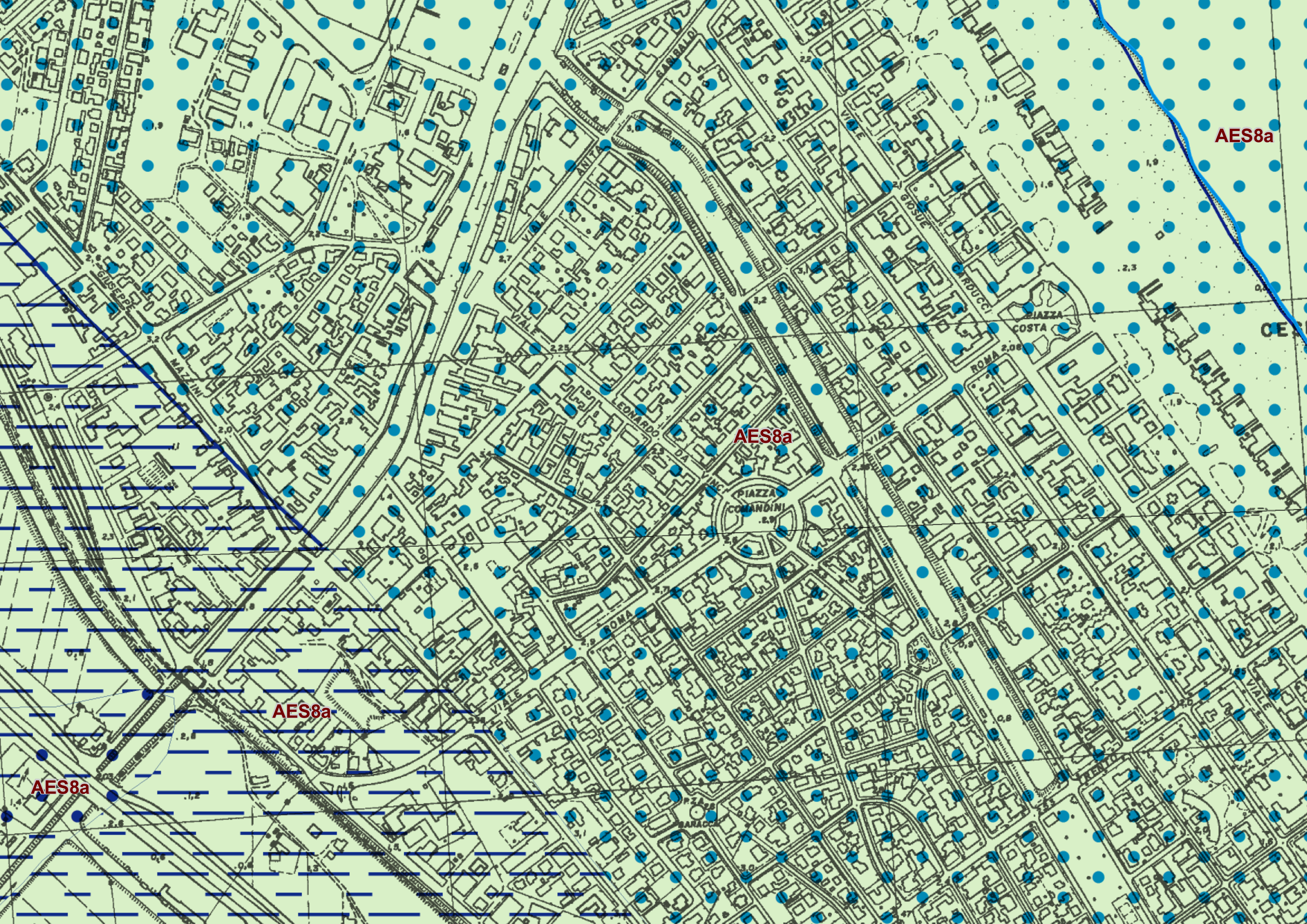
sabbia limosa di piana alluvionale

sabbia limoso-argillosa di piana alluvionale

Unità geologiche (50K)

AES8 - Sintema emiliano-romagnolo superiore - Subsintema di Ravenna

AES8a - Sintema emiliano-romagnolo superiore - Subsintema di Ravenna - unità di Modena


AES8a
AES8a
AES8a
AES8a
PIAZZA COMANDINI
PIAZZA COSTA
LEONARDO DA
VIALE
ROMA

Legenda

Province

Comuni

Griglia 10.000

Linee geomorf./antrop. (10K)

cordone litorale

linea di riva alla data del rilevamento

Ambienti deposiz. e litologie (10K)

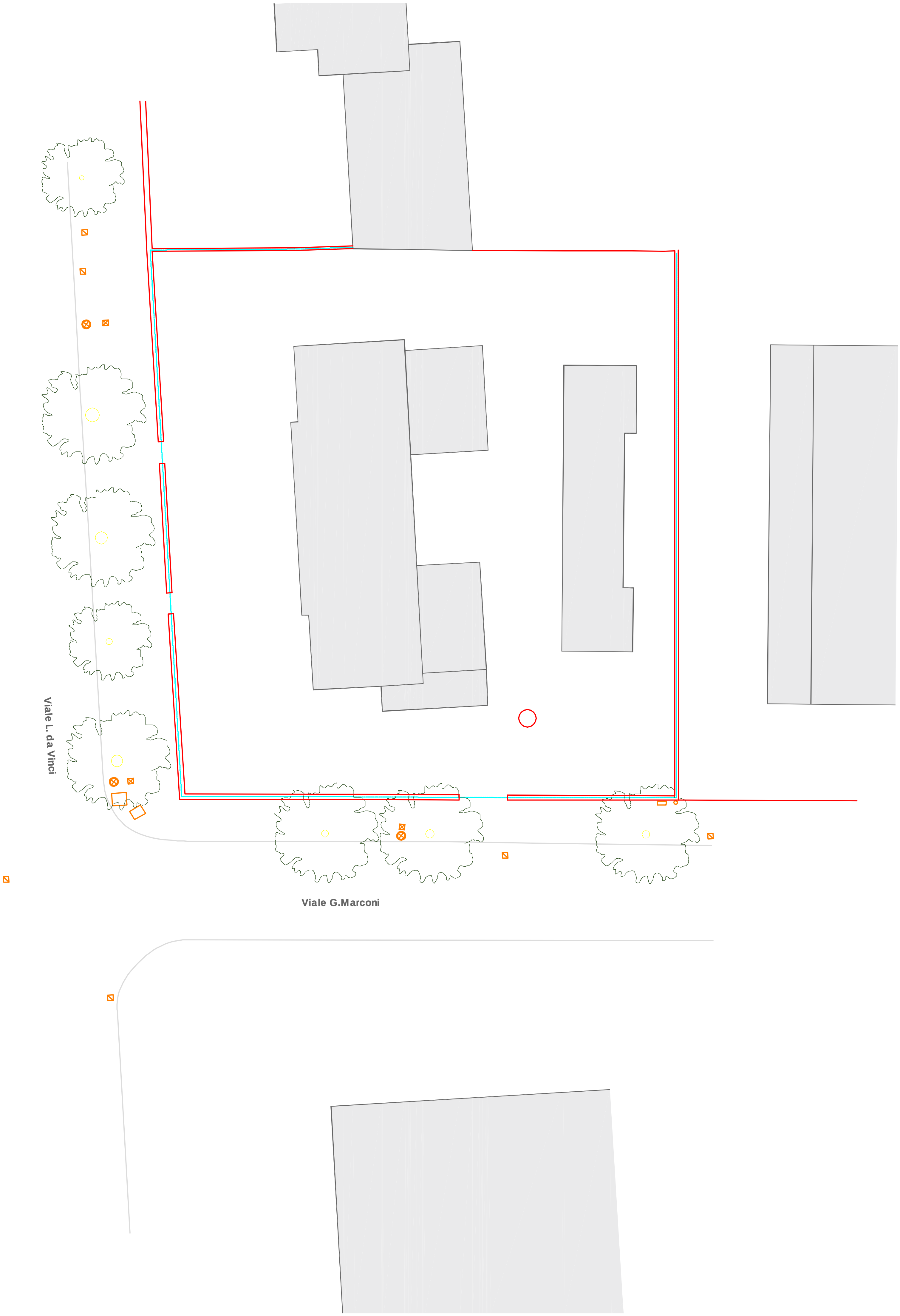
Argilla Limosa - Piana alluvionale

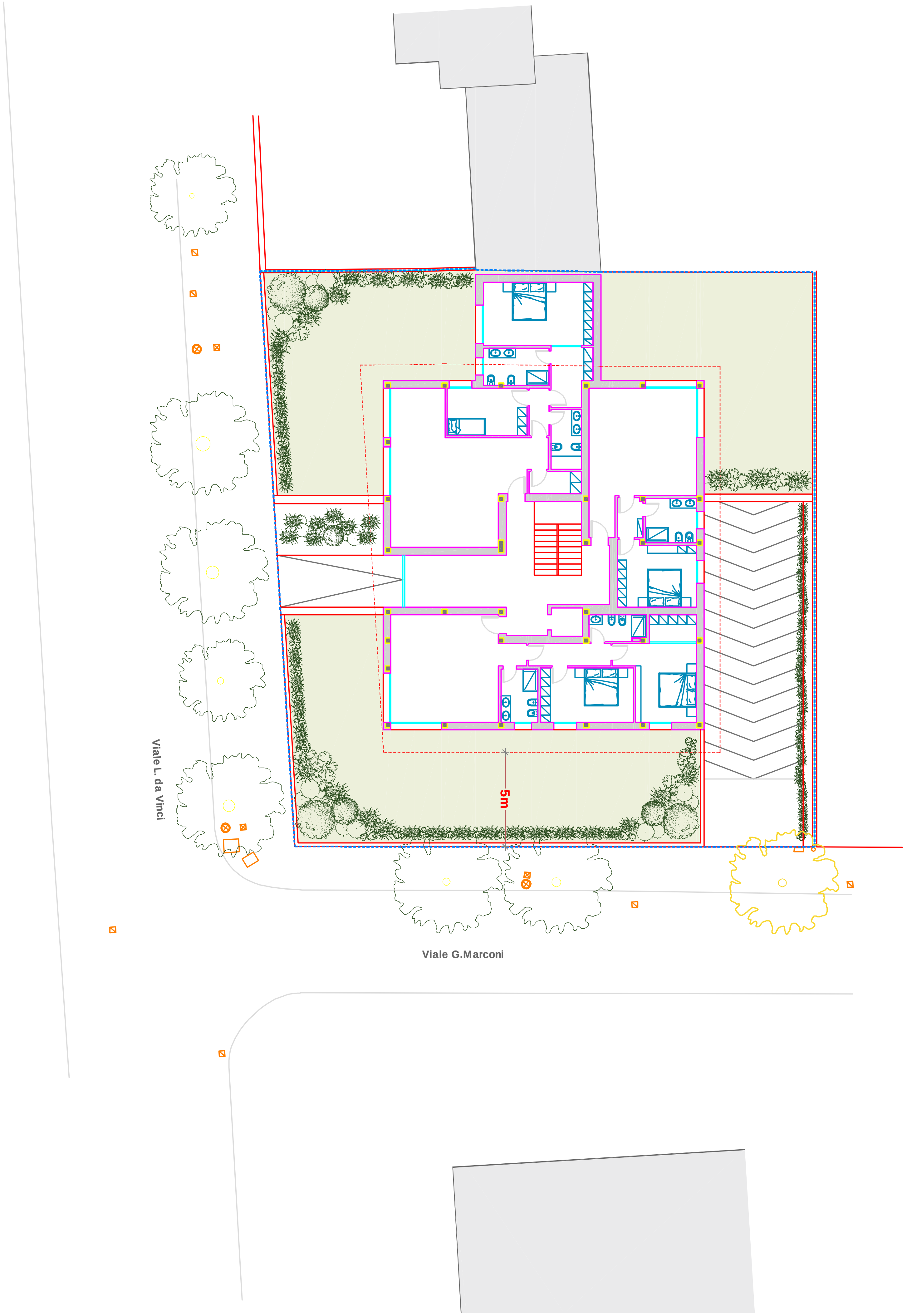
Sabbia - Piana costiera, fronte deltizia e piana di sabbia

Sabbia Limoso Argillosa - Piana alluvionale

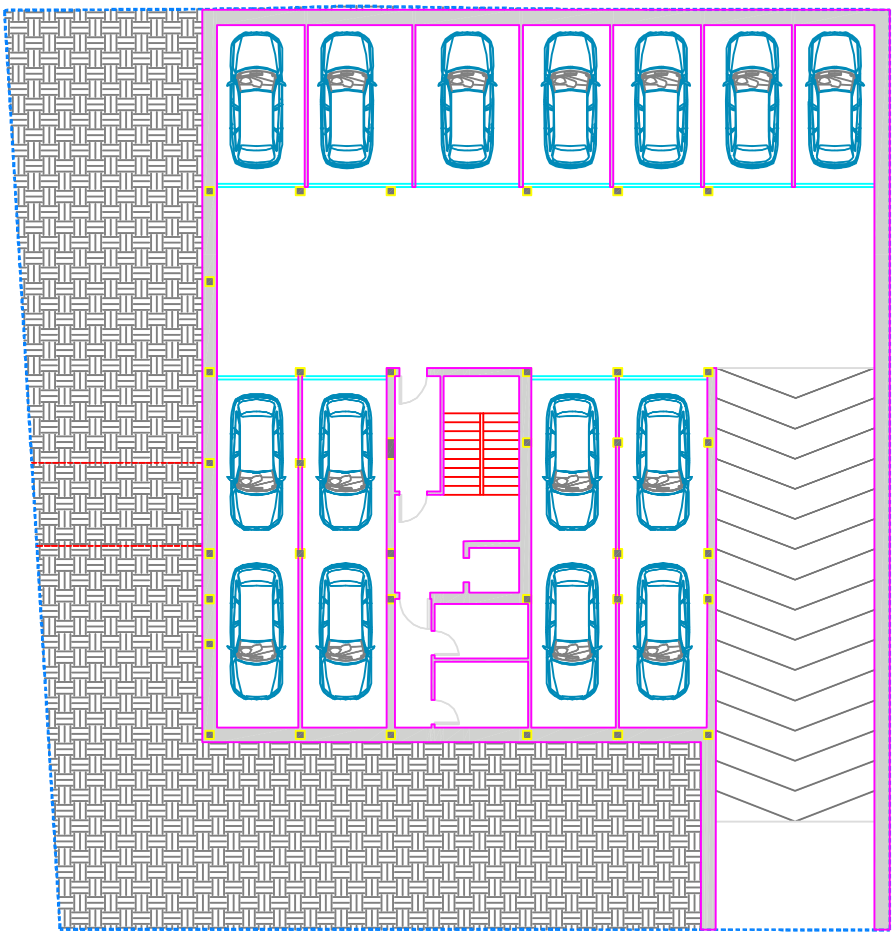
Coperture quaternarie (10K)

AES8a - Unità di Modena

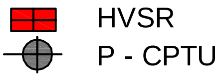

Viale L. da Vinci
Viale G.Marconi

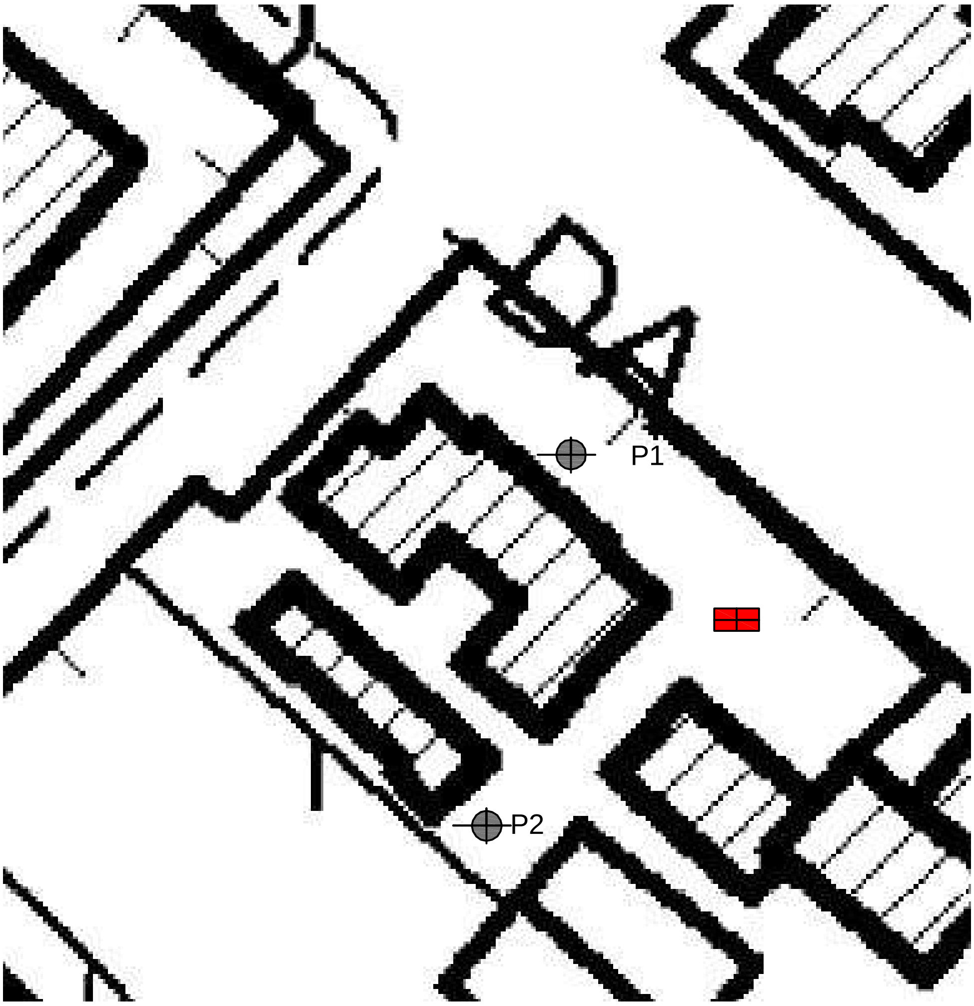


5m
Viale L. da Vinci
Viale G.Marconi



UBICAZIONE PROVE

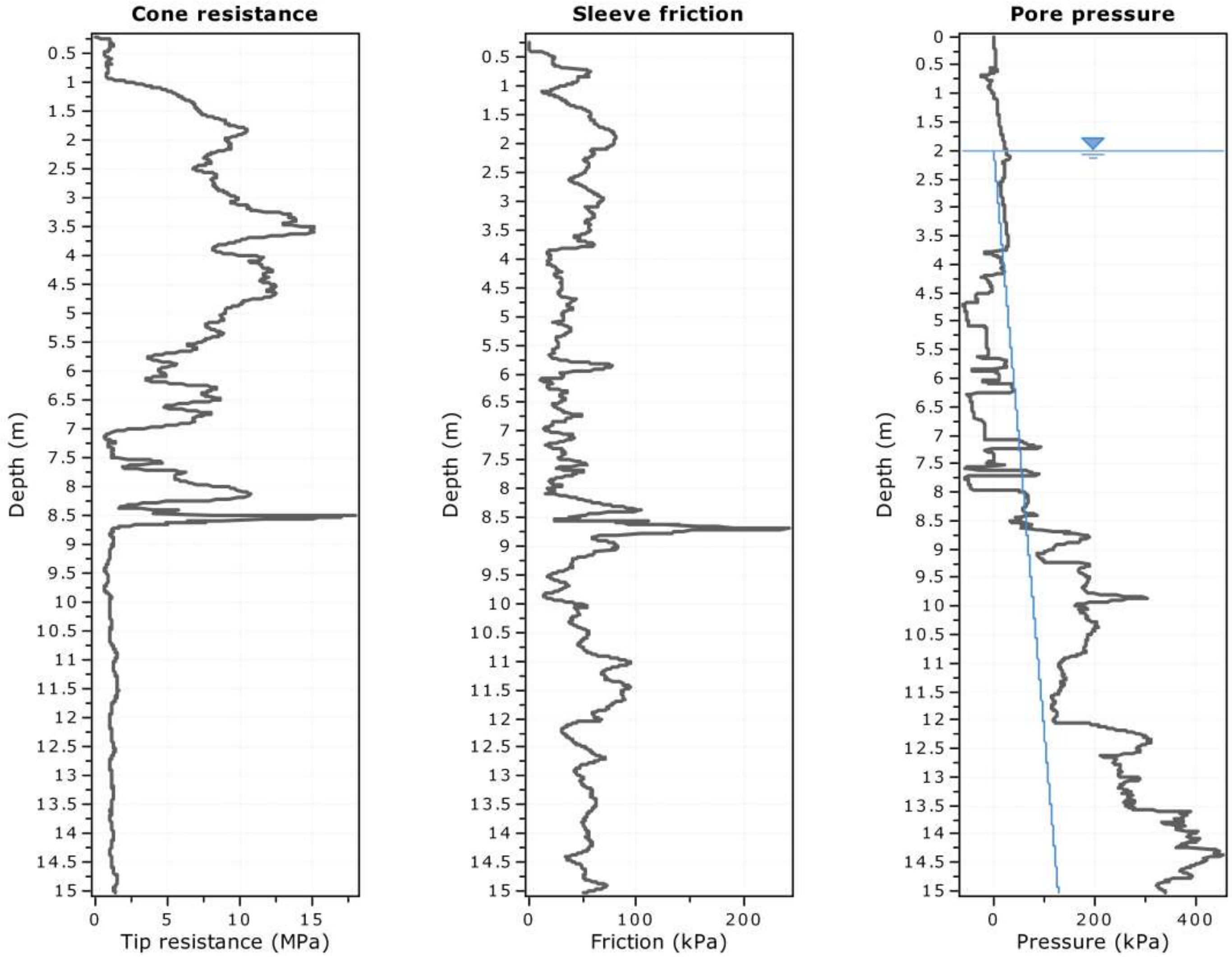




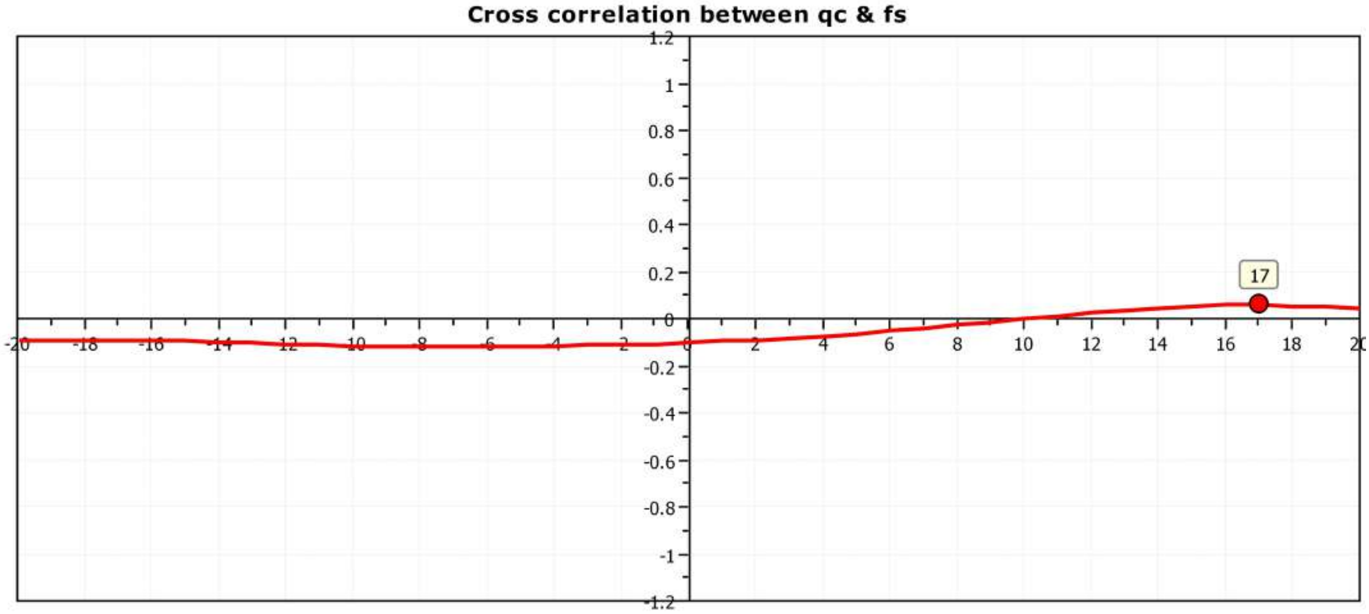
Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu1
Total depth: 15.03 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

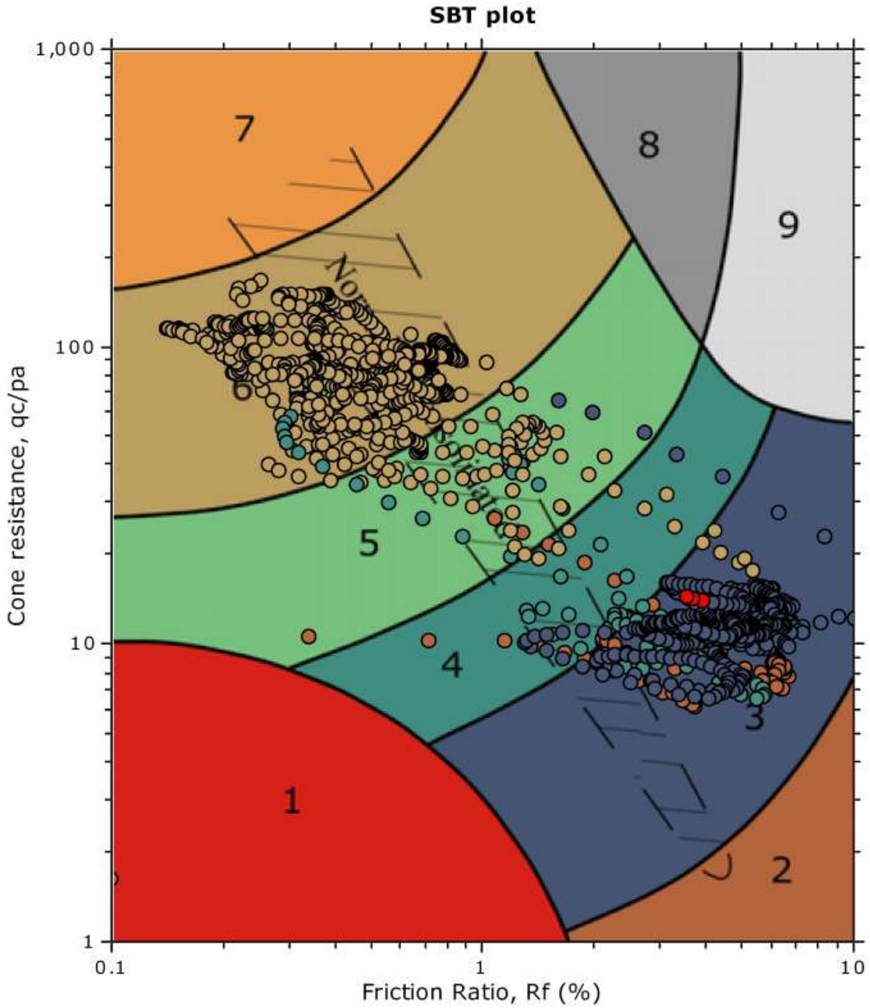
Project: **Viale Da Vinci Cesenatico**
Location:

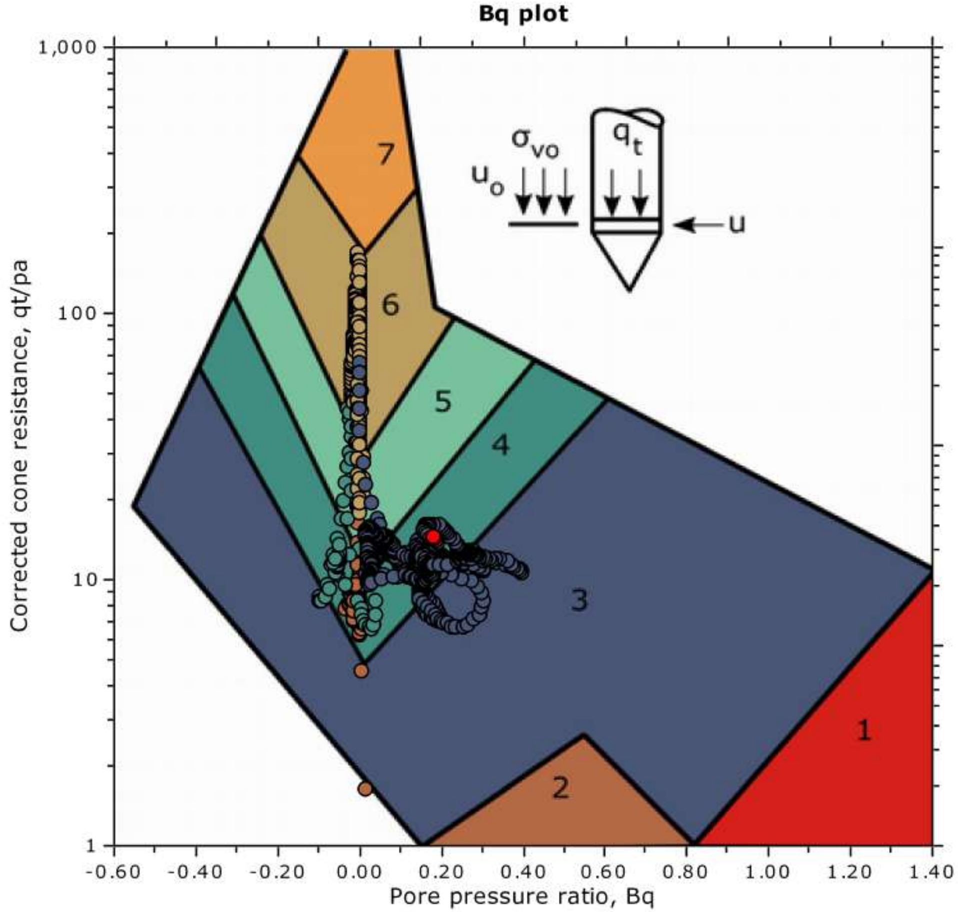


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



SBT - Bq plots

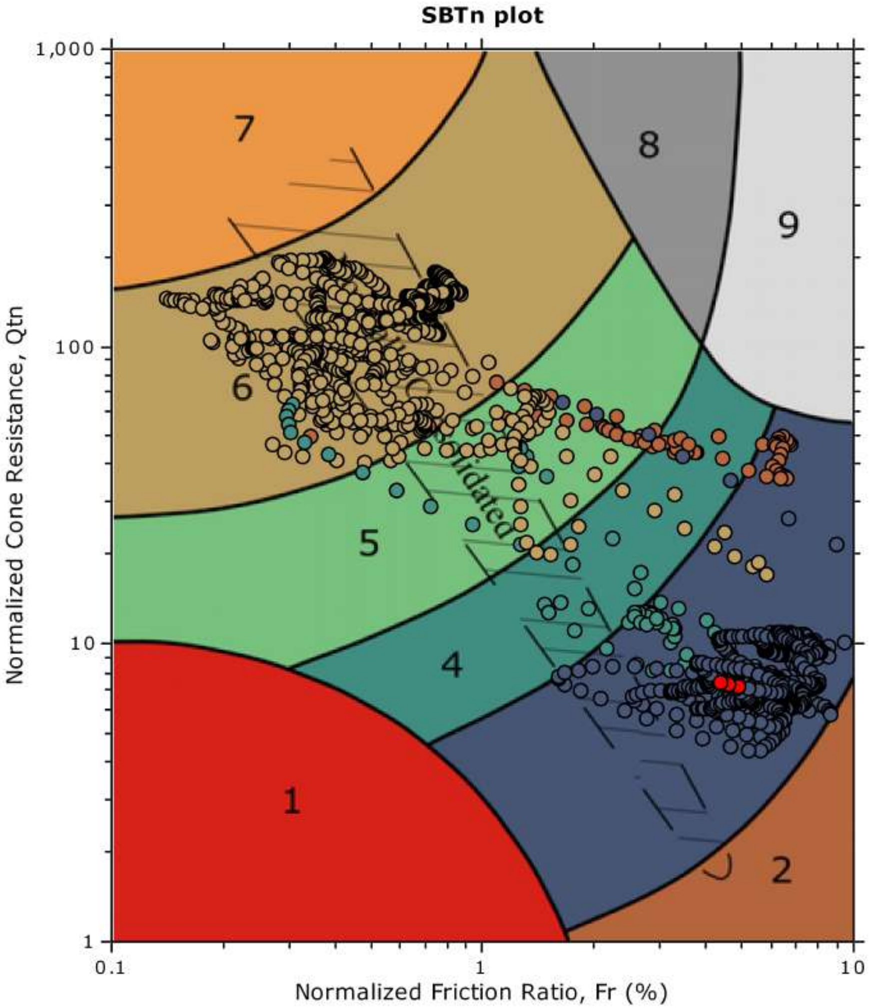


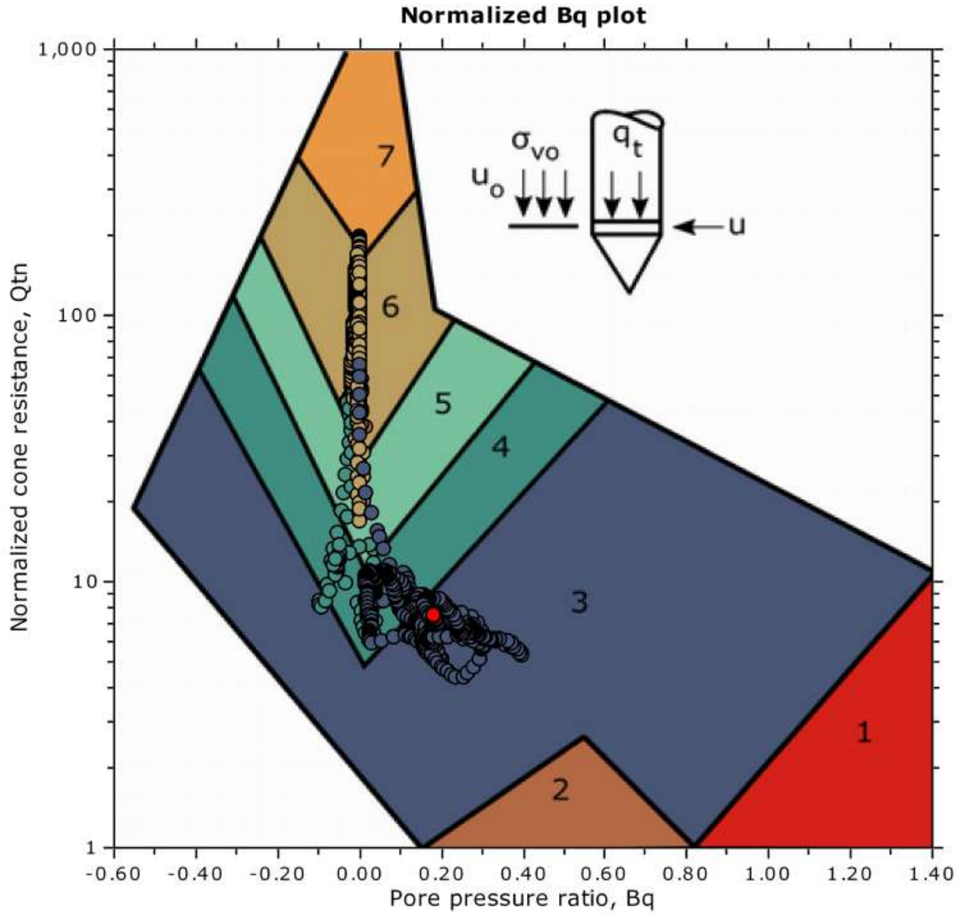


SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravelly sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

SBT - Bq plots (normalized)





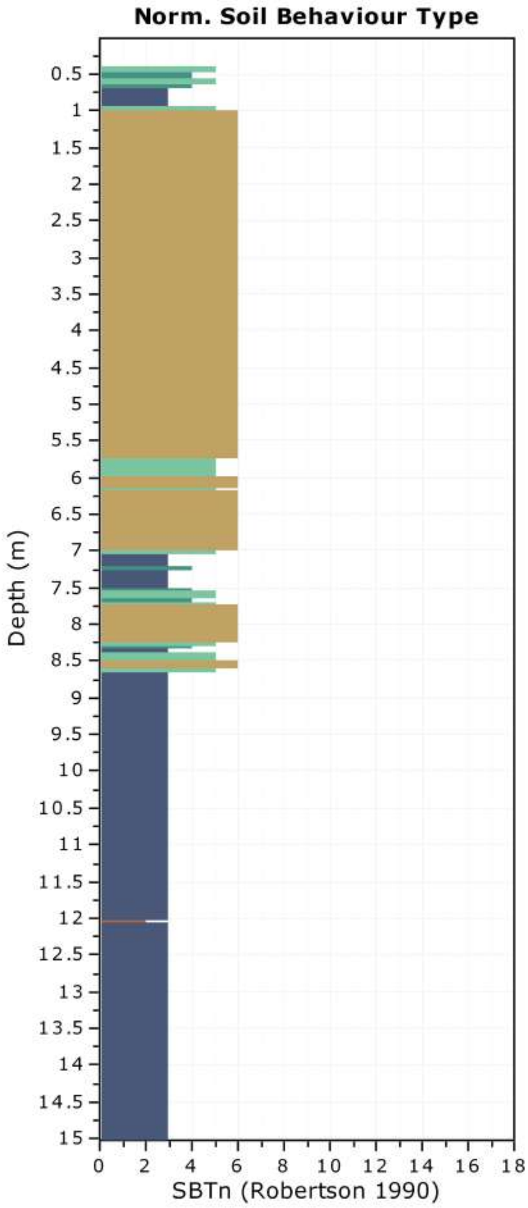
SBTn legend

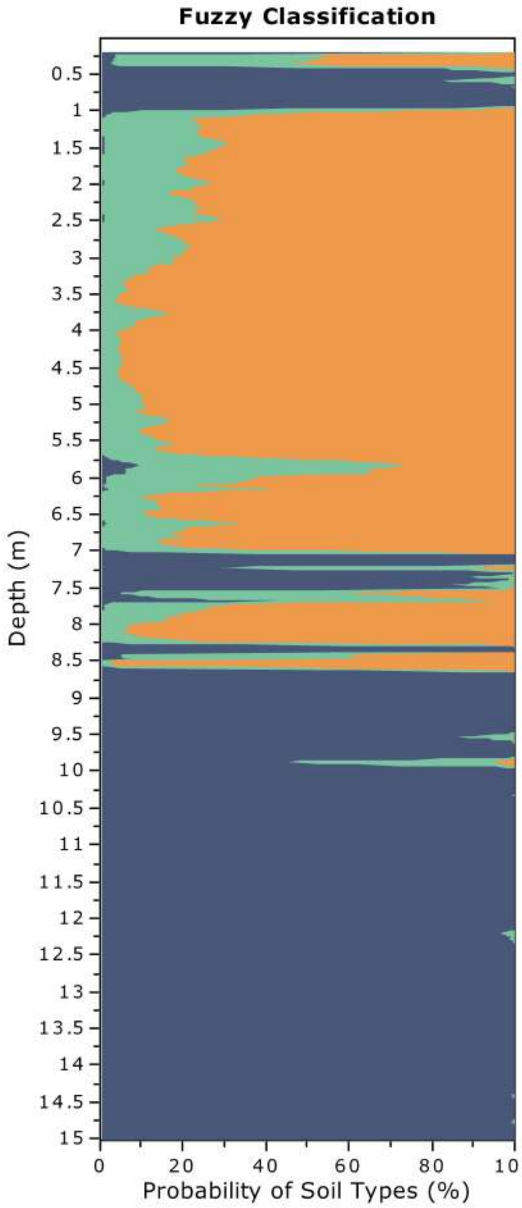
- 1. Sensitive fine grained
- 2. Organic material
- 3. Clay to silty clay
- 4. Clayey silt to silty clay
- 5. Silty sand to sandy silt
- 6. Clean sand to silty sand
- 7. Gravelly sand to sand
- 8. Very stiff sand to clayey sand
- 9. Very stiff fine grained

Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu1
Total depth: 15.03 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

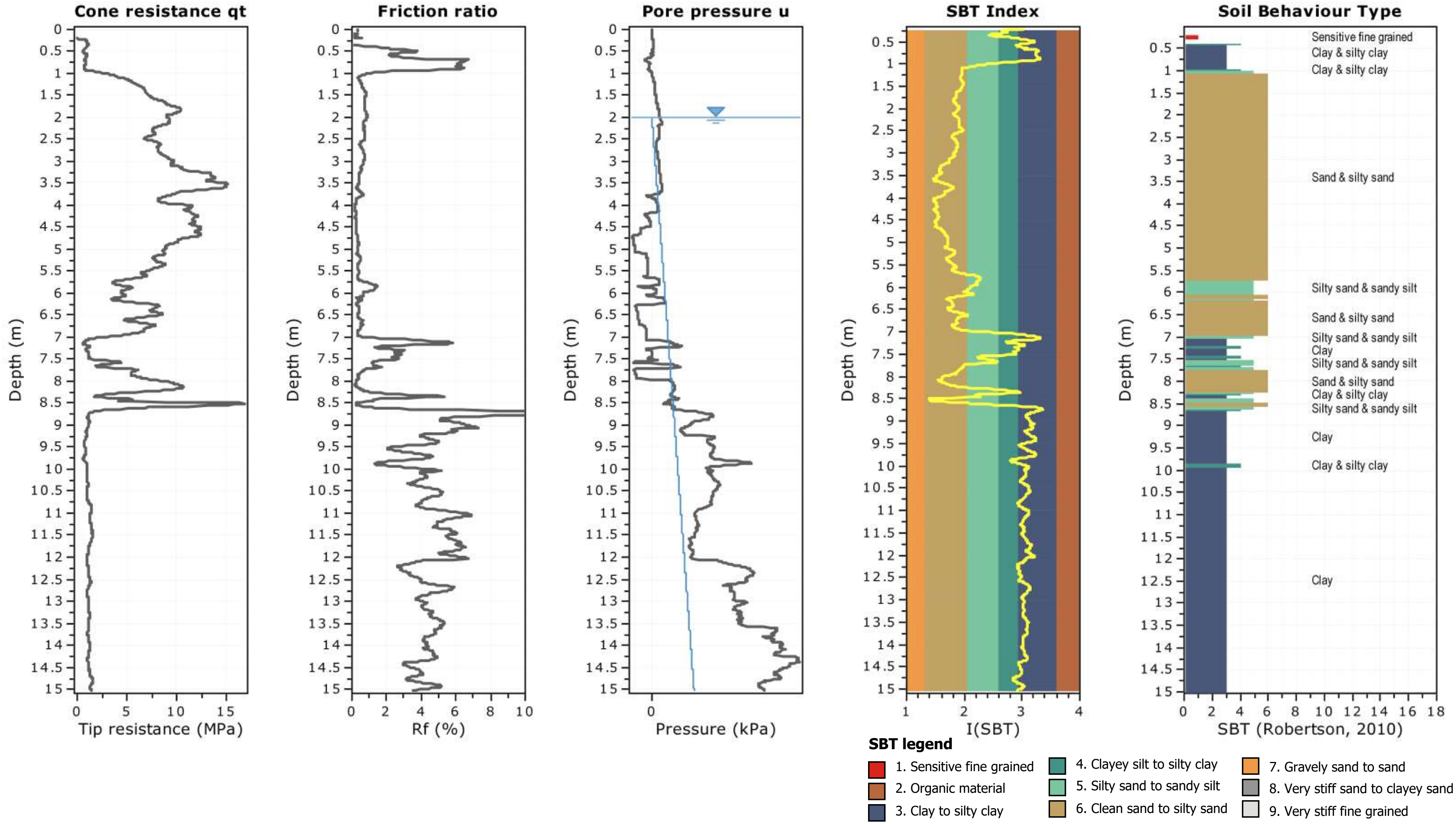
Project: Viale Da Vinci Cesenatico
Location:

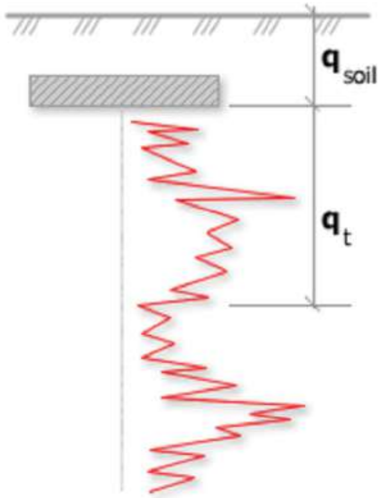




Fuzzy classifiaction legend

- Highly probable clayey soil
- Highly probable mixture soil
- Highly probable sandy soil

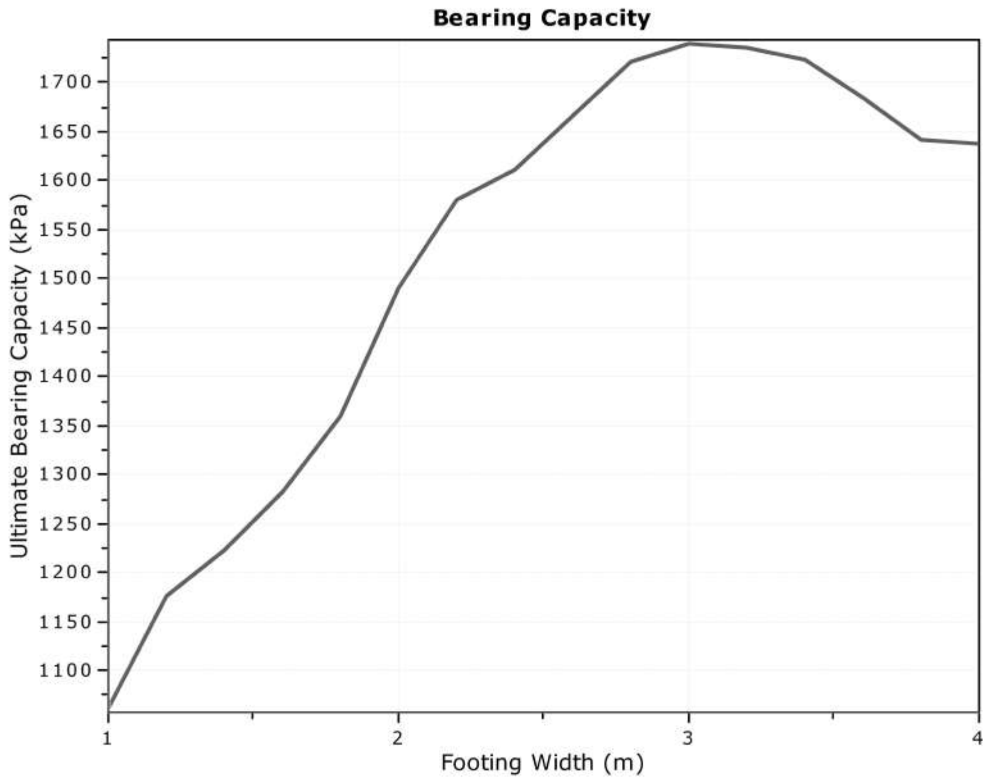

Cone resistance qt
Depth (m)
Tip resistance (MPa)
Friction ratio
Rf (%)
Pore pressure u
Pressure (kPa)
SBT Index
I(SBT)
Soil Behaviour Type
SBT (Robertson, 2010)
Sensitive fine grained
Clay & silty clay
Clay & silty clay
Sand & silty sand
Silty sand & sandy silt
Sand & silty sand
Silty sand & sandy silt
Clay
Silty sand & sandy silt
Sand & silty sand
Clay & silty clay
Silty sand & sandy silt
Clay
Clay & silty clay
Clay
SBT legend
1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



:: Tabular results ::

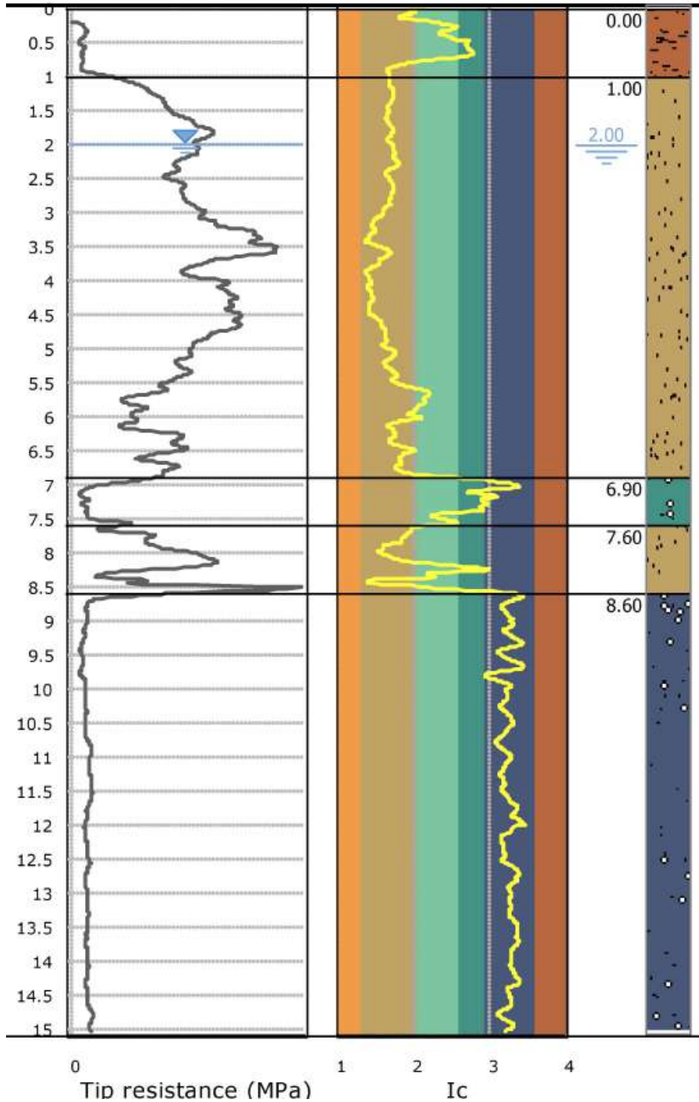
No	B (m)	Start Depth (m)	End Depth (m)	Ave. q_t (MPa)	R_k	Soil Press. (kPa)	Ult. bearing cap. (kPa)
1	1.00	0.50	2.00	5.26	0.20	9.50	1062.07
2	1.20	0.50	2.30	5.83	0.20	9.50	1175.78
3	1.40	0.50	2.60	6.07	0.20	9.50	1223.06
4	1.60	0.50	2.90	6.36	0.20	9.50	1282.07
5	1.80	0.50	3.20	6.75	0.20	9.50	1358.96
6	2.00	0.50	3.50	7.40	0.20	9.50	1489.75
7	2.20	0.50	3.80	7.85	0.20	9.50	1579.36
8	2.40	0.50	4.10	8.00	0.20	9.50	1609.34
9	2.60	0.50	4.40	8.28	0.20	9.50	1666.00
10	2.80	0.50	4.70	8.56	0.20	9.50	1720.72
11	3.00	0.50	5.00	8.65	0.20	9.50	1738.73
12	3.20	0.50	5.30	8.62	0.20	9.50	1734.24
13	3.40	0.50	5.60	8.57	0.20	9.50	1722.79
14	3.60	0.50	5.90	8.37	0.20	9.50	1682.76
15	3.80	0.50	6.20	8.16	0.20	9.50	1641.33
16	4.00	0.50	6.50	8.14	0.20	9.50	1637.49

Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

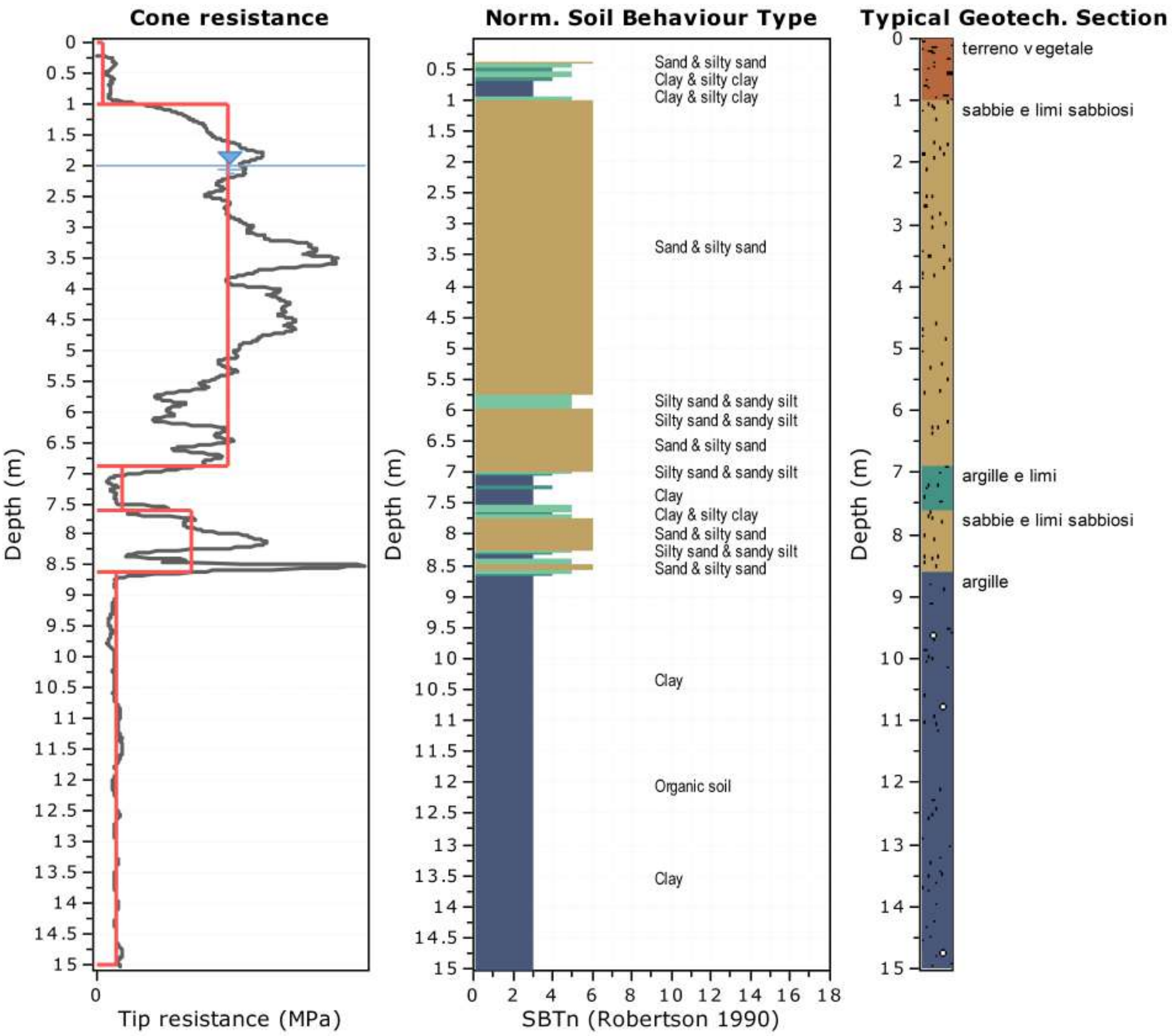
CPT: cptu1
Total depth: 15.03 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: **Viale Da Vinci Cesenatico**
Location:

Depth (m) Elevation: 0.00 (m)



Depth (m)	Description	qt (MPa)	Ksbt (m/s)	N60	Es (MPa)	Dr	Phi (°)	M (MPa)	Go (MPa)	Su (kPa)	Su ratio	OCR	Gamma (kN/m3)
0.00	terreno vegetale	0.3	2.08E-7	3.2	-	-	-	10.5	15.2	55.9	3.1	14.4	19.0
1.00	sabbie e limi sabbiosi	8.2	6.80E-5	18.1	49.3	56.8	38.0	61.7	62.8	-	-	-	19.0
6.90	argille e limi	1.6	4.33E-8	6.9	-	-	-	15.3	41.3	66.1	0.8	3.5	19.0
7.60	sabbie e limi sabbiosi	6.0	7.25E-6	16.2	53.6	45.0	36.1	58.0	67.4	-	-	-	19.0
8.60	argille	1.2	-	7.2	-	-	-	7.2	54.1	68.1	0.5	2.5	19.0



Tabular results

.:: Layer No: 1 ::.

Code: r **Start depth:** 0.00 (m), **End depth:** 1.00 (m)

Description: terreno vegetale

Basic results

Total cone resistance: 0.33 ±0.67 MPa
Sleeve friction: 0.00 ±29.68 kPa
Ic: 0.00 ±2.15
SBT_n: 0
SBTn description: N/A

Estimation results

Permeability: 2.08E-07 ±1.97E-06 m/s
N_{60}: 3.24 ±1.07 blows
Es: 0.00 ±0.00 MPa
Dr (%): 0.00 ±0.00
φ (degrees): 0.00 ±0.00 °
Unit weight: 19.00 ±0.00 kN/m³

Constrained Mod.: 10.54 ±5.18 MPa
Go: 15.24 ±7.06 MPa
Su: 55.85 ±7.68 kPa
Su ratio: 3.13 ±0.31
O.C.R.: 14.45 ±1.45

.:: Layer No: 2 ::.

Code: s e l **Start depth:** 1.00 (m), **End depth:** 6.90 (m)

Description: sabbie e limi sabbiosi

Basic results	Estimation results	
Total cone resistance: 8.22 ±2.65 MPa	Permeability: 6.80E-05 ±1.53E-04 m/s	Constrained Mod.: 61.75 ±9.95 MPa
Sleeve friction: 38.10 ±17.96 kPa	N_{60}: 18.07 ±4.05 blows	Go: 62.81 ±10.11 MPa
Ic: 1.67 ±0.18	Es: 49.29 ±7.93 MPa	Su: 0.00 ±0.00 kPa
SBT_n: 6	Dr (%): 56.76 ±9.45	Su ratio: 0.00 ±0.00
SBTn description: Sand & silty sand	φ (degrees): 38.00 ±1.87 °	O.C.R.: 0.00 ±0.00
	Unit weight: 19.00 ±0.00 kN/m³	

.:: Layer No: 3 ::.

Code: a **Start depth:** 6.90 (m), **End depth:** 7.60 (m)

Description: argille e limi

Basic results	Estimation results	
Total cone resistance: 1.57 ±1.59 MPa	Permeability: 4.33E-08 ±7.20E-06 m/s	Constrained Mod.: 15.35 ±18.93 MPa
Sleeve friction: 28.55 ±11.20 kPa	N_{60}: 6.92 ±3.21 blows	Go: 41.28 ±9.09 MPa
Ic: 2.70 ±0.45	Es: 0.00 ±0.00 MPa	Su: 66.10 ±20.75 kPa
SBT_n: 4	Dr (%): 0.00 ±0.00	Su ratio: 0.76 ±0.23
SBTn description: Clay & silty clay	φ (degrees): 0.00 ±0.00 °	O.C.R.: 3.52 ±1.07
	Unit weight: 19.00 ±0.00 kN/m³	

.:: Layer No: 4 ::.

Code: s e **Start depth:** 7.60 (m), **End depth:** 8.60 (m)

Description: sabbie e limi sabbiosi

Basic results	Estimation results	
Total cone resistance: 6.01 ±3.74 MPa	Permeability: 7.25E-06 ±1.29E-04 m/s	Constrained Mod.: 58.00 ±17.82 MPa
Sleeve friction: 39.55 ±25.08 kPa	N_{60}: 16.25 ±5.49 blows	Go: 67.43 ±11.62 MPa
Ic: 1.97 ±0.41	Es: 53.62 ±9.02 MPa	Su: 0.00 ±0.00 kPa
SBT_n: 6	Dr (%): 45.00 ±9.88	Su ratio: 0.00 ±0.00
SBTn description: Sand & silty sand	φ (degrees): 36.15 ±1.51 °	O.C.R.: 0.00 ±0.00
	Unit weight: 19.00 ±0.00 kN/m³	

.:: Layer No: 5 ::.

Code: a **Start depth:** 8.60 (m), **End depth:** 15.00 (m)

Description: argille

Basic results	Estimation results	
Total cone resistance: 1.19 ±0.48 MPa	Permeability: 0.00E+00 ±1.57E-07 m/s	Constrained Mod.: 7.22 ±7.39 MPa
Sleeve friction: 53.02 ±26.08 kPa	N_{60}: 7.24 ±1.60 blows	Go: 54.12 ±10.25 MPa
Ic: 3.25 ±0.12	Es: 0.00 ±0.00 MPa	Su: 68.11 ±18.53 kPa
SBT_n: 3	Dr (%): 0.00 ±0.00	Su ratio: 0.54 ±0.19
SBTn description: Clay	φ (degrees): 0.00 ±0.00 °	O.C.R.: 2.48 ±0.86
	Unit weight: 19.00 ±0.00 kN/m³	

Summary table of mean values

From depth To depth (m)	Thickness (m)	Permeability (m/s)	SPT_{N60} (blows/30cm)	E_s (MPa)	D_r (%)	Friction angle	Constrained modulus, M (MPa)	Shear modulus, G_O (MPa)	Undrained strength, S_U (kPa)	Undrained strength ratio	OCR	Unit weight (kN/m³)
0.00	1.00	2.08E-07	3.2	0.0	0.0	0.0	10.5	15.2	55.9	3.1	14.4	19.0
1.00		(±1.97E-06)	(±1.1)	(±0.0)	(±0.0)	(±0.0)	(±5.2)	(±7.1)	(±7.7)	(±0.3)	(±1.4)	(±0.0)
1.00	5.90	6.80E-05	18.1	49.3	56.8	38.0	61.7	62.8	0.0	0.0	0.0	19.0
6.90		(±1.53E-04)	(±4.0)	(±7.9)	(±9.5)	(±1.9)	(±10.0)	(±10.1)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
6.90	0.70	4.33E-08	6.9	0.0	0.0	0.0	15.3	41.3	66.1	0.8	3.5	19.0
7.60		(±7.20E-06)	(±3.2)	(±0.0)	(±0.0)	(±0.0)	(±18.9)	(±9.1)	(±20.7)	(±0.2)	(±1.1)	(±0.0)
7.60	1.00	7.25E-06	16.2	53.6	45.0	36.1	58.0	67.4	0.0	0.0	0.0	19.0
8.60		(±1.29E-04)	(±5.5)	(±9.0)	(±9.9)	(±1.5)	(±17.8)	(±11.6)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
8.60	6.40	0.00E+00	7.2	0.0	0.0	0.0	7.2	54.1	68.1	0.5	2.5	19.0
15.00		(±1.57E-07)	(±1.6)	(±0.0)	(±0.0)	(±0.0)	(±7.4)	(±10.2)	(±18.5)	(±0.2)	(±0.9)	(±0.0)

Depth values presented in this table are measured from free ground surface

Presented below is a list of formulas used for the estimation of various soil properties. The formulas are presented in SI unit system and assume that all components are expressed in the same units.

:: Unit Weight, g (kN/m³) ::

$$g = g_w \cdot \left(0.27 \cdot \log(R_f) + 0.36 \cdot \log(\frac{q_t}{p_a}) + 1.236 \right)$$

where g_w = water unit weight

:: Permeability, k (m/s) ::

$I_c < 3.27$ and $I_c > 1.00$ then $k = 10^{0.952-3.04 \cdot I_c}$

$I_c \leq 4.00$ and $I_c > 3.27$ then $k = 10^{-4.52-1.37 \cdot I_c}$

:: N_{SPT} (blows per 30 cm) ::

$$N_{60} = \left(\frac{q_c}{P_a}\right) \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

$$N_{1(60)} = Q_{tn} \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

:: Young's Modulus, Es (MPa) ::

$$(q_t - \sigma_v) \cdot 0.015 \cdot 10^{0.55 \cdot I_c + 1.68}$$

(applicable only to $I_c < I_{c\_cutoff}$)

:: Relative Density, Dr (%) ::

$$100 \cdot \sqrt{\frac{Q_{tn}}{k_{DR}}}$$

(applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: State Parameter, ψ ::

$$\psi = 0.56 - 0.33 \cdot \log(Q_{tn,cs})$$

:: Drained Friction Angle, φ (°) ::

[illegible]

(applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: 1-D constrained modulus, M (MPa) ::

If $I_c > 2.20$
$\alpha = 14$ for $Q_{tn} > 14$
$\alpha = Q_{tn}$ for $Q_{tn} \leq 14$
$M_{CPT} = \alpha \cdot (q_t - \sigma_v)$

If $I_c \geq 2.20$
[illegible]

:: Small strain shear Modulus, Go (MPa) ::

$$G_0 = (q_t - \sigma_v) \cdot 0.0188 \cdot 10^{0.55 \cdot I_c + 1.68}$$

:: Shear Wave Velocity, Vs (m/s) ::

$$V_s = \left(\frac{G_0}{\rho}\right)^{0.50}$$

:: Undrained peak shear strength, Su (kPa) ::

$N_{kt} = 10.50 + 7 \cdot \log(F_r)$ or user defined

$$S_u = \frac{(q_t - \sigma_v)}{N_{kt}}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Remolded undrained shear strength, Su(rem) (kPa) ::

$S_{u(rem)} = f_s$ (applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Overconsolidation Ratio, OCR ::

$$k_{OCR} = \left[\frac{Q_{tn}^{0.20}}{0.25 \cdot (10.50 \cdot +7 \cdot \log(F_r))}\right]^{1.25}$$ or user defined

$OCR = k_{OCR} \cdot Q_{tn}$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: In situ Stress Ratio, Ko ::

$$K_O = (1 - \sin\varphi') \cdot OCR^{\sin\varphi'}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Soil Sensitivity, S_t ::

$$S_t = \frac{N_S}{F_r}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Peak Friction Angle, φ' (°) ::

$$\varphi' = 29.5° \cdot B_q^{0.121} \cdot (0.256 + 0.336 \cdot B_q + \log Q_t)$$

(applicable for $0.10 < B_q < 1.00$)

References

• Robertson, P.K., Cabal K.L., Guide to Cone Penetration Testing for Geotechnical Engineering, Gregg Drilling & Testing, Inc., 5th Edition, November 2012

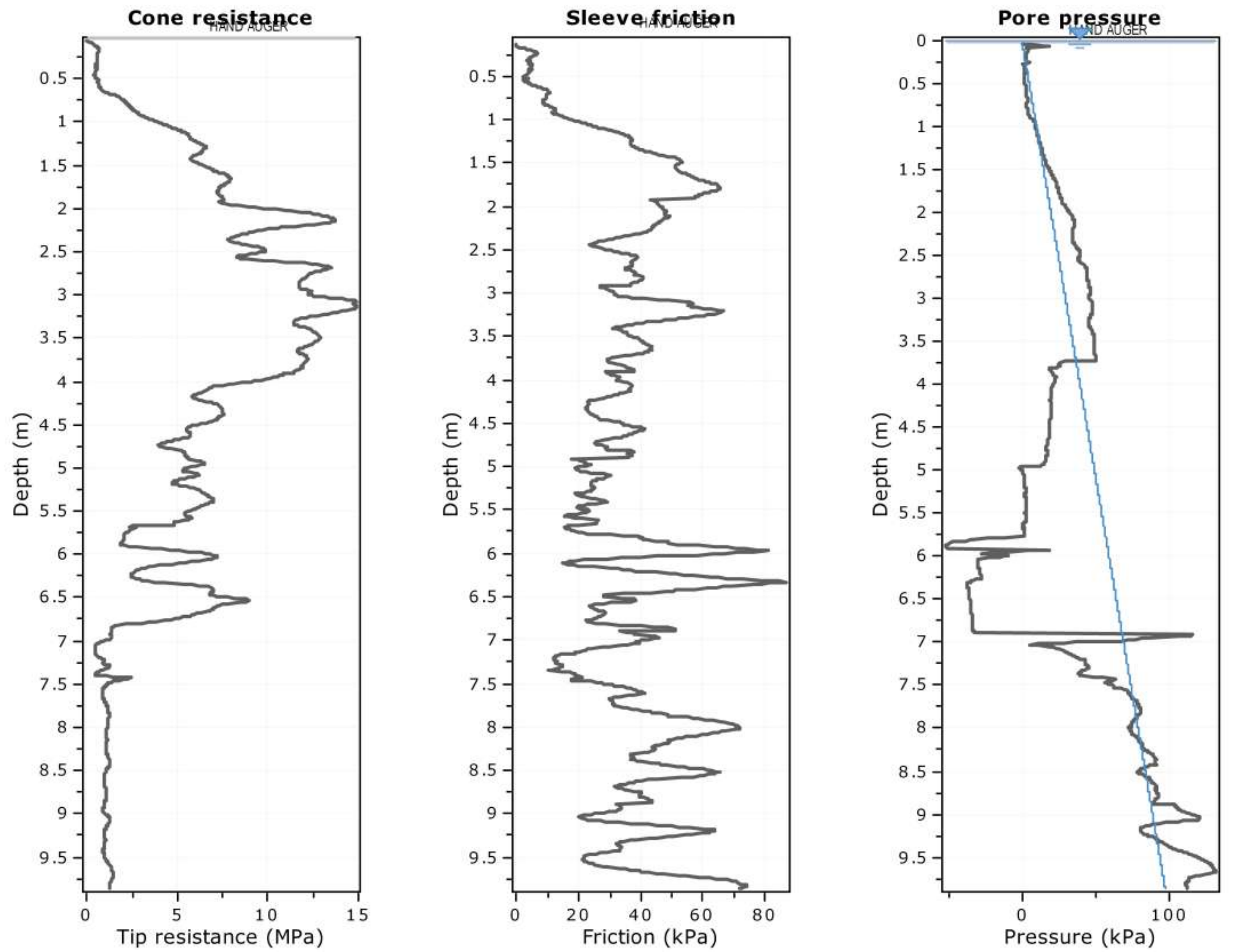
• Robertson, P.K., Interpretation of Cone Penetration Tests - a unified approach., Can. Geotech. J. 46(11): 1337–1355 (2009)

• N Barounis, J Philpot, Estimation of in-situ water content, void ratio, dry unit weight and porosity using CPT for saturated sands, Proc. 20th NZGS Geotechnical Symposium

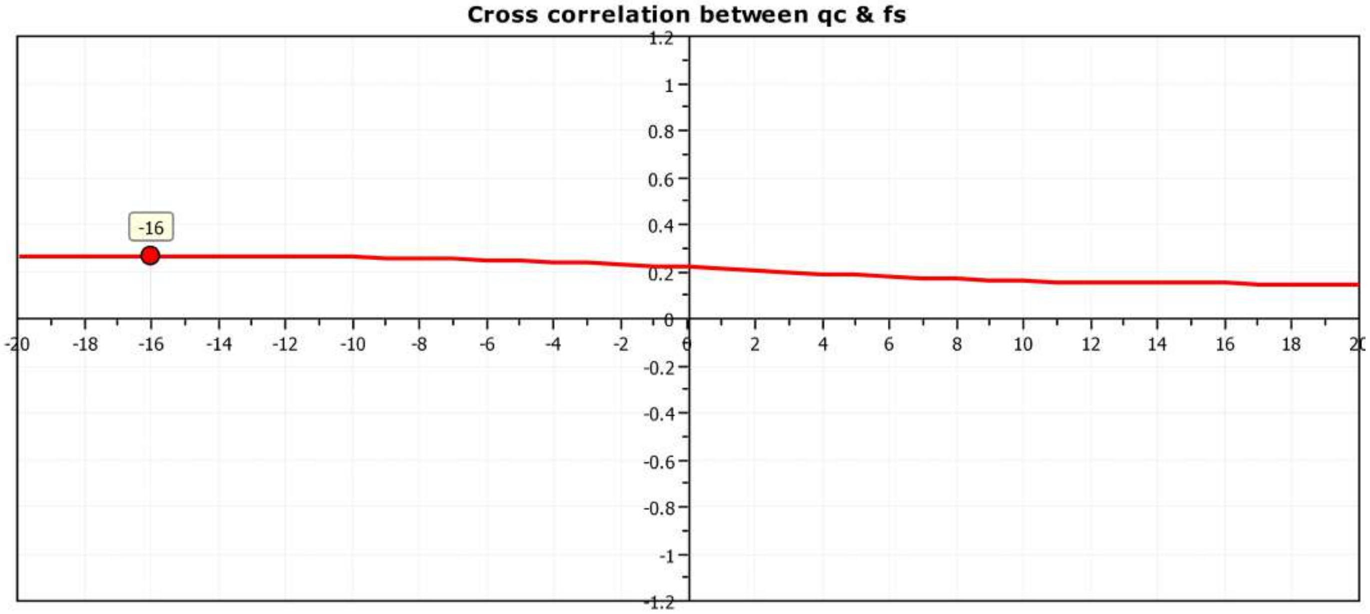
Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu2
Total depth: 9.86 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: **Viale Da Vinci Cesenatico**
Location:



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

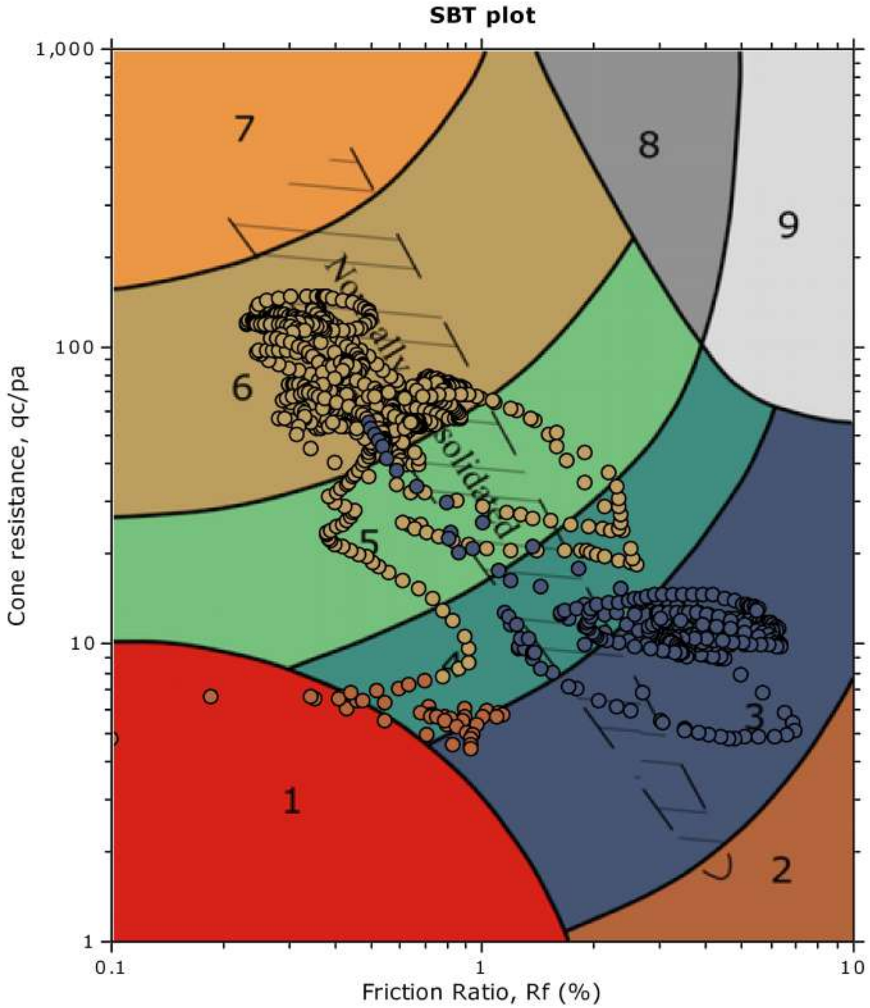


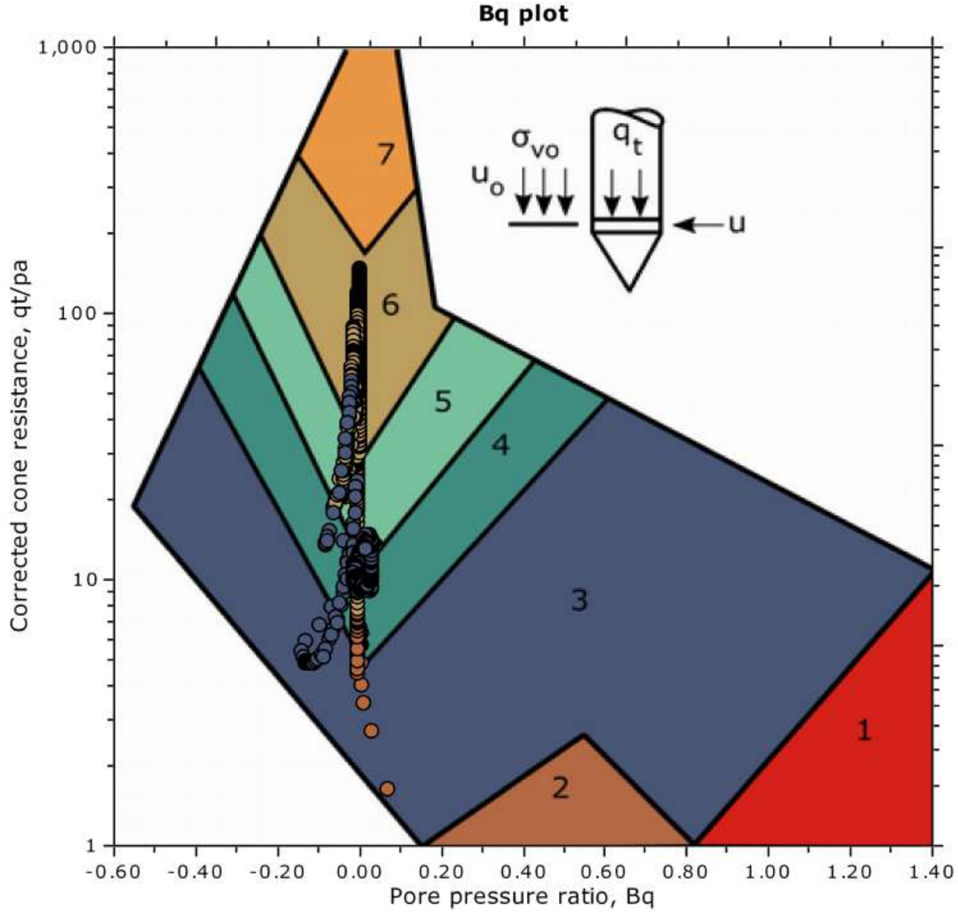
Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu2
Total depth: 9.86 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: Viale Da Vinci Cesenatico
Location:

SBT - Bq plots





SBT legend

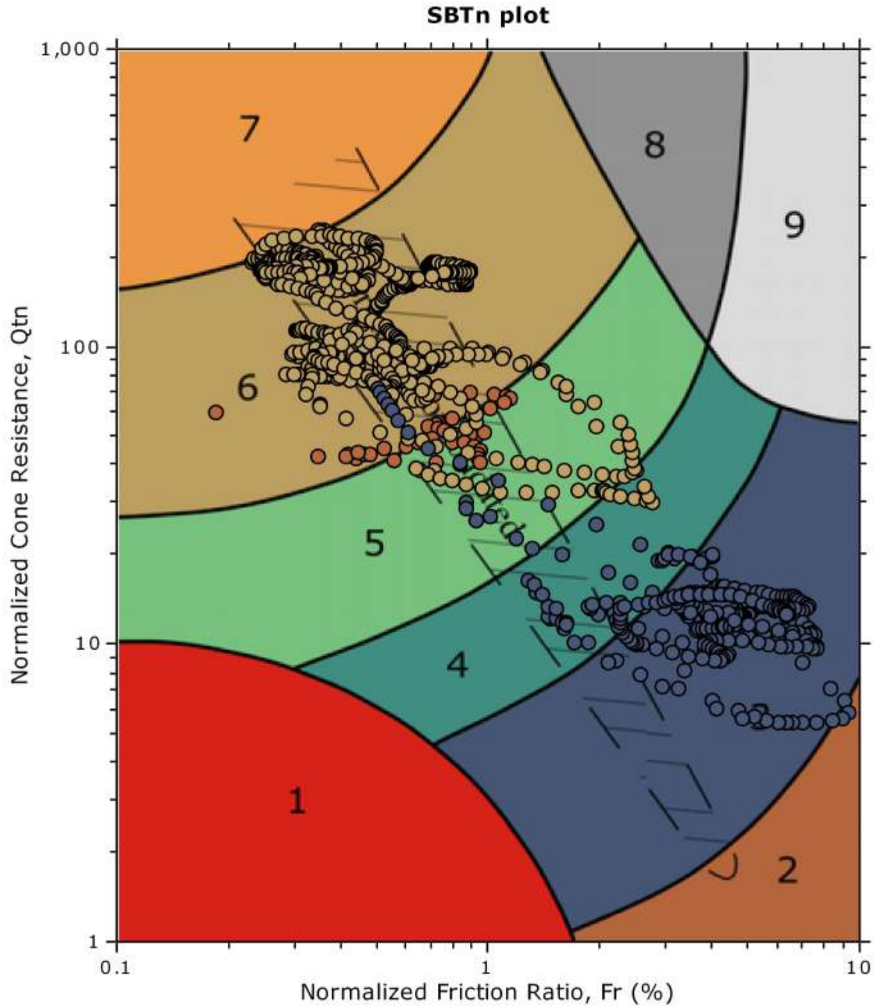
- 1. Sensitive fine grained
- 2. Organic material
- 3. Clay to silty clay
- 4. Clayey silt to silty clay
- 5. Silty sand to sandy silt
- 6. Clean sand to silty sand
- 7. Gravelly sand to sand
- 8. Very stiff sand to clayey sand
- 9. Very stiff fine grained

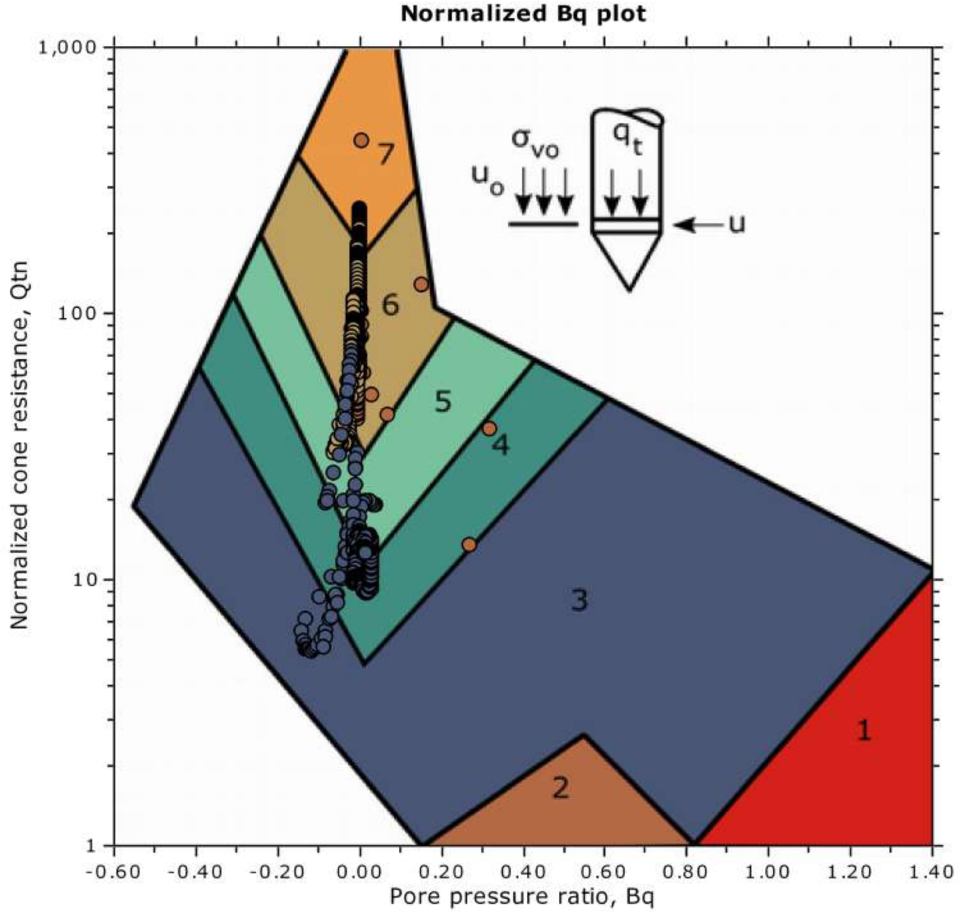
Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu2
Total depth: 9.86 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: Viale Da Vinci Cesenatico
Location:

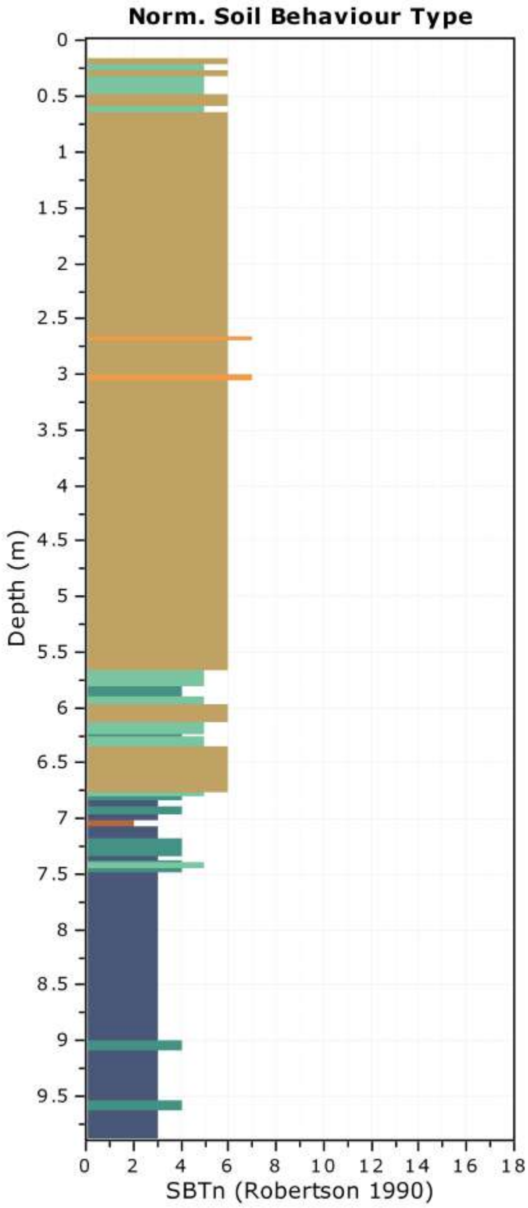
SBT - Bq plots (normalized)

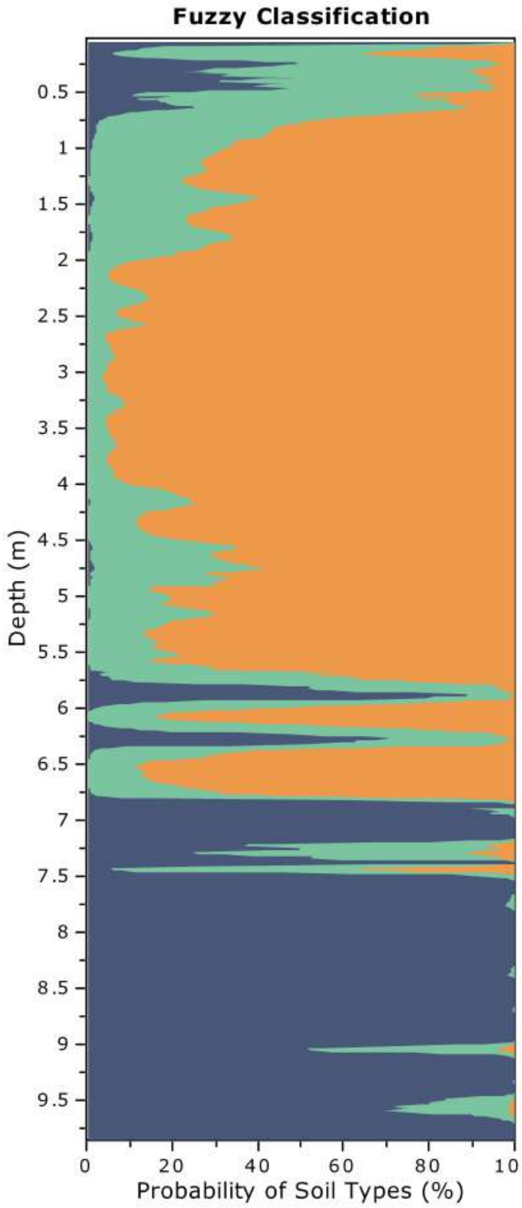




SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravelly sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained





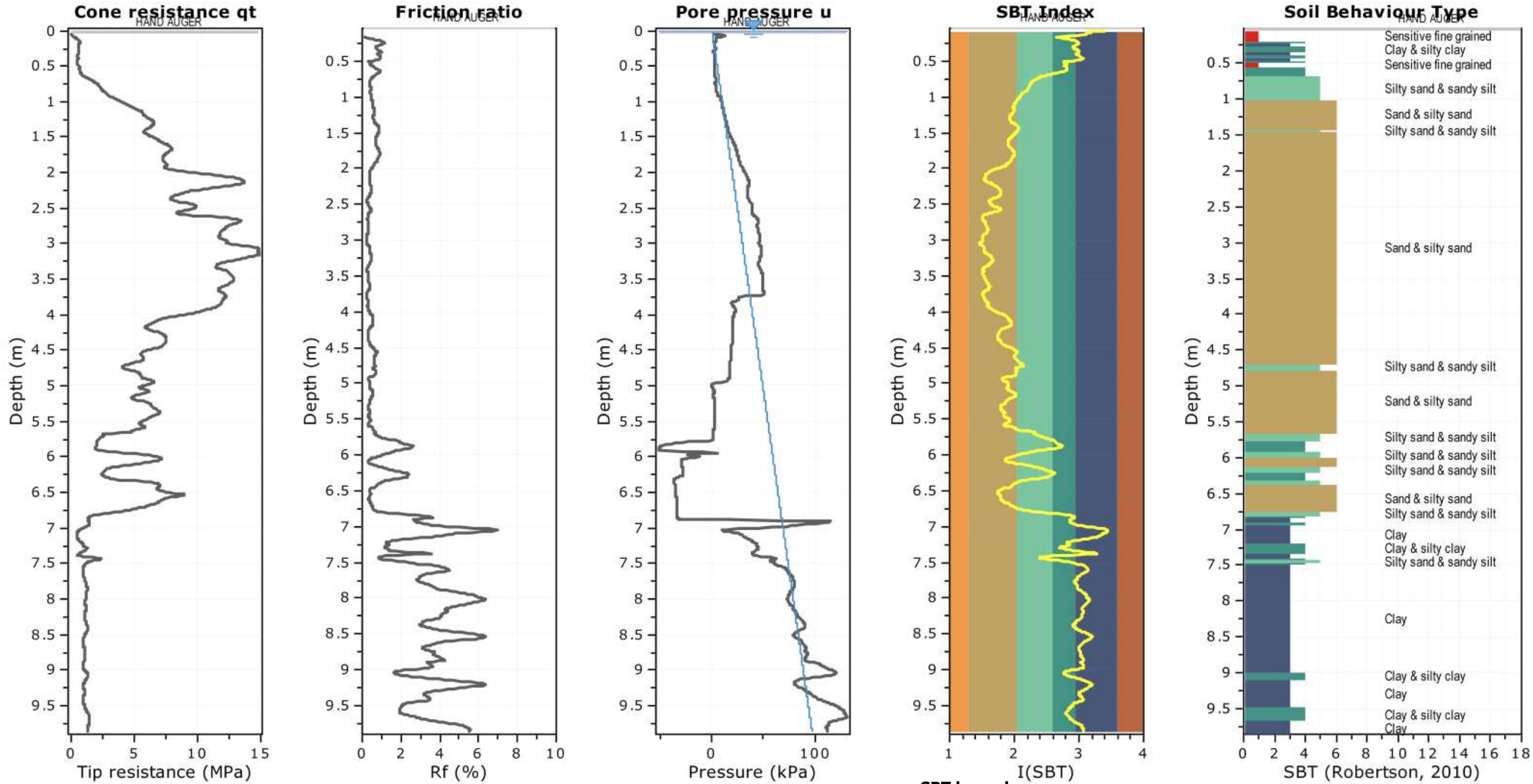
Fuzzy classifiaction legend

- Highly probable clayey soil
- Highly probable mixture soil
- Highly probable sandy soil

Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

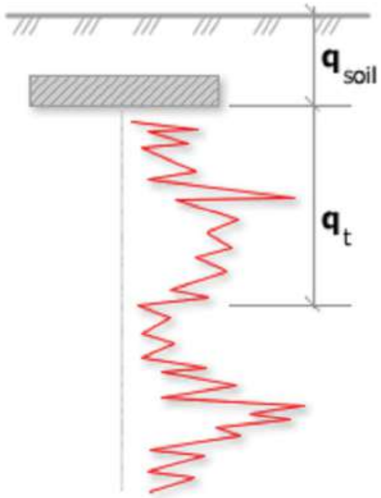
CPT: cptu2
Total depth: 9.86 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: **Viale Da Vinci Cesenatico**
Location:



SBT legend

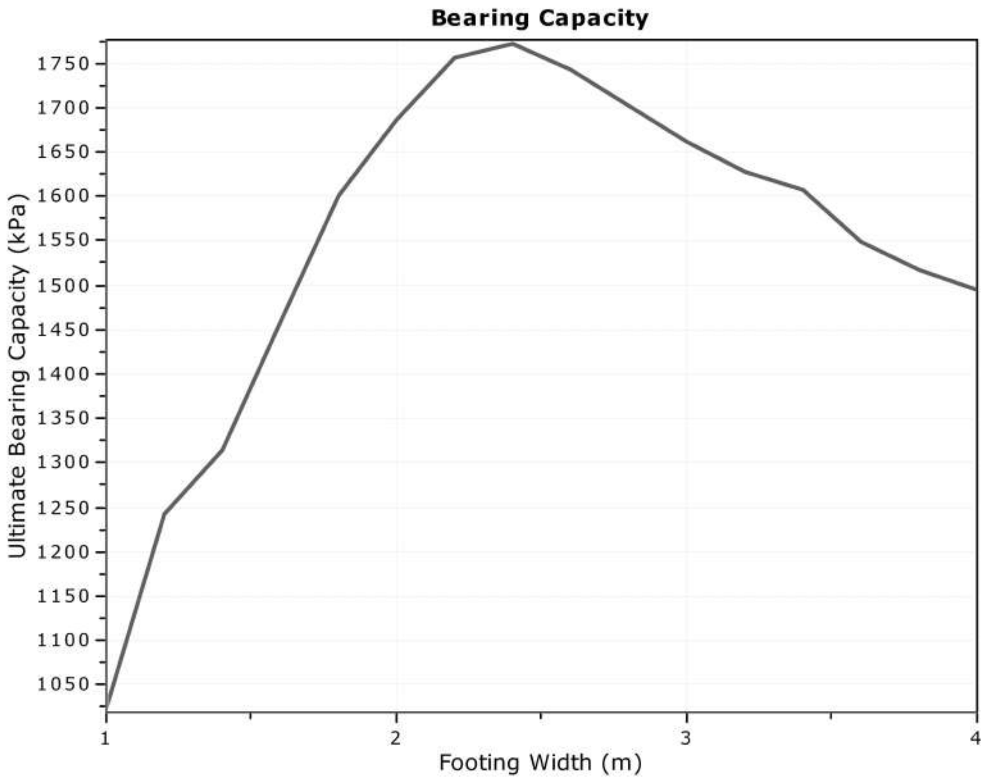
- 1. Sensitive fine grained
- 2. Organic material
- 3. Clay to silty clay
- 4. Clayey silt to silty clay
- 5. Silty sand to sandy silt
- 6. Clean sand to silty sand
- 7. Gravely sand to sand
- 8. Very stiff sand to clayey sand
- 9. Very stiff fine grained



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



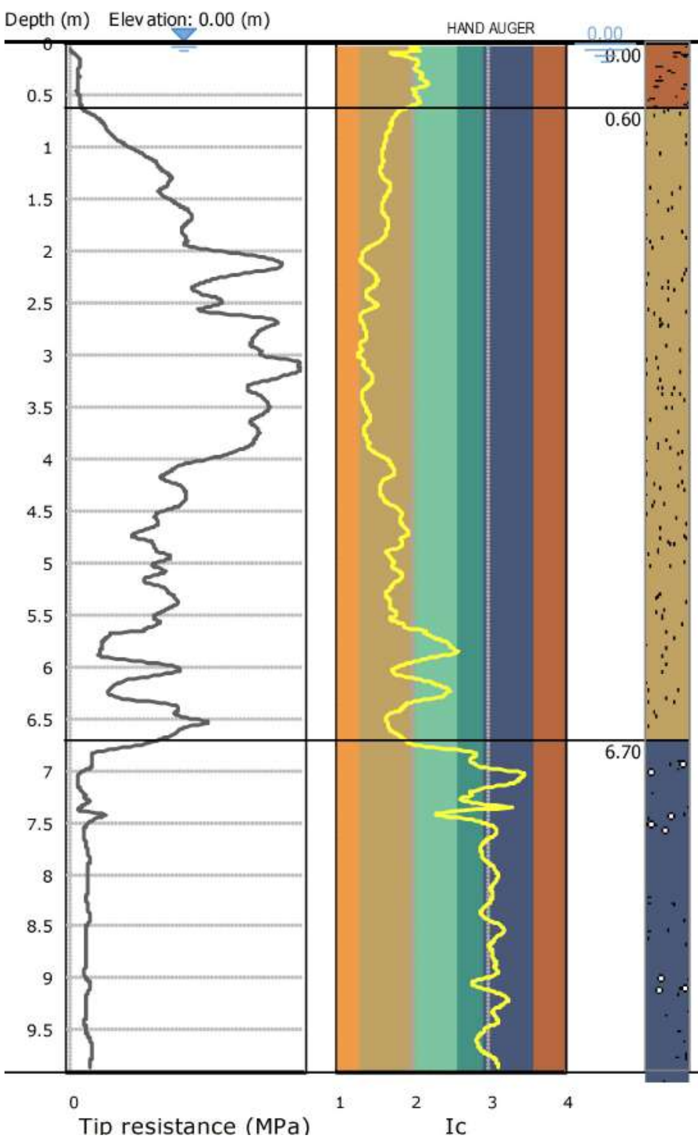
:: Tabular results ::

No	B (m)	Start Depth (m)	End Depth (m)	Ave. q_t (MPa)	R_k	Soil Press. (kPa)	Ult. bearing cap. (kPa)
1	1.00	0.50	2.00	5.07	0.20	9.50	1023.62
2	1.20	0.50	2.30	6.16	0.20	9.50	1242.28
3	1.40	0.50	2.60	6.53	0.20	9.50	1314.84
4	1.60	0.50	2.90	7.25	0.20	9.50	1459.39
5	1.80	0.50	3.20	7.96	0.20	9.50	1600.53
6	2.00	0.50	3.50	8.39	0.20	9.50	1687.13
7	2.20	0.50	3.80	8.73	0.20	9.50	1755.27
8	2.40	0.50	4.10	8.81	0.20	9.50	1771.71
9	2.60	0.50	4.40	8.66	0.20	9.50	1741.54
10	2.80	0.50	4.70	8.46	0.20	9.50	1702.45
11	3.00	0.50	5.00	8.26	0.20	9.50	1661.33
12	3.20	0.50	5.30	8.10	0.20	9.50	1628.55
13	3.40	0.50	5.60	7.98	0.20	9.50	1606.28
14	3.60	0.50	5.90	7.69	0.20	9.50	1547.93
15	3.80	0.50	6.20	7.54	0.20	9.50	1518.09
16	4.00	0.50	6.50	7.42	0.20	9.50	1493.76

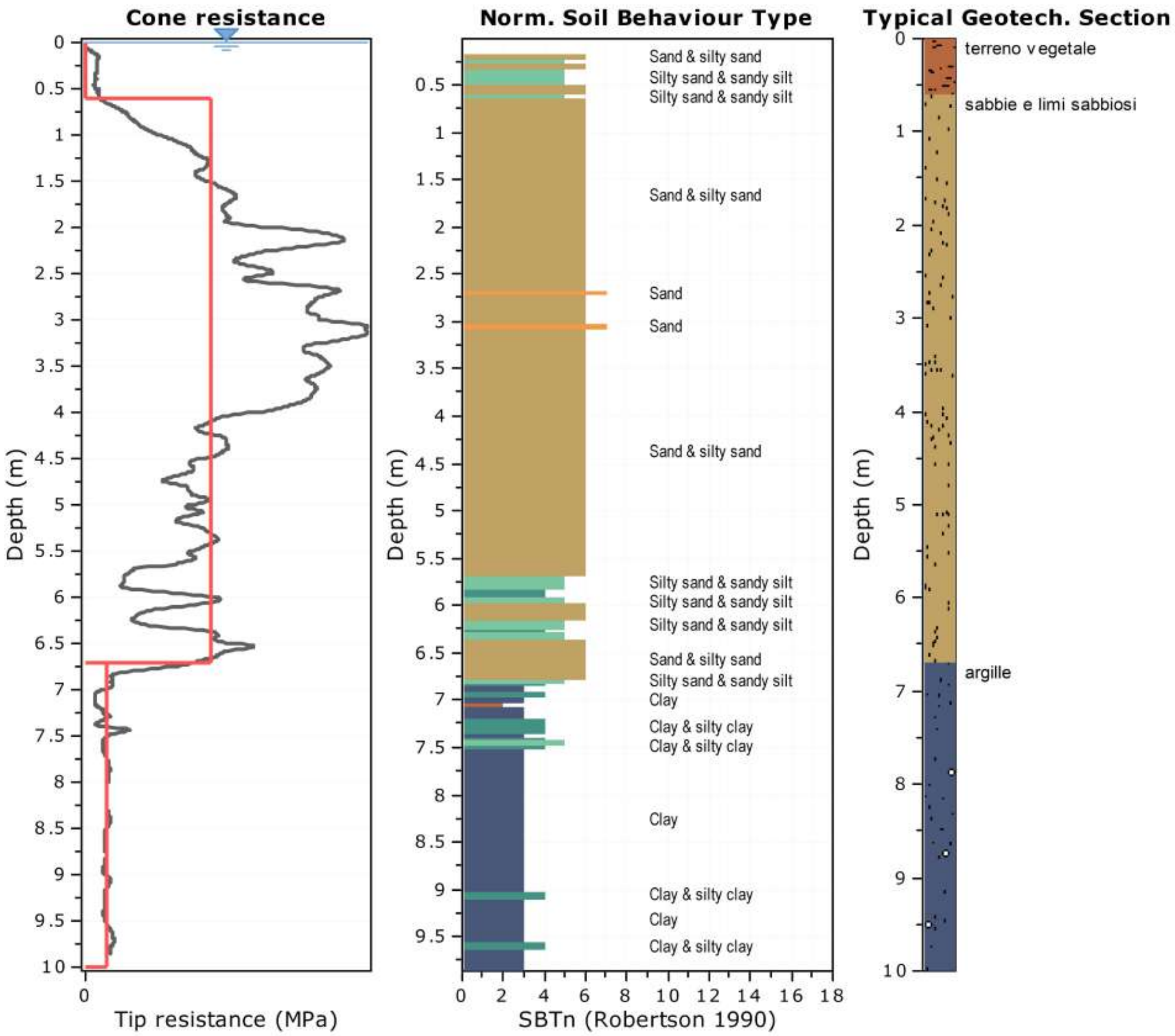
Geoecoter scarl
Geoingegneria , geologica applicata
Geologi associati Romagna
Dottore Geologo Aride Bucci

CPT: cptu2
Total depth: 9.86 m, Date: 15/12/2022
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: **Viale Da Vinci Cesenatico**
Location:



Depth (m)	Description	qt (MPa)	Ksbt (m/s)	N60	Es (MPa)	Dr	Phi (°)	M (MPa)	Go (MPa)	Su (kPa)	Su ratio	OCR	Gamma (kN/m³)
0.00	terreno vegetale	-	4.55E-6	1.8	-	-	-	4.7	4.7	-	-	-	19.0
0.60	sabbie e limi sabbiosi	6.6	7.17E-5	14.4	39.3	59.1	38.7	48.1	49.9	-	-	-	19.0
6.70	argille	1.1	8.58E-9	5.7	-	-	-	11.2	38.2	64.7	0.8	3.9	19.0



Tabular results

.:: Layer No: 1 ::.

Code: t **Start depth:** 0.00 (m), **End depth:** 0.60 (m)

Description: terreno vegetale

Basic results

Total cone resistance: 0.00 ±0.55 MPa

Sleeve friction: 0.00 ±2603.52 kPa

Ic: 0.00 ±1.93

SBT_n: 0

SBTn description: N/A

Estimation results

Permeability: 4.55E-06 ±6.33E-06 m/s

N_{60}: 1.79 ±0.37 blows

Es: 0.00 ±0.00 MPa

Dr (%): 0.00 ±0.00

φ (degrees): 0.00 ±0.00 °

Unit weight: 19.00 ±0.00 kN/m³

Constrained Mod.: 4.66 ±2.72 MPa

Go: 4.75 ±2.77 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

.:: Layer No: 2 ::.

Code: s e l **Start depth:** 0.60 (m), **End depth:** 6.70 (m)

Description: sabbie e limi sabbiosi

Basic results	Estimation results	
Total cone resistance: 6.61 ±3.56 MPa	Permeability: 7.17E-05 ±2.94E-04 m/s	Constrained Mod.: 48.14 ±13.43 MPa
Sleeve friction: 32.65 ±15.23 kPa	N_{60}: 14.45 ±5.34 blows	Go: 49.94 ±12.95 MPa
Ic: 1.66 ±0.28	Es: 39.27 ±10.23 MPa	Su: 0.00 ±0.00 kPa
SBT_n: 6	Dr (%): 59.07 ±13.50	Su ratio: 0.00 ±0.00
SBTn description: Sand & silty sand	φ (degrees): 38.71 ±2.43 °	O.C.R.: 0.00 ±0.00
	Unit weight: 19.00 ±0.00 kN/m³	

.:: Layer No: 3 ::.

Code: a **Start depth:** 6.70 (m), **End depth:** 10.00 (m)

Description: argille

Basic results	Estimation results	
Total cone resistance: 1.14 ±0.69 MPa	Permeability: 8.58E-09 ±2.43E-06 m/s	Constrained Mod.: 11.19 ±8.11 MPa
Sleeve friction: 35.93 ±15.87 kPa	N_{60}: 5.67 ±1.50 blows	Go: 38.21 ±7.07 MPa
Ic: 2.96 ±0.26	Es: 0.00 ±0.00 MPa	Su: 64.75 ±15.59 kPa
SBT_n: 3	Dr (%): 0.00 ±0.00	Su ratio: 0.84 ±0.22
SBTn description: Clay	φ (degrees): 0.00 ±0.00 °	O.C.R.: 3.90 ±1.00
	Unit weight: 19.00 ±0.00 kN/m³	

Summary table of mean values

From depth To depth (m)	Thickness (m)	Permeability (m/s)	SPT_{N60} (blows/30cm)	E_s (MPa)	D_r (%)	Friction angle	Constrained modulus, M (MPa)	Shear modulus, G_O (MPa)	Undrained strength, S_U (kPa)	Undrained strength ratio	OCR	Unit weight (kN/m³)
0.00	0.60	4.55E-06	1.8	0.0	0.0	0.0	4.7	4.7	0.0	0.0	0.0	19.0
0.60		(±6.33E-06)	(±0.4)	(±0.0)	(±0.0)	(±0.0)	(±2.7)	(±2.8)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
0.60	6.10	7.17E-05	14.4	39.3	59.1	38.7	48.1	49.9	0.0	0.0	0.0	19.0
6.70		(±2.94E-04)	(±5.3)	(±10.2)	(±13.5)	(±2.4)	(±13.4)	(±13.0)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
6.70	3.30	8.58E-09	5.7	0.0	0.0	0.0	11.2	38.2	64.7	0.8	3.9	19.0
10.00		(±2.43E-06)	(±1.5)	(±0.0)	(±0.0)	(±0.0)	(±8.1)	(±7.1)	(±15.6)	(±0.2)	(±1.0)	(±0.0)

Depth values presented in this table are measured from free ground surface

Presented below is a list of formulas used for the estimation of various soil properties. The formulas are presented in SI unit system and assume that all components are expressed in the same units.

:: Unit Weight, g (kN/m³) ::

$$g = g_w \cdot \left(0.27 \cdot \log(R_f) + 0.36 \cdot \log(\frac{q_t}{p_a}) + 1.236 \right)$$

where g_w = water unit weight

:: Permeability, k (m/s) ::

$I_c < 3.27$ and $I_c > 1.00$ then $k = 10^{0.952-3.04 \cdot I_c}$

$I_c \leq 4.00$ and $I_c > 3.27$ then $k = 10^{-4.52-1.37 \cdot I_c}$

:: N_{SPT} (blows per 30 cm) ::

$$N_{60} = \left(\frac{q_c}{P_a}\right) \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

$$N_{1(60)} = Q_{tn} \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

:: Young's Modulus, Es (MPa) ::

$$(q_t - \sigma_v) \cdot 0.015 \cdot 10^{0.55 \cdot I_c + 1.68}$$

(applicable only to $I_c < I_{c\_cutoff}$)

:: Relative Density, Dr (%) ::

$$100 \cdot \sqrt{\frac{Q_{tn}}{k_{DR}}}$$

(applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: State Parameter, ψ ::

$$\psi = 0.56 - 0.33 \cdot \log(Q_{tn,cs})$$

:: Drained Friction Angle, φ (°) ::

(applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: 1-D constrained modulus, M (MPa) ::

If $I_c > 2.20$
$a = 14$ for $Q_{tn} > 14$
$a = Q_{tn}$ for $Q_{tn} \leq 14$
$M_{CPT} = a \cdot (q_t - \sigma_v)$

If $I_c \geq 2.20$

:: Small strain shear Modulus, Go (MPa) ::

$$G_0 = (q_t - \sigma_v) \cdot 0.0188 \cdot 10^{0.55 \cdot I_c + 1.68}$$

:: Shear Wave Velocity, Vs (m/s) ::

$$V_s = \left(\frac{G_0}{\rho}\right)^{0.50}$$

:: Undrained peak shear strength, Su (kPa) ::

$N_{kt} = 10.50 + 7 \cdot \log(F_r)$ or user defined

$$S_u = \frac{(q_t - \sigma_v)}{N_{kt}}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Remolded undrained shear strength, Su(rem) (kPa) ::

$S_{u(rem)} = f_s$ (applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Overconsolidation Ratio, OCR ::

$$k_{OCR} = \left[\frac{Q_{tn}^{0.20}}{0.25 \cdot (10.50 \cdot +7 \cdot \log(F_r))} \right]^{1.25}$$ or user defined

$OCR = k_{OCR} \cdot Q_{tn}$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: In situ Stress Ratio, Ko ::

$$K_O = (1 - \sin\varphi') \cdot OCR^{\sin\varphi'}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Soil Sensitivity, S_t ::

$$S_t = \frac{N_S}{F_r}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Peak Friction Angle, φ' (°) ::

$$\varphi' = 29.5° \cdot B_q^{0.121} \cdot (0.256 + 0.336 \cdot B_q + \log Q_t)$$

(applicable for $0.10 < B_q < 1.00$)

References

• Robertson, P.K., Cabal K.L., Guide to Cone Penetration Testing for Geotechnical Engineering, Gregg Drilling & Testing, Inc., 5 th Edition, November 2012

• Robertson, P.K., Interpretation of Cone Penetration Tests - a unified approach., Can. Geotech. J. 46(11): 1337–1355 (2009)

• N Barounis, J Philpot, Estimation of in-situ water content, void ratio, dry unit weight and porosity using CPT for saturated sands, Proc. 20th NZGS Geotechnical Symposium

Località:

Viale Da Vinci

Comune:

Cesenatico (FC)

RELAZIONE GEOFISICA

OGGETTO:

INDAGINI SISMICHE PASSIVE MEDIANTE TROMOGRAFO DIGITALE “TROMINO”® (METODO NAKAMURA)

STIMA DELLA VS CON MISURA DIRETTA DELLE FREQUENZE DI RISONANZA DA STAZIONE SINGOLA - METODO H/V

Data:

Dicembre 2022

Impresa esecutrice

GEOECOTER associated·engineers

PREMESSA E GENERALITA'

MISURA DIRETTA DELLE FREQUENZE DI RISONANZA

In linea di principio, visto che il suolo è assimilabile ad un corpo viscoelastico, é possibile misurarne le frequenze proprie di oscillazione in ogni punto. Queste frequenze dipendono dalle proprietà meccaniche e dalla morfologia attorno al punto di misura. Per la misura delle frequenze di risonanza solitamente viene applicato al corpo una sollecitazione nota (un impulso), misurando poi la risposta del corpo in termini di spostamenti o accelerazioni. La risposta del suolo può essere studiata in questa maniera utilizzando come funzione di eccitazione le onde di un terremoto o di una sorgente artificiale (sismica attiva).

In alternativa si può utilizzare come funzione di eccitazione il rumore sismico di fondo. (sismica passiva).

Il rumore sismico ambientale viene generato da fenomeni atmosferici (onde oceaniche o vento) e dall'attività antropica. Viene detto anche "microtremore" perché riguarda oscillazioni molto più piccole di quelle indotte dai terremoti. Al rumore di fondo, sempre presente, si sovrappongono le sorgenti locali antropiche e naturali. I microtremori sono in parte costituiti da onde di volume P ed S, in parte da onde di superficiali che hanno velocità prossime a quelle delle onde S.

Il rumore sismico può essere misurato con il tromografo digitale Tromino ed analizzato con il software Grilla.

METODO H/V

Dopo i primi studi di Kanai (1957), diversi metodi sono stati proposti per estrarre l'informazione relativa al sottosuolo dal rumore sismico registrato in un sito. La tecnica maggiormente consolidata, proposta da Nogoshi & Igarashi (1970), prende in esame i rapporti spettrali tra le componenti del moto orizzontale e quella verticale (Horizontal to Vertical Spectra Ratio HVSR o H/V). La tecnica è universalmente riconosciuta come efficace nel fornire la frequenza di risonanza fondamentale del sottosuolo.

L'ampiezza del picco del rapporto H/V, pur essendo legata all'entità del contrasto di impedenza tra gli strati, non è correlabile all'amplificazione sismica in modo semplice.

In un mezzo "semplice ", per es. coltre alterazione + bedrock (o strato assimilabile al bedrock; ad es. argille su ghiaie), dove i parametri sono costanti in ciascuno strato (1-D), i due strati hanno rispettivamente diverse densità ρ_1 e ρ_2 e diverse velocità delle onde sismiche V1 e V2 . Un'onda che viaggia nel mezzo 1 viene parzialmente riflessa dall'interfaccia che separa i due strati. L'onda così riflessa interferisce con quelle incidenti, sommandosi e raggiungendo le ampiezze massime (condizione di risonanza) quando la lunghezza dell'onda incidenti (λ) è 4 volte (o i suoi multipli dispari) lo spessore H del primo strato. Quindi la frequenza fondamentale di risonanza (fr) dello strato 1 relativa alle onde S è pari a:

$$fr = Vs1/4H \qquad (1)$$

Questo effetto è sommabile, anche se non in modo lineare e senza una corrispondenza 1:1. Ciò significa che la curva H/V relativa ad un sistema a più strati contiene l'informazione relativa alle frequenze di risonanza (e quindi allo spessore) di ciascuno di essi, ma non risulta interpretabile applicando semplicemente l'equazione (1). E' necessario applicare il processo di inversione che richiede l'analisi delle singole componenti e del rapporto H/V, che fornisce un'importante normalizzazione del segnale per:

a) contenuto in frequenza

b) risposta strumentale

c) ampiezza del segnale quando le registrazioni vengono effettuate in momenti con rumore di fondo più o meno alto.

I valori assoluti degli spettri orizzontali (H) e verticali (V) variano con il livello assoluto del rumore ambientale (alte frequenze, disturbi "antropici" tipo mezzi in movimento, lavorazioni, calpestio ecc.). Nella pratica si usa H/V perché è un buon normalizzatore e, come ampiamente riconosciuto nella letteratura scientifica internazionale, H/V misura direttamente le frequenze di risonanza dei terreni.

STIMA DI VS A PARTIRE DA MISURE A STAZIONE SINGOLA

L'analisi H/V permette di identificare i contrasti di impedenza tra gli strati. Una coltre di sedimenti sovrastanti un substrato roccioso (bedrock) darà un picco nella funzione H/V. Però anche una coltre di sedimenti fini sopra uno strato di ghiaia può generare un massimo nella funzione H/V. In questo caso lo strato di ghiaia viene in genere indicato come bedrock-like (strato assimilibalile al bedrock) anche se la sua velocità è inferiore agli 800 m/s previsti dalla normativa. Anche questi strati bedrock-like sono in grado di creare fenomeni di intrappolamento d'onde e quindi fenomeni di risonanza, se la discontinuità nelle Vs è netta.

In base alla precedente equazione, il segnale, una volta pulito dagli effetti antropici ad alta frequenza (>30Hz), si può risolvere o conoscendo la Vs del materiale per determinare gli spessori oppure, conoscendo gli spessori, per determinare la Vs.

Quindi risulta indispensabile avere a disposizione dei vincoli da prove dirette del sottosuolo (penetrometrie, carotaggi) per poter associare ai picchi rilevati dalle misure di microtremore dei contrasti di impedenza adeguati, cioè modellare il mezzo geologico affinché rappresenti in maniera attendibile il sottosuolo, cioè strati con spessori e velocità associabili alla curva misurata delle frequenze di risonanza con il rapporto spettrale H/V.

Nel caso semplice di strato omogeneo sopra un bedrock, se da misure dirette è nota la profondità H del bedrock (o bedrock-like) si può calcolare il Vs30 attraverso le misure di fr. Se H>30 m, il valore di Vs30 viene calcolato direttamente dalla [1].

Se H<=30 m, allora:

$$Vs30 = \frac{30}{th + t30\text{-}H} = \frac{30}{(1/fr)+(30\text{-}H)/VB} \qquad [2]$$

dove VB è la velocità delle onde S nel bedrock o bedrock-like.

Valori orientativi di velocità delle onde S sono riportati nella Tabella 1.

Tabella 1. Valori caratteristici delle onde S nei vari tipi di suolo (Borcherdt,1994).

Tipi di suolo	Vs min. (m/s)	Vs med. (m/s)	Vs max. (m/s)
Rocce molto dure (rocce metamorfiche poco fratturate)	1400	1620	-
Rocce dure (graniti,rocce ignee, conglomerati, arenarie ed argilliti da poco a mediamente fratturati)	700	1050	1400
Suoli ghiaiosi e rocce da tenere a dure (rocce sedimentarie tenere, arenarie, argilliti, ghiaie e suoli con più del 20% di ghiaia)	375	540	700
argille compatte e suoli sabbiosi (sabbie da sciolte a molto compatte, limi e argille sabbiose o limose, argille da medie a compatte)	200	290	375
Terreni teneri (terreno di riporto sotto falda, argille da tenere a molto tenere)	100	150	200

MODI DI VIBRARE

Come il sottosuolo, eccitato dalle onde che lo attraversano, presenta più modi di vibrare anche le strutture e gli edifici in c.a. presenta a loro volta delle frequenze di risonanza proprie dell'edificio.

E' indispensabile evitare i fenomeni di doppia risonanza cioè quei casi in cui la frequenza propria del terreno ha picchi con frequenze di risonanza simili o leggermente inferiori a quelle dell'edificio.

Condizione ideale sarebbe data da una risonanza dell'edificio a frequenze minori di quelle del sottosuolo. Se le risonanze suolo-struttura coincidono la situazione è problematica dal punto di vista della vulnerabilità sismica, così come se la risonanza della struttura è a frequenze di poco superiore a quelle del sottosuolo la situazione è ugualmente problematica perché :

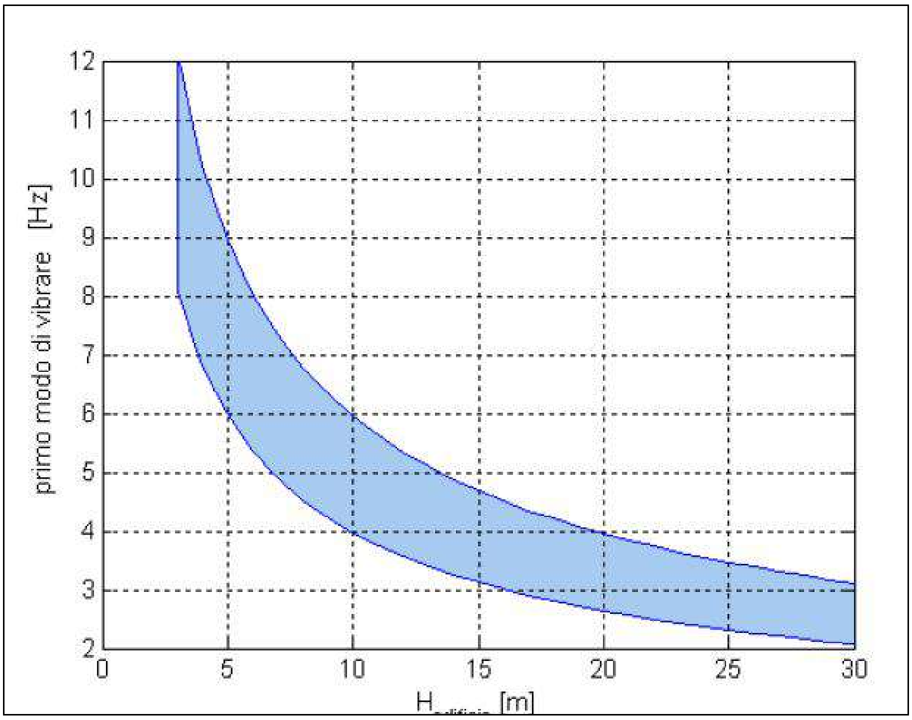
gli edifici con il proprio danneggiamento diminuiscono la loro frequenza di risonanza propria,

il sottosuolo può manifestare modi di vibrare di ampiezza maggiore e a frequenza maggiore rispetto a quella visibile con i microtremori.

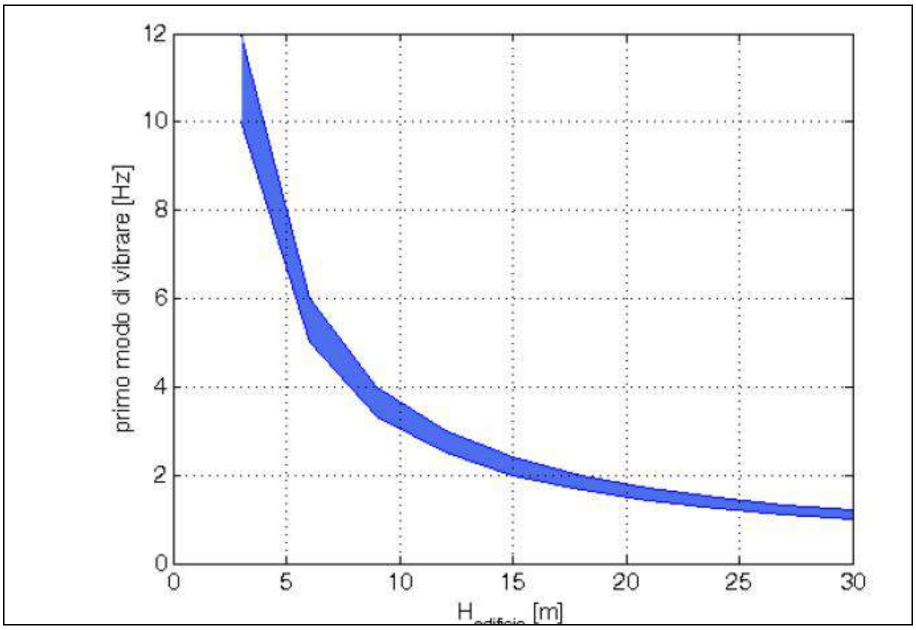
Quindi è opportuno che la frequenza di risonanza della struttura risulti sempre inferiore al picco di risonanza del terreno od almeno al di fuori del 40% dell'ampiezza del picco di risonanza del terreno.

Si allega di seguito il grafico semplificato che mette in relazione la frequenza di risonanza teorica per edifici in relazione alla loro altezza in metri, in modo da poter confrontare in maniera speditiva se sono possibili fenomeni di doppia risonanza (da "Tecniche di sismica passiva e attiva", Silvia Castellaro, 2010).

RELAZIONE TIPICA ALTEZZA EDIFICIO - I MODO FLESSIONALE



I modo vibrare edifici c.a. in funzinoe h

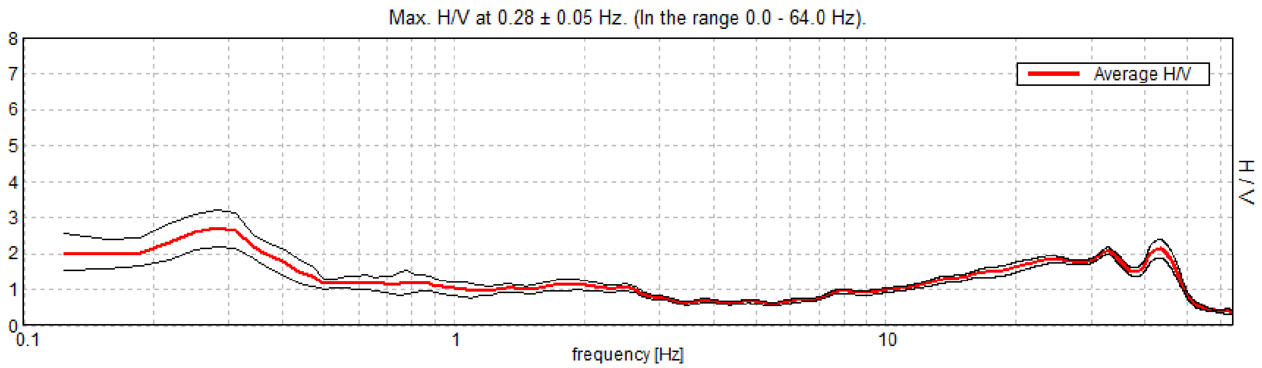


I modo vibrare edifici muratura in funzione h

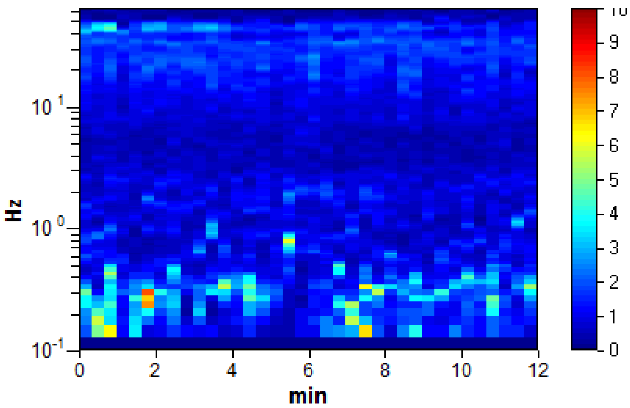
VIALE DAVINCI CESENATICO,

Instrument: TRZ-0194/01-12
Data format: 16 byte
Full scale [mV]: n.a.
Start recording: 14/12/22 11:33:41 End recording: 14/12/22 11:45:41
Channel labels: NORTH SOUTH; EAST WEST ; UP DOWN
GPS data not available
Trace length: 0h12'00". Analysis performed on the entire trace.
Sampling rate: 128 Hz
Window size: 20 s
Smoothing type: Triangular window
Smoothing: 10%

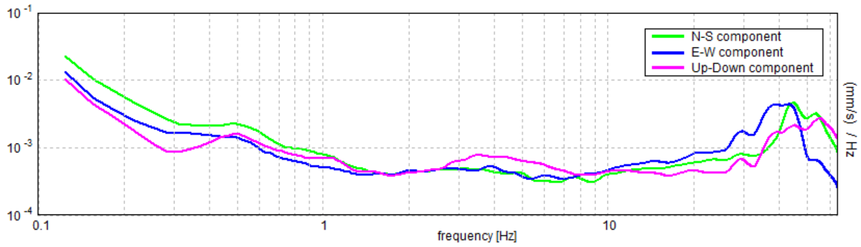
HORIZONTAL TO VERTICAL SPECTRAL RATIO



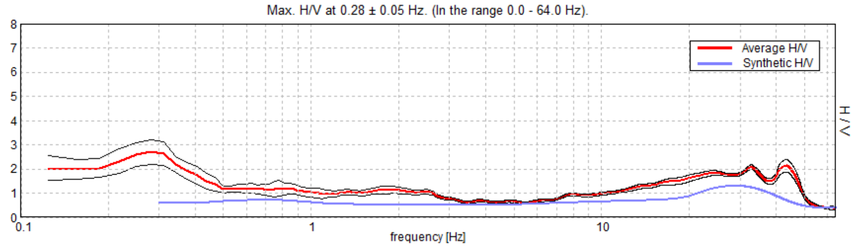
H/V TIME HISTORY



SINGLE COMPONENT SPECTRA

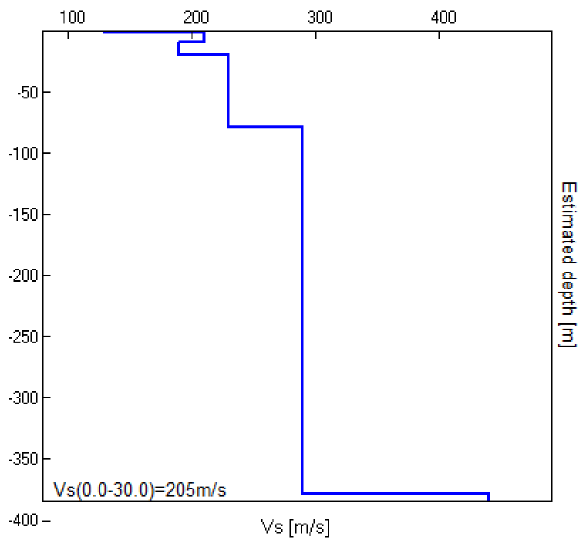


EXPERIMENTAL vs. SYNTHETIC H/V



Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.00	1.00	130	0.42
8.90	7.90	210	0.42
18.90	10.00	190	0.42
78.90	60.00	230	0.42
378.90	300.00	290	0.42
inf.	inf.	440	0.42

Vs(0.0-30.0)=205m/s



[According to the SESAME, 2005 guidelines. **Please read carefully the *Grilla* manual before interpreting the following tables**.]

Max. H/V at 0.28 ± 0.05 Hz (in the range 0.0 - 64.0 Hz).

Criteria for a reliable H/V curve [All 3 should be fulfilled]			
$f_0 > 10 / L_w$	0.28 > 0.50		NO
$n_c(f_0) > 200$	202.5 > 200	OK	
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5Hz$ **$\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5Hz$**	Exceeded 0 out of 14 times	OK	
Criteria for a clear H/V peak [At least 5 out of 6 should be fulfilled]			
Exists f^- in $[f_0/4, f_0]$ | $A_{H/V}(f^-) < A_0 / 2$	0.094 Hz	OK	
Exists f^+ in $[f_0, 4f_0]$ | $A_{H/V}(f^+) < A_0 / 2$	0.5 Hz	OK	
$A_0 > 2$	2.70 > 2	OK	
$f_{peak}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	|0.1805| < 0.05		NO
$\sigma_f < \varepsilon(f_0)$	0.05076 < 0.05625	OK	
$\sigma_A(f_0) < \theta(f_0)$	0.5055 < 2.5	OK	

L_w	window length
n_w	number of windows used in the analysis
$n_c = L_w n_w f_0$	number of significant cycles
f	current frequency
f_0	H/V peak frequency
σ_f	standard deviation of H/V peak frequency
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$
A_0	H/V peak amplitude at frequency f_0
$A_{H/V}(f)$	H/V curve amplitude at frequency f
f^-	frequency between $f_0/4$ and f_0 for which $A_{H/V}(f^-) < A_0/2$
f^+	frequency between f_0 and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$, $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided
$\sigma_{logH/V}(f)$	standard deviation of log $A_{H/V}(f)$ curve
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$

Threshold values for σ_f and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 f_0	0.2 f_0	0.15 f_0	0.10 f_0	0.05 f_0
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
log $\theta(f_0)$ for $\sigma_{logH/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

Con la determinazione delle onde di taglio vs i terreni indagati vengono inseriti in una delle seguenti categorie di sottosuolo (N.T.C. 2018 _ Tabella 3.2.II e Tabella 3.2.III):

CATEGORIE DI SOTTOSUOLO

A - *Ammassi rocciosi affioranti o terreni molto rigidi caratterizzati da valori di $V_{s,30}$ superiori a 800 m/s, eventualmente comprendenti in superficie uno strato di alterazione, con spessore massimo pari a 3 m.*
B - *Rocce tenere e depositi di terreni a grana grossa molto addensati o terreni a grana fina molto consistenti con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 360 m/s e 800 m/s*
C - *Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 180 m/s e 360 m/s*
D - *Depositi di terreni a grana grossa scarsamente addensati o di terreni a grana fina scarsamente consistenti, con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ tra 100 e 180 m/s*
E - *Terreni con caratteristiche e valori di velocità equivalente riconducibili a quelle definite per le categorie C o D con profondità del substrato non superiore a 30 m.*

CONFIZIONI TOPOGRAFICHE

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i ≤ 15°.
T2 - Pendii con inclinazione media i > 15°.
T3 - Rilievi con larghezza in cresta molto minore che alla base e inclinazione media 15° ≤ i ≤ 30°.
T4 - Rilievi con larghezza in cresta molto minore che alla base e inclinazione media i > 30°.

RISULTATI INDAGINE

Dall'analisi si può affermare che il sito è caratterizzato da una velocità equivalente delle onde di Vseq = 205 m/sec, calcolata dalla profondità di 0,00mt. ÷ 30,00 mt., corrispondente ad un terreno di tipo C.

T A B L E   O F   C O N T E N T S

Geocoter scarl
Geotechnical Engineers
Montepetra Sogliano al Rubicone
https://www.archilovers.com/aride-bucci/

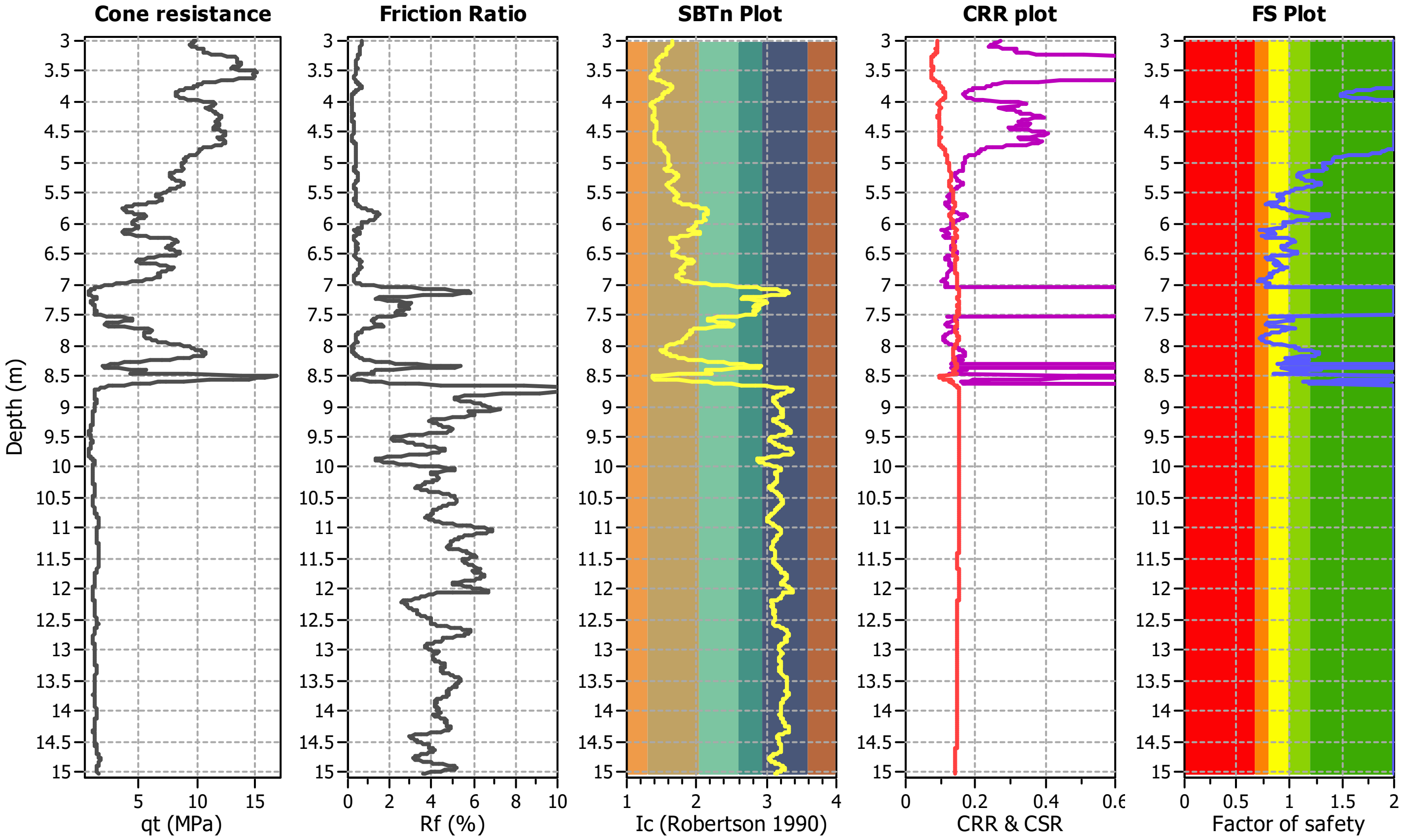
LIQUEFACTION ANALYSIS REPORT

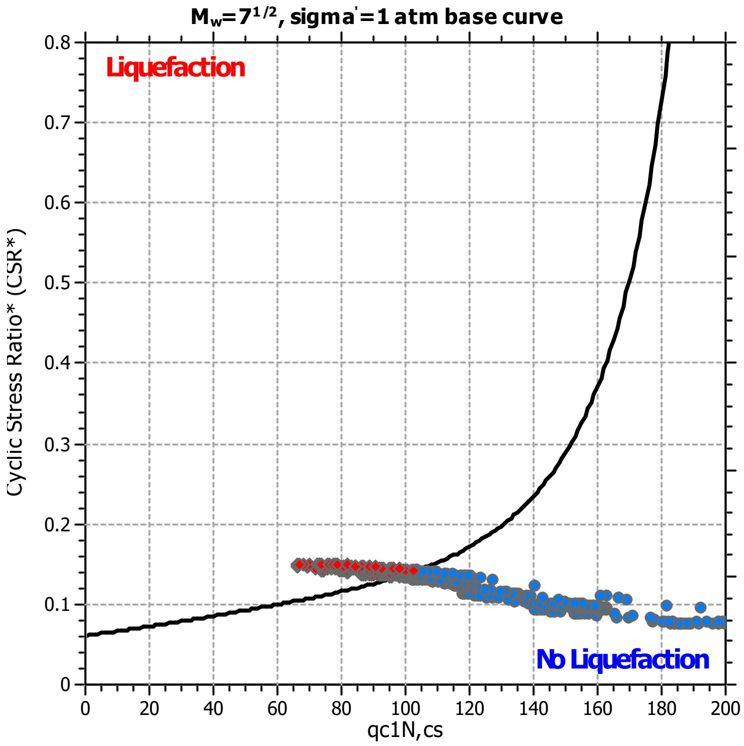
Project title : liquefazione **Location : Viale da Vinci Cesenatico**

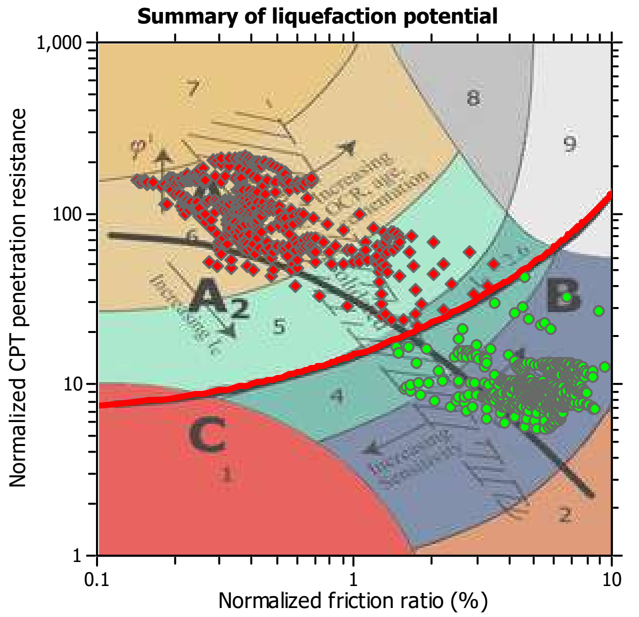
CPT file : cptu1

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.18	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

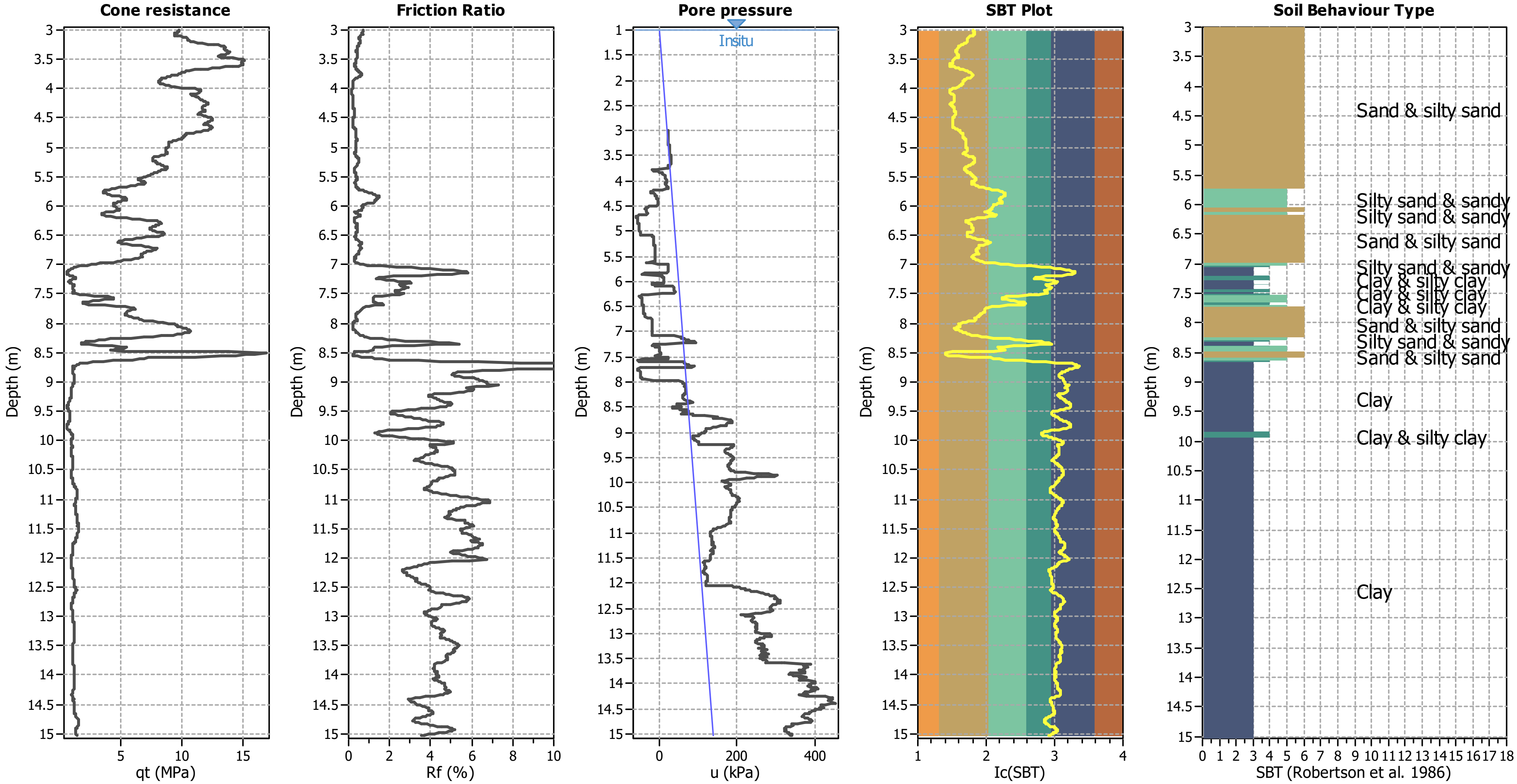






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



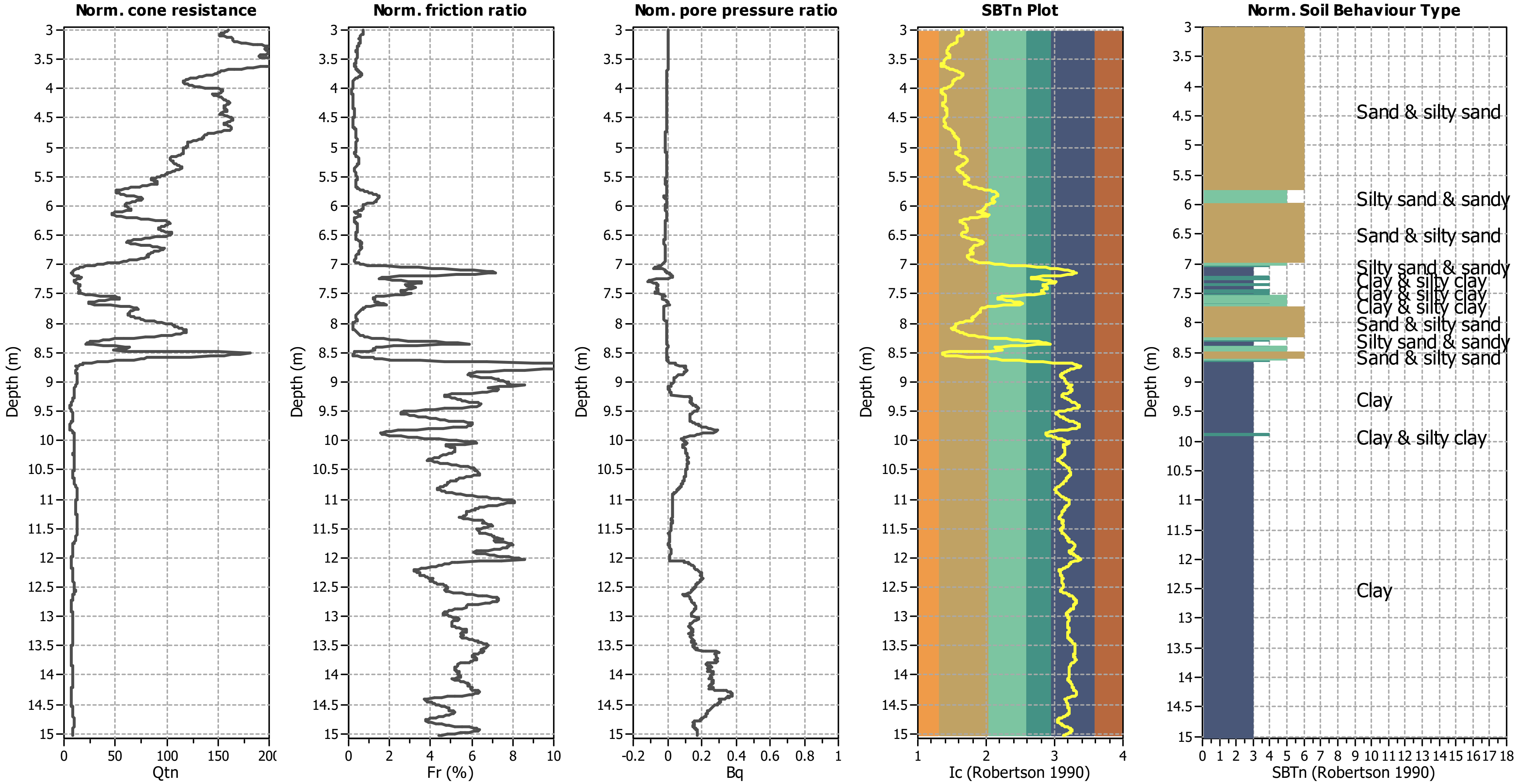
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



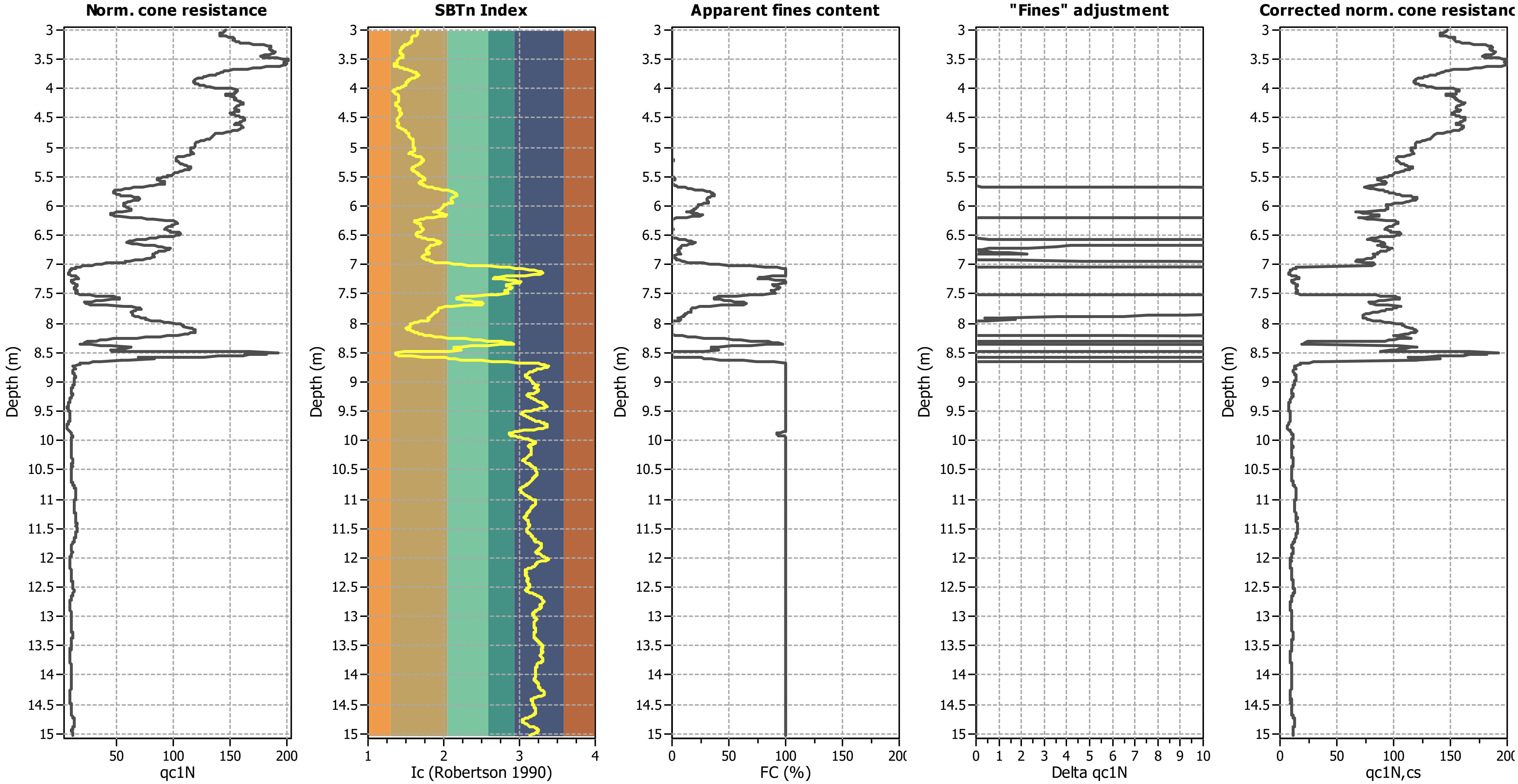
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn legend

- 1. Sensitive fine grained
- 2. Organic material
- 3. Clay to silty clay
- 4. Clayey silt to silty
- 5. Silty sand to sandy silt
- 6. Clean sand to silty sand
- 7. Gravely sand to sand
- 8. Very stiff sand to
- 9. Very stiff fine grained

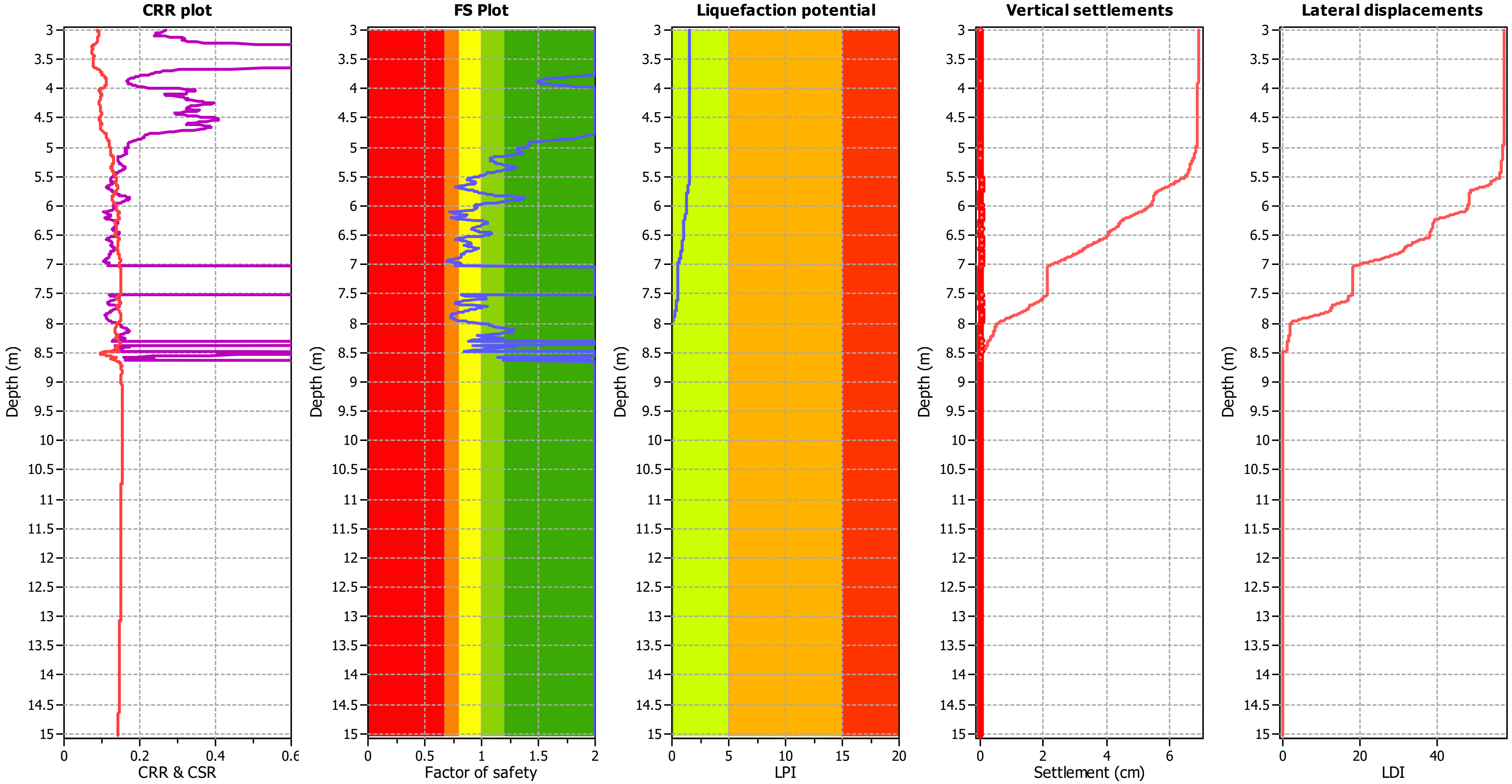
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

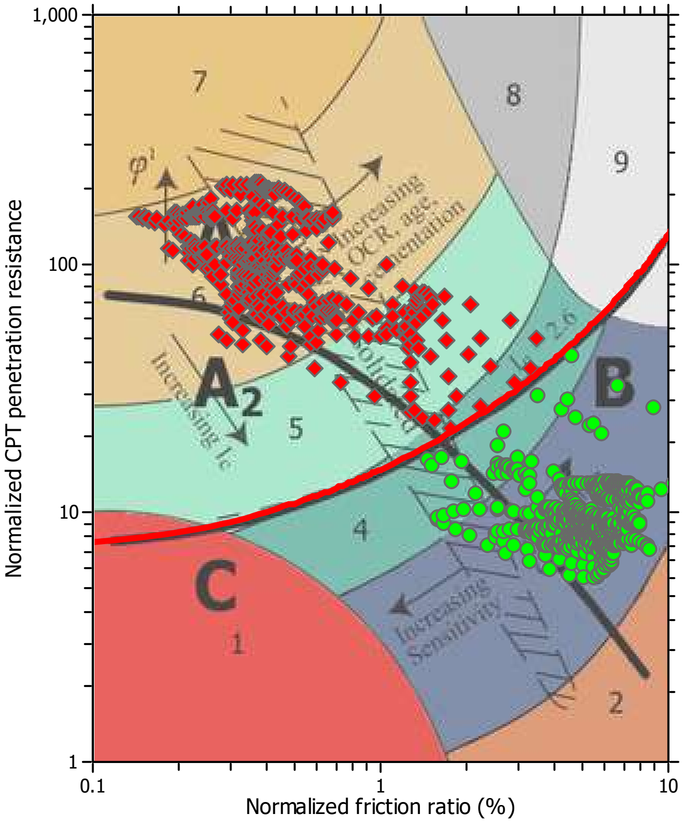
F.S. color scheme

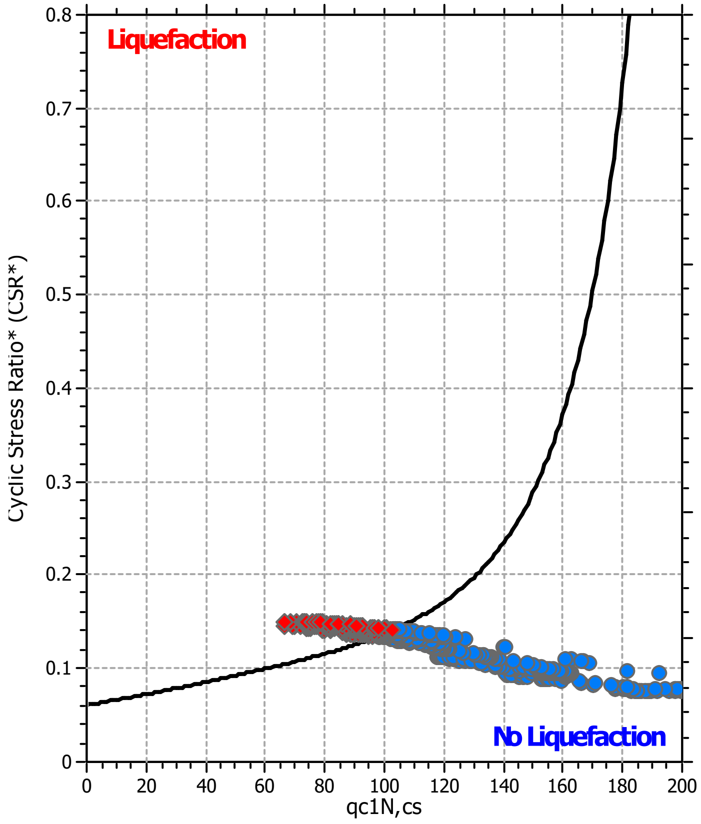
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

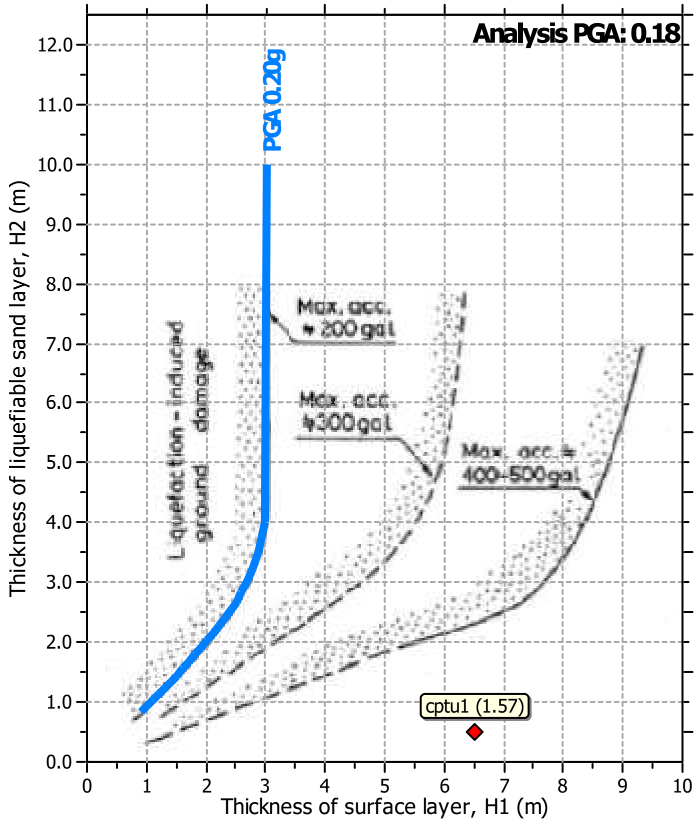
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



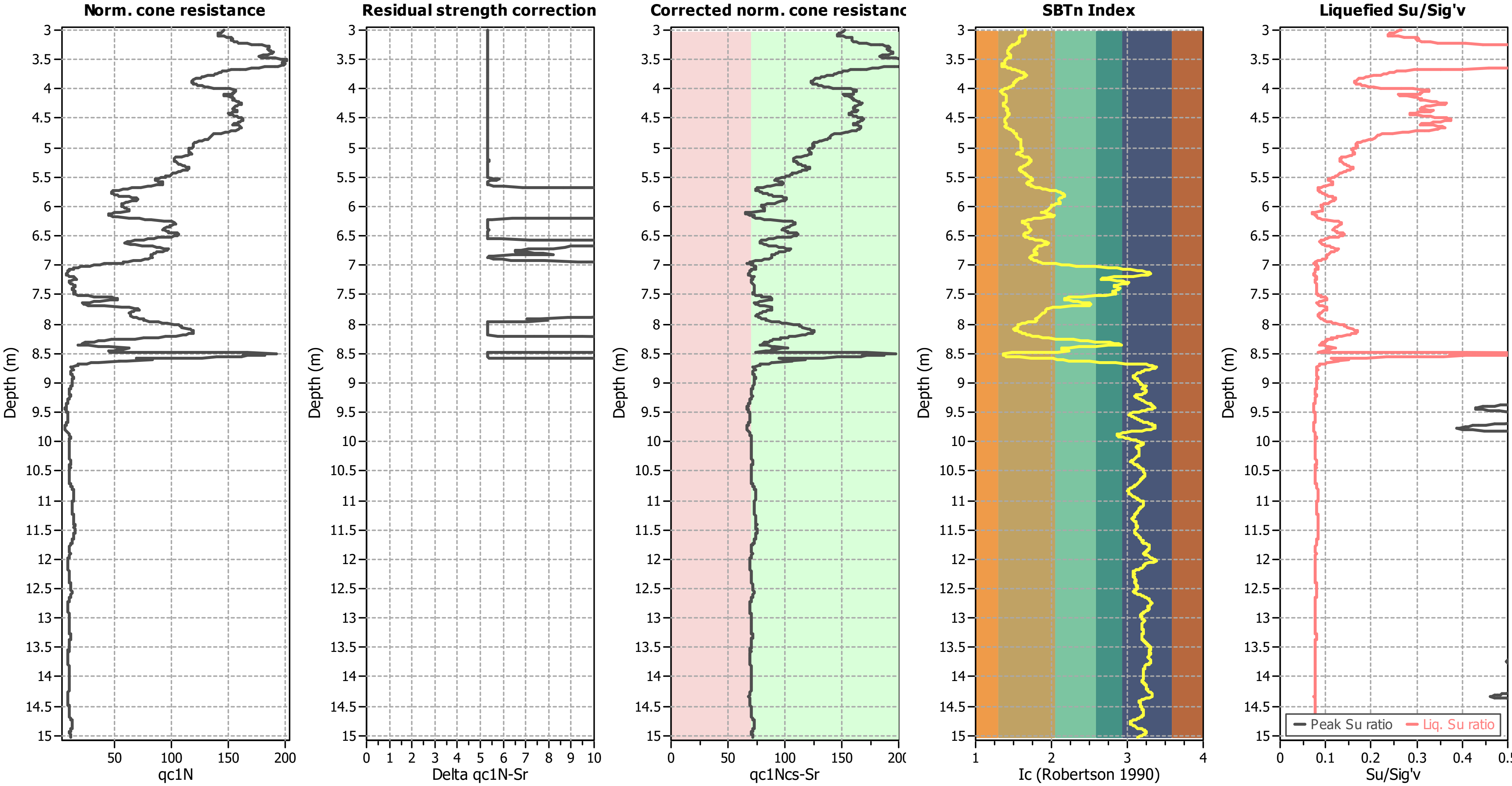




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.18	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	3.00	9.84	0.00	1.65	0.41	1.51	147.10	0.00	147.10	0.271	No	No	2.00
2	3.01	9.81	0.00	1.65	0.41	1.51	146.87	0.00	146.87	0.269	No	No	2.00
3	3.02	9.77	0.00	1.65	0.41	1.52	145.69	0.00	145.69	0.263	No	No	2.00
4	3.03	9.70	0.00	1.65	0.41	1.51	145.57	0.00	145.57	0.262	No	No	2.00
5	3.04	9.62	0.00	1.65	0.41	1.52	143.79	0.00	143.79	0.253	No	No	2.00
6	3.05	9.52	0.00	1.66	0.41	1.52	142.72	0.00	142.72	0.247	No	No	2.00
7	3.06	9.47	0.00	1.66	0.42	1.52	141.65	0.00	141.65	0.242	No	No	2.00
8	3.07	9.44	0.00	1.66	0.42	1.52	141.54	0.00	141.54	0.242	No	No	2.00
9	3.08	9.43	0.00	1.65	0.42	1.52	141.43	0.00	141.43	0.241	No	No	2.00
10	3.09	9.48	0.00	1.63	0.42	1.52	140.84	0.00	140.84	0.238	No	No	2.00
11	3.10	9.63	0.00	1.61	0.41	1.51	143.13	0.00	143.13	0.249	No	No	2.00
12	3.11	9.85	0.00	1.60	0.41	1.50	146.23	0.00	146.23	0.266	No	No	2.00
13	3.12	10.15	0.00	1.59	0.40	1.49	148.49	0.00	148.49	0.279	No	No	2.00
14	3.13	10.38	0.00	1.58	0.40	1.48	153.30	0.00	153.30	0.312	No	No	2.00
15	3.14	10.55	0.00	1.57	0.39	1.48	154.24	0.00	154.24	0.320	No	No	2.00
16	3.15	10.56	0.00	1.57	0.39	1.48	154.13	0.00	154.13	0.319	No	No	2.00
17	3.16	10.54	0.00	1.57	0.40	1.48	153.09	0.00	153.09	0.311	No	No	2.00
18	3.17	10.54	0.00	1.57	0.40	1.48	153.33	0.00	153.33	0.312	No	No	2.00
19	3.18	10.61	0.00	1.57	0.40	1.47	153.80	0.00	153.80	0.316	No	No	2.00
20	3.19	10.69	0.00	1.57	0.39	1.47	155.08	0.00	155.08	0.326	No	No	2.00
21	3.20	10.81	0.00	1.57	0.39	1.47	156.02	0.00	156.02	0.334	No	No	2.00
22	3.21	10.96	0.00	1.57	0.39	1.46	157.64	0.00	157.64	0.349	No	No	2.00
23	3.22	11.28	0.00	1.55	0.39	1.45	159.94	0.00	159.94	0.371	No	No	2.00
24	3.23	11.66	0.00	1.54	0.37	1.44	166.56	0.00	166.56	0.451	No	No	2.00
25	3.24	12.18	0.00	1.52	0.37	1.43	170.28	0.00	170.28	0.509	No	No	2.00
26	3.25	12.59	0.00	1.50	0.36	1.42	177.68	0.00	177.68	0.664	No	No	2.00
27	3.26	12.97	0.00	1.48	0.36	1.41	180.46	0.00	180.46	0.741	No	No	2.00
28	3.27	13.23	0.00	1.47	0.35	1.40	183.13	0.00	183.13	0.827	No	No	2.00
29	3.28	13.43	0.00	1.46	0.35	1.40	186.11	0.00	186.11	0.941	No	No	2.00
30	3.29	13.54	0.00	1.45	0.35	1.39	186.65	0.00	186.65	0.964	No	No	2.00
31	3.30	13.54	0.00	1.45	0.35	1.39	186.42	0.00	186.42	0.954	No	No	2.00
32	3.31	13.48	0.00	1.45	0.35	1.39	185.64	0.00	185.64	0.922	No	No	2.00
33	3.32	13.44	0.00	1.44	0.35	1.40	184.53	0.00	184.53	0.878	No	No	2.00
34	3.33	13.46	0.00	1.44	0.35	1.39	184.52	0.00	184.52	0.878	No	No	2.00
35	3.34	13.57	0.00	1.43	0.35	1.39	186.17	0.00	186.17	0.944	No	No	2.00
36	3.35	13.71	0.00	1.42	0.35	1.39	187.60	0.00	187.60	1.006	No	No	2.00
37	3.36	13.82	0.00	1.42	0.35	1.38	188.80	0.00	188.80	1.064	No	No	2.00
38	3.37	13.90	0.00	1.42	0.34	1.38	189.56	0.00	189.56	1.102	No	No	2.00
39	3.38	13.91	0.00	1.42	0.34	1.38	189.66	0.00	189.66	1.108	No	No	2.00
40	3.39	13.88	0.00	1.43	0.35	1.38	188.99	0.00	188.99	1.073	No	No	2.00
41	3.40	13.76	0.00	1.44	0.35	1.38	188.11	0.00	188.11	1.030	No	No	2.00
42	3.41	13.61	0.00	1.44	0.35	1.38	185.47	0.00	185.47	0.914	No	No	2.00
43	3.42	13.41	0.00	1.45	0.35	1.39	183.48	0.00	183.48	0.839	No	No	2.00
44	3.43	13.20	0.00	1.46	0.36	1.39	181.15	0.00	181.15	0.761	No	No	2.00
45	3.44	13.05	0.00	1.47	0.36	1.39	177.76	0.00	177.76	0.666	No	No	2.00
46	3.45	13.04	0.00	1.47	0.36	1.39	177.87	0.00	177.87	0.669	No	No	2.00
47	3.46	13.21	0.00	1.46	0.36	1.39	180.36	0.00	180.36	0.738	No	No	2.00
48	3.47	13.64	0.00	1.44	0.35	1.38	183.56	0.00	183.56	0.842	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	3.48	14.13	0.00	1.42	0.34	1.37	191.99	0.00	191.99	1.240	No	No	2.00
50	3.49	14.68	0.00	1.41	0.34	1.36	196.21	0.00	196.21	1.538	No	No	2.00
51	3.50	14.99	0.00	1.40	0.33	1.35	201.15	0.00	201.15	2.020	No	No	2.00
52	3.51	15.15	0.00	1.39	0.33	1.35	201.68	0.00	201.68	2.082	No	No	2.00
53	3.52	15.12	0.00	1.39	0.33	1.35	201.02	0.00	201.02	2.005	No	No	2.00
54	3.53	15.01	0.00	1.39	0.33	1.35	199.84	0.00	199.84	1.874	No	No	2.00
55	3.54	14.93	0.00	1.39	0.33	1.35	197.89	0.00	197.89	1.683	No	No	2.00
56	3.55	14.89	0.00	1.39	0.33	1.35	197.89	0.00	197.89	1.683	No	No	2.00
57	3.56	14.94	0.00	1.38	0.33	1.35	198.20	0.00	198.20	1.712	No	No	2.00
58	3.57	15.01	0.00	1.37	0.33	1.34	199.17	0.00	199.17	1.805	No	No	2.00
59	3.58	15.06	0.00	1.35	0.33	1.34	199.80	0.00	199.80	1.871	No	No	2.00
60	3.59	15.05	0.00	1.34	0.33	1.34	199.69	0.00	199.69	1.859	No	No	2.00
61	3.60	14.90	0.00	1.34	0.33	1.34	198.40	0.00	198.40	1.731	No	No	2.00
62	3.61	14.64	0.00	1.35	0.34	1.35	194.53	0.00	194.53	1.408	No	No	2.00
63	3.62	14.16	0.00	1.37	0.34	1.35	191.06	0.00	191.06	1.185	No	No	2.00
64	3.63	13.64	0.00	1.40	0.35	1.36	182.20	0.00	182.20	0.795	No	No	2.00
65	3.64	13.06	0.00	1.43	0.36	1.37	176.84	0.00	176.84	0.643	No	No	2.00
66	3.65	12.58	0.00	1.45	0.37	1.38	171.21	0.00	171.21	0.525	No	No	2.00
67	3.66	12.11	0.00	1.47	0.38	1.39	165.87	0.00	165.87	0.441	No	No	2.00
68	3.67	11.56	0.00	1.50	0.38	1.40	160.83	0.00	160.83	0.380	No	No	2.00
69	3.68	11.08	0.00	1.52	0.40	1.41	152.32	0.00	152.32	0.305	No	No	2.00
70	3.69	10.64	0.00	1.55	0.40	1.42	149.35	0.00	149.35	0.285	No	No	2.00
71	3.70	10.41	0.00	1.58	0.41	1.43	145.56	0.00	145.56	0.262	No	No	2.00
72	3.71	10.24	0.00	1.60	0.41	1.43	144.07	0.00	144.07	0.254	No	No	2.00
73	3.72	10.14	0.00	1.61	0.41	1.43	143.04	0.00	143.04	0.249	No	No	2.00
74	3.73	10.04	0.00	1.63	0.42	1.43	142.01	0.00	142.01	0.244	No	No	2.00
75	3.74	9.93	0.00	1.64	0.42	1.43	140.16	0.00	140.16	0.235	No	No	2.00
76	3.75	9.80	0.00	1.65	0.42	1.43	138.78	0.00	138.78	0.229	No	No	2.00
77	3.76	9.65	0.00	1.66	0.42	1.44	137.39	0.00	137.39	0.224	No	No	2.00
78	3.77	9.47	0.00	1.66	0.43	1.44	134.35	0.00	134.35	0.212	No	No	2.00
79	3.78	9.24	0.00	1.66	0.43	1.45	132.49	0.00	132.49	0.206	No	No	1.97
80	3.79	9.05	0.00	1.65	0.44	1.45	129.07	0.00	129.07	0.195	No	No	1.84
81	3.80	8.86	0.00	1.63	0.44	1.45	127.31	0.00	127.31	0.190	No	No	1.77
82	3.81	8.71	0.00	1.62	0.45	1.46	125.31	0.00	125.31	0.184	No	No	1.71
83	3.82	8.57	0.00	1.60	0.45	1.46	123.43	0.00	123.43	0.179	No	No	1.65
84	3.83	8.42	0.00	1.58	0.45	1.46	121.90	0.00	121.90	0.176	No	No	1.60
85	3.84	8.33	0.00	1.56	0.46	1.47	119.77	0.00	119.77	0.171	No	No	1.54
86	3.85	8.24	0.00	1.54	0.46	1.47	119.81	0.00	119.81	0.171	No	No	1.54
87	3.86	8.20	0.00	1.53	0.46	1.47	118.70	0.00	118.70	0.169	No	No	1.51
88	3.87	8.15	0.00	1.52	0.46	1.47	118.13	0.00	118.13	0.167	No	No	1.49
89	3.88	8.15	0.00	1.52	0.46	1.47	117.93	0.00	117.93	0.167	No	No	1.49
90	3.89	8.18	0.00	1.51	0.46	1.47	118.23	0.00	118.23	0.168	No	No	1.49
91	3.90	8.23	0.00	1.51	0.46	1.47	119.00	0.00	119.00	0.169	No	No	1.51
92	3.91	8.28	0.00	1.51	0.46	1.46	119.54	0.00	119.54	0.170	No	No	1.52
93	3.92	8.39	0.00	1.51	0.46	1.46	120.07	0.00	120.07	0.172	No	No	1.54
94	3.93	8.51	0.00	1.50	0.45	1.45	122.33	0.00	122.33	0.177	No	No	1.60
95	3.94	8.71	0.00	1.49	0.45	1.45	123.57	0.00	123.57	0.180	No	No	1.63
96	3.95	8.92	0.00	1.48	0.44	1.44	126.95	0.00	126.95	0.189	No	No	1.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	3.96	9.19	0.00	1.47	0.44	1.43	129.47	0.00	129.47	0.196	No	No	1.82
98	3.97	9.49	0.00	1.45	0.43	1.42	132.81	0.00	132.81	0.207	No	No	1.95
99	3.98	10.01	0.00	1.43	0.42	1.41	137.29	0.00	137.29	0.223	No	No	2.00
100	3.99	10.57	0.00	1.40	0.41	1.39	147.47	0.00	147.47	0.273	No	No	2.00
101	4.00	11.09	0.00	1.38	0.40	1.38	151.94	0.00	151.94	0.302	No	No	2.00
102	4.01	11.38	0.00	1.36	0.39	1.38	154.91	0.00	154.91	0.325	No	No	2.00
103	4.02	11.55	0.00	1.34	0.39	1.37	157.19	0.00	157.19	0.345	No	No	2.00
104	4.03	11.59	0.00	1.33	0.39	1.37	157.33	0.00	157.33	0.346	No	No	2.00
105	4.04	11.55	0.00	1.34	0.39	1.37	156.12	0.00	156.12	0.335	No	No	2.00
106	4.05	11.48	0.00	1.34	0.39	1.37	155.37	0.00	155.37	0.329	No	No	2.00
107	4.06	11.45	0.00	1.35	0.39	1.37	154.83	0.00	154.83	0.324	No	No	2.00
108	4.07	11.43	0.00	1.35	0.39	1.37	154.75	0.00	154.75	0.324	No	No	2.00
109	4.08	11.18	0.00	1.36	0.39	1.37	154.67	0.00	154.67	0.323	No	No	2.00
110	4.09	10.93	0.00	1.37	0.41	1.39	146.08	0.00	146.08	0.265	No	No	2.00
111	4.10	10.70	0.00	1.39	0.41	1.39	145.89	0.00	145.89	0.264	No	No	2.00
112	4.11	10.81	0.00	1.40	0.41	1.38	146.72	0.00	146.72	0.269	No	No	2.00
113	4.12	11.02	0.00	1.40	0.40	1.38	149.59	0.00	149.59	0.286	No	No	2.00
114	4.13	11.21	0.00	1.40	0.40	1.37	152.56	0.00	152.56	0.307	No	No	2.00
115	4.14	11.33	0.00	1.40	0.40	1.37	152.93	0.00	152.93	0.309	No	No	2.00
116	4.15	11.39	0.00	1.40	0.40	1.37	153.63	0.00	153.63	0.315	No	No	2.00
117	4.16	11.46	0.00	1.40	0.40	1.36	154.22	0.00	154.22	0.319	No	No	2.00
118	4.17	11.49	0.00	1.40	0.39	1.36	155.03	0.00	155.03	0.326	No	No	2.00
119	4.18	11.53	0.00	1.40	0.39	1.36	154.61	0.00	154.61	0.323	No	No	2.00
120	4.19	11.56	0.00	1.41	0.39	1.36	155.20	0.00	155.20	0.327	No	No	2.00
121	4.20	11.68	0.00	1.41	0.39	1.36	156.01	0.00	156.01	0.334	No	No	2.00
122	4.21	11.82	0.00	1.41	0.39	1.35	158.27	0.00	158.27	0.355	No	No	2.00
123	4.22	11.95	0.00	1.40	0.39	1.35	159.52	0.00	159.52	0.367	No	No	2.00
124	4.23	12.05	0.00	1.39	0.39	1.35	160.32	0.00	160.32	0.375	No	No	2.00
125	4.24	12.14	0.00	1.38	0.38	1.35	161.34	0.00	161.34	0.386	No	No	2.00
126	4.25	12.19	0.00	1.36	0.38	1.34	162.26	0.00	162.26	0.396	No	No	2.00
127	4.26	12.15	0.00	1.36	0.38	1.34	161.73	0.00	161.73	0.390	No	No	2.00
128	4.27	12.02	0.00	1.37	0.39	1.35	159.76	0.00	159.76	0.369	No	No	2.00
129	4.28	11.90	0.00	1.37	0.39	1.35	157.67	0.00	157.67	0.349	No	No	2.00
130	4.29	11.80	0.00	1.38	0.39	1.35	157.36	0.00	157.36	0.346	No	No	2.00
131	4.30	11.75	0.00	1.39	0.39	1.35	156.27	0.00	156.27	0.336	No	No	2.00
132	4.31	11.69	0.00	1.40	0.39	1.35	155.63	0.00	155.63	0.331	No	No	2.00
133	4.32	11.66	0.00	1.40	0.39	1.35	155.21	0.00	155.21	0.327	No	No	2.00
134	4.33	11.64	0.00	1.42	0.39	1.35	154.79	0.00	154.79	0.324	No	No	2.00
135	4.34	11.65	0.00	1.42	0.39	1.35	154.70	0.00	154.70	0.323	No	No	2.00
136	4.35	11.73	0.00	1.42	0.39	1.35	155.29	0.00	155.29	0.328	No	No	2.00
137	4.36	11.85	0.00	1.42	0.39	1.34	157.10	0.00	157.10	0.344	No	No	2.00
138	4.37	11.93	0.00	1.41	0.39	1.34	158.57	0.00	158.57	0.357	No	No	2.00
139	4.38	11.90	0.00	1.42	0.39	1.34	157.70	0.00	157.70	0.349	No	No	2.00
140	4.39	11.78	0.00	1.42	0.39	1.34	155.95	0.00	155.95	0.334	No	No	2.00
141	4.40	11.64	0.00	1.43	0.40	1.34	154.19	0.00	154.19	0.319	No	No	2.00
142	4.41	11.50	0.00	1.43	0.40	1.34	152.87	0.00	152.87	0.309	No	No	2.00
143	4.42	11.41	0.00	1.43	0.40	1.35	150.77	0.00	150.77	0.294	No	No	2.00
144	4.43	11.38	0.00	1.44	0.40	1.35	151.03	0.00	151.03	0.296	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	4.44	11.48	0.00	1.44	0.40	1.34	151.73	0.00	151.73	0.301	No	No	2.00
146	4.45	11.61	0.00	1.43	0.40	1.34	153.65	0.00	153.65	0.315	No	No	2.00
147	4.46	11.80	0.00	1.42	0.39	1.34	155.24	0.00	155.24	0.328	No	No	2.00
148	4.47	11.98	0.00	1.42	0.39	1.33	157.93	0.00	157.93	0.351	No	No	2.00
149	4.48	12.17	0.00	1.41	0.39	1.33	159.17	0.00	159.17	0.363	No	No	2.00
150	4.49	12.30	0.00	1.40	0.38	1.32	161.29	0.00	161.29	0.385	No	No	2.00
151	4.50	12.42	0.00	1.39	0.38	1.32	162.20	0.00	162.20	0.396	No	No	2.00
152	4.51	12.49	0.00	1.39	0.38	1.32	162.88	0.00	162.88	0.403	No	No	2.00
153	4.52	12.52	0.00	1.39	0.38	1.32	163.35	0.00	163.35	0.409	No	No	2.00
154	4.53	12.51	0.00	1.39	0.38	1.32	163.15	0.00	163.15	0.407	No	No	2.00
155	4.54	12.47	0.00	1.39	0.38	1.32	162.19	0.00	162.19	0.395	No	No	2.00
156	4.55	12.40	0.00	1.39	0.38	1.32	161.77	0.00	161.77	0.391	No	No	2.00
157	4.56	12.30	0.00	1.39	0.39	1.32	160.59	0.00	160.59	0.378	No	No	2.00
158	4.57	12.18	0.00	1.39	0.39	1.32	158.74	0.00	158.74	0.359	No	No	2.00
159	4.58	12.02	0.00	1.40	0.39	1.32	157.55	0.00	157.55	0.348	No	No	2.00
160	4.59	11.91	0.00	1.40	0.39	1.33	155.03	0.00	155.03	0.326	No	No	2.00
161	4.60	11.85	0.00	1.40	0.40	1.33	154.62	0.00	154.62	0.323	No	No	2.00
162	4.61	11.97	0.00	1.40	0.39	1.32	155.54	0.00	155.54	0.330	No	No	2.00
163	4.62	12.14	0.00	1.40	0.39	1.32	158.77	0.00	158.77	0.359	No	No	2.00
164	4.63	12.32	0.00	1.39	0.39	1.31	160.01	0.00	160.01	0.372	No	No	2.00
165	4.64	12.42	0.00	1.39	0.38	1.31	161.24	0.00	161.24	0.385	No	No	2.00
166	4.65	12.47	0.00	1.40	0.38	1.31	161.71	0.00	161.71	0.390	No	No	2.00
167	4.66	12.47	0.00	1.41	0.38	1.31	161.51	0.00	161.51	0.388	No	No	2.00
168	4.67	12.41	0.00	1.43	0.39	1.31	160.77	0.00	160.77	0.380	No	No	2.00
169	4.68	12.35	0.00	1.45	0.39	1.31	159.80	0.00	159.80	0.370	No	No	2.00
170	4.69	12.25	0.00	1.47	0.39	1.31	159.27	0.00	159.27	0.364	No	No	2.00
171	4.70	12.13	0.00	1.48	0.39	1.31	157.09	0.00	157.09	0.344	No	No	2.00
172	4.71	11.96	0.00	1.49	0.39	1.31	155.79	0.00	155.79	0.332	No	No	2.00
173	4.72	11.75	0.00	1.50	0.40	1.32	153.16	0.00	153.16	0.311	No	No	2.00
174	4.73	11.53	0.00	1.50	0.40	1.32	150.08	0.00	150.08	0.289	No	No	2.00
175	4.74	11.24	0.00	1.51	0.41	1.32	147.99	0.00	147.99	0.276	No	No	2.00
176	4.75	10.92	0.00	1.52	0.41	1.33	143.32	0.00	143.32	0.250	No	No	2.00
177	4.76	10.63	0.00	1.53	0.42	1.34	139.07	0.00	139.07	0.231	No	No	2.00
178	4.77	10.43	0.00	1.54	0.42	1.34	137.86	0.00	137.86	0.226	No	No	2.00
179	4.78	10.34	0.00	1.54	0.43	1.34	136.31	0.00	136.31	0.219	No	No	1.98
180	4.79	10.25	0.00	1.54	0.43	1.34	135.66	0.00	135.66	0.217	No	No	1.95
181	4.80	10.21	0.00	1.54	0.43	1.34	134.68	0.00	134.68	0.213	No	No	1.91
182	4.81	10.18	0.00	1.54	0.43	1.34	134.71	0.00	134.71	0.213	No	No	1.91
183	4.82	10.16	0.00	1.54	0.43	1.34	134.29	0.00	134.29	0.212	No	No	1.89
184	4.83	10.13	0.00	1.55	0.43	1.34	133.87	0.00	133.87	0.210	No	No	1.87
185	4.84	10.07	0.00	1.56	0.43	1.34	133.45	0.00	133.45	0.209	No	No	1.85
186	4.85	10.00	0.00	1.58	0.43	1.34	132.12	0.00	132.12	0.204	No	No	1.80
187	4.86	9.91	0.00	1.59	0.44	1.34	131.02	0.00	131.02	0.201	No	No	1.76
188	4.87	9.76	0.00	1.59	0.44	1.34	130.14	0.00	130.14	0.198	No	No	1.73
189	4.88	9.59	0.00	1.59	0.44	1.34	126.86	0.00	126.86	0.188	No	No	1.62
190	4.89	9.37	0.00	1.59	0.45	1.35	125.19	0.00	125.19	0.184	No	No	1.57
191	4.90	9.21	0.00	1.59	0.45	1.35	122.46	0.00	122.46	0.177	No	No	1.49
192	4.91	9.08	0.00	1.59	0.46	1.35	121.22	0.00	121.22	0.174	No	No	1.46

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	4.92	9.00	0.00	1.59	0.46	1.35	120.34	0.00	120.34	0.172	No	No	1.43
194	4.93	8.96	0.00	1.59	0.46	1.35	119.56	0.00	119.56	0.170	No	No	1.41
195	4.94	8.94	0.00	1.59	0.46	1.35	119.49	0.00	119.49	0.170	No	No	1.41
196	4.95	8.95	0.00	1.59	0.46	1.35	119.53	0.00	119.53	0.170	No	No	1.41
197	4.96	8.97	0.00	1.59	0.46	1.35	119.58	0.00	119.58	0.170	No	No	1.41
198	4.97	8.98	0.00	1.59	0.46	1.35	119.85	0.00	119.85	0.171	No	No	1.42
199	4.98	8.98	0.00	1.59	0.46	1.35	119.78	0.00	119.78	0.171	No	No	1.42
200	4.99	8.95	0.00	1.59	0.46	1.35	119.36	0.00	119.36	0.170	No	No	1.40
201	5.00	8.87	0.00	1.59	0.46	1.35	118.71	0.00	118.71	0.169	No	No	1.39
202	5.01	8.78	0.00	1.60	0.46	1.35	116.66	0.00	116.66	0.164	No	No	1.34
203	5.02	8.69	0.00	1.61	0.47	1.35	116.01	0.00	116.01	0.163	No	No	1.33
204	5.03	8.67	0.00	1.61	0.47	1.35	115.35	0.00	115.35	0.162	No	No	1.31
205	5.04	8.67	0.00	1.61	0.47	1.35	115.63	0.00	115.63	0.162	No	No	1.32
206	5.05	8.70	0.00	1.61	0.47	1.35	115.91	0.00	115.91	0.163	No	No	1.32
207	5.06	8.73	0.00	1.61	0.46	1.35	116.30	0.00	116.30	0.164	No	No	1.33
208	5.07	8.74	0.00	1.61	0.47	1.35	116.23	0.00	116.23	0.164	No	No	1.33
209	5.08	8.78	0.00	1.58	0.47	1.35	116.16	0.00	116.16	0.163	No	No	1.33
210	5.09	8.82	0.00	1.56	0.46	1.34	117.25	0.00	117.25	0.166	No	No	1.35
211	5.10	8.86	0.00	1.55	0.46	1.34	117.65	0.00	117.65	0.166	No	No	1.36
212	5.11	8.84	0.00	1.56	0.46	1.34	117.00	0.00	117.00	0.165	No	No	1.34
213	5.12	8.74	0.00	1.58	0.46	1.34	116.35	0.00	116.35	0.164	No	No	1.33
214	5.13	8.63	0.00	1.59	0.47	1.34	114.20	0.00	114.20	0.160	No	No	1.28
215	5.14	8.42	0.00	1.61	0.47	1.35	112.73	0.00	112.73	0.157	No	No	1.25
216	5.15	8.18	0.00	1.64	0.48	1.35	108.93	0.00	108.93	0.150	No	No	1.18
217	5.16	7.95	0.00	1.67	0.49	1.36	105.57	0.00	105.57	0.145	No	No	1.13
218	5.17	7.79	0.00	1.69	0.49	1.36	104.45	0.00	104.45	0.144	No	No	1.11
219	5.18	7.71	0.00	1.70	0.49	1.36	102.88	0.00	102.88	0.141	No	No	1.09
220	5.19	7.66	0.00	1.71	0.49	1.36	102.47	0.00	102.47	0.141	No	No	1.08
221	5.20	7.66	0.50	1.72	0.49	1.36	102.64	0.00	102.64	0.141	No	No	1.08
222	5.21	7.67	0.79	1.72	0.49	1.36	102.57	0.00	102.57	0.141	No	No	1.08
223	5.22	7.71	0.86	1.72	0.49	1.35	102.62	0.00	102.62	0.141	No	No	1.08
224	5.23	7.76	0.64	1.72	0.49	1.35	103.81	0.00	103.81	0.143	No	No	1.10
225	5.24	7.84	0.08	1.71	0.49	1.35	104.33	0.00	104.33	0.143	No	No	1.11
226	5.25	7.90	0.00	1.71	0.49	1.35	105.32	0.00	105.32	0.145	No	No	1.12
227	5.26	7.96	0.00	1.70	0.49	1.35	105.60	0.00	105.60	0.145	No	No	1.12
228	5.27	8.02	0.00	1.69	0.48	1.34	106.24	0.00	106.24	0.146	No	No	1.13
229	5.28	8.11	0.00	1.68	0.48	1.34	107.46	0.00	107.46	0.148	No	No	1.15
230	5.29	8.23	0.00	1.67	0.48	1.34	108.44	0.00	108.44	0.150	No	No	1.17
231	5.30	8.37	0.00	1.65	0.48	1.33	110.35	0.00	110.35	0.153	No	No	1.20
232	5.31	8.50	0.00	1.64	0.47	1.33	112.02	0.00	112.02	0.156	No	No	1.23
233	5.32	8.63	0.00	1.62	0.47	1.33	112.64	0.00	112.64	0.157	No	No	1.24
234	5.33	8.75	0.00	1.61	0.47	1.32	114.65	0.00	114.65	0.160	No	No	1.28
235	5.34	8.86	0.00	1.59	0.47	1.32	116.08	0.00	116.08	0.163	No	No	1.31
236	5.35	8.86	0.00	1.58	0.47	1.32	116.13	0.00	116.13	0.163	No	No	1.31
237	5.36	8.80	0.00	1.58	0.47	1.32	114.68	0.00	114.68	0.160	No	No	1.28
238	5.37	8.68	0.00	1.58	0.47	1.32	113.81	0.00	113.81	0.159	No	No	1.26
239	5.38	8.57	0.00	1.58	0.47	1.32	111.79	0.00	111.79	0.155	No	No	1.22
240	5.39	8.43	0.00	1.59	0.48	1.33	110.68	0.00	110.68	0.153	No	No	1.20

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	5.40	8.30	0.00	1.60	0.48	1.33	108.54	0.00	108.54	0.150	No	No	1.16
242	5.41	8.12	0.00	1.61	0.48	1.33	107.08	0.00	107.08	0.147	No	No	1.14
243	5.42	7.98	0.00	1.63	0.49	1.33	104.34	0.00	104.34	0.143	No	No	1.10
244	5.43	7.82	0.00	1.64	0.49	1.33	103.35	0.00	103.35	0.142	No	No	1.08
245	5.44	7.72	0.00	1.65	0.49	1.34	101.38	0.00	101.38	0.139	No	No	1.05
246	5.45	7.62	0.00	1.66	0.50	1.34	100.63	0.00	100.63	0.138	No	No	1.04
247	5.46	7.55	0.00	1.67	0.50	1.34	99.76	0.00	99.76	0.137	No	No	1.03
248	5.47	7.47	0.00	1.68	0.50	1.34	98.67	0.00	98.67	0.136	No	No	1.02
249	5.48	7.36	0.00	1.69	0.50	1.34	97.80	0.00	97.80	0.135	No	No	1.01
250	5.49	7.25	0.00	1.69	0.51	1.34	95.67	0.00	95.67	0.132	No	No	0.98
251	5.50	7.09	0.00	1.70	0.51	1.34	94.72	0.00	94.72	0.131	No	No	0.97
252	5.51	6.89	0.69	1.72	0.52	1.35	91.71	0.00	91.71	0.128	No	No	0.94
253	5.52	6.69	2.05	1.74	0.52	1.35	88.45	0.00	88.45	0.124	No	No	0.90
254	5.53	6.53	2.91	1.75	0.53	1.35	87.32	0.00	87.32	0.123	No	No	0.89
255	5.54	6.47	2.99	1.75	0.53	1.35	86.08	0.00	86.08	0.122	No	No	0.88
256	5.55	6.46	2.46	1.74	0.53	1.35	85.90	0.00	85.90	0.122	No	No	0.88
257	5.56	6.55	1.30	1.73	0.53	1.35	87.04	0.00	87.04	0.123	No	No	0.89
258	5.57	6.67	0.00	1.71	0.52	1.35	89.12	0.00	89.12	0.125	No	No	0.91
259	5.58	6.83	0.00	1.69	0.52	1.34	90.02	0.00	90.02	0.126	No	No	0.92
260	5.59	6.94	0.00	1.68	0.52	1.34	92.32	0.00	92.32	0.128	No	No	0.94
261	5.60	7.03	0.00	1.67	0.51	1.34	92.98	0.00	92.98	0.129	No	No	0.95
262	5.61	7.03	0.00	1.68	0.51	1.34	93.04	0.00	93.04	0.129	No	No	0.95
263	5.62	6.93	0.00	1.69	0.52	1.34	92.16	0.00	92.16	0.128	No	No	0.94
264	5.63	6.77	0.00	1.70	0.52	1.34	89.39	0.00	89.39	0.125	No	No	0.91
265	5.64	6.49	0.78	1.72	0.53	1.34	87.21	0.00	87.21	0.123	No	No	0.89
266	5.65	6.21	1.96	1.74	0.54	1.35	82.04	0.00	82.04	0.118	No	No	0.84
267	5.66	5.84	3.60	1.76	0.55	1.36	79.11	0.01	79.12	0.115	No	No	0.82
268	5.67	5.54	5.41	1.78	0.56	1.37	73.61	0.26	73.87	0.111	No	No	0.78
269	5.68	5.19	8.25	1.82	0.56	1.36	70.72	3.18	73.91	0.111	No	No	0.78
270	5.69	4.91	10.97	1.85	0.56	1.36	65.12	9.14	74.27	0.111	No	No	0.78
271	5.70	4.60	14.33	1.89	0.55	1.35	61.88	18.05	79.93	0.116	No	No	0.82
272	5.71	4.36	17.08	1.93	0.54	1.35	57.28	24.67	81.94	0.118	No	No	0.84
273	5.72	4.10	20.71	1.97	0.53	1.34	54.49	32.27	86.76	0.122	No	No	0.88
274	5.73	3.92	23.71	2.01	0.53	1.33	50.69	37.05	87.74	0.123	No	No	0.89
275	5.74	3.75	27.39	2.05	0.52	1.33	49.24	42.13	91.37	0.127	No	No	0.92
276	5.75	3.68	30.38	2.09	0.51	1.32	47.43	45.30	92.72	0.129	No	No	0.94
277	5.76	3.64	32.83	2.12	0.51	1.32	47.26	47.72	94.98	0.131	No	No	0.96
278	5.77	3.68	34.18	2.14	0.51	1.32	47.54	49.01	96.55	0.133	No	No	0.98
279	5.78	3.74	34.83	2.15	0.50	1.31	48.44	49.77	98.21	0.135	No	No	1.00
280	5.79	3.83	35.52	2.16	0.50	1.31	49.10	50.49	99.59	0.137	No	No	1.02
281	5.80	3.97	36.28	2.17	0.49	1.30	50.82	51.49	102.32	0.141	No	No	1.05
282	5.81	4.12	36.68	2.17	0.49	1.30	53.18	52.35	105.53	0.145	No	No	1.10
283	5.82	4.34	36.67	2.17	0.48	1.30	54.45	52.64	107.09	0.147	No	No	1.12
284	5.83	4.61	36.03	2.16	0.47	1.29	58.47	53.04	111.52	0.155	No	No	1.19
285	5.84	4.90	35.05	2.15	0.47	1.28	62.71	53.16	115.87	0.163	No	No	1.27
286	5.85	5.19	33.49	2.13	0.46	1.28	64.98	52.21	117.19	0.165	No	No	1.30
287	5.86	5.40	31.98	2.11	0.46	1.27	68.87	51.50	120.37	0.172	No	No	1.37
288	5.87	5.55	30.73	2.10	0.46	1.27	70.20	50.37	120.57	0.173	No	No	1.37

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	5.88	5.56	30.22	2.09	0.46	1.27	70.19	49.77	119.96	0.171	No	No	1.36
290	5.89	5.49	30.21	2.09	0.46	1.27	69.22	49.56	118.78	0.169	No	No	1.33
291	5.90	5.37	30.56	2.09	0.46	1.27	67.41	49.60	117.02	0.165	No	No	1.29
292	5.91	5.18	31.30	2.10	0.46	1.27	65.93	50.13	116.05	0.163	No	No	1.27
293	5.92	5.00	32.00	2.11	0.47	1.28	62.34	50.13	112.47	0.156	No	No	1.20
294	5.93	4.79	32.68	2.12	0.47	1.28	60.74	50.49	111.23	0.154	No	No	1.18
295	5.94	4.64	32.29	2.12	0.48	1.28	58.38	49.59	107.97	0.149	No	No	1.13
296	5.95	4.52	31.07	2.10	0.49	1.29	57.00	48.02	105.02	0.144	No	No	1.08
297	5.96	4.45	28.38	2.07	0.49	1.29	56.67	44.82	101.48	0.139	No	No	1.03
298	5.97	4.42	25.77	2.03	0.50	1.30	56.39	41.22	97.61	0.134	No	No	0.99
299	5.98	4.40	23.56	2.01	0.51	1.30	56.21	37.72	93.92	0.130	No	No	0.94
300	5.99	4.42	22.94	2.00	0.51	1.30	56.59	36.73	93.32	0.129	No	No	0.94
301	6.00	4.47	22.86	2.00	0.51	1.30	57.28	36.69	93.98	0.130	No	No	0.94
302	6.01	4.55	22.70	2.00	0.51	1.30	57.98	36.52	94.50	0.131	No	No	0.95
303	6.02	4.64	22.09	1.99	0.51	1.30	59.20	35.60	94.80	0.131	No	No	0.95
304	6.03	4.73	21.51	1.98	0.51	1.29	60.68	34.72	95.40	0.132	No	No	0.96
305	6.04	4.82	20.66	1.97	0.51	1.29	61.32	33.13	94.45	0.131	No	No	0.95
306	6.05	4.87	19.94	1.96	0.51	1.29	62.68	31.82	94.50	0.131	No	No	0.95
307	6.06	4.91	19.29	1.95	0.51	1.29	62.74	30.43	93.17	0.129	No	No	0.93
308	6.07	4.91	19.13	1.95	0.51	1.29	62.72	30.07	92.80	0.129	No	No	0.93
309	6.08	4.69	17.32	1.93	0.52	1.30	62.98	25.88	88.85	0.125	No	No	0.89
310	6.09	4.40	15.26	1.90	0.56	1.32	55.30	19.96	75.26	0.112	No	No	0.77
311	6.10	4.04	12.75	1.87	0.58	1.34	53.31	13.25	66.56	0.105	No	No	0.71
312	6.11	3.83	15.23	1.90	0.57	1.33	50.16	19.44	69.60	0.107	No	No	0.73
313	6.12	3.66	18.11	1.94	0.56	1.32	47.14	25.92	73.07	0.110	No	No	0.76
314	6.13	3.55	21.67	1.98	0.55	1.31	45.61	32.79	78.40	0.114	No	No	0.80
315	6.14	3.52	24.48	2.02	0.54	1.31	44.97	37.30	82.27	0.118	No	No	0.83
316	6.15	3.56	26.51	2.04	0.53	1.30	45.28	40.24	85.51	0.121	No	No	0.86
317	6.16	3.67	26.45	2.04	0.53	1.30	46.58	40.38	86.96	0.123	No	No	0.87
318	6.17	3.88	24.29	2.02	0.53	1.30	49.00	37.69	86.69	0.122	No	No	0.87
319	6.18	4.27	18.48	1.94	0.54	1.30	53.31	27.47	80.78	0.117	No	No	0.81
320	6.19	4.72	12.46	1.87	0.56	1.31	62.46	13.00	75.45	0.112	No	No	0.77
321	6.20	5.19	7.22	1.80	0.57	1.32	67.76	1.62	69.38	0.107	No	No	0.73
322	6.21	5.57	4.45	1.77	0.57	1.32	72.01	0.05	72.07	0.109	No	No	0.75
323	6.22	5.97	1.86	1.74	0.55	1.31	76.81	0.00	76.81	0.113	No	No	0.78
324	6.23	6.60	0.00	1.69	0.54	1.30	82.14	0.00	82.14	0.118	No	No	0.82
325	6.24	7.21	0.00	1.65	0.51	1.28	93.64	0.00	93.64	0.130	No	No	0.93
326	6.25	7.74	0.00	1.62	0.50	1.27	97.82	0.00	97.82	0.135	No	No	0.98
327	6.26	8.00	0.00	1.61	0.50	1.27	100.69	0.00	100.69	0.138	No	No	1.01
328	6.27	8.16	0.00	1.62	0.49	1.27	102.20	0.00	102.20	0.140	No	No	1.03
329	6.28	8.26	0.00	1.63	0.49	1.26	103.31	0.00	103.31	0.142	No	No	1.05
330	6.29	8.31	0.00	1.65	0.49	1.26	103.93	0.00	103.93	0.143	No	No	1.05
331	6.30	8.32	0.00	1.67	0.49	1.26	103.98	0.00	103.98	0.143	No	No	1.06
332	6.31	8.20	0.00	1.69	0.49	1.26	103.20	0.00	103.20	0.142	No	No	1.04
333	6.32	8.07	0.00	1.70	0.50	1.27	99.90	0.00	99.90	0.137	No	No	1.00
334	6.33	7.94	0.00	1.70	0.50	1.27	99.40	0.00	99.40	0.137	No	No	0.99
335	6.34	7.88	0.00	1.70	0.50	1.27	98.56	0.00	98.56	0.136	No	No	0.98
336	6.35	7.80	0.00	1.70	0.50	1.27	97.61	0.00	97.61	0.134	No	No	0.97

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	6.36	7.68	0.00	1.70	0.51	1.27	96.66	0.00	96.66	0.133	No	No	0.96
338	6.37	7.55	0.00	1.70	0.51	1.27	94.19	0.00	94.19	0.130	No	No	0.93
339	6.38	7.44	0.15	1.71	0.51	1.27	93.22	0.00	93.22	0.129	No	No	0.92
340	6.39	7.40	0.75	1.72	0.51	1.27	92.60	0.00	92.60	0.129	No	No	0.92
341	6.40	7.40	1.12	1.73	0.51	1.27	92.55	0.00	92.55	0.128	No	No	0.92
342	6.41	7.50	1.07	1.73	0.51	1.27	93.29	0.00	93.29	0.129	No	No	0.92
343	6.42	7.66	0.64	1.72	0.51	1.26	95.88	0.00	95.88	0.132	No	No	0.95
344	6.43	7.79	0.18	1.71	0.50	1.26	97.62	0.00	97.62	0.134	No	No	0.97
345	6.44	8.01	0.00	1.70	0.50	1.26	97.57	0.00	97.57	0.134	No	No	0.97
346	6.45	8.25	0.00	1.67	0.49	1.25	103.19	0.00	103.19	0.142	No	No	1.04
347	6.46	8.52	0.00	1.65	0.49	1.25	105.53	0.00	105.53	0.145	No	No	1.07
348	6.47	8.61	0.00	1.64	0.48	1.25	106.36	0.00	106.36	0.146	No	No	1.08
349	6.48	8.59	0.00	1.64	0.49	1.25	106.08	0.00	106.08	0.146	No	No	1.08
350	6.49	8.49	0.00	1.64	0.49	1.25	104.91	0.00	104.91	0.144	No	No	1.06
351	6.50	8.32	0.00	1.64	0.49	1.25	102.69	0.00	102.69	0.141	No	No	1.03
352	6.51	8.10	0.00	1.65	0.50	1.25	100.30	0.00	100.30	0.138	No	No	1.00
353	6.52	7.69	0.00	1.66	0.50	1.25	97.24	0.00	97.24	0.134	No	No	0.96
354	6.53	7.23	0.00	1.69	0.52	1.26	88.68	0.00	88.68	0.124	No	No	0.87
355	6.54	6.74	0.63	1.72	0.53	1.27	84.52	0.00	84.52	0.120	No	No	0.84
356	6.55	6.39	3.23	1.75	0.54	1.27	80.34	0.00	80.34	0.116	No	No	0.80
357	6.56	6.05	6.03	1.79	0.55	1.28	76.32	0.57	76.89	0.113	No	No	0.78
358	6.57	5.72	8.95	1.82	0.55	1.28	72.13	4.53	76.66	0.113	No	No	0.77
359	6.58	5.42	11.84	1.86	0.55	1.27	68.07	11.57	79.64	0.116	No	No	0.80
360	6.59	5.16	14.67	1.90	0.54	1.27	64.36	19.15	83.51	0.119	No	No	0.83
361	6.60	4.96	17.14	1.93	0.53	1.26	61.48	25.29	86.77	0.122	No	No	0.86
362	6.61	4.83	19.16	1.95	0.52	1.26	59.77	29.76	89.54	0.125	No	No	0.88
363	6.62	4.78	20.41	1.97	0.52	1.25	58.78	32.28	91.06	0.127	No	No	0.89
364	6.63	4.89	20.24	1.97	0.52	1.25	59.11	31.98	91.09	0.127	No	No	0.90
365	6.64	5.16	18.45	1.94	0.52	1.25	63.81	28.66	92.46	0.128	No	No	0.91
366	6.65	5.57	15.41	1.91	0.52	1.25	68.61	21.53	90.15	0.126	No	No	0.89
367	6.66	5.99	12.31	1.87	0.53	1.26	74.33	13.23	87.55	0.123	No	No	0.86
368	6.67	6.40	9.85	1.84	0.53	1.26	79.70	6.76	86.46	0.122	No	No	0.85
369	6.68	6.74	8.68	1.82	0.53	1.25	83.84	4.19	88.03	0.124	No	No	0.86
370	6.69	7.03	8.32	1.82	0.52	1.25	86.80	3.52	90.32	0.126	No	No	0.89
371	6.70	7.32	8.32	1.82	0.51	1.24	89.68	3.55	93.23	0.129	No	No	0.92
372	6.71	7.64	7.57	1.81	0.51	1.24	93.70	2.31	96.01	0.132	No	No	0.94
373	6.72	7.87	6.89	1.80	0.50	1.24	97.50	1.40	98.91	0.136	No	No	0.98
374	6.73	7.95	5.92	1.79	0.50	1.24	97.53	0.55	98.08	0.135	No	No	0.97
375	6.74	7.87	5.24	1.78	0.51	1.24	96.50	0.22	96.73	0.133	No	No	0.95
376	6.75	7.74	4.71	1.77	0.51	1.24	94.76	0.09	94.85	0.131	No	No	0.93
377	6.76	7.57	4.76	1.77	0.51	1.24	92.91	0.10	93.01	0.129	No	No	0.91
378	6.77	7.37	5.29	1.78	0.52	1.24	90.37	0.24	90.60	0.126	No	No	0.89
379	6.78	7.18	5.79	1.78	0.52	1.24	88.05	0.45	88.50	0.124	No	No	0.87
380	6.79	7.01	6.31	1.79	0.53	1.25	86.05	0.80	86.85	0.122	No	No	0.85
381	6.80	6.89	6.96	1.80	0.53	1.25	84.59	1.42	86.01	0.122	No	No	0.84
382	6.81	6.79	7.59	1.81	0.53	1.25	83.46	2.24	85.70	0.121	No	No	0.84
383	6.82	6.73	6.66	1.80	0.54	1.25	82.71	1.09	83.80	0.119	No	No	0.82
384	6.83	6.72	4.51	1.77	0.54	1.25	82.51	0.06	82.57	0.118	No	No	0.81

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	6.84	6.72	1.98	1.74	0.54	1.25	82.93	0.00	82.93	0.119	No	No	0.82
386	6.85	6.76	0.82	1.72	0.54	1.25	82.88	0.00	82.88	0.119	No	No	0.82
387	6.86	6.79	0.62	1.72	0.54	1.24	83.74	0.00	83.74	0.119	No	No	0.82
388	6.87	6.79	0.59	1.72	0.54	1.24	83.70	0.00	83.70	0.119	No	No	0.82
389	6.88	6.69	1.12	1.73	0.54	1.24	82.63	0.00	82.63	0.118	No	No	0.81
390	6.89	6.48	2.12	1.74	0.55	1.25	80.21	0.00	80.21	0.116	No	No	0.79
391	6.90	6.20	3.30	1.75	0.55	1.25	76.64	0.00	76.64	0.113	No	No	0.77
392	6.91	5.91	4.34	1.77	0.56	1.25	72.94	0.04	72.98	0.110	No	No	0.74
393	6.92	5.63	5.39	1.78	0.57	1.26	69.90	0.25	70.15	0.108	No	No	0.72
394	6.93	5.31	7.05	1.80	0.58	1.26	66.90	1.42	68.32	0.106	No	No	0.71
395	6.94	4.99	9.13	1.83	0.58	1.26	61.54	4.70	66.25	0.104	No	No	0.70
396	6.95	4.76	10.86	1.85	0.58	1.26	58.12	8.59	66.71	0.105	No	No	0.70
397	6.96	4.41	14.31	1.89	0.56	1.25	57.53	17.67	75.20	0.112	No	No	0.76
398	6.97	3.99	19.40	1.95	0.55	1.25	47.94	28.75	76.69	0.113	No	No	0.77
399	6.98	3.44	26.92	2.05	0.54	1.24	41.68	40.10	81.77	0.118	No	No	0.81
400	6.99	3.03	33.86	2.14	0.54	1.24	36.95	46.40	83.35	0.119	No	No	0.82
401	7.00	2.66	41.33	2.23	0.54	1.24	32.44	50.53	82.96	0.119	No	No	0.81
402	7.01	2.31	49.83	2.34	0.54	1.24	27.96	53.35	81.30	0.117	No	No	0.80
403	7.02	1.99	59.44	2.46	0.55	1.24	24.20	55.36	79.56	0.116	No	No	0.79
404	7.03	1.71	69.76	2.58	0.55	1.24	20.81	56.63	77.45	0.114	No	No	0.77
405	7.04	1.43	82.37	2.74	0.56	1.24	17.90	0.00	17.90	4.000	No	Yes	2.00
406	7.05	1.24	92.00	2.86	0.57	1.25	14.03	0.00	14.03	4.000	No	Yes	2.00
407	7.06	1.14	98.06	2.94	0.57	1.25	14.01	0.00	14.01	4.000	No	Yes	2.00
408	7.07	1.06	100.00	2.98	0.57	1.24	14.00	0.00	14.00	4.000	No	Yes	2.00
409	7.08	0.96	100.00	3.04	0.58	1.25	10.97	0.00	10.97	4.000	No	Yes	2.00
410	7.09	0.84	100.00	3.14	0.58	1.25	10.36	0.00	10.36	4.000	No	Yes	2.00
411	7.10	0.79	100.00	3.20	0.58	1.25	9.38	0.00	9.38	4.000	No	Yes	2.00
412	7.11	0.74	100.00	3.25	0.59	1.25	9.01	0.00	9.01	4.000	No	Yes	2.00
413	7.12	0.71	100.00	3.28	0.59	1.25	8.64	0.00	8.64	4.000	No	Yes	2.00
414	7.13	0.68	100.00	3.30	0.59	1.25	8.14	0.00	8.14	4.000	No	Yes	2.00
415	7.14	0.67	100.00	3.31	0.59	1.25	8.02	0.00	8.02	4.000	No	Yes	2.00
416	7.15	0.66	100.00	3.30	0.59	1.25	8.01	0.00	8.01	4.000	No	Yes	2.00
417	7.16	0.68	100.00	3.26	0.59	1.25	7.89	0.00	7.89	4.000	No	Yes	2.00
418	7.17	0.74	100.00	3.19	0.59	1.25	8.85	0.00	8.85	4.000	No	Yes	2.00
419	7.18	0.84	100.00	3.08	0.58	1.24	10.06	0.00	10.06	4.000	No	Yes	2.00
420	7.19	0.99	98.06	2.94	0.58	1.24	11.50	0.00	11.50	4.000	No	Yes	2.00
421	7.20	1.14	88.87	2.82	0.57	1.24	14.27	0.00	14.27	4.000	No	Yes	2.00
422	7.21	1.27	80.85	2.72	0.57	1.23	15.35	0.00	15.35	4.000	No	Yes	2.00
423	7.22	1.33	76.50	2.67	0.57	1.23	16.19	0.00	16.19	4.000	No	Yes	2.00
424	7.23	1.31	75.14	2.65	0.57	1.23	16.42	0.00	16.42	4.000	No	Yes	2.00
425	7.24	1.24	77.41	2.68	0.57	1.23	14.98	0.00	14.98	4.000	No	Yes	2.00
426	7.25	1.09	84.26	2.77	0.57	1.23	13.64	0.00	13.64	4.000	No	Yes	2.00
427	7.26	0.97	91.55	2.86	0.58	1.24	11.23	0.00	11.23	4.000	No	Yes	2.00
428	7.27	0.87	98.43	2.94	0.58	1.24	10.61	0.00	10.61	4.000	No	Yes	2.00
429	7.28	0.84	100.00	2.98	0.58	1.24	10.13	0.00	10.13	4.000	No	Yes	2.00
430	7.29	0.83	100.00	3.02	0.58	1.24	10.24	0.00	10.24	4.000	No	Yes	2.00
431	7.30	0.87	100.00	3.02	0.58	1.23	10.23	0.00	10.23	4.000	No	Yes	2.00
432	7.31	0.94	100.00	2.99	0.58	1.23	11.31	0.00	11.31	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	7.32	1.06	97.00	2.93	0.57	1.23	12.62	0.00	12.62	4.000	No	Yes	2.00
434	7.33	1.17	92.16	2.86	0.57	1.23	14.64	0.00	14.64	4.000	No	Yes	2.00
435	7.34	1.24	89.11	2.83	0.57	1.22	15.11	0.00	15.11	4.000	No	Yes	2.00
436	7.35	1.25	88.59	2.82	0.57	1.22	15.10	0.00	15.10	4.000	No	Yes	2.00
437	7.36	1.23	89.67	2.83	0.57	1.22	14.97	0.00	14.97	4.000	No	Yes	2.00
438	7.37	1.19	91.95	2.86	0.57	1.22	14.37	0.00	14.37	4.000	No	Yes	2.00
439	7.38	1.15	94.31	2.89	0.57	1.22	13.77	0.00	13.77	4.000	No	Yes	2.00
440	7.39	1.13	95.33	2.90	0.57	1.22	13.52	0.00	13.52	4.000	No	Yes	2.00
441	7.40	1.12	95.14	2.90	0.57	1.22	13.51	0.00	13.51	4.000	No	Yes	2.00
442	7.41	1.14	93.70	2.88	0.57	1.22	13.63	0.00	13.63	4.000	No	Yes	2.00
443	7.42	1.18	91.78	2.86	0.57	1.22	14.09	0.00	14.09	4.000	No	Yes	2.00
444	7.43	1.22	89.61	2.83	0.57	1.22	14.80	0.00	14.80	4.000	No	Yes	2.00
445	7.44	1.26	87.78	2.81	0.57	1.22	15.15	0.00	15.15	4.000	No	Yes	2.00
446	7.45	1.27	87.10	2.80	0.57	1.22	15.49	0.00	15.49	4.000	No	Yes	2.00
447	7.46	1.23	88.08	2.81	0.57	1.22	15.01	0.00	15.01	4.000	No	Yes	2.00
448	7.47	1.18	89.98	2.84	0.57	1.22	13.82	0.00	13.82	4.000	No	Yes	2.00
449	7.48	1.16	91.20	2.85	0.57	1.22	13.69	0.00	13.69	4.000	No	Yes	2.00
450	7.49	1.21	91.03	2.85	0.57	1.22	14.51	0.00	14.51	4.000	No	Yes	2.00
451	7.50	1.35	88.56	2.82	0.56	1.21	15.56	0.00	15.56	4.000	No	Yes	2.00
452	7.51	1.70	79.49	2.71	0.56	1.21	18.38	0.00	18.38	4.000	No	Yes	2.00
453	7.52	2.17	68.91	2.57	0.53	1.20	26.51	58.13	84.65	0.120	No	No	0.82
454	7.53	2.88	55.79	2.41	0.52	1.19	31.96	56.47	88.43	0.124	No	No	0.85
455	7.54	3.48	47.51	2.31	0.50	1.18	43.11	56.36	99.47	0.137	No	No	0.97
456	7.55	4.02	41.30	2.23	0.49	1.18	47.33	54.16	101.49	0.139	No	No	0.99
457	7.56	4.30	38.61	2.20	0.49	1.18	50.49	53.17	103.66	0.142	No	No	1.02
458	7.57	4.47	36.82	2.17	0.49	1.18	52.62	52.34	104.96	0.144	No	No	1.04
459	7.58	4.44	36.88	2.17	0.49	1.18	53.04	52.48	105.52	0.145	No	No	1.04
460	7.59	4.24	38.29	2.19	0.49	1.18	49.30	52.66	101.96	0.140	No	No	1.00
461	7.60	3.78	41.98	2.24	0.50	1.18	45.97	54.24	100.20	0.138	No	No	0.97
462	7.61	3.29	46.08	2.29	0.52	1.19	36.89	54.10	90.99	0.127	No	No	0.88
463	7.62	2.77	51.15	2.35	0.53	1.19	32.17	54.96	87.14	0.123	No	No	0.84
464	7.63	2.44	54.89	2.40	0.54	1.19	28.14	55.15	83.28	0.119	No	No	0.81
465	7.64	2.15	59.24	2.45	0.54	1.19	25.23	55.59	80.82	0.117	No	No	0.79
466	7.65	2.00	62.58	2.49	0.55	1.20	22.33	55.60	77.93	0.114	No	No	0.77
467	7.66	1.97	64.84	2.52	0.55	1.20	22.77	56.23	78.99	0.115	No	No	0.77
468	7.67	2.11	65.05	2.53	0.54	1.19	23.90	56.60	80.50	0.116	No	No	0.78
469	7.68	2.41	62.30	2.49	0.54	1.19	27.22	56.92	84.14	0.120	No	No	0.81
470	7.69	2.91	55.84	2.41	0.52	1.18	32.92	56.75	89.67	0.125	No	No	0.86
471	7.70	3.76	43.77	2.26	0.51	1.18	41.14	54.03	95.16	0.131	No	No	0.92
472	7.71	4.64	32.90	2.12	0.48	1.17	56.46	49.78	106.24	0.146	No	No	1.05
473	7.72	5.42	24.43	2.02	0.49	1.17	63.23	40.33	103.55	0.142	No	No	1.02
474	7.73	5.83	20.52	1.97	0.49	1.17	68.21	33.82	102.03	0.140	No	No	1.00
475	7.74	6.09	18.07	1.94	0.50	1.17	70.96	28.62	99.58	0.137	No	No	0.97
476	7.75	6.19	16.93	1.92	0.50	1.17	72.37	25.92	98.29	0.135	No	No	0.95
477	7.76	6.11	16.55	1.92	0.51	1.17	71.73	24.85	96.59	0.133	No	No	0.93
478	7.77	5.94	16.71	1.92	0.51	1.17	68.49	24.93	93.42	0.129	No	No	0.90
479	7.78	5.75	16.80	1.92	0.52	1.18	66.68	24.99	91.67	0.128	No	No	0.88
480	7.79	5.59	16.52	1.92	0.52	1.18	65.14	24.11	89.25	0.125	No	No	0.86

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	7.80	5.50	16.08	1.91	0.53	1.18	63.39	22.80	86.19	0.122	No	No	0.83
482	7.81	5.47	15.30	1.90	0.53	1.18	63.57	20.78	84.35	0.120	No	No	0.81
483	7.82	5.47	14.30	1.89	0.54	1.18	64.32	18.16	82.49	0.118	No	No	0.80
484	7.83	5.47	12.95	1.87	0.55	1.18	63.81	14.41	78.22	0.114	No	No	0.77
485	7.84	5.45	11.96	1.86	0.56	1.19	63.91	11.72	75.62	0.112	No	No	0.75
486	7.85	5.46	11.03	1.85	0.56	1.19	63.89	9.23	73.12	0.110	No	No	0.73
487	7.86	5.48	10.63	1.85	0.57	1.19	64.35	8.25	72.60	0.110	No	No	0.73
488	7.87	5.57	10.35	1.84	0.57	1.19	64.91	7.56	72.47	0.109	No	No	0.73
489	7.88	5.72	9.88	1.84	0.56	1.19	66.93	6.49	73.41	0.110	No	No	0.73
490	7.89	5.92	8.50	1.82	0.57	1.19	69.26	3.60	72.86	0.110	No	No	0.73
491	7.90	6.11	6.72	1.80	0.57	1.18	71.79	1.11	72.90	0.110	No	No	0.73
492	7.91	6.30	5.76	1.78	0.56	1.18	73.56	0.41	73.97	0.111	No	No	0.74
493	7.92	6.42	6.02	1.79	0.56	1.18	75.60	0.57	76.16	0.113	No	No	0.75
494	7.93	6.54	7.26	1.80	0.55	1.18	75.71	1.73	77.44	0.114	No	No	0.76
495	7.94	6.71	7.15	1.80	0.55	1.18	77.10	1.60	78.70	0.115	No	No	0.77
496	7.95	6.98	5.79	1.78	0.54	1.17	81.28	0.44	81.72	0.118	No	No	0.79
497	7.96	7.35	1.78	1.73	0.54	1.17	84.31	0.00	84.31	0.120	No	No	0.81
498	7.97	7.71	0.00	1.69	0.52	1.17	89.04	0.00	89.04	0.125	No	No	0.85
499	7.98	8.09	0.00	1.65	0.51	1.16	92.67	0.00	92.67	0.129	No	No	0.89
500	7.99	8.50	0.00	1.61	0.51	1.16	96.30	0.00	96.30	0.133	No	No	0.93
501	8.00	8.91	0.00	1.58	0.49	1.15	102.23	0.00	102.23	0.140	No	No	0.99
502	8.01	9.25	0.00	1.56	0.49	1.15	105.41	0.00	105.41	0.145	No	No	1.04
503	8.02	9.42	0.00	1.56	0.48	1.15	107.06	0.00	107.06	0.147	No	No	1.06
504	8.03	9.54	0.00	1.56	0.48	1.15	107.55	0.00	107.55	0.148	No	No	1.07
505	8.04	9.63	0.00	1.56	0.48	1.15	109.09	0.00	109.09	0.151	No	No	1.09
506	8.05	9.71	0.00	1.56	0.48	1.15	109.89	0.00	109.89	0.152	No	No	1.10
507	8.06	9.73	0.00	1.56	0.48	1.15	109.84	0.00	109.84	0.152	No	No	1.10
508	8.07	9.92	0.00	1.53	0.48	1.14	109.80	0.00	109.80	0.152	No	No	1.10
509	8.08	10.13	0.00	1.50	0.47	1.14	115.68	0.00	115.68	0.162	No	No	1.20
510	8.09	10.38	0.00	1.49	0.46	1.14	116.37	0.00	116.37	0.164	No	No	1.21
511	8.10	10.49	0.00	1.52	0.46	1.14	117.69	0.00	117.69	0.166	No	No	1.24
512	8.11	10.60	0.00	1.54	0.46	1.14	118.80	0.00	118.80	0.169	No	No	1.26
513	8.12	10.68	0.00	1.55	0.46	1.14	119.80	0.00	119.80	0.171	No	No	1.28
514	8.13	10.70	0.00	1.57	0.46	1.13	119.95	0.00	119.95	0.171	No	No	1.28
515	8.14	10.68	0.00	1.59	0.46	1.13	119.48	0.00	119.48	0.170	No	No	1.27
516	8.15	10.64	0.00	1.62	0.46	1.13	119.00	0.00	119.00	0.169	No	No	1.26
517	8.16	10.51	0.00	1.63	0.46	1.13	118.42	0.00	118.42	0.168	No	No	1.25
518	8.17	10.32	0.00	1.65	0.47	1.14	115.20	0.00	115.20	0.161	No	No	1.19
519	8.18	10.08	0.00	1.67	0.47	1.14	112.93	0.00	112.93	0.157	No	No	1.15
520	8.19	9.72	0.00	1.71	0.48	1.14	110.55	0.00	110.55	0.153	No	No	1.11
521	8.20	9.30	2.75	1.75	0.49	1.14	103.71	0.00	103.71	0.142	No	No	1.01
522	8.21	8.81	6.33	1.79	0.50	1.14	99.14	0.85	99.99	0.137	No	No	0.96
523	8.22	8.38	9.37	1.83	0.50	1.14	94.55	5.94	100.48	0.138	No	No	0.97
524	8.23	7.71	14.18	1.89	0.48	1.14	88.80	19.67	108.47	0.150	No	No	1.08
525	8.24	6.95	19.88	1.96	0.48	1.13	75.94	33.49	109.43	0.151	No	No	1.09
526	8.25	5.92	28.37	2.07	0.47	1.13	68.29	47.06	115.36	0.162	No	No	1.19
527	8.26	5.08	36.60	2.17	0.48	1.14	54.12	52.51	106.63	0.147	No	No	1.05
528	8.27	4.27	46.11	2.29	0.49	1.14	47.65	56.87	104.52	0.144	No	No	1.02

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	8.28	3.75	53.60	2.38	0.50	1.14	41.57	58.37	99.95	0.137	No	No	0.96
530	8.29	3.30	60.81	2.47	0.51	1.14	36.59	59.19	95.78	0.132	No	No	0.92
531	8.30	2.86	68.92	2.57	0.51	1.14	32.69	59.93	92.62	0.129	No	No	0.88
532	8.31	2.51	76.55	2.67	0.53	1.15	27.02	0.00	27.02	4.000	No	Yes	2.00
533	8.32	2.20	84.41	2.77	0.53	1.15	24.89	0.00	24.89	4.000	No	Yes	2.00
534	8.33	2.04	89.05	2.83	0.54	1.15	22.31	0.00	22.31	4.000	No	Yes	2.00
535	8.34	1.90	93.53	2.88	0.54	1.15	21.63	0.00	21.63	4.000	No	Yes	2.00
536	8.35	1.79	97.35	2.93	0.55	1.15	20.05	0.00	20.05	4.000	No	Yes	2.00
537	8.36	1.95	93.75	2.88	0.55	1.15	18.71	0.00	18.71	4.000	No	Yes	2.00
538	8.37	2.42	83.32	2.75	0.53	1.14	27.03	0.00	27.03	4.000	No	Yes	2.00
539	8.38	3.23	68.74	2.57	0.51	1.13	35.61	60.74	96.35	0.133	No	No	0.92
540	8.39	4.33	52.02	2.36	0.49	1.13	45.24	58.79	104.03	0.143	No	No	1.01
541	8.40	5.18	40.78	2.22	0.46	1.12	62.95	57.65	120.60	0.173	No	No	1.30
542	8.41	5.58	34.06	2.14	0.47	1.12	63.40	52.40	115.80	0.163	No	No	1.20
543	8.42	5.34	34.53	2.14	0.48	1.12	58.23	51.69	109.92	0.152	No	No	1.10
544	8.43	5.01	35.49	2.16	0.48	1.12	55.39	51.90	107.29	0.148	No	No	1.06
545	8.44	4.75	36.86	2.17	0.49	1.13	52.97	52.45	105.42	0.145	No	No	1.03
546	8.45	4.42	39.01	2.20	0.49	1.13	49.57	53.22	102.79	0.141	No	No	1.00
547	8.46	4.19	41.29	2.23	0.50	1.13	44.55	53.48	98.03	0.135	No	No	0.94
548	8.47	5.42	28.64	2.07	0.52	1.13	45.76	43.00	88.77	0.124	No	No	0.85
549	8.48	9.24	1.57	1.73	0.52	1.13	90.81	0.00	90.81	0.127	No	No	0.87
550	8.49	13.88	0.00	1.47	0.38	1.09	166.97	0.00	166.97	0.457	No	No	2.00
551	8.50	16.40	0.00	1.37	0.34	1.08	192.59	0.00	192.59	1.277	No	No	2.00
552	8.51	16.91	0.00	1.36	0.37	1.09	169.28	0.00	169.28	0.492	No	No	2.00
553	8.52	15.94	0.00	1.37	0.35	1.09	182.10	0.00	182.10	0.792	No	No	2.00
554	8.53	15.87	0.00	1.36	0.38	1.09	163.05	0.00	163.05	0.405	No	No	2.00
555	8.54	15.19	0.00	1.38	0.38	1.09	166.76	0.00	166.76	0.454	No	No	2.00
556	8.55	14.46	0.00	1.40	0.39	1.09	161.30	0.00	161.30	0.385	No	No	2.00
557	8.56	13.19	0.00	1.57	0.42	1.10	140.33	0.00	140.33	0.236	No	No	1.92
558	8.57	11.12	1.16	1.73	0.44	1.11	127.56	0.00	127.56	0.190	No	No	1.47
559	8.58	8.94	16.91	1.92	0.45	1.11	95.55	28.28	123.84	0.180	No	No	1.37
560	8.59	7.26	25.15	2.03	0.47	1.11	69.96	42.66	112.61	0.157	No	No	1.14
561	8.60	6.90	28.54	2.07	0.46	1.11	72.41	48.08	120.49	0.173	No	No	1.29
562	8.61	6.60	34.98	2.15	0.42	1.10	83.15	57.69	140.84	0.238	No	No	1.95
563	8.62	6.03	42.12	2.24	0.46	1.11	59.95	57.77	117.72	0.167	No	No	1.23
564	8.63	5.15	53.73	2.38	0.47	1.11	53.52	61.66	115.19	0.161	No	No	1.19
565	8.64	4.40	62.74	2.50	0.46	1.11	55.02	64.91	119.93	0.171	No	No	1.28
566	8.65	3.67	74.19	2.64	0.50	1.12	35.50	0.00	35.50	4.000	No	Yes	2.00
567	8.66	2.77	90.01	2.84	0.52	1.12	29.94	0.00	29.94	4.000	No	Yes	2.00
568	8.67	2.30	100.00	2.99	0.53	1.12	25.89	0.00	25.89	4.000	No	Yes	2.00
569	8.68	1.94	100.00	3.13	0.55	1.13	19.88	0.00	19.88	4.000	No	Yes	2.00
570	8.69	1.70	100.00	3.25	0.55	1.13	18.11	0.00	18.11	4.000	No	Yes	2.00
571	8.70	1.62	100.00	3.29	0.55	1.13	17.77	0.00	17.77	4.000	No	Yes	2.00
572	8.71	1.48	100.00	3.32	0.56	1.13	17.11	0.00	17.11	4.000	No	Yes	2.00
573	8.72	1.31	100.00	3.36	0.57	1.13	13.47	0.00	13.47	4.000	No	Yes	2.00
574	8.73	1.17	100.00	3.39	0.57	1.13	12.25	0.00	12.25	4.000	No	Yes	2.00
575	8.74	1.14	100.00	3.38	0.57	1.13	12.24	0.00	12.24	4.000	No	Yes	2.00
576	8.75	1.16	100.00	3.36	0.57	1.13	12.56	0.00	12.56	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	8.76	1.21	100.00	3.32	0.57	1.13	12.67	0.00	12.67	4.000	No	Yes	2.00
578	8.77	1.22	100.00	3.28	0.57	1.12	13.87	0.00	13.87	4.000	No	Yes	2.00
579	8.78	1.24	100.00	3.25	0.57	1.12	12.98	0.00	12.98	4.000	No	Yes	2.00
580	8.79	1.18	100.00	3.24	0.57	1.12	13.19	0.00	13.19	4.000	No	Yes	2.00
581	8.80	1.15	100.00	3.22	0.57	1.12	11.98	0.00	11.98	4.000	No	Yes	2.00
582	8.81	1.11	100.00	3.20	0.58	1.12	11.86	0.00	11.86	4.000	No	Yes	2.00
583	8.82	1.10	100.00	3.17	0.58	1.12	11.74	0.00	11.74	4.000	No	Yes	2.00
584	8.83	1.09	100.00	3.16	0.58	1.12	11.63	0.00	11.63	4.000	No	Yes	2.00
585	8.84	1.11	100.00	3.14	0.58	1.12	11.73	0.00	11.73	4.000	No	Yes	2.00
586	8.85	1.14	100.00	3.12	0.57	1.12	12.27	0.00	12.27	4.000	No	Yes	2.00
587	8.86	1.17	100.00	3.11	0.57	1.12	12.60	0.00	12.60	4.000	No	Yes	2.00
588	8.87	1.20	100.00	3.10	0.57	1.12	12.81	0.00	12.81	4.000	No	Yes	2.00
589	8.88	1.22	100.00	3.09	0.57	1.12	13.13	0.00	13.13	4.000	No	Yes	2.00
590	8.89	1.25	100.00	3.08	0.57	1.12	13.56	0.00	13.56	4.000	No	Yes	2.00
591	8.90	1.27	100.00	3.08	0.57	1.12	13.66	0.00	13.66	4.000	No	Yes	2.00
592	8.91	1.27	100.00	3.09	0.57	1.12	13.76	0.00	13.76	4.000	No	Yes	2.00
593	8.92	1.28	100.00	3.10	0.57	1.11	13.75	0.00	13.75	4.000	No	Yes	2.00
594	8.93	1.27	100.00	3.12	0.57	1.11	13.75	0.00	13.75	4.000	No	Yes	2.00
595	8.94	1.26	100.00	3.13	0.57	1.11	13.52	0.00	13.52	4.000	No	Yes	2.00
596	8.95	1.25	100.00	3.14	0.57	1.11	13.51	0.00	13.51	4.000	No	Yes	2.00
597	8.96	1.25	100.00	3.14	0.57	1.11	13.51	0.00	13.51	4.000	No	Yes	2.00
598	8.97	1.25	100.00	3.15	0.57	1.11	13.50	0.00	13.50	4.000	No	Yes	2.00
599	8.98	1.25	100.00	3.15	0.57	1.11	13.49	0.00	13.49	4.000	No	Yes	2.00
600	8.99	1.24	100.00	3.16	0.57	1.11	13.27	0.00	13.27	4.000	No	Yes	2.00
601	9.00	1.22	100.00	3.17	0.57	1.11	13.26	0.00	13.26	4.000	No	Yes	2.00
602	9.01	1.21	100.00	3.18	0.57	1.11	12.93	0.00	12.93	4.000	No	Yes	2.00
603	9.02	1.21	100.00	3.18	0.57	1.11	12.81	0.00	12.81	4.000	No	Yes	2.00
604	9.03	1.19	100.00	3.19	0.57	1.11	13.13	0.00	13.13	4.000	No	Yes	2.00
605	9.04	1.16	100.00	3.20	0.57	1.11	12.36	0.00	12.36	4.000	No	Yes	2.00
606	9.05	1.12	100.00	3.23	0.58	1.11	11.81	0.00	11.81	4.000	No	Yes	2.00
607	9.06	1.10	100.00	3.24	0.58	1.11	11.81	0.00	11.81	4.000	No	Yes	2.00
608	9.07	1.09	100.00	3.23	0.58	1.11	11.80	0.00	11.80	4.000	No	Yes	2.00
609	9.08	1.08	100.00	3.21	0.58	1.11	11.58	0.00	11.58	4.000	No	Yes	2.00
610	9.09	1.06	100.00	3.20	0.58	1.11	11.35	0.00	11.35	4.000	No	Yes	2.00
611	9.10	1.04	100.00	3.21	0.58	1.11	11.24	0.00	11.24	4.000	No	Yes	2.00
612	9.11	1.02	100.00	3.22	0.58	1.11	10.91	0.00	10.91	4.000	No	Yes	2.00
613	9.12	1.00	100.00	3.24	0.58	1.10	10.69	0.00	10.69	4.000	No	Yes	2.00
614	9.13	0.98	100.00	3.25	0.58	1.10	10.57	0.00	10.57	4.000	No	Yes	2.00
615	9.14	0.97	100.00	3.25	0.58	1.10	10.35	0.00	10.35	4.000	No	Yes	2.00
616	9.15	0.96	100.00	3.25	0.58	1.10	10.24	0.00	10.24	4.000	No	Yes	2.00
617	9.16	0.97	100.00	3.24	0.58	1.10	10.34	0.00	10.34	4.000	No	Yes	2.00
618	9.17	0.97	100.00	3.23	0.58	1.10	10.33	0.00	10.33	4.000	No	Yes	2.00
619	9.18	0.98	100.00	3.22	0.58	1.10	10.44	0.00	10.44	4.000	No	Yes	2.00
620	9.19	1.00	100.00	3.19	0.58	1.10	10.54	0.00	10.54	4.000	No	Yes	2.00
621	9.20	1.02	100.00	3.16	0.58	1.10	10.96	0.00	10.96	4.000	No	Yes	2.00
622	9.21	1.04	100.00	3.12	0.58	1.10	11.07	0.00	11.07	4.000	No	Yes	2.00
623	9.22	1.05	100.00	3.11	0.58	1.10	11.28	0.00	11.28	4.000	No	Yes	2.00
624	9.23	1.05	100.00	3.10	0.58	1.10	11.16	0.00	11.16	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	9.24	1.03	100.00	3.11	0.58	1.10	10.94	0.00	10.94	4.000	No	Yes	2.00
626	9.25	1.02	100.00	3.12	0.58	1.10	10.51	0.00	10.51	4.000	No	Yes	2.00
627	9.26	0.99	100.00	3.14	0.58	1.10	10.39	0.00	10.39	4.000	No	Yes	2.00
628	9.27	0.97	100.00	3.16	0.58	1.10	10.07	0.00	10.07	4.000	No	Yes	2.00
629	9.28	0.94	100.00	3.18	0.58	1.10	9.74	0.00	9.74	4.000	No	Yes	2.00
630	9.29	0.92	100.00	3.19	0.58	1.10	9.52	0.00	9.52	4.000	No	Yes	2.00
631	9.30	0.90	100.00	3.21	0.59	1.10	9.30	0.00	9.30	4.000	No	Yes	2.00
632	9.31	0.88	100.00	3.22	0.59	1.10	9.08	0.00	9.08	4.000	No	Yes	2.00
633	9.32	0.87	100.00	3.23	0.59	1.09	9.08	0.00	9.08	4.000	No	Yes	2.00
634	9.33	0.86	100.00	3.24	0.59	1.09	8.86	0.00	8.86	4.000	No	Yes	2.00
635	9.34	0.84	100.00	3.26	0.59	1.09	8.74	0.00	8.74	4.000	No	Yes	2.00
636	9.35	0.82	100.00	3.28	0.59	1.09	8.42	0.00	8.42	4.000	No	Yes	2.00
637	9.36	0.80	100.00	3.30	0.59	1.09	8.31	0.00	8.31	4.000	No	Yes	2.00
638	9.37	0.78	100.00	3.32	0.59	1.09	7.98	0.00	7.98	4.000	No	Yes	2.00
639	9.38	0.76	100.00	3.33	0.59	1.09	7.87	0.00	7.87	4.000	No	Yes	2.00
640	9.39	0.75	100.00	3.34	0.59	1.09	7.65	0.00	7.65	4.000	No	Yes	2.00
641	9.40	0.73	100.00	3.35	0.59	1.09	7.54	0.00	7.54	4.000	No	Yes	2.00
642	9.41	0.71	100.00	3.36	0.59	1.09	7.21	0.00	7.21	4.000	No	Yes	2.00
643	9.42	0.70	100.00	3.36	0.59	1.09	7.21	0.00	7.21	4.000	No	Yes	2.00
644	9.43	0.70	100.00	3.35	0.59	1.09	7.10	0.00	7.10	4.000	No	Yes	2.00
645	9.44	0.70	100.00	3.33	0.59	1.09	7.10	0.00	7.10	4.000	No	Yes	2.00
646	9.45	0.71	100.00	3.30	0.59	1.09	7.20	0.00	7.20	4.000	No	Yes	2.00
647	9.46	0.72	100.00	3.27	0.59	1.09	7.30	0.00	7.30	4.000	No	Yes	2.00
648	9.47	0.74	100.00	3.24	0.59	1.09	7.52	0.00	7.52	4.000	No	Yes	2.00
649	9.48	0.76	100.00	3.19	0.59	1.09	7.73	0.00	7.73	4.000	No	Yes	2.00
650	9.49	0.79	100.00	3.15	0.59	1.09	8.15	0.00	8.15	4.000	No	Yes	2.00
651	9.50	0.82	100.00	3.10	0.59	1.09	8.36	0.00	8.36	4.000	No	Yes	2.00
652	9.51	0.84	100.00	3.07	0.59	1.09	8.68	0.00	8.68	4.000	No	Yes	2.00
653	9.52	0.87	100.00	3.04	0.59	1.08	8.88	0.00	8.88	4.000	No	Yes	2.00
654	9.53	0.89	100.00	3.03	0.59	1.08	9.20	0.00	9.20	4.000	No	Yes	2.00
655	9.54	0.91	100.00	3.03	0.59	1.08	9.30	0.00	9.30	4.000	No	Yes	2.00
656	9.55	0.92	100.00	3.03	0.58	1.08	9.41	0.00	9.41	4.000	No	Yes	2.00
657	9.56	0.92	100.00	3.04	0.58	1.08	9.51	0.00	9.51	4.000	No	Yes	2.00
658	9.57	0.92	100.00	3.06	0.58	1.08	9.50	0.00	9.50	4.000	No	Yes	2.00
659	9.58	0.92	100.00	3.07	0.58	1.08	9.39	0.00	9.39	4.000	No	Yes	2.00
660	9.59	0.92	100.00	3.09	0.58	1.08	9.39	0.00	9.39	4.000	No	Yes	2.00
661	9.60	0.92	100.00	3.10	0.58	1.08	9.38	0.00	9.38	4.000	No	Yes	2.00
662	9.61	0.91	100.00	3.12	0.58	1.08	9.38	0.00	9.38	4.000	No	Yes	2.00
663	9.62	0.91	100.00	3.14	0.59	1.08	9.27	0.00	9.27	4.000	No	Yes	2.00
664	9.63	0.90	100.00	3.16	0.59	1.08	9.16	0.00	9.16	4.000	No	Yes	2.00
665	9.64	0.90	100.00	3.17	0.59	1.08	9.16	0.00	9.16	4.000	No	Yes	2.00
666	9.65	0.89	100.00	3.19	0.59	1.08	9.15	0.00	9.15	4.000	No	Yes	2.00
667	9.66	0.87	100.00	3.21	0.59	1.08	8.93	0.00	8.93	4.000	No	Yes	2.00
668	9.67	0.85	100.00	3.24	0.59	1.08	8.61	0.00	8.61	4.000	No	Yes	2.00
669	9.68	0.82	100.00	3.27	0.59	1.08	8.40	0.00	8.40	4.000	No	Yes	2.00
670	9.69	0.79	100.00	3.30	0.59	1.08	7.97	0.00	7.97	4.000	No	Yes	2.00
671	9.70	0.77	100.00	3.32	0.59	1.08	7.75	0.00	7.75	4.000	No	Yes	2.00
672	9.71	0.74	100.00	3.34	0.59	1.08	7.54	0.00	7.54	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	9.72	0.72	100.00	3.35	0.59	1.08	7.22	0.00	7.22	4.000	No	Yes	2.00
674	9.73	0.71	100.00	3.36	0.59	1.08	7.11	0.00	7.11	4.000	No	Yes	2.00
675	9.74	0.70	100.00	3.36	0.59	1.07	7.00	0.00	7.00	4.000	No	Yes	2.00
676	9.75	0.69	100.00	3.36	0.59	1.07	6.89	0.00	6.89	4.000	No	Yes	2.00
677	9.76	0.67	100.00	3.37	0.60	1.07	6.78	0.00	6.78	4.000	No	Yes	2.00
678	9.77	0.66	100.00	3.37	0.60	1.07	6.57	0.00	6.57	4.000	No	Yes	2.00
679	9.78	0.67	100.00	3.35	0.60	1.07	6.57	0.00	6.57	4.000	No	Yes	2.00
680	9.79	0.68	100.00	3.31	0.60	1.07	6.77	0.00	6.77	4.000	No	Yes	2.00
681	9.80	0.71	100.00	3.25	0.59	1.07	6.98	0.00	6.98	4.000	No	Yes	2.00
682	9.81	0.74	100.00	3.19	0.59	1.07	7.40	0.00	7.40	4.000	No	Yes	2.00
683	9.82	0.80	100.00	3.11	0.59	1.07	7.71	0.00	7.71	4.000	No	Yes	2.00
684	9.83	0.84	100.00	3.05	0.59	1.07	8.45	0.00	8.45	4.000	No	Yes	2.00
685	9.84	0.90	100.00	2.99	0.59	1.07	8.76	0.00	8.76	4.000	No	Yes	2.00
686	9.85	0.95	98.18	2.94	0.58	1.07	9.49	0.00	9.49	4.000	No	Yes	2.00
687	9.86	0.99	94.83	2.90	0.58	1.07	9.91	0.00	9.91	4.000	No	Yes	2.00
688	9.87	1.02	93.16	2.88	0.58	1.07	10.11	0.00	10.11	4.000	No	Yes	2.00
689	9.88	1.04	92.55	2.87	0.58	1.07	10.42	0.00	10.42	4.000	No	Yes	2.00
690	9.89	1.06	92.49	2.87	0.58	1.07	10.63	0.00	10.63	4.000	No	Yes	2.00
691	9.90	1.09	93.09	2.88	0.58	1.07	10.94	0.00	10.94	4.000	No	Yes	2.00
692	9.91	1.11	94.17	2.89	0.58	1.07	11.25	0.00	11.25	4.000	No	Yes	2.00
693	9.92	1.11	96.19	2.91	0.58	1.06	11.24	0.00	11.24	4.000	No	Yes	2.00
694	9.93	1.11	99.05	2.95	0.58	1.06	11.24	0.00	11.24	4.000	No	Yes	2.00
695	9.94	1.09	100.00	2.99	0.58	1.06	11.13	0.00	11.13	4.000	No	Yes	2.00
696	9.95	1.09	100.00	3.02	0.58	1.06	10.91	0.00	10.91	4.000	No	Yes	2.00
697	9.96	1.08	100.00	3.05	0.58	1.06	11.01	0.00	11.01	4.000	No	Yes	2.00
698	9.97	1.07	100.00	3.08	0.58	1.06	10.90	0.00	10.90	4.000	No	Yes	2.00
699	9.98	1.07	100.00	3.11	0.58	1.06	10.79	0.00	10.79	4.000	No	Yes	2.00
700	9.99	1.06	100.00	3.13	0.58	1.06	10.79	0.00	10.79	4.000	No	Yes	2.00
701	10.00	1.06	100.00	3.15	0.58	1.06	10.78	0.00	10.78	4.000	No	Yes	2.00
702	10.01	1.06	100.00	3.18	0.58	1.06	10.67	0.00	10.67	4.000	No	Yes	2.00
703	10.02	1.05	100.00	3.20	0.58	1.06	10.57	0.00	10.57	4.000	No	Yes	2.00
704	10.03	1.05	100.00	3.21	0.58	1.06	10.56	0.00	10.56	4.000	No	Yes	2.00
705	10.04	1.05	100.00	3.21	0.58	1.06	10.55	0.00	10.55	4.000	No	Yes	2.00
706	10.05	1.05	100.00	3.21	0.58	1.06	10.55	0.00	10.55	4.000	No	Yes	2.00
707	10.06	1.06	100.00	3.18	0.58	1.06	10.54	0.00	10.54	4.000	No	Yes	2.00
708	10.07	1.06	100.00	3.15	0.58	1.06	10.85	0.00	10.85	4.000	No	Yes	2.00
709	10.08	1.07	100.00	3.13	0.58	1.06	10.85	0.00	10.85	4.000	No	Yes	2.00
710	10.09	1.08	100.00	3.12	0.58	1.06	10.84	0.00	10.84	4.000	No	Yes	2.00
711	10.10	1.08	100.00	3.12	0.58	1.06	11.04	0.00	11.04	4.000	No	Yes	2.00
712	10.11	1.08	100.00	3.13	0.58	1.06	10.93	0.00	10.93	4.000	No	Yes	2.00
713	10.12	1.07	100.00	3.15	0.58	1.05	10.72	0.00	10.72	4.000	No	Yes	2.00
714	10.13	1.06	100.00	3.15	0.58	1.05	10.61	0.00	10.61	4.000	No	Yes	2.00
715	10.14	1.06	100.00	3.15	0.58	1.05	10.61	0.00	10.61	4.000	No	Yes	2.00
716	10.15	1.06	100.00	3.15	0.58	1.05	10.71	0.00	10.71	4.000	No	Yes	2.00
717	10.16	1.07	100.00	3.15	0.58	1.05	10.70	0.00	10.70	4.000	No	Yes	2.00
718	10.17	1.07	100.00	3.15	0.58	1.05	10.80	0.00	10.80	4.000	No	Yes	2.00
719	10.18	1.07	100.00	3.15	0.58	1.05	10.69	0.00	10.69	4.000	No	Yes	2.00
720	10.19	1.06	100.00	3.16	0.58	1.05	10.69	0.00	10.69	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	10.20	1.06	100.00	3.15	0.58	1.05	10.58	0.00	10.58	4.000	No	Yes	2.00
722	10.21	1.04	100.00	3.16	0.58	1.05	10.47	0.00	10.47	4.000	No	Yes	2.00
723	10.22	1.03	100.00	3.16	0.58	1.05	10.26	0.00	10.26	4.000	No	Yes	2.00
724	10.23	1.03	100.00	3.16	0.58	1.05	10.25	0.00	10.25	4.000	No	Yes	2.00
725	10.24	1.04	100.00	3.14	0.58	1.05	10.25	0.00	10.25	4.000	No	Yes	2.00
726	10.25	1.05	100.00	3.13	0.58	1.05	10.55	0.00	10.55	4.000	No	Yes	2.00
727	10.26	1.06	100.00	3.12	0.58	1.05	10.65	0.00	10.65	4.000	No	Yes	2.00
728	10.27	1.07	100.00	3.12	0.58	1.05	10.65	0.00	10.65	4.000	No	Yes	2.00
729	10.28	1.08	100.00	3.11	0.58	1.05	10.64	0.00	10.64	4.000	No	Yes	2.00
730	10.29	1.09	100.00	3.10	0.58	1.05	10.84	0.00	10.84	4.000	No	Yes	2.00
731	10.30	1.11	100.00	3.09	0.58	1.05	11.04	0.00	11.04	4.000	No	Yes	2.00
732	10.31	1.13	100.00	3.07	0.58	1.05	11.24	0.00	11.24	4.000	No	Yes	2.00
733	10.32	1.15	100.00	3.05	0.58	1.04	11.55	0.00	11.55	4.000	No	Yes	2.00
734	10.33	1.17	100.00	3.04	0.58	1.04	11.65	0.00	11.65	4.000	No	Yes	2.00
735	10.34	1.17	100.00	3.05	0.58	1.04	11.64	0.00	11.64	4.000	No	Yes	2.00
736	10.35	1.16	100.00	3.06	0.58	1.04	11.53	0.00	11.53	4.000	No	Yes	2.00
737	10.36	1.15	100.00	3.07	0.58	1.04	11.32	0.00	11.32	4.000	No	Yes	2.00
738	10.37	1.14	100.00	3.09	0.58	1.04	11.32	0.00	11.32	4.000	No	Yes	2.00
739	10.38	1.13	100.00	3.10	0.58	1.04	11.31	0.00	11.31	4.000	No	Yes	2.00
740	10.39	1.12	100.00	3.11	0.58	1.04	11.10	0.00	11.10	4.000	No	Yes	2.00
741	10.40	1.11	100.00	3.13	0.58	1.04	10.99	0.00	10.99	4.000	No	Yes	2.00
742	10.41	1.11	100.00	3.14	0.58	1.04	10.99	0.00	10.99	4.000	No	Yes	2.00
743	10.42	1.11	100.00	3.15	0.58	1.04	10.98	0.00	10.98	4.000	No	Yes	2.00
744	10.43	1.11	100.00	3.16	0.58	1.04	10.88	0.00	10.88	4.000	No	Yes	2.00
745	10.44	1.11	100.00	3.17	0.58	1.04	10.97	0.00	10.97	4.000	No	Yes	2.00
746	10.45	1.11	100.00	3.18	0.58	1.04	11.07	0.00	11.07	4.000	No	Yes	2.00
747	10.46	1.10	100.00	3.19	0.58	1.04	10.76	0.00	10.76	4.000	No	Yes	2.00
748	10.47	1.09	100.00	3.20	0.58	1.04	10.75	0.00	10.75	4.000	No	Yes	2.00
749	10.48	1.08	100.00	3.21	0.58	1.04	10.65	0.00	10.65	4.000	No	Yes	2.00
750	10.49	1.08	100.00	3.21	0.58	1.04	10.64	0.00	10.64	4.000	No	Yes	2.00
751	10.50	1.08	100.00	3.21	0.58	1.04	10.64	0.00	10.64	4.000	No	Yes	2.00
752	10.51	1.07	100.00	3.21	0.58	1.04	10.63	0.00	10.63	4.000	No	Yes	2.00
753	10.52	1.07	100.00	3.22	0.58	1.04	10.52	0.00	10.52	4.000	No	Yes	2.00
754	10.53	1.06	100.00	3.22	0.58	1.03	10.42	0.00	10.42	4.000	No	Yes	2.00
755	10.54	1.05	100.00	3.23	0.58	1.03	10.31	0.00	10.31	4.000	No	Yes	2.00
756	10.55	1.04	100.00	3.23	0.58	1.03	10.31	0.00	10.31	4.000	No	Yes	2.00
757	10.56	1.04	100.00	3.23	0.58	1.03	10.20	0.00	10.20	4.000	No	Yes	2.00
758	10.57	1.03	100.00	3.24	0.58	1.03	10.09	0.00	10.09	4.000	No	Yes	2.00
759	10.58	1.03	100.00	3.24	0.58	1.03	10.19	0.00	10.19	4.000	No	Yes	2.00
760	10.59	1.04	100.00	3.23	0.58	1.03	10.18	0.00	10.18	4.000	No	Yes	2.00
761	10.60	1.05	100.00	3.22	0.58	1.03	10.28	0.00	10.28	4.000	No	Yes	2.00
762	10.61	1.05	100.00	3.21	0.58	1.03	10.38	0.00	10.38	4.000	No	Yes	2.00
763	10.62	1.06	100.00	3.20	0.58	1.03	10.37	0.00	10.37	4.000	No	Yes	2.00
764	10.63	1.07	100.00	3.19	0.58	1.03	10.57	0.00	10.57	4.000	No	Yes	2.00
765	10.64	1.09	100.00	3.18	0.58	1.03	10.67	0.00	10.67	4.000	No	Yes	2.00
766	10.65	1.09	100.00	3.17	0.58	1.03	10.76	0.00	10.76	4.000	No	Yes	2.00
767	10.66	1.10	100.00	3.17	0.58	1.03	10.76	0.00	10.76	4.000	No	Yes	2.00
768	10.67	1.09	100.00	3.17	0.58	1.03	10.75	0.00	10.75	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	10.68	1.09	100.00	3.16	0.58	1.03	10.65	0.00	10.65	4.000	No	Yes	2.00
770	10.69	1.10	100.00	3.16	0.58	1.03	10.74	0.00	10.74	4.000	No	Yes	2.00
771	10.70	1.11	100.00	3.14	0.58	1.03	10.94	0.00	10.94	4.000	No	Yes	2.00
772	10.71	1.13	100.00	3.13	0.58	1.03	11.04	0.00	11.04	4.000	No	Yes	2.00
773	10.72	1.14	100.00	3.13	0.58	1.03	11.23	0.00	11.23	4.000	No	Yes	2.00
774	10.73	1.16	100.00	3.12	0.58	1.03	11.33	0.00	11.33	4.000	No	Yes	2.00
775	10.74	1.18	100.00	3.11	0.58	1.02	11.53	0.00	11.53	4.000	No	Yes	2.00
776	10.75	1.20	100.00	3.10	0.58	1.02	11.82	0.00	11.82	4.000	No	Yes	2.00
777	10.76	1.23	100.00	3.09	0.57	1.02	12.02	0.00	12.02	4.000	No	Yes	2.00
778	10.77	1.26	100.00	3.08	0.57	1.02	12.42	0.00	12.42	4.000	No	Yes	2.00
779	10.78	1.29	100.00	3.07	0.57	1.02	12.61	0.00	12.61	4.000	No	Yes	2.00
780	10.79	1.32	100.00	3.05	0.57	1.02	13.01	0.00	13.01	4.000	No	Yes	2.00
781	10.80	1.35	100.00	3.04	0.57	1.02	13.21	0.00	13.21	4.000	No	Yes	2.00
782	10.81	1.38	100.00	3.02	0.57	1.02	13.60	0.00	13.60	4.000	No	Yes	2.00
783	10.82	1.42	100.00	3.01	0.57	1.02	13.90	0.00	13.90	4.000	No	Yes	2.00
784	10.83	1.43	100.00	3.01	0.57	1.02	14.19	0.00	14.19	4.000	No	Yes	2.00
785	10.84	1.45	100.00	3.01	0.57	1.02	14.19	0.00	14.19	4.000	No	Yes	2.00
786	10.85	1.45	100.00	3.01	0.57	1.02	14.28	0.00	14.28	4.000	No	Yes	2.00
787	10.86	1.46	100.00	3.02	0.57	1.02	14.27	0.00	14.27	4.000	No	Yes	2.00
788	10.87	1.47	100.00	3.02	0.57	1.02	14.37	0.00	14.37	4.000	No	Yes	2.00
789	10.88	1.47	100.00	3.02	0.57	1.02	14.56	0.00	14.56	4.000	No	Yes	2.00
790	10.89	1.48	100.00	3.03	0.57	1.02	14.56	0.00	14.56	4.000	No	Yes	2.00
791	10.90	1.47	100.00	3.04	0.57	1.02	14.45	0.00	14.45	4.000	No	Yes	2.00
792	10.91	1.47	100.00	3.05	0.57	1.02	14.44	0.00	14.44	4.000	No	Yes	2.00
793	10.92	1.47	100.00	3.07	0.57	1.02	14.43	0.00	14.43	4.000	No	Yes	2.00
794	10.93	1.47	100.00	3.08	0.57	1.02	14.43	0.00	14.43	4.000	No	Yes	2.00
795	10.94	1.46	100.00	3.10	0.57	1.01	14.42	0.00	14.42	4.000	No	Yes	2.00
796	10.95	1.46	100.00	3.11	0.57	1.01	14.31	0.00	14.31	4.000	No	Yes	2.00
797	10.96	1.46	100.00	3.12	0.57	1.01	14.31	0.00	14.31	4.000	No	Yes	2.00
798	10.97	1.45	100.00	3.13	0.57	1.01	14.40	0.00	14.40	4.000	No	Yes	2.00
799	10.98	1.44	100.00	3.14	0.57	1.01	14.09	0.00	14.09	4.000	No	Yes	2.00
800	10.99	1.42	100.00	3.16	0.57	1.01	13.99	0.00	13.99	4.000	No	Yes	2.00
801	11.00	1.40	100.00	3.18	0.57	1.01	13.68	0.00	13.68	4.000	No	Yes	2.00
802	11.01	1.38	100.00	3.19	0.57	1.01	13.57	0.00	13.57	4.000	No	Yes	2.00
803	11.02	1.37	100.00	3.20	0.57	1.01	13.37	0.00	13.37	4.000	No	Yes	2.00
804	11.03	1.35	100.00	3.21	0.57	1.01	13.16	0.00	13.16	4.000	No	Yes	2.00
805	11.04	1.34	100.00	3.22	0.57	1.01	13.06	0.00	13.06	4.000	No	Yes	2.00
806	11.05	1.34	100.00	3.22	0.57	1.01	13.05	0.00	13.05	4.000	No	Yes	2.00
807	11.06	1.33	100.00	3.21	0.57	1.01	13.04	0.00	13.04	4.000	No	Yes	2.00
808	11.07	1.32	100.00	3.21	0.57	1.01	12.84	0.00	12.84	4.000	No	Yes	2.00
809	11.08	1.31	100.00	3.21	0.57	1.01	12.73	0.00	12.73	4.000	No	Yes	2.00
810	11.09	1.30	100.00	3.20	0.57	1.01	12.63	0.00	12.63	4.000	No	Yes	2.00
811	11.10	1.31	100.00	3.20	0.57	1.01	12.72	0.00	12.72	4.000	No	Yes	2.00
812	11.11	1.31	100.00	3.19	0.57	1.01	12.81	0.00	12.81	4.000	No	Yes	2.00
813	11.12	1.32	100.00	3.17	0.57	1.01	12.81	0.00	12.81	4.000	No	Yes	2.00
814	11.13	1.33	100.00	3.16	0.57	1.01	12.90	0.00	12.90	4.000	No	Yes	2.00
815	11.14	1.33	100.00	3.15	0.57	1.01	13.00	0.00	13.00	4.000	No	Yes	2.00
816	11.15	1.33	100.00	3.15	0.57	1.00	12.99	0.00	12.99	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	11.16	1.33	100.00	3.15	0.57	1.00	12.88	0.00	12.88	4.000	No	Yes	2.00
818	11.17	1.33	100.00	3.15	0.57	1.00	12.88	0.00	12.88	4.000	No	Yes	2.00
819	11.18	1.33	100.00	3.14	0.57	1.00	12.97	0.00	12.97	4.000	No	Yes	2.00
820	11.19	1.34	100.00	3.14	0.57	1.00	12.97	0.00	12.97	4.000	No	Yes	2.00
821	11.20	1.35	100.00	3.13	0.57	1.00	13.16	0.00	13.16	4.000	No	Yes	2.00
822	11.21	1.37	100.00	3.12	0.57	1.00	13.25	0.00	13.25	4.000	No	Yes	2.00
823	11.22	1.38	100.00	3.11	0.57	1.00	13.34	0.00	13.34	4.000	No	Yes	2.00
824	11.23	1.39	100.00	3.11	0.57	1.00	13.53	0.00	13.53	4.000	No	Yes	2.00
825	11.24	1.41	100.00	3.11	0.57	1.00	13.63	0.00	13.63	4.000	No	Yes	2.00
826	11.25	1.42	100.00	3.10	0.57	1.00	13.72	0.00	13.72	4.000	No	Yes	2.00
827	11.26	1.43	100.00	3.10	0.57	1.00	13.81	0.00	13.81	4.000	No	Yes	2.00
828	11.27	1.44	100.00	3.10	0.57	1.00	14.00	0.00	14.00	4.000	No	Yes	2.00
829	11.28	1.46	100.00	3.09	0.57	1.00	14.09	0.00	14.09	4.000	No	Yes	2.00
830	11.29	1.48	100.00	3.08	0.57	1.00	14.19	0.00	14.19	4.000	No	Yes	2.00
831	11.30	1.50	100.00	3.07	0.57	1.00	14.48	0.00	14.48	4.000	No	Yes	2.00
832	11.31	1.52	100.00	3.06	0.56	1.00	14.86	0.00	14.86	4.000	No	Yes	2.00
833	11.32	1.54	100.00	3.06	0.56	1.00	14.86	0.00	14.86	4.000	No	Yes	2.00
834	11.33	1.53	100.00	3.07	0.56	1.00	14.85	0.00	14.85	4.000	No	Yes	2.00
835	11.34	1.53	100.00	3.08	0.56	1.00	14.74	0.00	14.74	4.000	No	Yes	2.00
836	11.35	1.51	100.00	3.10	0.56	1.00	14.64	0.00	14.64	4.000	No	Yes	2.00
837	11.36	1.50	100.00	3.11	0.57	0.99	14.44	0.00	14.44	4.000	No	Yes	2.00
838	11.37	1.50	100.00	3.12	0.57	0.99	14.33	0.00	14.33	4.000	No	Yes	2.00
839	11.38	1.51	100.00	3.12	0.56	0.99	14.62	0.00	14.62	4.000	No	Yes	2.00
840	11.39	1.53	100.00	3.12	0.56	0.99	14.71	0.00	14.71	4.000	No	Yes	2.00
841	11.40	1.54	100.00	3.11	0.56	0.99	14.90	0.00	14.90	4.000	No	Yes	2.00
842	11.41	1.55	100.00	3.11	0.56	0.99	14.99	0.00	14.99	4.000	No	Yes	2.00
843	11.42	1.56	100.00	3.12	0.56	0.99	14.98	0.00	14.98	4.000	No	Yes	2.00
844	11.43	1.56	100.00	3.12	0.56	0.99	14.98	0.00	14.98	4.000	No	Yes	2.00
845	11.44	1.55	100.00	3.13	0.56	0.99	14.97	0.00	14.97	4.000	No	Yes	2.00
846	11.45	1.55	100.00	3.13	0.56	0.99	14.77	0.00	14.77	4.000	No	Yes	2.00
847	11.46	1.54	100.00	3.13	0.56	0.99	14.86	0.00	14.86	4.000	No	Yes	2.00
848	11.47	1.55	100.00	3.13	0.56	0.99	14.85	0.00	14.85	4.000	No	Yes	2.00
849	11.48	1.56	100.00	3.12	0.56	0.99	14.94	0.00	14.94	4.000	No	Yes	2.00
850	11.49	1.57	100.00	3.11	0.56	0.99	15.03	0.00	15.03	4.000	No	Yes	2.00
851	11.50	1.58	100.00	3.10	0.56	0.99	15.12	0.00	15.12	4.000	No	Yes	2.00
852	11.51	1.58	100.00	3.10	0.56	0.99	15.21	0.00	15.21	4.000	No	Yes	2.00
853	11.52	1.59	100.00	3.09	0.56	0.99	15.21	0.00	15.21	4.000	No	Yes	2.00
854	11.53	1.59	100.00	3.09	0.56	0.99	15.30	0.00	15.30	4.000	No	Yes	2.00
855	11.54	1.58	100.00	3.10	0.56	0.99	15.09	0.00	15.09	4.000	No	Yes	2.00
856	11.55	1.57	100.00	3.10	0.56	0.99	14.99	0.00	14.99	4.000	No	Yes	2.00
857	11.56	1.55	100.00	3.11	0.56	0.99	14.89	0.00	14.89	4.000	No	Yes	2.00
858	11.57	1.54	100.00	3.11	0.56	0.99	14.78	0.00	14.78	4.000	No	Yes	2.00
859	11.58	1.52	100.00	3.12	0.56	0.98	14.68	0.00	14.68	4.000	No	Yes	2.00
860	11.59	1.50	100.00	3.13	0.57	0.98	14.28	0.00	14.28	4.000	No	Yes	2.00
861	11.60	1.48	100.00	3.15	0.57	0.98	14.18	0.00	14.18	4.000	No	Yes	2.00
862	11.61	1.47	100.00	3.15	0.57	0.98	14.07	0.00	14.07	4.000	No	Yes	2.00
863	11.62	1.46	100.00	3.16	0.57	0.98	13.97	0.00	13.97	4.000	No	Yes	2.00
864	11.63	1.46	100.00	3.16	0.57	0.98	13.77	0.00	13.77	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	11.64	1.45	100.00	3.16	0.57	0.98	13.96	0.00	13.96	4.000	No	Yes	2.00
866	11.65	1.45	100.00	3.17	0.57	0.98	13.85	0.00	13.85	4.000	No	Yes	2.00
867	11.66	1.42	100.00	3.18	0.57	0.98	13.56	0.00	13.56	4.000	No	Yes	2.00
868	11.67	1.39	100.00	3.20	0.57	0.98	13.26	0.00	13.26	4.000	No	Yes	2.00
869	11.68	1.37	100.00	3.21	0.57	0.98	12.96	0.00	12.96	4.000	No	Yes	2.00
870	11.69	1.36	100.00	3.21	0.57	0.98	12.86	0.00	12.86	4.000	No	Yes	2.00
871	11.70	1.36	100.00	3.20	0.57	0.98	12.85	0.00	12.85	4.000	No	Yes	2.00
872	11.71	1.34	100.00	3.20	0.57	0.98	12.94	0.00	12.94	4.000	No	Yes	2.00
873	11.72	1.32	100.00	3.21	0.57	0.98	12.46	0.00	12.46	4.000	No	Yes	2.00
874	11.73	1.27	100.00	3.23	0.57	0.98	12.06	0.00	12.06	4.000	No	Yes	2.00
875	11.74	1.23	100.00	3.25	0.58	0.98	11.67	0.00	11.67	4.000	No	Yes	2.00
876	11.75	1.20	100.00	3.27	0.58	0.98	11.28	0.00	11.28	4.000	No	Yes	2.00
877	11.76	1.17	100.00	3.29	0.58	0.98	11.08	0.00	11.08	4.000	No	Yes	2.00
878	11.77	1.16	100.00	3.29	0.58	0.98	10.88	0.00	10.88	4.000	No	Yes	2.00
879	11.78	1.15	100.00	3.30	0.58	0.98	10.78	0.00	10.78	4.000	No	Yes	2.00
880	11.79	1.14	100.00	3.30	0.58	0.97	10.78	0.00	10.78	4.000	No	Yes	2.00
881	11.80	1.15	100.00	3.29	0.58	0.97	10.77	0.00	10.77	4.000	No	Yes	2.00
882	11.81	1.15	100.00	3.29	0.58	0.97	10.86	0.00	10.86	4.000	No	Yes	2.00
883	11.82	1.16	100.00	3.29	0.58	0.97	10.86	0.00	10.86	4.000	No	Yes	2.00
884	11.83	1.16	100.00	3.28	0.58	0.97	10.95	0.00	10.95	4.000	No	Yes	2.00
885	11.84	1.17	100.00	3.27	0.58	0.97	11.04	0.00	11.04	4.000	No	Yes	2.00
886	11.85	1.17	100.00	3.27	0.58	0.97	10.94	0.00	10.94	4.000	No	Yes	2.00
887	11.86	1.17	100.00	3.26	0.58	0.97	11.03	0.00	11.03	4.000	No	Yes	2.00
888	11.87	1.17	100.00	3.25	0.58	0.97	11.03	0.00	11.03	4.000	No	Yes	2.00
889	11.88	1.17	100.00	3.23	0.58	0.97	11.02	0.00	11.02	4.000	No	Yes	2.00
890	11.89	1.18	100.00	3.22	0.58	0.97	11.02	0.00	11.02	4.000	No	Yes	2.00
891	11.90	1.19	100.00	3.21	0.58	0.97	11.20	0.00	11.20	4.000	No	Yes	2.00
892	11.91	1.18	100.00	3.21	0.58	0.97	11.20	0.00	11.20	4.000	No	Yes	2.00
893	11.92	1.16	100.00	3.23	0.58	0.97	10.91	0.00	10.91	4.000	No	Yes	2.00
894	11.93	1.14	100.00	3.25	0.58	0.97	10.61	0.00	10.61	4.000	No	Yes	2.00
895	11.94	1.11	100.00	3.27	0.58	0.97	10.42	0.00	10.42	4.000	No	Yes	2.00
896	11.95	1.09	100.00	3.28	0.58	0.97	10.13	0.00	10.13	4.000	No	Yes	2.00
897	11.96	1.07	100.00	3.30	0.58	0.97	10.03	0.00	10.03	4.000	No	Yes	2.00
898	11.97	1.06	100.00	3.31	0.58	0.97	9.93	0.00	9.93	4.000	No	Yes	2.00
899	11.98	1.05	100.00	3.32	0.58	0.97	9.83	0.00	9.83	4.000	No	Yes	2.00
900	11.99	1.04	100.00	3.34	0.58	0.97	9.73	0.00	9.73	4.000	No	Yes	2.00
901	12.00	1.03	100.00	3.35	0.58	0.97	9.63	0.00	9.63	4.000	No	Yes	2.00
902	12.01	1.02	100.00	3.36	0.58	0.97	9.53	0.00	9.53	4.000	No	Yes	2.00
903	12.02	1.00	100.00	3.38	0.58	0.96	9.33	0.00	9.33	4.000	No	Yes	2.00
904	12.03	0.99	100.00	3.39	0.59	0.96	9.14	0.00	9.14	4.000	No	Yes	2.00
905	12.04	0.98	100.00	3.39	0.59	0.96	9.13	0.00	9.13	4.000	No	Yes	2.00
906	12.05	1.01	100.00	3.34	0.59	0.96	9.13	0.00	9.13	4.000	No	Yes	2.00
907	12.06	1.03	100.00	3.29	0.58	0.96	9.70	0.00	9.70	4.000	No	Yes	2.00
908	12.07	1.05	100.00	3.23	0.58	0.96	9.60	0.00	9.60	4.000	No	Yes	2.00
909	12.08	1.04	100.00	3.23	0.58	0.96	9.50	0.00	9.50	4.000	No	Yes	2.00
910	12.09	1.03	100.00	3.23	0.58	0.96	9.40	0.00	9.40	4.000	No	Yes	2.00
911	12.10	1.02	100.00	3.22	0.59	0.96	9.30	0.00	9.30	4.000	No	Yes	2.00
912	12.11	1.01	100.00	3.22	0.59	0.96	9.20	0.00	9.20	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	12.12	1.01	100.00	3.21	0.59	0.96	9.10	0.00	9.10	4.000	No	Yes	2.00
914	12.13	1.00	100.00	3.21	0.59	0.96	9.10	0.00	9.10	4.000	No	Yes	2.00
915	12.14	1.00	100.00	3.21	0.59	0.96	9.00	0.00	9.00	4.000	No	Yes	2.00
916	12.15	1.01	100.00	3.20	0.59	0.96	9.00	0.00	9.00	4.000	No	Yes	2.00
917	12.16	1.03	100.00	3.17	0.59	0.96	9.28	0.00	9.28	4.000	No	Yes	2.00
918	12.17	1.06	100.00	3.15	0.58	0.96	9.56	0.00	9.56	4.000	No	Yes	2.00
919	12.18	1.09	100.00	3.12	0.58	0.96	9.75	0.00	9.75	4.000	No	Yes	2.00
920	12.19	1.11	100.00	3.10	0.58	0.96	10.12	0.00	10.12	4.000	No	Yes	2.00
921	12.20	1.13	100.00	3.08	0.58	0.96	10.21	0.00	10.21	4.000	No	Yes	2.00
922	12.21	1.14	100.00	3.07	0.58	0.96	10.30	0.00	10.30	4.000	No	Yes	2.00
923	12.22	1.14	100.00	3.07	0.58	0.96	10.30	0.00	10.30	4.000	No	Yes	2.00
924	12.23	1.14	100.00	3.08	0.58	0.96	10.20	0.00	10.20	4.000	No	Yes	2.00
925	12.24	1.14	100.00	3.08	0.58	0.96	10.29	0.00	10.29	4.000	No	Yes	2.00
926	12.25	1.15	100.00	3.09	0.58	0.96	10.29	0.00	10.29	4.000	No	Yes	2.00
927	12.26	1.16	100.00	3.09	0.58	0.96	10.28	0.00	10.28	4.000	No	Yes	2.00
928	12.27	1.17	100.00	3.09	0.58	0.96	10.47	0.00	10.47	4.000	No	Yes	2.00
929	12.28	1.18	100.00	3.08	0.58	0.96	10.66	0.00	10.66	4.000	No	Yes	2.00
930	12.29	1.18	100.00	3.08	0.58	0.96	10.56	0.00	10.56	4.000	No	Yes	2.00
931	12.30	1.18	100.00	3.09	0.58	0.95	10.55	0.00	10.55	4.000	No	Yes	2.00
932	12.31	1.17	100.00	3.10	0.58	0.95	10.45	0.00	10.45	4.000	No	Yes	2.00
933	12.32	1.17	100.00	3.10	0.58	0.95	10.36	0.00	10.36	4.000	No	Yes	2.00
934	12.33	1.18	100.00	3.10	0.58	0.95	10.63	0.00	10.63	4.000	No	Yes	2.00
935	12.34	1.19	100.00	3.11	0.58	0.95	10.63	0.00	10.63	4.000	No	Yes	2.00
936	12.35	1.19	100.00	3.12	0.58	0.95	10.53	0.00	10.53	4.000	No	Yes	2.00
937	12.36	1.19	100.00	3.12	0.58	0.95	10.62	0.00	10.62	4.000	No	Yes	2.00
938	12.37	1.21	100.00	3.11	0.58	0.95	10.71	0.00	10.71	4.000	No	Yes	2.00
939	12.38	1.22	100.00	3.10	0.58	0.95	10.99	0.00	10.99	4.000	No	Yes	2.00
940	12.39	1.23	100.00	3.10	0.58	0.95	10.99	0.00	10.99	4.000	No	Yes	2.00
941	12.40	1.23	100.00	3.10	0.58	0.95	10.98	0.00	10.98	4.000	No	Yes	2.00
942	12.41	1.24	100.00	3.10	0.58	0.95	11.07	0.00	11.07	4.000	No	Yes	2.00
943	12.42	1.25	100.00	3.11	0.58	0.95	11.16	0.00	11.16	4.000	No	Yes	2.00
944	12.43	1.25	100.00	3.11	0.58	0.95	11.16	0.00	11.16	4.000	No	Yes	2.00
945	12.44	1.25	100.00	3.12	0.58	0.95	11.15	0.00	11.15	4.000	No	Yes	2.00
946	12.45	1.25	100.00	3.12	0.58	0.95	11.24	0.00	11.24	4.000	No	Yes	2.00
947	12.46	1.26	100.00	3.13	0.58	0.95	11.24	0.00	11.24	4.000	No	Yes	2.00
948	12.47	1.26	100.00	3.13	0.58	0.95	11.33	0.00	11.33	4.000	No	Yes	2.00
949	12.48	1.28	100.00	3.13	0.58	0.95	11.32	0.00	11.32	4.000	No	Yes	2.00
950	12.49	1.29	100.00	3.13	0.58	0.95	11.60	0.00	11.60	4.000	No	Yes	2.00
951	12.50	1.31	100.00	3.13	0.58	0.95	11.69	0.00	11.69	4.000	No	Yes	2.00
952	12.51	1.33	100.00	3.12	0.58	0.95	11.78	0.00	11.78	4.000	No	Yes	2.00
953	12.52	1.35	100.00	3.11	0.57	0.95	12.15	0.00	12.15	4.000	No	Yes	2.00
954	12.53	1.37	100.00	3.10	0.57	0.95	12.24	0.00	12.24	4.000	No	Yes	2.00
955	12.54	1.40	100.00	3.09	0.57	0.95	12.51	0.00	12.51	4.000	No	Yes	2.00
956	12.55	1.42	100.00	3.08	0.57	0.95	12.79	0.00	12.79	4.000	No	Yes	2.00
957	12.56	1.44	100.00	3.08	0.57	0.95	12.97	0.00	12.97	4.000	No	Yes	2.00
958	12.57	1.43	100.00	3.09	0.57	0.95	12.87	0.00	12.87	4.000	No	Yes	2.00
959	12.58	1.40	100.00	3.11	0.57	0.94	12.59	0.00	12.59	4.000	No	Yes	2.00
960	12.59	1.36	100.00	3.13	0.57	0.94	12.21	0.00	12.21	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	12.60	1.33	100.00	3.15	0.58	0.94	11.83	0.00	11.83	4.000	No	Yes	2.00
962	12.61	1.30	100.00	3.17	0.58	0.94	11.64	0.00	11.64	4.000	No	Yes	2.00
963	12.62	1.28	100.00	3.19	0.58	0.94	11.54	0.00	11.54	4.000	No	Yes	2.00
964	12.63	1.26	100.00	3.20	0.58	0.94	11.25	0.00	11.25	4.000	No	Yes	2.00
965	12.64	1.24	100.00	3.22	0.58	0.94	11.15	0.00	11.15	4.000	No	Yes	2.00
966	12.65	1.23	100.00	3.24	0.58	0.94	11.06	0.00	11.06	4.000	No	Yes	2.00
967	12.66	1.22	100.00	3.25	0.58	0.94	10.87	0.00	10.87	4.000	No	Yes	2.00
968	12.67	1.20	100.00	3.27	0.58	0.94	10.77	0.00	10.77	4.000	No	Yes	2.00
969	12.68	1.19	100.00	3.28	0.58	0.94	10.48	0.00	10.48	4.000	No	Yes	2.00
970	12.69	1.19	100.00	3.29	0.58	0.94	10.57	0.00	10.57	4.000	No	Yes	2.00
971	12.70	1.18	100.00	3.29	0.58	0.94	10.57	0.00	10.57	4.000	No	Yes	2.00
972	12.71	1.15	100.00	3.29	0.58	0.94	10.19	0.00	10.19	4.000	No	Yes	2.00
973	12.72	1.12	100.00	3.31	0.58	0.94	10.00	0.00	10.00	4.000	No	Yes	2.00
974	12.73	1.10	100.00	3.32	0.58	0.94	9.72	0.00	9.72	4.000	No	Yes	2.00
975	12.74	1.09	100.00	3.32	0.58	0.94	9.62	0.00	9.62	4.000	No	Yes	2.00
976	12.75	1.09	100.00	3.32	0.58	0.94	9.62	0.00	9.62	4.000	No	Yes	2.00
977	12.76	1.08	100.00	3.31	0.58	0.94	9.61	0.00	9.61	4.000	No	Yes	2.00
978	12.77	1.08	100.00	3.31	0.58	0.94	9.52	0.00	9.52	4.000	No	Yes	2.00
979	12.78	1.07	100.00	3.31	0.58	0.94	9.42	0.00	9.42	4.000	No	Yes	2.00
980	12.79	1.07	100.00	3.29	0.58	0.94	9.42	0.00	9.42	4.000	No	Yes	2.00
981	12.80	1.07	100.00	3.28	0.58	0.94	9.41	0.00	9.41	4.000	No	Yes	2.00
982	12.81	1.07	100.00	3.27	0.58	0.93	9.41	0.00	9.41	4.000	No	Yes	2.00
983	12.82	1.06	100.00	3.27	0.58	0.93	9.31	0.00	9.31	4.000	No	Yes	2.00
984	12.83	1.05	100.00	3.28	0.59	0.93	9.22	0.00	9.22	4.000	No	Yes	2.00
985	12.84	1.04	100.00	3.28	0.59	0.93	9.12	0.00	9.12	4.000	No	Yes	2.00
986	12.85	1.04	100.00	3.28	0.59	0.93	9.12	0.00	9.12	4.000	No	Yes	2.00
987	12.86	1.05	100.00	3.27	0.59	0.93	9.21	0.00	9.21	4.000	No	Yes	2.00
988	12.87	1.06	100.00	3.26	0.59	0.93	9.29	0.00	9.29	4.000	No	Yes	2.00
989	12.88	1.07	100.00	3.24	0.58	0.93	9.38	0.00	9.38	4.000	No	Yes	2.00
990	12.89	1.08	100.00	3.23	0.58	0.93	9.47	0.00	9.47	4.000	No	Yes	2.00
991	12.90	1.10	100.00	3.22	0.58	0.93	9.65	0.00	9.65	4.000	No	Yes	2.00
992	12.91	1.12	100.00	3.21	0.58	0.93	9.83	0.00	9.83	4.000	No	Yes	2.00
993	12.92	1.13	100.00	3.20	0.58	0.93	9.92	0.00	9.92	4.000	No	Yes	2.00
994	12.93	1.15	100.00	3.18	0.58	0.93	10.10	0.00	10.10	4.000	No	Yes	2.00
995	12.94	1.17	100.00	3.18	0.58	0.93	10.38	0.00	10.38	4.000	No	Yes	2.00
996	12.95	1.18	100.00	3.17	0.58	0.93	10.37	0.00	10.37	4.000	No	Yes	2.00
997	12.96	1.18	100.00	3.17	0.58	0.93	10.37	0.00	10.37	4.000	No	Yes	2.00
998	12.97	1.18	100.00	3.18	0.58	0.93	10.36	0.00	10.36	4.000	No	Yes	2.00
999	12.98	1.18	100.00	3.18	0.58	0.93	10.36	0.00	10.36	4.000	No	Yes	2.00
1000	12.99	1.18	100.00	3.19	0.58	0.93	10.36	0.00	10.36	4.000	No	Yes	2.00
1001	13.00	1.18	100.00	3.19	0.58	0.93	10.35	0.00	10.35	4.000	No	Yes	2.00
1002	13.01	1.18	100.00	3.20	0.58	0.93	10.35	0.00	10.35	4.000	No	Yes	2.00
1003	13.02	1.18	100.00	3.21	0.58	0.93	10.25	0.00	10.25	4.000	No	Yes	2.00
1004	13.03	1.17	100.00	3.22	0.58	0.93	10.16	0.00	10.16	4.000	No	Yes	2.00
1005	13.04	1.17	100.00	3.22	0.58	0.93	10.15	0.00	10.15	4.000	No	Yes	2.00
1006	13.05	1.16	100.00	3.22	0.58	0.93	10.15	0.00	10.15	4.000	No	Yes	2.00
1007	13.06	1.16	100.00	3.22	0.58	0.93	9.96	0.00	9.96	4.000	No	Yes	2.00
1008	13.07	1.16	100.00	3.21	0.58	0.93	10.14	0.00	10.14	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	13.08	1.17	100.00	3.21	0.58	0.93	10.23	0.00	10.23	4.000	No	Yes	2.00
1010	13.09	1.19	100.00	3.20	0.58	0.92	10.32	0.00	10.32	4.000	No	Yes	2.00
1011	13.10	1.19	100.00	3.19	0.58	0.92	10.50	0.00	10.50	4.000	No	Yes	2.00
1012	13.11	1.21	100.00	3.19	0.58	0.92	10.49	0.00	10.49	4.000	No	Yes	2.00
1013	13.12	1.21	100.00	3.19	0.58	0.92	10.67	0.00	10.67	4.000	No	Yes	2.00
1014	13.13	1.22	100.00	3.19	0.58	0.92	10.67	0.00	10.67	4.000	No	Yes	2.00
1015	13.14	1.22	100.00	3.19	0.58	0.92	10.66	0.00	10.66	4.000	No	Yes	2.00
1016	13.15	1.23	100.00	3.18	0.58	0.92	10.75	0.00	10.75	4.000	No	Yes	2.00
1017	13.16	1.23	100.00	3.18	0.58	0.92	10.75	0.00	10.75	4.000	No	Yes	2.00
1018	13.17	1.23	100.00	3.19	0.58	0.92	10.74	0.00	10.74	4.000	No	Yes	2.00
1019	13.18	1.23	100.00	3.19	0.58	0.92	10.83	0.00	10.83	4.000	No	Yes	2.00
1020	13.19	1.23	100.00	3.20	0.58	0.92	10.73	0.00	10.73	4.000	No	Yes	2.00
1021	13.20	1.23	100.00	3.20	0.58	0.92	10.73	0.00	10.73	4.000	No	Yes	2.00
1022	13.21	1.23	100.00	3.21	0.58	0.92	10.63	0.00	10.63	4.000	No	Yes	2.00
1023	13.22	1.23	100.00	3.22	0.58	0.92	10.72	0.00	10.72	4.000	No	Yes	2.00
1024	13.23	1.24	100.00	3.22	0.58	0.92	10.81	0.00	10.81	4.000	No	Yes	2.00
1025	13.24	1.25	100.00	3.22	0.58	0.92	10.80	0.00	10.80	4.000	No	Yes	2.00
1026	13.25	1.25	100.00	3.21	0.58	0.92	10.89	0.00	10.89	4.000	No	Yes	2.00
1027	13.26	1.26	100.00	3.21	0.58	0.92	10.98	0.00	10.98	4.000	No	Yes	2.00
1028	13.27	1.27	100.00	3.20	0.58	0.92	10.97	0.00	10.97	4.000	No	Yes	2.00
1029	13.28	1.29	100.00	3.19	0.58	0.92	11.24	0.00	11.24	4.000	No	Yes	2.00
1030	13.29	1.30	100.00	3.18	0.58	0.92	11.42	0.00	11.42	4.000	No	Yes	2.00
1031	13.30	1.30	100.00	3.19	0.58	0.92	11.32	0.00	11.32	4.000	No	Yes	2.00
1032	13.31	1.30	100.00	3.19	0.58	0.92	11.23	0.00	11.23	4.000	No	Yes	2.00
1033	13.32	1.29	100.00	3.20	0.58	0.92	11.22	0.00	11.22	4.000	No	Yes	2.00
1034	13.33	1.29	100.00	3.19	0.58	0.92	11.22	0.00	11.22	4.000	No	Yes	2.00
1035	13.34	1.29	100.00	3.19	0.58	0.92	11.22	0.00	11.22	4.000	No	Yes	2.00
1036	13.35	1.29	100.00	3.19	0.58	0.92	11.12	0.00	11.12	4.000	No	Yes	2.00
1037	13.36	1.28	100.00	3.20	0.58	0.92	11.12	0.00	11.12	4.000	No	Yes	2.00
1038	13.37	1.28	100.00	3.20	0.58	0.92	11.11	0.00	11.11	4.000	No	Yes	2.00
1039	13.38	1.27	100.00	3.21	0.58	0.91	11.02	0.00	11.02	4.000	No	Yes	2.00
1040	13.39	1.26	100.00	3.22	0.58	0.91	10.92	0.00	10.92	4.000	No	Yes	2.00
1041	13.40	1.26	100.00	3.23	0.58	0.91	10.83	0.00	10.83	4.000	No	Yes	2.00
1042	13.41	1.24	100.00	3.24	0.58	0.91	10.73	0.00	10.73	4.000	No	Yes	2.00
1043	13.42	1.24	100.00	3.25	0.58	0.91	10.64	0.00	10.64	4.000	No	Yes	2.00
1044	13.43	1.23	100.00	3.25	0.58	0.91	10.63	0.00	10.63	4.000	No	Yes	2.00
1045	13.44	1.23	100.00	3.25	0.58	0.91	10.63	0.00	10.63	4.000	No	Yes	2.00
1046	13.45	1.21	100.00	3.27	0.58	0.91	10.44	0.00	10.44	4.000	No	Yes	2.00
1047	13.46	1.19	100.00	3.28	0.58	0.91	10.17	0.00	10.17	4.000	No	Yes	2.00
1048	13.47	1.18	100.00	3.29	0.58	0.91	10.07	0.00	10.07	4.000	No	Yes	2.00
1049	13.48	1.17	100.00	3.29	0.58	0.91	10.07	0.00	10.07	4.000	No	Yes	2.00
1050	13.49	1.17	100.00	3.29	0.58	0.91	10.06	0.00	10.06	4.000	No	Yes	2.00
1051	13.50	1.16	100.00	3.30	0.58	0.91	9.88	0.00	9.88	4.000	No	Yes	2.00
1052	13.51	1.15	100.00	3.30	0.58	0.91	9.88	0.00	9.88	4.000	No	Yes	2.00
1053	13.52	1.15	100.00	3.30	0.58	0.91	9.78	0.00	9.78	4.000	No	Yes	2.00
1054	13.53	1.14	100.00	3.30	0.58	0.91	9.78	0.00	9.78	4.000	No	Yes	2.00
1055	13.54	1.14	100.00	3.30	0.58	0.91	9.77	0.00	9.77	4.000	No	Yes	2.00
1056	13.55	1.15	100.00	3.30	0.58	0.91	9.77	0.00	9.77	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	13.56	1.15	100.00	3.29	0.58	0.91	9.77	0.00	9.77	4.000	No	Yes	2.00
1058	13.57	1.15	100.00	3.29	0.58	0.91	9.94	0.00	9.94	4.000	No	Yes	2.00
1059	13.58	1.15	100.00	3.29	0.58	0.91	9.67	0.00	9.67	4.000	No	Yes	2.00
1060	13.59	1.13	100.00	3.30	0.58	0.91	9.57	0.00	9.57	4.000	No	Yes	2.00
1061	13.60	1.13	100.00	3.31	0.58	0.91	9.39	0.00	9.39	4.000	No	Yes	2.00
1062	13.61	1.13	100.00	3.30	0.58	0.91	9.39	0.00	9.39	4.000	No	Yes	2.00
1063	13.62	1.14	100.00	3.30	0.58	0.91	9.47	0.00	9.47	4.000	No	Yes	2.00
1064	13.63	1.14	100.00	3.29	0.58	0.91	9.56	0.00	9.56	4.000	No	Yes	2.00
1065	13.64	1.14	100.00	3.28	0.58	0.90	9.56	0.00	9.56	4.000	No	Yes	2.00
1066	13.65	1.15	100.00	3.28	0.58	0.90	9.55	0.00	9.55	4.000	No	Yes	2.00
1067	13.66	1.15	100.00	3.28	0.58	0.90	9.55	0.00	9.55	4.000	No	Yes	2.00
1068	13.67	1.15	100.00	3.28	0.58	0.90	9.55	0.00	9.55	4.000	No	Yes	2.00
1069	13.68	1.14	100.00	3.28	0.58	0.90	9.54	0.00	9.54	4.000	No	Yes	2.00
1070	13.69	1.13	100.00	3.29	0.58	0.90	9.36	0.00	9.36	4.000	No	Yes	2.00
1071	13.70	1.11	100.00	3.30	0.59	0.90	9.27	0.00	9.27	4.000	No	Yes	2.00
1072	13.71	1.10	100.00	3.30	0.59	0.90	9.17	0.00	9.17	4.000	No	Yes	2.00
1073	13.72	1.09	100.00	3.31	0.59	0.90	9.08	0.00	9.08	4.000	No	Yes	2.00
1074	13.73	1.09	100.00	3.31	0.59	0.90	8.99	0.00	8.99	4.000	No	Yes	2.00
1075	13.74	1.09	100.00	3.31	0.59	0.90	8.98	0.00	8.98	4.000	No	Yes	2.00
1076	13.75	1.09	100.00	3.31	0.59	0.90	9.07	0.00	9.07	4.000	No	Yes	2.00
1077	13.76	1.10	100.00	3.30	0.59	0.90	9.07	0.00	9.07	4.000	No	Yes	2.00
1078	13.77	1.10	100.00	3.29	0.59	0.90	9.15	0.00	9.15	4.000	No	Yes	2.00
1079	13.78	1.12	100.00	3.28	0.59	0.90	9.24	0.00	9.24	4.000	No	Yes	2.00
1080	13.79	1.14	100.00	3.27	0.58	0.90	9.41	0.00	9.41	4.000	No	Yes	2.00
1081	13.80	1.16	100.00	3.25	0.58	0.90	9.68	0.00	9.68	4.000	No	Yes	2.00
1082	13.81	1.17	100.00	3.24	0.58	0.90	9.85	0.00	9.85	4.000	No	Yes	2.00
1083	13.82	1.19	100.00	3.23	0.58	0.90	9.94	0.00	9.94	4.000	No	Yes	2.00
1084	13.83	1.20	100.00	3.23	0.58	0.90	10.02	0.00	10.02	4.000	No	Yes	2.00
1085	13.84	1.20	100.00	3.23	0.58	0.90	10.02	0.00	10.02	4.000	No	Yes	2.00
1086	13.85	1.21	100.00	3.23	0.58	0.90	10.02	0.00	10.02	4.000	No	Yes	2.00
1087	13.86	1.21	100.00	3.22	0.58	0.90	10.10	0.00	10.10	4.000	No	Yes	2.00
1088	13.87	1.23	100.00	3.21	0.58	0.90	10.19	0.00	10.19	4.000	No	Yes	2.00
1089	13.88	1.24	100.00	3.21	0.58	0.90	10.36	0.00	10.36	4.000	No	Yes	2.00
1090	13.89	1.24	100.00	3.21	0.58	0.90	10.36	0.00	10.36	4.000	No	Yes	2.00
1091	13.90	1.24	100.00	3.21	0.58	0.90	10.35	0.00	10.35	4.000	No	Yes	2.00
1092	13.91	1.24	100.00	3.21	0.58	0.90	10.35	0.00	10.35	4.000	No	Yes	2.00
1093	13.92	1.25	100.00	3.21	0.58	0.90	10.35	0.00	10.35	4.000	No	Yes	2.00
1094	13.93	1.25	100.00	3.21	0.58	0.90	10.43	0.00	10.43	4.000	No	Yes	2.00
1095	13.94	1.26	100.00	3.21	0.58	0.90	10.43	0.00	10.43	4.000	No	Yes	2.00
1096	13.95	1.26	100.00	3.21	0.58	0.90	10.42	0.00	10.42	4.000	No	Yes	2.00
1097	13.96	1.27	100.00	3.21	0.58	0.89	10.51	0.00	10.51	4.000	No	Yes	2.00
1098	13.97	1.28	100.00	3.21	0.58	0.89	10.59	0.00	10.59	4.000	No	Yes	2.00
1099	13.98	1.28	100.00	3.20	0.58	0.89	10.59	0.00	10.59	4.000	No	Yes	2.00
1100	13.99	1.28	100.00	3.21	0.58	0.89	10.59	0.00	10.59	4.000	No	Yes	2.00
1101	14.00	1.28	100.00	3.21	0.58	0.89	10.58	0.00	10.58	4.000	No	Yes	2.00
1102	14.01	1.28	100.00	3.21	0.58	0.89	10.67	0.00	10.67	4.000	No	Yes	2.00
1103	14.02	1.28	100.00	3.21	0.58	0.89	10.66	0.00	10.66	4.000	No	Yes	2.00
1104	14.03	1.28	100.00	3.21	0.58	0.89	10.57	0.00	10.57	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1105	14.04	1.28	100.00	3.22	0.58	0.89	10.57	0.00	10.57	4.000	No	Yes	2.00
1106	14.05	1.28	100.00	3.21	0.58	0.89	10.56	0.00	10.56	4.000	No	Yes	2.00
1107	14.06	1.29	100.00	3.20	0.58	0.89	10.74	0.00	10.74	4.000	No	Yes	2.00
1108	14.07	1.30	100.00	3.19	0.58	0.89	10.73	0.00	10.73	4.000	No	Yes	2.00
1109	14.08	1.29	100.00	3.20	0.58	0.89	10.64	0.00	10.64	4.000	No	Yes	2.00
1110	14.09	1.28	100.00	3.21	0.58	0.89	10.55	0.00	10.55	4.000	No	Yes	2.00
1111	14.10	1.28	100.00	3.21	0.58	0.89	10.54	0.00	10.54	4.000	No	Yes	2.00
1112	14.11	1.28	100.00	3.22	0.58	0.89	10.54	0.00	10.54	4.000	No	Yes	2.00
1113	14.12	1.27	100.00	3.23	0.58	0.89	10.45	0.00	10.45	4.000	No	Yes	2.00
1114	14.13	1.26	100.00	3.24	0.58	0.89	10.35	0.00	10.35	4.000	No	Yes	2.00
1115	14.14	1.25	100.00	3.24	0.58	0.89	10.26	0.00	10.26	4.000	No	Yes	2.00
1116	14.15	1.25	100.00	3.25	0.58	0.89	10.26	0.00	10.26	4.000	No	Yes	2.00
1117	14.16	1.25	100.00	3.25	0.58	0.89	10.25	0.00	10.25	4.000	No	Yes	2.00
1118	14.17	1.25	100.00	3.25	0.58	0.89	10.25	0.00	10.25	4.000	No	Yes	2.00
1119	14.18	1.25	100.00	3.25	0.58	0.89	10.33	0.00	10.33	4.000	No	Yes	2.00
1120	14.19	1.24	100.00	3.25	0.58	0.89	10.24	0.00	10.24	4.000	No	Yes	2.00
1121	14.20	1.23	100.00	3.26	0.58	0.89	10.06	0.00	10.06	4.000	No	Yes	2.00
1122	14.21	1.21	100.00	3.27	0.58	0.89	9.97	0.00	9.97	4.000	No	Yes	2.00
1123	14.22	1.21	100.00	3.27	0.58	0.89	9.88	0.00	9.88	4.000	No	Yes	2.00
1124	14.23	1.20	100.00	3.27	0.58	0.89	9.87	0.00	9.87	4.000	No	Yes	2.00
1125	14.24	1.20	100.00	3.27	0.58	0.89	9.87	0.00	9.87	4.000	No	Yes	2.00
1126	14.25	1.18	100.00	3.28	0.58	0.88	9.60	0.00	9.60	4.000	No	Yes	2.00
1127	14.26	1.16	100.00	3.29	0.58	0.88	9.42	0.00	9.42	4.000	No	Yes	2.00
1128	14.27	1.14	100.00	3.31	0.59	0.88	9.24	0.00	9.24	4.000	No	Yes	2.00
1129	14.28	1.12	100.00	3.32	0.59	0.88	8.98	0.00	8.98	4.000	No	Yes	2.00
1130	14.29	1.11	100.00	3.32	0.59	0.88	8.89	0.00	8.89	4.000	No	Yes	2.00
1131	14.30	1.11	100.00	3.32	0.59	0.88	8.88	0.00	8.88	4.000	No	Yes	2.00
1132	14.31	1.10	100.00	3.33	0.59	0.88	8.79	0.00	8.79	4.000	No	Yes	2.00
1133	14.32	1.08	100.00	3.33	0.59	0.88	8.61	0.00	8.61	4.000	No	Yes	2.00
1134	14.33	1.07	100.00	3.33	0.59	0.88	8.52	0.00	8.52	4.000	No	Yes	2.00
1135	14.34	1.07	100.00	3.32	0.59	0.88	8.52	0.00	8.52	4.000	No	Yes	2.00
1136	14.35	1.09	100.00	3.30	0.59	0.88	8.60	0.00	8.60	4.000	No	Yes	2.00
1137	14.36	1.11	100.00	3.27	0.59	0.88	8.95	0.00	8.95	4.000	No	Yes	2.00
1138	14.37	1.13	100.00	3.25	0.59	0.88	9.04	0.00	9.04	4.000	No	Yes	2.00
1139	14.38	1.15	100.00	3.22	0.59	0.88	9.21	0.00	9.21	4.000	No	Yes	2.00
1140	14.39	1.18	100.00	3.19	0.58	0.88	9.47	0.00	9.47	4.000	No	Yes	2.00
1141	14.40	1.19	100.00	3.16	0.58	0.88	9.64	0.00	9.64	4.000	No	Yes	2.00
1142	14.41	1.20	100.00	3.16	0.58	0.88	9.72	0.00	9.72	4.000	No	Yes	2.00
1143	14.42	1.19	100.00	3.16	0.58	0.88	9.54	0.00	9.54	4.000	No	Yes	2.00
1144	14.43	1.19	100.00	3.16	0.58	0.88	9.54	0.00	9.54	4.000	No	Yes	2.00
1145	14.44	1.19	100.00	3.16	0.58	0.88	9.63	0.00	9.63	4.000	No	Yes	2.00
1146	14.45	1.19	100.00	3.17	0.58	0.88	9.62	0.00	9.62	4.000	No	Yes	2.00
1147	14.46	1.19	100.00	3.17	0.58	0.88	9.62	0.00	9.62	4.000	No	Yes	2.00
1148	14.47	1.19	100.00	3.18	0.58	0.88	9.62	0.00	9.62	4.000	No	Yes	2.00
1149	14.48	1.20	100.00	3.18	0.58	0.88	9.61	0.00	9.61	4.000	No	Yes	2.00
1150	14.49	1.21	100.00	3.18	0.58	0.88	9.78	0.00	9.78	4.000	No	Yes	2.00
1151	14.50	1.22	100.00	3.18	0.58	0.88	9.87	0.00	9.87	4.000	No	Yes	2.00
1152	14.51	1.23	100.00	3.18	0.58	0.88	9.95	0.00	9.95	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1153	14.52	1.24	100.00	3.19	0.58	0.88	10.04	0.00	10.04	4.000	No	Yes	2.00
1154	14.53	1.25	100.00	3.19	0.58	0.88	10.12	0.00	10.12	4.000	No	Yes	2.00
1155	14.54	1.26	100.00	3.20	0.58	0.88	10.20	0.00	10.20	4.000	No	Yes	2.00
1156	14.55	1.26	100.00	3.20	0.58	0.88	10.20	0.00	10.20	4.000	No	Yes	2.00
1157	14.56	1.26	100.00	3.21	0.58	0.88	10.20	0.00	10.20	4.000	No	Yes	2.00
1158	14.57	1.26	100.00	3.21	0.58	0.88	10.19	0.00	10.19	4.000	No	Yes	2.00
1159	14.58	1.26	100.00	3.21	0.58	0.87	10.19	0.00	10.19	4.000	No	Yes	2.00
1160	14.59	1.26	100.00	3.21	0.58	0.87	10.27	0.00	10.27	4.000	No	Yes	2.00
1161	14.60	1.27	100.00	3.21	0.58	0.87	10.27	0.00	10.27	4.000	No	Yes	2.00
1162	14.61	1.27	100.00	3.21	0.58	0.87	10.35	0.00	10.35	4.000	No	Yes	2.00
1163	14.62	1.27	100.00	3.21	0.58	0.87	10.26	0.00	10.26	4.000	No	Yes	2.00
1164	14.63	1.27	100.00	3.22	0.58	0.87	10.26	0.00	10.26	4.000	No	Yes	2.00
1165	14.64	1.27	100.00	3.22	0.58	0.87	10.34	0.00	10.34	4.000	No	Yes	2.00
1166	14.65	1.29	100.00	3.21	0.58	0.87	10.42	0.00	10.42	4.000	No	Yes	2.00
1167	14.66	1.30	100.00	3.20	0.58	0.87	10.59	0.00	10.59	4.000	No	Yes	2.00
1168	14.67	1.32	100.00	3.20	0.58	0.87	10.68	0.00	10.68	4.000	No	Yes	2.00
1169	14.68	1.34	100.00	3.18	0.58	0.87	10.85	0.00	10.85	4.000	No	Yes	2.00
1170	14.69	1.36	100.00	3.17	0.58	0.87	11.02	0.00	11.02	4.000	No	Yes	2.00
1171	14.70	1.39	100.00	3.15	0.58	0.87	11.27	0.00	11.27	4.000	No	Yes	2.00
1172	14.71	1.42	100.00	3.13	0.58	0.87	11.53	0.00	11.53	4.000	No	Yes	2.00
1173	14.72	1.47	100.00	3.11	0.57	0.87	11.96	0.00	11.96	4.000	No	Yes	2.00
1174	14.73	1.50	100.00	3.09	0.57	0.87	12.39	0.00	12.39	4.000	No	Yes	2.00
1175	14.74	1.54	100.00	3.07	0.57	0.87	12.47	0.00	12.47	4.000	No	Yes	2.00
1176	14.75	1.56	100.00	3.06	0.57	0.87	12.82	0.00	12.82	4.000	No	Yes	2.00
1177	14.76	1.59	100.00	3.05	0.57	0.87	12.99	0.00	12.99	4.000	No	Yes	2.00
1178	14.77	1.61	100.00	3.04	0.57	0.87	13.16	0.00	13.16	4.000	No	Yes	2.00
1179	14.78	1.62	100.00	3.04	0.57	0.87	13.33	0.00	13.33	4.000	No	Yes	2.00
1180	14.79	1.62	100.00	3.04	0.57	0.87	13.32	0.00	13.32	4.000	No	Yes	2.00
1181	14.80	1.62	100.00	3.05	0.57	0.87	13.32	0.00	13.32	4.000	No	Yes	2.00
1182	14.81	1.61	100.00	3.06	0.57	0.87	13.23	0.00	13.23	4.000	No	Yes	2.00
1183	14.82	1.60	100.00	3.08	0.57	0.87	13.05	0.00	13.05	4.000	No	Yes	2.00
1184	14.83	1.59	100.00	3.09	0.57	0.87	13.04	0.00	13.04	4.000	No	Yes	2.00
1185	14.84	1.58	100.00	3.10	0.57	0.87	12.95	0.00	12.95	4.000	No	Yes	2.00
1186	14.85	1.57	100.00	3.11	0.57	0.87	12.95	0.00	12.95	4.000	No	Yes	2.00
1187	14.86	1.57	100.00	3.12	0.57	0.87	12.85	0.00	12.85	4.000	No	Yes	2.00
1188	14.87	1.55	100.00	3.14	0.57	0.87	12.85	0.00	12.85	4.000	No	Yes	2.00
1189	14.88	1.51	100.00	3.17	0.57	0.87	12.33	0.00	12.33	4.000	No	Yes	2.00
1190	14.89	1.47	100.00	3.20	0.57	0.87	11.97	0.00	11.97	4.000	No	Yes	2.00
1191	14.90	1.44	100.00	3.22	0.58	0.87	11.88	0.00	11.88	4.000	No	Yes	2.00
1192	14.91	1.42	100.00	3.23	0.58	0.87	11.53	0.00	11.53	4.000	No	Yes	2.00
1193	14.92	1.40	100.00	3.24	0.58	0.87	11.36	0.00	11.36	4.000	No	Yes	2.00
1194	14.93	1.38	100.00	3.25	0.58	0.86	11.27	0.00	11.27	4.000	No	Yes	2.00
1195	14.94	1.37	100.00	3.25	0.58	0.86	11.00	0.00	11.00	4.000	No	Yes	2.00
1196	14.95	1.36	100.00	3.25	0.58	0.86	11.00	0.00	11.00	4.000	No	Yes	2.00
1197	14.96	1.36	100.00	3.24	0.58	0.86	11.00	0.00	11.00	4.000	No	Yes	2.00
1198	14.97	1.36	100.00	3.23	0.58	0.86	11.08	0.00	11.08	4.000	No	Yes	2.00
1199	14.98	1.37	100.00	3.22	0.58	0.86	11.07	0.00	11.07	4.000	No	Yes	2.00
1200	14.99	1.38	100.00	3.21	0.58	0.86	11.16	0.00	11.16	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (m)	q_t (MPa)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1201	15.00	1.40	100.00	3.19	0.58	0.86	11.32	0.00	11.32	4.000	No	Yes	2.00
1202	15.01	1.42	100.00	3.16	0.58	0.86	11.49	0.00	11.49	4.000	No	Yes	2.00
1203	15.02	1.44	100.00	3.14	0.58	0.86	11.66	0.00	11.66	4.000	No	Yes	2.00
1204	15.03	1.45	100.00	3.13	0.58	0.86	11.83	0.00	11.83	4.000	No	Yes	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (m)
q_t: Total cone resistance
FC: Fines content (%)
I_c: Soil behavior type index
m: Stress exponent
C_N: Overburden correction factor
q_{c1N}: Normalized and adjusted cone resistance
Δq_{c1N}: Cone resistance correction factor due to fines
$q_{c1N,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
3.00	2.00	0.00	0.00	0.01	0.00	3.01	2.00	0.00	0.00	0.01	0.00
3.02	2.00	0.00	0.00	0.01	0.00	3.03	2.00	0.00	0.00	0.01	0.00
3.04	2.00	0.00	0.00	0.01	0.00	3.05	2.00	0.00	0.00	0.01	0.00
3.06	2.00	0.00	0.00	0.01	0.00	3.07	2.00	0.00	0.00	0.01	0.00
3.08	2.00	0.00	0.00	0.01	0.00	3.09	2.00	0.00	0.00	0.01	0.00
3.10	2.00	0.00	0.00	0.01	0.00	3.11	2.00	0.00	0.00	0.01	0.00
3.12	2.00	0.00	0.00	0.01	0.00	3.13	2.00	0.00	0.00	0.01	0.00
3.14	2.00	0.00	0.00	0.01	0.00	3.15	2.00	0.00	0.00	0.01	0.00
3.16	2.00	0.00	0.00	0.01	0.00	3.17	2.00	0.00	0.00	0.01	0.00
3.18	2.00	0.00	0.00	0.01	0.00	3.19	2.00	0.00	0.00	0.01	0.00
3.20	2.00	0.00	0.00	0.01	0.00	3.21	2.00	0.00	0.00	0.01	0.00
3.22	2.00	0.00	0.00	0.01	0.00	3.23	2.00	0.00	0.00	0.01	0.00
3.24	2.00	0.00	0.00	0.01	0.00	3.25	2.00	0.00	0.00	0.01	0.00
3.26	2.00	0.00	0.00	0.01	0.00	3.27	2.00	0.00	0.00	0.01	0.00
3.28	2.00	0.00	0.00	0.01	0.00	3.29	2.00	0.00	0.00	0.01	0.00
3.30	2.00	0.00	0.00	0.01	0.00	3.31	2.00	0.00	0.00	0.01	0.00
3.32	2.00	0.00	0.00	0.01	0.00	3.33	2.00	0.00	0.00	0.01	0.00
3.34	2.00	0.00	0.00	0.01	0.00	3.35	2.00	0.00	0.00	0.01	0.00
3.36	2.00	0.00	0.00	0.01	0.00	3.37	2.00	0.00	0.00	0.01	0.00
3.38	2.00	0.00	0.00	0.01	0.00	3.39	2.00	0.00	0.00	0.01	0.00
3.40	2.00	0.00	0.00	0.01	0.00	3.41	2.00	0.00	0.00	0.01	0.00
3.42	2.00	0.00	0.00	0.01	0.00	3.43	2.00	0.00	0.00	0.01	0.00
3.44	2.00	0.00	0.00	0.01	0.00	3.45	2.00	0.00	0.00	0.01	0.00
3.46	2.00	0.00	0.00	0.01	0.00	3.47	2.00	0.00	0.00	0.01	0.00
3.48	2.00	0.00	0.00	0.01	0.00	3.49	2.00	0.00	0.00	0.01	0.00
3.50	2.00	0.00	0.00	0.01	0.00	3.51	2.00	0.00	0.00	0.01	0.00
3.52	2.00	0.00	0.00	0.01	0.00	3.53	2.00	0.00	0.00	0.01	0.00
3.54	2.00	0.00	0.00	0.01	0.00	3.55	2.00	0.00	0.00	0.01	0.00
3.56	2.00	0.00	0.00	0.01	0.00	3.57	2.00	0.00	0.00	0.01	0.00
3.58	2.00	0.00	0.00	0.01	0.00	3.59	2.00	0.00	0.00	0.01	0.00
3.60	2.00	0.00	0.00	0.01	0.00	3.61	2.00	0.00	0.00	0.01	0.00
3.62	2.00	0.00	0.00	0.01	0.00	3.63	2.00	0.00	0.00	0.01	0.00
3.64	2.00	0.00	0.00	0.01	0.00	3.65	2.00	0.00	0.00	0.01	0.00
3.66	2.00	0.00	0.00	0.01	0.00	3.67	2.00	0.00	0.00	0.01	0.00
3.68	2.00	0.00	0.00	0.01	0.00	3.69	2.00	0.00	0.00	0.01	0.00
3.70	2.00	0.00	0.00	0.01	0.00	3.71	2.00	0.00	0.00	0.01	0.00
3.72	2.00	0.00	0.00	0.01	0.00	3.73	2.00	0.00	0.00	0.01	0.00
3.74	2.00	0.00	0.00	0.01	0.00	3.75	2.00	0.00	0.00	0.01	0.00
3.76	2.00	0.00	0.00	0.01	0.00	3.77	2.00	0.00	0.00	0.01	0.00
3.78	1.97	0.00	0.00	0.01	0.00	3.79	1.84	0.00	0.00	0.01	0.00
3.80	1.77	0.00	0.00	0.01	0.00	3.81	1.71	0.00	0.00	0.01	0.00
3.82	1.65	0.00	0.00	0.01	0.00	3.83	1.60	0.00	0.00	0.01	0.00
3.84	1.54	0.00	0.00	0.01	0.00	3.85	1.54	0.00	0.00	0.01	0.00
3.86	1.51	0.00	0.00	0.01	0.00	3.87	1.49	0.00	0.00	0.01	0.00
3.88	1.49	0.00	0.00	0.01	0.00	3.89	1.49	0.00	0.00	0.01	0.00
3.90	1.51	0.00	0.00	0.01	0.00	3.91	1.52	0.00	0.00	0.01	0.00
3.92	1.54	0.00	0.00	0.01	0.00	3.93	1.60	0.00	0.00	0.01	0.00
3.94	1.63	0.00	0.00	0.01	0.00	3.95	1.74	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
3.96	1.82	0.00	0.00	0.01	0.00	3.97	1.95	0.00	0.00	0.01	0.00
3.98	2.00	0.00	0.00	0.01	0.00	3.99	2.00	0.00	0.00	0.01	0.00
4.00	2.00	0.00	0.00	0.01	0.00	4.01	2.00	0.00	0.00	0.01	0.00
4.02	2.00	0.00	0.00	0.01	0.00	4.03	2.00	0.00	0.00	0.01	0.00
4.04	2.00	0.00	0.00	0.01	0.00	4.05	2.00	0.00	0.00	0.01	0.00
4.06	2.00	0.00	0.00	0.01	0.00	4.07	2.00	0.00	0.00	0.01	0.00
4.08	2.00	0.00	0.00	0.01	0.00	4.09	2.00	0.00	0.00	0.01	0.00
4.10	2.00	0.00	0.00	0.01	0.00	4.11	2.00	0.00	0.00	0.01	0.00
4.12	2.00	0.00	0.00	0.01	0.00	4.13	2.00	0.00	0.00	0.01	0.00
4.14	2.00	0.00	0.00	0.01	0.00	4.15	2.00	0.00	0.00	0.01	0.00
4.16	2.00	0.00	0.00	0.01	0.00	4.17	2.00	0.00	0.00	0.01	0.00
4.18	2.00	0.00	0.00	0.01	0.00	4.19	2.00	0.00	0.00	0.01	0.00
4.20	2.00	0.00	0.00	0.01	0.00	4.21	2.00	0.00	0.00	0.01	0.00
4.22	2.00	0.00	0.00	0.01	0.00	4.23	2.00	0.00	0.00	0.01	0.00
4.24	2.00	0.00	0.00	0.01	0.00	4.25	2.00	0.00	0.00	0.01	0.00
4.26	2.00	0.00	0.00	0.01	0.00	4.27	2.00	0.00	0.00	0.01	0.00
4.28	2.00	0.00	0.00	0.01	0.00	4.29	2.00	0.00	0.00	0.01	0.00
4.30	2.00	0.00	0.00	0.01	0.00	4.31	2.00	0.00	0.00	0.01	0.00
4.32	2.00	0.00	0.00	0.01	0.00	4.33	2.00	0.00	0.00	0.01	0.00
4.34	2.00	0.00	0.00	0.01	0.00	4.35	2.00	0.00	0.00	0.01	0.00
4.36	2.00	0.00	0.00	0.01	0.00	4.37	2.00	0.00	0.00	0.01	0.00
4.38	2.00	0.00	0.00	0.01	0.00	4.39	2.00	0.00	0.00	0.01	0.00
4.40	2.00	0.00	0.00	0.01	0.00	4.41	2.00	0.00	0.00	0.01	0.00
4.42	2.00	0.00	0.00	0.01	0.00	4.43	2.00	0.00	0.00	0.01	0.00
4.44	2.00	0.00	0.00	0.01	0.00	4.45	2.00	0.00	0.00	0.01	0.00
4.46	2.00	0.00	0.00	0.01	0.00	4.47	2.00	0.00	0.00	0.01	0.00
4.48	2.00	0.00	0.00	0.01	0.00	4.49	2.00	0.00	0.00	0.01	0.00
4.50	2.00	0.00	0.00	0.01	0.00	4.51	2.00	0.00	0.00	0.01	0.00
4.52	2.00	0.00	0.00	0.01	0.00	4.53	2.00	0.00	0.00	0.01	0.00
4.54	2.00	0.00	0.00	0.01	0.00	4.55	2.00	0.00	0.00	0.01	0.00
4.56	2.00	0.00	0.00	0.01	0.00	4.57	2.00	0.00	0.00	0.01	0.00
4.58	2.00	0.00	0.00	0.01	0.00	4.59	2.00	0.00	0.00	0.01	0.00
4.60	2.00	0.00	0.00	0.01	0.00	4.61	2.00	0.00	0.00	0.01	0.00
4.62	2.00	0.00	0.00	0.01	0.00	4.63	2.00	0.00	0.00	0.01	0.00
4.64	2.00	0.00	0.00	0.01	0.00	4.65	2.00	0.00	0.00	0.01	0.00
4.66	2.00	0.00	0.00	0.01	0.00	4.67	2.00	0.00	0.00	0.01	0.00
4.68	2.00	0.00	0.00	0.01	0.00	4.69	2.00	0.00	0.00	0.01	0.00
4.70	2.00	0.00	0.00	0.01	0.00	4.71	2.00	0.00	0.00	0.01	0.00
4.72	2.00	0.00	0.00	0.01	0.00	4.73	2.00	0.00	0.00	0.01	0.00
4.74	2.00	0.00	0.00	0.01	0.00	4.75	2.00	0.00	0.00	0.01	0.00
4.76	2.00	0.00	0.00	0.01	0.00	4.77	2.00	0.00	0.00	0.01	0.00
4.78	1.98	0.00	0.00	0.01	0.00	4.79	1.95	0.00	0.00	0.01	0.00
4.80	1.91	0.00	0.00	0.01	0.00	4.81	1.91	0.00	0.00	0.01	0.00
4.82	1.89	0.00	0.00	0.01	0.00	4.83	1.87	0.00	0.00	0.01	0.00
4.84	1.85	0.00	0.00	0.01	0.00	4.85	1.80	0.00	0.00	0.01	0.00
4.86	1.76	0.00	0.00	0.01	0.00	4.87	1.73	0.00	0.00	0.01	0.00
4.88	1.62	0.00	0.00	0.01	0.00	4.89	1.57	0.00	0.00	0.01	0.00
4.90	1.49	0.00	0.00	0.01	0.00	4.91	1.46	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
4.92	1.43	0.00	0.00	0.01	0.00	4.93	1.41	0.00	0.00	0.01	0.00
4.94	1.41	0.00	0.00	0.01	0.00	4.95	1.41	0.00	0.00	0.01	0.00
4.96	1.41	0.00	0.00	0.01	0.00	4.97	1.42	0.00	0.00	0.01	0.00
4.98	1.42	0.00	0.00	0.01	0.00	4.99	1.40	0.00	0.00	0.01	0.00
5.00	1.39	0.00	0.00	0.01	0.00	5.01	1.34	0.00	0.00	0.01	0.00
5.02	1.33	0.00	0.00	0.01	0.00	5.03	1.31	0.00	0.00	0.01	0.00
5.04	1.32	0.00	0.00	0.01	0.00	5.05	1.32	0.00	0.00	0.01	0.00
5.06	1.33	0.00	0.00	0.01	0.00	5.07	1.33	0.00	0.00	0.01	0.00
5.08	1.33	0.00	0.00	0.01	0.00	5.09	1.35	0.00	0.00	0.01	0.00
5.10	1.36	0.00	0.00	0.01	0.00	5.11	1.34	0.00	0.00	0.01	0.00
5.12	1.33	0.00	0.00	0.01	0.00	5.13	1.28	0.00	0.00	0.01	0.00
5.14	1.25	0.00	0.00	0.01	0.00	5.15	1.18	0.00	0.00	0.01	0.00
5.16	1.13	0.00	0.00	0.01	0.00	5.17	1.11	0.00	0.00	0.01	0.00
5.18	1.09	0.00	0.00	0.01	0.00	5.19	1.08	0.00	0.00	0.01	0.00
5.20	1.08	0.00	0.00	0.01	0.00	5.21	1.08	0.00	0.00	0.01	0.00
5.22	1.08	0.00	0.00	0.01	0.00	5.23	1.10	0.00	0.00	0.01	0.00
5.24	1.11	0.00	0.00	0.01	0.00	5.25	1.12	0.00	0.00	0.01	0.00
5.26	1.12	0.00	0.00	0.01	0.00	5.27	1.13	0.00	0.00	0.01	0.00
5.28	1.15	0.00	0.00	0.01	0.00	5.29	1.17	0.00	0.00	0.01	0.00
5.30	1.20	0.00	0.00	0.01	0.00	5.31	1.23	0.00	0.00	0.01	0.00
5.32	1.24	0.00	0.00	0.01	0.00	5.33	1.28	0.00	0.00	0.01	0.00
5.34	1.31	0.00	0.00	0.01	0.00	5.35	1.31	0.00	0.00	0.01	0.00
5.36	1.28	0.00	0.00	0.01	0.00	5.37	1.26	0.00	0.00	0.01	0.00
5.38	1.22	0.00	0.00	0.01	0.00	5.39	1.20	0.00	0.00	0.01	0.00
5.40	1.16	0.00	0.00	0.01	0.00	5.41	1.14	0.00	0.00	0.01	0.00
5.42	1.10	0.00	0.00	0.01	0.00	5.43	1.08	0.00	0.00	0.01	0.00
5.44	1.05	0.00	0.00	0.01	0.00	5.45	1.04	0.00	0.00	0.01	0.00
5.46	1.03	0.00	0.00	0.01	0.00	5.47	1.02	0.00	0.00	0.01	0.00
5.48	1.01	0.00	0.00	0.01	0.00	5.49	0.98	0.02	31125.74	0.01	0.00
5.50	0.97	0.03	655.81	0.01	0.00	5.51	0.94	0.06	20.94	0.01	0.00
5.52	0.90	0.10	6.56	0.01	0.01	5.53	0.89	0.11	5.12	0.01	0.01
5.54	0.88	0.12	4.10	0.01	0.01	5.55	0.88	0.12	3.97	0.01	0.01
5.56	0.89	0.11	4.75	0.01	0.01	5.57	0.91	0.09	7.37	0.01	0.01
5.58	0.92	0.08	9.39	0.01	0.01	5.59	0.94	0.06	24.87	0.01	0.00
5.60	0.95	0.05	37.50	0.01	0.00	5.61	0.95	0.05	38.21	0.01	0.00
5.62	0.94	0.06	21.21	0.01	0.00	5.63	0.91	0.09	7.43	0.01	0.01
5.64	0.89	0.11	4.63	0.01	0.01	5.65	0.84	0.16	2.40	0.01	0.01
5.66	0.82	0.18	1.89	0.01	0.01	5.67	0.78	0.22	1.39	0.01	0.02
5.68	0.78	0.22	1.39	0.01	0.02	5.69	0.78	0.22	1.41	0.01	0.02
5.70	0.82	0.18	1.98	0.01	0.01	5.71	0.84	0.16	2.33	0.01	0.01
5.72	0.88	0.12	4.08	0.01	0.01	5.73	0.89	0.11	4.78	0.01	0.01
5.74	0.92	0.08	12.12	0.01	0.01	5.75	0.94	0.06	22.19	0.01	0.00
5.76	0.96	0.04	172.15	0.01	0.00	5.77	0.98	0.02	14077.58	0.01	0.00
5.78	1.00	0.00	095365702	0.01	0.00	5.79	1.02	0.00	0.00	0.01	0.00
5.80	1.05	0.00	0.00	0.01	0.00	5.81	1.10	0.00	0.00	0.01	0.00
5.82	1.12	0.00	0.00	0.01	0.00	5.83	1.19	0.00	0.00	0.01	0.00
5.84	1.27	0.00	0.00	0.01	0.00	5.85	1.30	0.00	0.00	0.01	0.00
5.86	1.37	0.00	0.00	0.01	0.00	5.87	1.37	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
5.88	1.36	0.00	0.00	0.01	0.00
5.90	1.29	0.00	0.00	0.01	0.00
5.92	1.20	0.00	0.00	0.01	0.00
5.94	1.13	0.00	0.00	0.01	0.00
5.96	1.03	0.00	0.00	0.01	0.00
5.98	0.94	0.06	29.98	0.01	0.00
6.00	0.94	0.06	29.78	0.01	0.00
6.02	0.95	0.05	54.02	0.01	0.00
6.04	0.95	0.05	38.29	0.01	0.00
6.06	0.93	0.07	16.96	0.01	0.00
6.08	0.89	0.11	4.75	0.01	0.01
6.10	0.71	0.29	0.98	0.01	0.02
6.12	0.76	0.24	1.24	0.01	0.02
6.14	0.83	0.17	2.11	0.01	0.01
6.16	0.87	0.13	3.40	0.01	0.01
6.18	0.81	0.19	1.87	0.01	0.01
6.20	0.73	0.27	1.07	0.01	0.02
6.22	0.78	0.22	1.45	0.01	0.02
6.24	0.93	0.07	16.26	0.01	0.00
6.26	1.01	0.00	0.00	0.01	0.00
6.28	1.05	0.00	0.00	0.01	0.00
6.30	1.06	0.00	0.00	0.01	0.00
6.32	1.00	0.00	0.00	0.01	0.00
6.34	0.98	0.02	197223.91	0.01	0.00
6.36	0.96	0.04	152.60	0.01	0.00
6.38	0.92	0.08	11.71	0.01	0.01
6.40	0.92	0.08	9.13	0.01	0.01
6.42	0.95	0.05	52.04	0.01	0.00
6.44	0.97	0.03	590.32	0.01	0.00
6.46	1.07	0.00	0.00	0.01	0.00
6.48	1.08	0.00	0.00	0.01	0.00
6.50	1.03	0.00	0.00	0.01	0.00
6.52	0.96	0.04	211.17	0.01	0.00
6.54	0.84	0.16	2.31	0.01	0.01
6.56	0.78	0.22	1.39	0.01	0.02
6.58	0.80	0.20	1.61	0.01	0.01
6.60	0.86	0.14	2.85	0.01	0.01
6.62	0.89	0.11	5.44	0.01	0.01
6.64	0.91	0.09	7.50	0.01	0.01
6.66	0.86	0.14	3.08	0.01	0.01
6.68	0.86	0.14	3.25	0.01	0.01
6.70	0.92	0.08	9.05	0.01	0.01
6.72	0.98	0.02	6773.97	0.01	0.00
6.74	0.95	0.05	58.50	0.01	0.00
6.76	0.91	0.09	8.15	0.01	0.01
6.78	0.87	0.13	3.36	0.01	0.01
6.80	0.84	0.16	2.51	0.01	0.01
6.82	0.82	0.18	2.06	0.01	0.01

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
5.89	1.33	0.00	0.00	0.01	0.00
5.91	1.27	0.00	0.00	0.01	0.00
5.93	1.18	0.00	0.00	0.01	0.00
5.95	1.08	0.00	0.00	0.01	0.00
5.97	0.99	0.01	511213.99	0.01	0.00
5.99	0.94	0.06	20.45	0.01	0.00
6.01	0.95	0.05	42.99	0.01	0.00
6.03	0.96	0.04	99.79	0.01	0.00
6.05	0.95	0.05	39.00	0.01	0.00
6.07	0.93	0.07	14.16	0.01	0.01
6.09	0.77	0.23	1.38	0.01	0.02
6.11	0.73	0.27	1.09	0.01	0.02
6.13	0.80	0.20	1.62	0.01	0.01
6.15	0.86	0.14	2.86	0.01	0.01
6.17	0.87	0.13	3.26	0.01	0.01
6.19	0.77	0.23	1.37	0.01	0.02
6.21	0.75	0.25	1.17	0.01	0.02
6.23	0.82	0.18	2.04	0.01	0.01
6.25	0.98	0.02	6967.79	0.01	0.00
6.27	1.03	0.00	0.00	0.01	0.00
6.29	1.05	0.00	0.00	0.01	0.00
6.31	1.04	0.00	0.00	0.01	0.00
6.33	0.99	0.01	2527940.0	0.01	0.00
6.35	0.97	0.03	1200.18	0.01	0.00
6.37	0.93	0.07	17.99	0.01	0.00
6.39	0.92	0.08	9.36	0.01	0.01
6.41	0.92	0.08	11.67	0.01	0.01
6.43	0.97	0.03	718.63	0.01	0.00
6.45	1.04	0.00	0.00	0.01	0.00
6.47	1.08	0.00	0.00	0.01	0.00
6.49	1.06	0.00	0.00	0.01	0.00
6.51	1.00	0.00	0.00	0.01	0.00
6.53	0.87	0.13	3.74	0.01	0.01
6.55	0.80	0.20	1.69	0.01	0.01
6.57	0.77	0.23	1.37	0.01	0.02
6.59	0.83	0.17	2.10	0.01	0.01
6.61	0.88	0.12	4.14	0.01	0.01
6.63	0.90	0.10	5.45	0.01	0.01
6.65	0.89	0.11	4.51	0.01	0.01
6.67	0.85	0.15	2.71	0.01	0.01
6.69	0.89	0.11	4.58	0.01	0.01
6.71	0.94	0.06	33.41	0.01	0.00
6.73	0.97	0.03	434.20	0.01	0.00
6.75	0.93	0.07	16.19	0.01	0.00
6.77	0.89	0.11	4.68	0.01	0.01
6.79	0.85	0.15	2.75	0.01	0.01
6.81	0.84	0.16	2.43	0.01	0.01
6.83	0.81	0.19	1.87	0.01	0.01

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
6.84	0.82	0.18	1.92	0.01	0.01	6.85	0.82	0.18	1.91	0.01	0.01
6.86	0.82	0.18	2.03	0.01	0.01	6.87	0.82	0.18	2.02	0.01	0.01
6.88	0.81	0.19	1.86	0.01	0.01	6.89	0.79	0.21	1.59	0.01	0.01
6.90	0.77	0.23	1.32	0.01	0.02	6.91	0.74	0.26	1.13	0.01	0.02
6.92	0.72	0.28	1.02	0.01	0.02	6.93	0.71	0.29	0.96	0.01	0.02
6.94	0.70	0.30	0.91	0.01	0.02	6.95	0.70	0.30	0.92	0.01	0.02
6.96	0.76	0.24	1.23	0.01	0.02	6.97	0.77	0.23	1.31	0.01	0.02
6.98	0.81	0.19	1.73	0.01	0.01	6.99	0.82	0.18	1.93	0.01	0.01
7.00	0.81	0.19	1.87	0.01	0.01	7.01	0.80	0.20	1.67	0.01	0.01
7.02	0.79	0.21	1.51	0.01	0.01	7.03	0.77	0.23	1.35	0.01	0.01
7.04	2.00	0.00	0.00	0.01	0.00	7.05	2.00	0.00	0.00	0.01	0.00
7.06	2.00	0.00	0.00	0.01	0.00	7.07	2.00	0.00	0.00	0.01	0.00
7.08	2.00	0.00	0.00	0.01	0.00	7.09	2.00	0.00	0.00	0.01	0.00
7.10	2.00	0.00	0.00	0.01	0.00	7.11	2.00	0.00	0.00	0.01	0.00
7.12	2.00	0.00	0.00	0.01	0.00	7.13	2.00	0.00	0.00	0.01	0.00
7.14	2.00	0.00	0.00	0.01	0.00	7.15	2.00	0.00	0.00	0.01	0.00
7.16	2.00	0.00	0.00	0.01	0.00	7.17	2.00	0.00	0.00	0.01	0.00
7.18	2.00	0.00	0.00	0.01	0.00	7.19	2.00	0.00	0.00	0.01	0.00
7.20	2.00	0.00	0.00	0.01	0.00	7.21	2.00	0.00	0.00	0.01	0.00
7.22	2.00	0.00	0.00	0.01	0.00	7.23	2.00	0.00	0.00	0.01	0.00
7.24	2.00	0.00	0.00	0.01	0.00	7.25	2.00	0.00	0.00	0.01	0.00
7.26	2.00	0.00	0.00	0.01	0.00	7.27	2.00	0.00	0.00	0.01	0.00
7.28	2.00	0.00	0.00	0.01	0.00	7.29	2.00	0.00	0.00	0.01	0.00
7.30	2.00	0.00	0.00	0.01	0.00	7.31	2.00	0.00	0.00	0.01	0.00
7.32	2.00	0.00	0.00	0.01	0.00	7.33	2.00	0.00	0.00	0.01	0.00
7.34	2.00	0.00	0.00	0.01	0.00	7.35	2.00	0.00	0.00	0.01	0.00
7.36	2.00	0.00	0.00	0.01	0.00	7.37	2.00	0.00	0.00	0.01	0.00
7.38	2.00	0.00	0.00	0.01	0.00	7.39	2.00	0.00	0.00	0.01	0.00
7.40	2.00	0.00	0.00	0.01	0.00	7.41	2.00	0.00	0.00	0.01	0.00
7.42	2.00	0.00	0.00	0.01	0.00	7.43	2.00	0.00	0.00	0.01	0.00
7.44	2.00	0.00	0.00	0.01	0.00	7.45	2.00	0.00	0.00	0.01	0.00
7.46	2.00	0.00	0.00	0.01	0.00	7.47	2.00	0.00	0.00	0.01	0.00
7.48	2.00	0.00	0.00	0.01	0.00	7.49	2.00	0.00	0.00	0.01	0.00
7.50	2.00	0.00	0.00	0.01	0.00	7.51	2.00	0.00	0.00	0.01	0.00
7.52	0.82	0.18	1.96	0.01	0.01	7.53	0.85	0.15	2.77	0.01	0.01
7.54	0.97	0.03	360.16	0.01	0.00	7.55	0.99	0.01	478523048 1.88	0.01	0.00
7.56	1.02	0.00	0.00	0.01	0.00	7.57	1.04	0.00	0.00	0.01	0.00
7.58	1.04	0.00	0.00	0.01	0.00	7.59	1.00	0.00	409484699	0.01	0.00
7.60	0.97	0.03	2291.03	0.01	0.00	7.61	0.88	0.12	3.82	0.01	0.01
7.62	0.84	0.16	2.40	0.01	0.01	7.63	0.81	0.19	1.76	0.01	0.01
7.64	0.79	0.21	1.51	0.01	0.01	7.65	0.77	0.23	1.31	0.01	0.01
7.66	0.77	0.23	1.37	0.01	0.01	7.67	0.78	0.22	1.48	0.01	0.01
7.68	0.81	0.19	1.86	0.01	0.01	7.69	0.86	0.14	3.13	0.01	0.01
7.70	0.92	0.08	9.39	0.01	0.01	7.71	1.05	0.00	0.00	0.01	0.00
7.72	1.02	0.00	0.00	0.01	0.00	7.73	1.00	0.00	910622300	0.01	0.00
7.74	0.97	0.03	279.28	0.01	0.00	7.75	0.95	0.05	49.79	0.01	0.00
7.76	0.93	0.07	16.06	0.01	0.00	7.77	0.90	0.10	5.76	0.01	0.01
7.78	0.88	0.12	4.11	0.01	0.01	7.79	0.86	0.14	2.94	0.01	0.01

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
7.80	0.83	0.17	2.16	0.01	0.01	7.81	0.81	0.19	1.87	0.01	0.01
7.82	0.80	0.20	1.65	0.01	0.01	7.83	0.77	0.23	1.31	0.01	0.01
7.84	0.75	0.25	1.17	0.01	0.02	7.85	0.73	0.27	1.06	0.01	0.02
7.86	0.73	0.27	1.04	0.01	0.02	7.87	0.73	0.27	1.04	0.01	0.02
7.88	0.73	0.27	1.07	0.01	0.02	7.89	0.73	0.27	1.05	0.01	0.02
7.90	0.73	0.27	1.05	0.01	0.02	7.91	0.74	0.26	1.09	0.01	0.02
7.92	0.75	0.25	1.19	0.01	0.02	7.93	0.76	0.24	1.26	0.01	0.01
7.94	0.77	0.23	1.33	0.01	0.01	7.95	0.79	0.21	1.56	0.01	0.01
7.96	0.81	0.19	1.84	0.01	0.01	7.97	0.85	0.15	2.79	0.01	0.01
7.98	0.89	0.11	4.70	0.01	0.01	7.99	0.93	0.07	12.62	0.01	0.00
8.00	0.99	0.01	556731657 694500.00	0.01	0.00	8.01	1.04	0.00	0.00	0.01	0.00
8.02	1.06	0.00	0.00	0.01	0.00	8.03	1.07	0.00	0.00	0.01	0.00
8.04	1.09	0.00	0.00	0.01	0.00	8.05	1.10	0.00	0.00	0.01	0.00
8.06	1.10	0.00	0.00	0.01	0.00	8.07	1.10	0.00	0.00	0.01	0.00
8.08	1.20	0.00	0.00	0.01	0.00	8.09	1.21	0.00	0.00	0.01	0.00
8.10	1.24	0.00	0.00	0.01	0.00	8.11	1.26	0.00	0.00	0.01	0.00
8.12	1.28	0.00	0.00	0.01	0.00	8.13	1.28	0.00	0.00	0.01	0.00
8.14	1.27	0.00	0.00	0.01	0.00	8.15	1.26	0.00	0.00	0.01	0.00
8.16	1.25	0.00	0.00	0.01	0.00	8.17	1.19	0.00	0.00	0.01	0.00
8.18	1.15	0.00	0.00	0.01	0.00	8.19	1.11	0.00	0.00	0.01	0.00
8.20	1.01	0.00	0.00	0.01	0.00	8.21	0.96	0.04	255.31	0.01	0.00
8.22	0.97	0.03	759.89	0.01	0.00	8.23	1.08	0.00	0.00	0.01	0.00
8.24	1.09	0.00	0.00	0.01	0.00	8.25	1.19	0.00	0.00	0.01	0.00
8.26	1.05	0.00	0.00	0.01	0.00	8.27	1.02	0.00	0.00	0.01	0.00
8.28	0.96	0.04	219.44	0.01	0.00	8.29	0.92	0.08	9.55	0.01	0.00
8.30	0.88	0.12	4.45	0.01	0.01	8.31	2.00	0.00	0.00	0.01	0.00
8.32	2.00	0.00	0.00	0.01	0.00	8.33	2.00	0.00	0.00	0.01	0.00
8.34	2.00	0.00	0.00	0.01	0.00	8.35	2.00	0.00	0.00	0.01	0.00
8.36	2.00	0.00	0.00	0.01	0.00	8.37	2.00	0.00	0.00	0.01	0.00
8.38	0.92	0.08	11.53	0.01	0.00	8.39	1.01	0.00	0.00	0.01	0.00
8.40	1.30	0.00	0.00	0.01	0.00	8.41	1.20	0.00	0.00	0.01	0.00
8.42	1.10	0.00	0.00	0.01	0.00	8.43	1.06	0.00	0.00	0.01	0.00
8.44	1.03	0.00	0.00	0.01	0.00	8.45	1.00	0.00	002560399	0.01	0.00
8.46	0.94	0.06	26.09	0.01	0.00	8.47	0.85	0.15	2.61	0.01	0.01
8.48	0.87	0.13	3.33	0.01	0.01	8.49	2.00	0.00	0.00	0.01	0.00
8.50	2.00	0.00	0.00	0.01	0.00	8.51	2.00	0.00	0.00	0.01	0.00
8.52	2.00	0.00	0.00	0.01	0.00	8.53	2.00	0.00	0.00	0.01	0.00
8.54	2.00	0.00	0.00	0.01	0.00	8.55	2.00	0.00	0.00	0.01	0.00
8.56	1.92	0.00	0.00	0.01	0.00	8.57	1.47	0.00	0.00	0.01	0.00
8.58	1.37	0.00	0.00	0.01	0.00	8.59	1.14	0.00	0.00	0.01	0.00
8.60	1.29	0.00	0.00	0.01	0.00	8.61	1.95	0.00	0.00	0.01	0.00
8.62	1.23	0.00	0.00	0.01	0.00	8.63	1.19	0.00	0.00	0.01	0.00
8.64	1.28	0.00	0.00	0.01	0.00	8.65	2.00	0.00	0.00	0.01	0.00
8.66	2.00	0.00	0.00	0.01	0.00	8.67	2.00	0.00	0.00	0.01	0.00
8.68	2.00	0.00	0.00	0.01	0.00	8.69	2.00	0.00	0.00	0.01	0.00
8.70	2.00	0.00	0.00	0.01	0.00	8.71	2.00	0.00	0.00	0.01	0.00
8.72	2.00	0.00	0.00	0.01	0.00	8.73	2.00	0.00	0.00	0.01	0.00
8.74	2.00	0.00	0.00	0.01	0.00	8.75	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
8.76	2.00	0.00	0.00	0.01	0.00	8.77	2.00	0.00	0.00	0.01	0.00
8.78	2.00	0.00	0.00	0.01	0.00	8.79	2.00	0.00	0.00	0.01	0.00
8.80	2.00	0.00	0.00	0.01	0.00	8.81	2.00	0.00	0.00	0.01	0.00
8.82	2.00	0.00	0.00	0.01	0.00	8.83	2.00	0.00	0.00	0.01	0.00
8.84	2.00	0.00	0.00	0.01	0.00	8.85	2.00	0.00	0.00	0.01	0.00
8.86	2.00	0.00	0.00	0.01	0.00	8.87	2.00	0.00	0.00	0.01	0.00
8.88	2.00	0.00	0.00	0.01	0.00	8.89	2.00	0.00	0.00	0.01	0.00
8.90	2.00	0.00	0.00	0.01	0.00	8.91	2.00	0.00	0.00	0.01	0.00
8.92	2.00	0.00	0.00	0.01	0.00	8.93	2.00	0.00	0.00	0.01	0.00
8.94	2.00	0.00	0.00	0.01	0.00	8.95	2.00	0.00	0.00	0.01	0.00
8.96	2.00	0.00	0.00	0.01	0.00	8.97	2.00	0.00	0.00	0.01	0.00
8.98	2.00	0.00	0.00	0.01	0.00	8.99	2.00	0.00	0.00	0.01	0.00
9.00	2.00	0.00	0.00	0.01	0.00	9.01	2.00	0.00	0.00	0.01	0.00
9.02	2.00	0.00	0.00	0.01	0.00	9.03	2.00	0.00	0.00	0.01	0.00
9.04	2.00	0.00	0.00	0.01	0.00	9.05	2.00	0.00	0.00	0.01	0.00
9.06	2.00	0.00	0.00	0.01	0.00	9.07	2.00	0.00	0.00	0.01	0.00
9.08	2.00	0.00	0.00	0.01	0.00	9.09	2.00	0.00	0.00	0.01	0.00
9.10	2.00	0.00	0.00	0.01	0.00	9.11	2.00	0.00	0.00	0.01	0.00
9.12	2.00	0.00	0.00	0.01	0.00	9.13	2.00	0.00	0.00	0.01	0.00
9.14	2.00	0.00	0.00	0.01	0.00	9.15	2.00	0.00	0.00	0.01	0.00
9.16	2.00	0.00	0.00	0.01	0.00	9.17	2.00	0.00	0.00	0.01	0.00
9.18	2.00	0.00	0.00	0.01	0.00	9.19	2.00	0.00	0.00	0.01	0.00
9.20	2.00	0.00	0.00	0.01	0.00	9.21	2.00	0.00	0.00	0.01	0.00
9.22	2.00	0.00	0.00	0.01	0.00	9.23	2.00	0.00	0.00	0.01	0.00
9.24	2.00	0.00	0.00	0.01	0.00	9.25	2.00	0.00	0.00	0.01	0.00
9.26	2.00	0.00	0.00	0.01	0.00	9.27	2.00	0.00	0.00	0.01	0.00
9.28	2.00	0.00	0.00	0.01	0.00	9.29	2.00	0.00	0.00	0.01	0.00
9.30	2.00	0.00	0.00	0.01	0.00	9.31	2.00	0.00	0.00	0.01	0.00
9.32	2.00	0.00	0.00	0.01	0.00	9.33	2.00	0.00	0.00	0.01	0.00
9.34	2.00	0.00	0.00	0.01	0.00	9.35	2.00	0.00	0.00	0.01	0.00
9.36	2.00	0.00	0.00	0.01	0.00	9.37	2.00	0.00	0.00	0.01	0.00
9.38	2.00	0.00	0.00	0.01	0.00	9.39	2.00	0.00	0.00	0.01	0.00
9.40	2.00	0.00	0.00	0.01	0.00	9.41	2.00	0.00	0.00	0.01	0.00
9.42	2.00	0.00	0.00	0.01	0.00	9.43	2.00	0.00	0.00	0.01	0.00
9.44	2.00	0.00	0.00	0.01	0.00	9.45	2.00	0.00	0.00	0.01	0.00
9.46	2.00	0.00	0.00	0.01	0.00	9.47	2.00	0.00	0.00	0.01	0.00
9.48	2.00	0.00	0.00	0.01	0.00	9.49	2.00	0.00	0.00	0.01	0.00
9.50	2.00	0.00	0.00	0.01	0.00	9.51	2.00	0.00	0.00	0.01	0.00
9.52	2.00	0.00	0.00	0.01	0.00	9.53	2.00	0.00	0.00	0.01	0.00
9.54	2.00	0.00	0.00	0.01	0.00	9.55	2.00	0.00	0.00	0.01	0.00
9.56	2.00	0.00	0.00	0.01	0.00	9.57	2.00	0.00	0.00	0.01	0.00
9.58	2.00	0.00	0.00	0.01	0.00	9.59	2.00	0.00	0.00	0.01	0.00
9.60	2.00	0.00	0.00	0.01	0.00	9.61	2.00	0.00	0.00	0.01	0.00
9.62	2.00	0.00	0.00	0.01	0.00	9.63	2.00	0.00	0.00	0.01	0.00
9.64	2.00	0.00	0.00	0.01	0.00	9.65	2.00	0.00	0.00	0.01	0.00
9.66	2.00	0.00	0.00	0.01	0.00	9.67	2.00	0.00	0.00	0.01	0.00
9.68	2.00	0.00	0.00	0.01	0.00	9.69	2.00	0.00	0.00	0.01	0.00
9.70	2.00	0.00	0.00	0.01	0.00	9.71	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
9.72	2.00	0.00	0.00	0.01	0.00	9.73	2.00	0.00	0.00	0.01	0.00
9.74	2.00	0.00	0.00	0.01	0.00	9.75	2.00	0.00	0.00	0.01	0.00
9.76	2.00	0.00	0.00	0.01	0.00	9.77	2.00	0.00	0.00	0.01	0.00
9.78	2.00	0.00	0.00	0.01	0.00	9.79	2.00	0.00	0.00	0.01	0.00
9.80	2.00	0.00	0.00	0.01	0.00	9.81	2.00	0.00	0.00	0.01	0.00
9.82	2.00	0.00	0.00	0.01	0.00	9.83	2.00	0.00	0.00	0.01	0.00
9.84	2.00	0.00	0.00	0.01	0.00	9.85	2.00	0.00	0.00	0.01	0.00
9.86	2.00	0.00	0.00	0.01	0.00	9.87	2.00	0.00	0.00	0.01	0.00
9.88	2.00	0.00	0.00	0.01	0.00	9.89	2.00	0.00	0.00	0.01	0.00
9.90	2.00	0.00	0.00	0.01	0.00	9.91	2.00	0.00	0.00	0.01	0.00
9.92	2.00	0.00	0.00	0.01	0.00	9.93	2.00	0.00	0.00	0.01	0.00
9.94	2.00	0.00	0.00	0.01	0.00	9.95	2.00	0.00	0.00	0.01	0.00
9.96	2.00	0.00	0.00	0.01	0.00	9.97	2.00	0.00	0.00	0.01	0.00
9.98	2.00	0.00	0.00	0.01	0.00	9.99	2.00	0.00	0.00	0.01	0.00
10.00	2.00	0.00	0.00	0.01	0.00	10.01	2.00	0.00	0.00	0.01	0.00
10.02	2.00	0.00	0.00	0.01	0.00	10.03	2.00	0.00	0.00	0.01	0.00
10.04	2.00	0.00	0.00	0.01	0.00	10.05	2.00	0.00	0.00	0.01	0.00
10.06	2.00	0.00	0.00	0.01	0.00	10.07	2.00	0.00	0.00	0.01	0.00
10.08	2.00	0.00	0.00	0.01	0.00	10.09	2.00	0.00	0.00	0.01	0.00
10.10	2.00	0.00	0.00	0.01	0.00	10.11	2.00	0.00	0.00	0.01	0.00
10.12	2.00	0.00	0.00	0.01	0.00	10.13	2.00	0.00	0.00	0.01	0.00
10.14	2.00	0.00	0.00	0.01	0.00	10.15	2.00	0.00	0.00	0.01	0.00
10.16	2.00	0.00	0.00	0.01	0.00	10.17	2.00	0.00	0.00	0.01	0.00
10.18	2.00	0.00	0.00	0.01	0.00	10.19	2.00	0.00	0.00	0.01	0.00
10.20	2.00	0.00	0.00	0.01	0.00	10.21	2.00	0.00	0.00	0.01	0.00
10.22	2.00	0.00	0.00	0.01	0.00	10.23	2.00	0.00	0.00	0.01	0.00
10.24	2.00	0.00	0.00	0.01	0.00	10.25	2.00	0.00	0.00	0.01	0.00
10.26	2.00	0.00	0.00	0.01	0.00	10.27	2.00	0.00	0.00	0.01	0.00
10.28	2.00	0.00	0.00	0.01	0.00	10.29	2.00	0.00	0.00	0.01	0.00
10.30	2.00	0.00	0.00	0.01	0.00	10.31	2.00	0.00	0.00	0.01	0.00
10.32	2.00	0.00	0.00	0.01	0.00	10.33	2.00	0.00	0.00	0.01	0.00
10.34	2.00	0.00	0.00	0.01	0.00	10.35	2.00	0.00	0.00	0.01	0.00
10.36	2.00	0.00	0.00	0.01	0.00	10.37	2.00	0.00	0.00	0.01	0.00
10.38	2.00	0.00	0.00	0.01	0.00	10.39	2.00	0.00	0.00	0.01	0.00
10.40	2.00	0.00	0.00	0.01	0.00	10.41	2.00	0.00	0.00	0.01	0.00
10.42	2.00	0.00	0.00	0.01	0.00	10.43	2.00	0.00	0.00	0.01	0.00
10.44	2.00	0.00	0.00	0.01	0.00	10.45	2.00	0.00	0.00	0.01	0.00
10.46	2.00	0.00	0.00	0.01	0.00	10.47	2.00	0.00	0.00	0.01	0.00
10.48	2.00	0.00	0.00	0.01	0.00	10.49	2.00	0.00	0.00	0.01	0.00
10.50	2.00	0.00	0.00	0.01	0.00	10.51	2.00	0.00	0.00	0.01	0.00
10.52	2.00	0.00	0.00	0.01	0.00	10.53	2.00	0.00	0.00	0.01	0.00
10.54	2.00	0.00	0.00	0.01	0.00	10.55	2.00	0.00	0.00	0.01	0.00
10.56	2.00	0.00	0.00	0.01	0.00	10.57	2.00	0.00	0.00	0.01	0.00
10.58	2.00	0.00	0.00	0.01	0.00	10.59	2.00	0.00	0.00	0.01	0.00
10.60	2.00	0.00	0.00	0.01	0.00	10.61	2.00	0.00	0.00	0.01	0.00
10.62	2.00	0.00	0.00	0.01	0.00	10.63	2.00	0.00	0.00	0.01	0.00
10.64	2.00	0.00	0.00	0.01	0.00	10.65	2.00	0.00	0.00	0.01	0.00
10.66	2.00	0.00	0.00	0.01	0.00	10.67	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
10.68	2.00	0.00	0.00	0.01	0.00
10.70	2.00	0.00	0.00	0.01	0.00
10.72	2.00	0.00	0.00	0.01	0.00
10.74	2.00	0.00	0.00	0.01	0.00
10.76	2.00	0.00	0.00	0.01	0.00
10.78	2.00	0.00	0.00	0.01	0.00
10.80	2.00	0.00	0.00	0.01	0.00
10.82	2.00	0.00	0.00	0.01	0.00
10.84	2.00	0.00	0.00	0.01	0.00
10.86	2.00	0.00	0.00	0.01	0.00
10.88	2.00	0.00	0.00	0.01	0.00
10.90	2.00	0.00	0.00	0.01	0.00
10.92	2.00	0.00	0.00	0.01	0.00
10.94	2.00	0.00	0.00	0.01	0.00
10.96	2.00	0.00	0.00	0.01	0.00
10.98	2.00	0.00	0.00	0.01	0.00
11.00	2.00	0.00	0.00	0.01	0.00
11.02	2.00	0.00	0.00	0.01	0.00
11.04	2.00	0.00	0.00	0.01	0.00
11.06	2.00	0.00	0.00	0.01	0.00
11.08	2.00	0.00	0.00	0.01	0.00
11.10	2.00	0.00	0.00	0.01	0.00
11.12	2.00	0.00	0.00	0.01	0.00
11.14	2.00	0.00	0.00	0.01	0.00
11.16	2.00	0.00	0.00	0.01	0.00
11.18	2.00	0.00	0.00	0.01	0.00
11.20	2.00	0.00	0.00	0.01	0.00
11.22	2.00	0.00	0.00	0.01	0.00
11.24	2.00	0.00	0.00	0.01	0.00
11.26	2.00	0.00	0.00	0.01	0.00
11.28	2.00	0.00	0.00	0.01	0.00
11.30	2.00	0.00	0.00	0.01	0.00
11.32	2.00	0.00	0.00	0.01	0.00
11.34	2.00	0.00	0.00	0.01	0.00
11.36	2.00	0.00	0.00	0.01	0.00
11.38	2.00	0.00	0.00	0.01	0.00
11.40	2.00	0.00	0.00	0.01	0.00
11.42	2.00	0.00	0.00	0.01	0.00
11.44	2.00	0.00	0.00	0.01	0.00
11.46	2.00	0.00	0.00	0.01	0.00
11.48	2.00	0.00	0.00	0.01	0.00
11.50	2.00	0.00	0.00	0.01	0.00
11.52	2.00	0.00	0.00	0.01	0.00
11.54	2.00	0.00	0.00	0.01	0.00
11.56	2.00	0.00	0.00	0.01	0.00
11.58	2.00	0.00	0.00	0.01	0.00
11.60	2.00	0.00	0.00	0.01	0.00
11.62	2.00	0.00	0.00	0.01	0.00

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
10.69	2.00	0.00	0.00	0.01	0.00
10.71	2.00	0.00	0.00	0.01	0.00
10.73	2.00	0.00	0.00	0.01	0.00
10.75	2.00	0.00	0.00	0.01	0.00
10.77	2.00	0.00	0.00	0.01	0.00
10.79	2.00	0.00	0.00	0.01	0.00
10.81	2.00	0.00	0.00	0.01	0.00
10.83	2.00	0.00	0.00	0.01	0.00
10.85	2.00	0.00	0.00	0.01	0.00
10.87	2.00	0.00	0.00	0.01	0.00
10.89	2.00	0.00	0.00	0.01	0.00
10.91	2.00	0.00	0.00	0.01	0.00
10.93	2.00	0.00	0.00	0.01	0.00
10.95	2.00	0.00	0.00	0.01	0.00
10.97	2.00	0.00	0.00	0.01	0.00
10.99	2.00	0.00	0.00	0.01	0.00
11.01	2.00	0.00	0.00	0.01	0.00
11.03	2.00	0.00	0.00	0.01	0.00
11.05	2.00	0.00	0.00	0.01	0.00
11.07	2.00	0.00	0.00	0.01	0.00
11.09	2.00	0.00	0.00	0.01	0.00
11.11	2.00	0.00	0.00	0.01	0.00
11.13	2.00	0.00	0.00	0.01	0.00
11.15	2.00	0.00	0.00	0.01	0.00
11.17	2.00	0.00	0.00	0.01	0.00
11.19	2.00	0.00	0.00	0.01	0.00
11.21	2.00	0.00	0.00	0.01	0.00
11.23	2.00	0.00	0.00	0.01	0.00
11.25	2.00	0.00	0.00	0.01	0.00
11.27	2.00	0.00	0.00	0.01	0.00
11.29	2.00	0.00	0.00	0.01	0.00
11.31	2.00	0.00	0.00	0.01	0.00
11.33	2.00	0.00	0.00	0.01	0.00
11.35	2.00	0.00	0.00	0.01	0.00
11.37	2.00	0.00	0.00	0.01	0.00
11.39	2.00	0.00	0.00	0.01	0.00
11.41	2.00	0.00	0.00	0.01	0.00
11.43	2.00	0.00	0.00	0.01	0.00
11.45	2.00	0.00	0.00	0.01	0.00
11.47	2.00	0.00	0.00	0.01	0.00
11.49	2.00	0.00	0.00	0.01	0.00
11.51	2.00	0.00	0.00	0.01	0.00
11.53	2.00	0.00	0.00	0.01	0.00
11.55	2.00	0.00	0.00	0.01	0.00
11.57	2.00	0.00	0.00	0.01	0.00
11.59	2.00	0.00	0.00	0.01	0.00
11.61	2.00	0.00	0.00	0.01	0.00
11.63	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
11.64	2.00	0.00	0.00	0.01	0.00	11.65	2.00	0.00	0.00	0.01	0.00
11.66	2.00	0.00	0.00	0.01	0.00	11.67	2.00	0.00	0.00	0.01	0.00
11.68	2.00	0.00	0.00	0.01	0.00	11.69	2.00	0.00	0.00	0.01	0.00
11.70	2.00	0.00	0.00	0.01	0.00	11.71	2.00	0.00	0.00	0.01	0.00
11.72	2.00	0.00	0.00	0.01	0.00	11.73	2.00	0.00	0.00	0.01	0.00
11.74	2.00	0.00	0.00	0.01	0.00	11.75	2.00	0.00	0.00	0.01	0.00
11.76	2.00	0.00	0.00	0.01	0.00	11.77	2.00	0.00	0.00	0.01	0.00
11.78	2.00	0.00	0.00	0.01	0.00	11.79	2.00	0.00	0.00	0.01	0.00
11.80	2.00	0.00	0.00	0.01	0.00	11.81	2.00	0.00	0.00	0.01	0.00
11.82	2.00	0.00	0.00	0.01	0.00	11.83	2.00	0.00	0.00	0.01	0.00
11.84	2.00	0.00	0.00	0.01	0.00	11.85	2.00	0.00	0.00	0.01	0.00
11.86	2.00	0.00	0.00	0.01	0.00	11.87	2.00	0.00	0.00	0.01	0.00
11.88	2.00	0.00	0.00	0.01	0.00	11.89	2.00	0.00	0.00	0.01	0.00
11.90	2.00	0.00	0.00	0.01	0.00	11.91	2.00	0.00	0.00	0.01	0.00
11.92	2.00	0.00	0.00	0.01	0.00	11.93	2.00	0.00	0.00	0.01	0.00
11.94	2.00	0.00	0.00	0.01	0.00	11.95	2.00	0.00	0.00	0.01	0.00
11.96	2.00	0.00	0.00	0.01	0.00	11.97	2.00	0.00	0.00	0.01	0.00
11.98	2.00	0.00	0.00	0.01	0.00	11.99	2.00	0.00	0.00	0.01	0.00
12.00	2.00	0.00	0.00	0.01	0.00	12.01	2.00	0.00	0.00	0.01	0.00
12.02	2.00	0.00	0.00	0.01	0.00	12.03	2.00	0.00	0.00	0.01	0.00
12.04	2.00	0.00	0.00	0.01	0.00	12.05	2.00	0.00	0.00	0.01	0.00
12.06	2.00	0.00	0.00	0.01	0.00	12.07	2.00	0.00	0.00	0.01	0.00
12.08	2.00	0.00	0.00	0.01	0.00	12.09	2.00	0.00	0.00	0.01	0.00
12.10	2.00	0.00	0.00	0.01	0.00	12.11	2.00	0.00	0.00	0.01	0.00
12.12	2.00	0.00	0.00	0.01	0.00	12.13	2.00	0.00	0.00	0.01	0.00
12.14	2.00	0.00	0.00	0.01	0.00	12.15	2.00	0.00	0.00	0.01	0.00
12.16	2.00	0.00	0.00	0.01	0.00	12.17	2.00	0.00	0.00	0.01	0.00
12.18	2.00	0.00	0.00	0.01	0.00	12.19	2.00	0.00	0.00	0.01	0.00
12.20	2.00	0.00	0.00	0.01	0.00	12.21	2.00	0.00	0.00	0.01	0.00
12.22	2.00	0.00	0.00	0.01	0.00	12.23	2.00	0.00	0.00	0.01	0.00
12.24	2.00	0.00	0.00	0.01	0.00	12.25	2.00	0.00	0.00	0.01	0.00
12.26	2.00	0.00	0.00	0.01	0.00	12.27	2.00	0.00	0.00	0.01	0.00
12.28	2.00	0.00	0.00	0.01	0.00	12.29	2.00	0.00	0.00	0.01	0.00
12.30	2.00	0.00	0.00	0.01	0.00	12.31	2.00	0.00	0.00	0.01	0.00
12.32	2.00	0.00	0.00	0.01	0.00	12.33	2.00	0.00	0.00	0.01	0.00
12.34	2.00	0.00	0.00	0.01	0.00	12.35	2.00	0.00	0.00	0.01	0.00
12.36	2.00	0.00	0.00	0.01	0.00	12.37	2.00	0.00	0.00	0.01	0.00
12.38	2.00	0.00	0.00	0.01	0.00	12.39	2.00	0.00	0.00	0.01	0.00
12.40	2.00	0.00	0.00	0.01	0.00	12.41	2.00	0.00	0.00	0.01	0.00
12.42	2.00	0.00	0.00	0.01	0.00	12.43	2.00	0.00	0.00	0.01	0.00
12.44	2.00	0.00	0.00	0.01	0.00	12.45	2.00	0.00	0.00	0.01	0.00
12.46	2.00	0.00	0.00	0.01	0.00	12.47	2.00	0.00	0.00	0.01	0.00
12.48	2.00	0.00	0.00	0.01	0.00	12.49	2.00	0.00	0.00	0.01	0.00
12.50	2.00	0.00	0.00	0.01	0.00	12.51	2.00	0.00	0.00	0.01	0.00
12.52	2.00	0.00	0.00	0.01	0.00	12.53	2.00	0.00	0.00	0.01	0.00
12.54	2.00	0.00	0.00	0.01	0.00	12.55	2.00	0.00	0.00	0.01	0.00
12.56	2.00	0.00	0.00	0.01	0.00	12.57	2.00	0.00	0.00	0.01	0.00
12.58	2.00	0.00	0.00	0.01	0.00	12.59	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
12.60	2.00	0.00	0.00	0.01	0.00	12.61	2.00	0.00	0.00	0.01	0.00
12.62	2.00	0.00	0.00	0.01	0.00	12.63	2.00	0.00	0.00	0.01	0.00
12.64	2.00	0.00	0.00	0.01	0.00	12.65	2.00	0.00	0.00	0.01	0.00
12.66	2.00	0.00	0.00	0.01	0.00	12.67	2.00	0.00	0.00	0.01	0.00
12.68	2.00	0.00	0.00	0.01	0.00	12.69	2.00	0.00	0.00	0.01	0.00
12.70	2.00	0.00	0.00	0.01	0.00	12.71	2.00	0.00	0.00	0.01	0.00
12.72	2.00	0.00	0.00	0.01	0.00	12.73	2.00	0.00	0.00	0.01	0.00
12.74	2.00	0.00	0.00	0.01	0.00	12.75	2.00	0.00	0.00	0.01	0.00
12.76	2.00	0.00	0.00	0.01	0.00	12.77	2.00	0.00	0.00	0.01	0.00
12.78	2.00	0.00	0.00	0.01	0.00	12.79	2.00	0.00	0.00	0.01	0.00
12.80	2.00	0.00	0.00	0.01	0.00	12.81	2.00	0.00	0.00	0.01	0.00
12.82	2.00	0.00	0.00	0.01	0.00	12.83	2.00	0.00	0.00	0.01	0.00
12.84	2.00	0.00	0.00	0.01	0.00	12.85	2.00	0.00	0.00	0.01	0.00
12.86	2.00	0.00	0.00	0.01	0.00	12.87	2.00	0.00	0.00	0.01	0.00
12.88	2.00	0.00	0.00	0.01	0.00	12.89	2.00	0.00	0.00	0.01	0.00
12.90	2.00	0.00	0.00	0.01	0.00	12.91	2.00	0.00	0.00	0.01	0.00
12.92	2.00	0.00	0.00	0.01	0.00	12.93	2.00	0.00	0.00	0.01	0.00
12.94	2.00	0.00	0.00	0.01	0.00	12.95	2.00	0.00	0.00	0.01	0.00
12.96	2.00	0.00	0.00	0.01	0.00	12.97	2.00	0.00	0.00	0.01	0.00
12.98	2.00	0.00	0.00	0.01	0.00	12.99	2.00	0.00	0.00	0.01	0.00
13.00	2.00	0.00	0.00	0.01	0.00	13.01	2.00	0.00	0.00	0.01	0.00
13.02	2.00	0.00	0.00	0.01	0.00	13.03	2.00	0.00	0.00	0.01	0.00
13.04	2.00	0.00	0.00	0.01	0.00	13.05	2.00	0.00	0.00	0.01	0.00
13.06	2.00	0.00	0.00	0.01	0.00	13.07	2.00	0.00	0.00	0.01	0.00
13.08	2.00	0.00	0.00	0.01	0.00	13.09	2.00	0.00	0.00	0.01	0.00
13.10	2.00	0.00	0.00	0.01	0.00	13.11	2.00	0.00	0.00	0.01	0.00
13.12	2.00	0.00	0.00	0.01	0.00	13.13	2.00	0.00	0.00	0.01	0.00
13.14	2.00	0.00	0.00	0.01	0.00	13.15	2.00	0.00	0.00	0.01	0.00
13.16	2.00	0.00	0.00	0.01	0.00	13.17	2.00	0.00	0.00	0.01	0.00
13.18	2.00	0.00	0.00	0.01	0.00	13.19	2.00	0.00	0.00	0.01	0.00
13.20	2.00	0.00	0.00	0.01	0.00	13.21	2.00	0.00	0.00	0.01	0.00
13.22	2.00	0.00	0.00	0.01	0.00	13.23	2.00	0.00	0.00	0.01	0.00
13.24	2.00	0.00	0.00	0.01	0.00	13.25	2.00	0.00	0.00	0.01	0.00
13.26	2.00	0.00	0.00	0.01	0.00	13.27	2.00	0.00	0.00	0.01	0.00
13.28	2.00	0.00	0.00	0.01	0.00	13.29	2.00	0.00	0.00	0.01	0.00
13.30	2.00	0.00	0.00	0.01	0.00	13.31	2.00	0.00	0.00	0.01	0.00
13.32	2.00	0.00	0.00	0.01	0.00	13.33	2.00	0.00	0.00	0.01	0.00
13.34	2.00	0.00	0.00	0.01	0.00	13.35	2.00	0.00	0.00	0.01	0.00
13.36	2.00	0.00	0.00	0.01	0.00	13.37	2.00	0.00	0.00	0.01	0.00
13.38	2.00	0.00	0.00	0.01	0.00	13.39	2.00	0.00	0.00	0.01	0.00
13.40	2.00	0.00	0.00	0.01	0.00	13.41	2.00	0.00	0.00	0.01	0.00
13.42	2.00	0.00	0.00	0.01	0.00	13.43	2.00	0.00	0.00	0.01	0.00
13.44	2.00	0.00	0.00	0.01	0.00	13.45	2.00	0.00	0.00	0.01	0.00
13.46	2.00	0.00	0.00	0.01	0.00	13.47	2.00	0.00	0.00	0.01	0.00
13.48	2.00	0.00	0.00	0.01	0.00	13.49	2.00	0.00	0.00	0.01	0.00
13.50	2.00	0.00	0.00	0.01	0.00	13.51	2.00	0.00	0.00	0.01	0.00
13.52	2.00	0.00	0.00	0.01	0.00	13.53	2.00	0.00	0.00	0.01	0.00
13.54	2.00	0.00	0.00	0.01	0.00	13.55	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
13.56	2.00	0.00	0.00	0.01	0.00	13.57	2.00	0.00	0.00	0.01	0.00
13.58	2.00	0.00	0.00	0.01	0.00	13.59	2.00	0.00	0.00	0.01	0.00
13.60	2.00	0.00	0.00	0.01	0.00	13.61	2.00	0.00	0.00	0.01	0.00
13.62	2.00	0.00	0.00	0.01	0.00	13.63	2.00	0.00	0.00	0.01	0.00
13.64	2.00	0.00	0.00	0.01	0.00	13.65	2.00	0.00	0.00	0.01	0.00
13.66	2.00	0.00	0.00	0.01	0.00	13.67	2.00	0.00	0.00	0.01	0.00
13.68	2.00	0.00	0.00	0.01	0.00	13.69	2.00	0.00	0.00	0.01	0.00
13.70	2.00	0.00	0.00	0.01	0.00	13.71	2.00	0.00	0.00	0.01	0.00
13.72	2.00	0.00	0.00	0.01	0.00	13.73	2.00	0.00	0.00	0.01	0.00
13.74	2.00	0.00	0.00	0.01	0.00	13.75	2.00	0.00	0.00	0.01	0.00
13.76	2.00	0.00	0.00	0.01	0.00	13.77	2.00	0.00	0.00	0.01	0.00
13.78	2.00	0.00	0.00	0.01	0.00	13.79	2.00	0.00	0.00	0.01	0.00
13.80	2.00	0.00	0.00	0.01	0.00	13.81	2.00	0.00	0.00	0.01	0.00
13.82	2.00	0.00	0.00	0.01	0.00	13.83	2.00	0.00	0.00	0.01	0.00
13.84	2.00	0.00	0.00	0.01	0.00	13.85	2.00	0.00	0.00	0.01	0.00
13.86	2.00	0.00	0.00	0.01	0.00	13.87	2.00	0.00	0.00	0.01	0.00
13.88	2.00	0.00	0.00	0.01	0.00	13.89	2.00	0.00	0.00	0.01	0.00
13.90	2.00	0.00	0.00	0.01	0.00	13.91	2.00	0.00	0.00	0.01	0.00
13.92	2.00	0.00	0.00	0.01	0.00	13.93	2.00	0.00	0.00	0.01	0.00
13.94	2.00	0.00	0.00	0.01	0.00	13.95	2.00	0.00	0.00	0.01	0.00
13.96	2.00	0.00	0.00	0.01	0.00	13.97	2.00	0.00	0.00	0.01	0.00
13.98	2.00	0.00	0.00	0.01	0.00	13.99	2.00	0.00	0.00	0.01	0.00
14.00	2.00	0.00	0.00	0.01	0.00	14.01	2.00	0.00	0.00	0.01	0.00
14.02	2.00	0.00	0.00	0.01	0.00	14.03	2.00	0.00	0.00	0.01	0.00
14.04	2.00	0.00	0.00	0.01	0.00	14.05	2.00	0.00	0.00	0.01	0.00
14.06	2.00	0.00	0.00	0.01	0.00	14.07	2.00	0.00	0.00	0.01	0.00
14.08	2.00	0.00	0.00	0.01	0.00	14.09	2.00	0.00	0.00	0.01	0.00
14.10	2.00	0.00	0.00	0.01	0.00	14.11	2.00	0.00	0.00	0.01	0.00
14.12	2.00	0.00	0.00	0.01	0.00	14.13	2.00	0.00	0.00	0.01	0.00
14.14	2.00	0.00	0.00	0.01	0.00	14.15	2.00	0.00	0.00	0.01	0.00
14.16	2.00	0.00	0.00	0.01	0.00	14.17	2.00	0.00	0.00	0.01	0.00
14.18	2.00	0.00	0.00	0.01	0.00	14.19	2.00	0.00	0.00	0.01	0.00
14.20	2.00	0.00	0.00	0.01	0.00	14.21	2.00	0.00	0.00	0.01	0.00
14.22	2.00	0.00	0.00	0.01	0.00	14.23	2.00	0.00	0.00	0.01	0.00
14.24	2.00	0.00	0.00	0.01	0.00	14.25	2.00	0.00	0.00	0.01	0.00
14.26	2.00	0.00	0.00	0.01	0.00	14.27	2.00	0.00	0.00	0.01	0.00
14.28	2.00	0.00	0.00	0.01	0.00	14.29	2.00	0.00	0.00	0.01	0.00
14.30	2.00	0.00	0.00	0.01	0.00	14.31	2.00	0.00	0.00	0.01	0.00
14.32	2.00	0.00	0.00	0.01	0.00	14.33	2.00	0.00	0.00	0.01	0.00
14.34	2.00	0.00	0.00	0.01	0.00	14.35	2.00	0.00	0.00	0.01	0.00
14.36	2.00	0.00	0.00	0.01	0.00	14.37	2.00	0.00	0.00	0.01	0.00
14.38	2.00	0.00	0.00	0.01	0.00	14.39	2.00	0.00	0.00	0.01	0.00
14.40	2.00	0.00	0.00	0.01	0.00	14.41	2.00	0.00	0.00	0.01	0.00
14.42	2.00	0.00	0.00	0.01	0.00	14.43	2.00	0.00	0.00	0.01	0.00
14.44	2.00	0.00	0.00	0.01	0.00	14.45	2.00	0.00	0.00	0.01	0.00
14.46	2.00	0.00	0.00	0.01	0.00	14.47	2.00	0.00	0.00	0.01	0.00
14.48	2.00	0.00	0.00	0.01	0.00	14.49	2.00	0.00	0.00	0.01	0.00
14.50	2.00	0.00	0.00	0.01	0.00	14.51	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (m)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
14.52	2.00	0.00	0.00	0.01	0.00	14.53	2.00	0.00	0.00	0.01	0.00
14.54	2.00	0.00	0.00	0.01	0.00	14.55	2.00	0.00	0.00	0.01	0.00
14.56	2.00	0.00	0.00	0.01	0.00	14.57	2.00	0.00	0.00	0.01	0.00
14.58	2.00	0.00	0.00	0.01	0.00	14.59	2.00	0.00	0.00	0.01	0.00
14.60	2.00	0.00	0.00	0.01	0.00	14.61	2.00	0.00	0.00	0.01	0.00
14.62	2.00	0.00	0.00	0.01	0.00	14.63	2.00	0.00	0.00	0.01	0.00
14.64	2.00	0.00	0.00	0.01	0.00	14.65	2.00	0.00	0.00	0.01	0.00
14.66	2.00	0.00	0.00	0.01	0.00	14.67	2.00	0.00	0.00	0.01	0.00
14.68	2.00	0.00	0.00	0.01	0.00	14.69	2.00	0.00	0.00	0.01	0.00
14.70	2.00	0.00	0.00	0.01	0.00	14.71	2.00	0.00	0.00	0.01	0.00
14.72	2.00	0.00	0.00	0.01	0.00	14.73	2.00	0.00	0.00	0.01	0.00
14.74	2.00	0.00	0.00	0.01	0.00	14.75	2.00	0.00	0.00	0.01	0.00
14.76	2.00	0.00	0.00	0.01	0.00	14.77	2.00	0.00	0.00	0.01	0.00
14.78	2.00	0.00	0.00	0.01	0.00	14.79	2.00	0.00	0.00	0.01	0.00
14.80	2.00	0.00	0.00	0.01	0.00	14.81	2.00	0.00	0.00	0.01	0.00
14.82	2.00	0.00	0.00	0.01	0.00	14.83	2.00	0.00	0.00	0.01	0.00
14.84	2.00	0.00	0.00	0.01	0.00	14.85	2.00	0.00	0.00	0.01	0.00
14.86	2.00	0.00	0.00	0.01	0.00	14.87	2.00	0.00	0.00	0.01	0.00
14.88	2.00	0.00	0.00	0.01	0.00	14.89	2.00	0.00	0.00	0.01	0.00
14.90	2.00	0.00	0.00	0.01	0.00	14.91	2.00	0.00	0.00	0.01	0.00
14.92	2.00	0.00	0.00	0.01	0.00	14.93	2.00	0.00	0.00	0.01	0.00
14.94	2.00	0.00	0.00	0.01	0.00	14.95	2.00	0.00	0.00	0.01	0.00
14.96	2.00	0.00	0.00	0.01	0.00	14.97	2.00	0.00	0.00	0.01	0.00
14.98	2.00	0.00	0.00	0.01	0.00	14.99	2.00	0.00	0.00	0.01	0.00
15.00	2.00	0.00	0.00	0.01	0.00	15.01	2.00	0.00	0.00	0.01	0.00
15.02	2.00	0.00	0.00	0.01	0.00	15.03	2.00	0.00	0.00	0.01	0.00

Overall liquefaction potential: 1.57

LPI_{ISH} > 5.0 - Liquefaction manifestation is expected

Abbreviations

FS: Calculated factor of safety for test point
d_z: Layer thickness (m)
LPI: Liquefaction potential index value for test point

:: Post-earthquake settlement due to soil liquefaction ::

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
3.00	147.10	2.00	0.00	1.00	0.00	3.01	146.87	2.00	0.00	1.00	0.00
3.02	145.69	2.00	0.00	1.00	0.00	3.03	145.57	2.00	0.00	1.00	0.00
3.04	143.79	2.00	0.00	1.00	0.00	3.05	142.72	2.00	0.00	1.00	0.00
3.06	141.65	2.00	0.00	1.00	0.00	3.07	141.54	2.00	0.00	1.00	0.00
3.08	141.43	2.00	0.00	1.00	0.00	3.09	140.84	2.00	0.00	1.00	0.00
3.10	143.13	2.00	0.00	1.00	0.00	3.11	146.23	2.00	0.00	1.00	0.00
3.12	148.49	2.00	0.00	1.00	0.00	3.13	153.30	2.00	0.00	1.00	0.00
3.14	154.24	2.00	0.00	1.00	0.00	3.15	154.13	2.00	0.00	1.00	0.00
3.16	153.09	2.00	0.00	1.00	0.00	3.17	153.33	2.00	0.00	1.00	0.00
3.18	153.80	2.00	0.00	1.00	0.00	3.19	155.08	2.00	0.00	1.00	0.00
3.20	156.02	2.00	0.00	1.00	0.00	3.21	157.64	2.00	0.00	1.00	0.00
3.22	159.94	2.00	0.00	1.00	0.00	3.23	166.56	2.00	0.00	1.00	0.00
3.24	170.28	2.00	0.00	1.00	0.00	3.25	177.68	2.00	0.00	1.00	0.00
3.26	180.46	2.00	0.00	1.00	0.00	3.27	183.13	2.00	0.00	1.00	0.00
3.28	186.11	2.00	0.00	1.00	0.00	3.29	186.65	2.00	0.00	1.00	0.00
3.30	186.42	2.00	0.00	1.00	0.00	3.31	185.64	2.00	0.00	1.00	0.00
3.32	184.53	2.00	0.00	1.00	0.00	3.33	184.52	2.00	0.00	1.00	0.00
3.34	186.17	2.00	0.00	1.00	0.00	3.35	187.60	2.00	0.00	1.00	0.00
3.36	188.80	2.00	0.00	1.00	0.00	3.37	189.56	2.00	0.00	1.00	0.00
3.38	189.66	2.00	0.00	1.00	0.00	3.39	188.99	2.00	0.00	1.00	0.00
3.40	188.11	2.00	0.00	1.00	0.00	3.41	185.47	2.00	0.00	1.00	0.00
3.42	183.48	2.00	0.00	1.00	0.00	3.43	181.15	2.00	0.00	1.00	0.00
3.44	177.76	2.00	0.00	1.00	0.00	3.45	177.87	2.00	0.00	1.00	0.00
3.46	180.36	2.00	0.00	1.00	0.00	3.47	183.56	2.00	0.00	1.00	0.00
3.48	191.99	2.00	0.00	1.00	0.00	3.49	196.21	2.00	0.00	1.00	0.00
3.50	201.15	2.00	0.00	1.00	0.00	3.51	201.68	2.00	0.00	1.00	0.00
3.52	201.02	2.00	0.00	1.00	0.00	3.53	199.84	2.00	0.00	1.00	0.00
3.54	197.89	2.00	0.00	1.00	0.00	3.55	197.89	2.00	0.00	1.00	0.00
3.56	198.20	2.00	0.00	1.00	0.00	3.57	199.17	2.00	0.00	1.00	0.00
3.58	199.80	2.00	0.00	1.00	0.00	3.59	199.69	2.00	0.00	1.00	0.00
3.60	198.40	2.00	0.00	1.00	0.00	3.61	194.53	2.00	0.00	1.00	0.00
3.62	191.06	2.00	0.00	1.00	0.00	3.63	182.20	2.00	0.00	1.00	0.00
3.64	176.84	2.00	0.00	1.00	0.00	3.65	171.21	2.00	0.00	1.00	0.00
3.66	165.87	2.00	0.00	1.00	0.00	3.67	160.83	2.00	0.00	1.00	0.00
3.68	152.32	2.00	0.00	1.00	0.00	3.69	149.35	2.00	0.00	1.00	0.00
3.70	145.56	2.00	0.00	1.00	0.00	3.71	144.07	2.00	0.00	1.00	0.00
3.72	143.04	2.00	0.00	1.00	0.00	3.73	142.01	2.00	0.00	1.00	0.00
3.74	140.16	2.00	0.00	1.00	0.00	3.75	138.78	2.00	0.00	1.00	0.00
3.76	137.39	2.00	0.00	1.00	0.00	3.77	134.35	2.00	0.00	1.00	0.00
3.78	132.49	1.97	0.01	1.00	0.00	3.79	129.07	1.84	0.06	1.00	0.00
3.80	127.31	1.77	0.09	1.00	0.00	3.81	125.31	1.71	0.13	1.00	0.00
3.82	123.43	1.65	0.16	1.00	0.00	3.83	121.90	1.60	0.19	1.00	0.00
3.84	119.77	1.54	0.23	1.00	0.00	3.85	119.81	1.54	0.23	1.00	0.00
3.86	118.70	1.51	0.25	1.00	0.00	3.87	118.13	1.49	0.26	1.00	0.00
3.88	117.93	1.49	0.26	1.00	0.00	3.89	118.23	1.49	0.26	1.00	0.00
3.90	119.00	1.51	0.25	1.00	0.00	3.91	119.54	1.52	0.24	1.00	0.00
3.92	120.07	1.54	0.23	1.00	0.00	3.93	122.33	1.60	0.19	1.00	0.00
3.94	123.57	1.63	0.17	1.00	0.00	3.95	126.95	1.74	0.11	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
3.96	129.47	1.82	0.07	1.00	0.00	3.97	132.81	1.95	0.02	1.00	0.00
3.98	137.29	2.00	0.00	1.00	0.00	3.99	147.47	2.00	0.00	1.00	0.00
4.00	151.94	2.00	0.00	1.00	0.00	4.01	154.91	2.00	0.00	1.00	0.00
4.02	157.19	2.00	0.00	1.00	0.00	4.03	157.33	2.00	0.00	1.00	0.00
4.04	156.12	2.00	0.00	1.00	0.00	4.05	155.37	2.00	0.00	1.00	0.00
4.06	154.83	2.00	0.00	1.00	0.00	4.07	154.75	2.00	0.00	1.00	0.00
4.08	154.67	2.00	0.00	1.00	0.00	4.09	146.08	2.00	0.00	1.00	0.00
4.10	145.89	2.00	0.00	1.00	0.00	4.11	146.72	2.00	0.00	1.00	0.00
4.12	149.59	2.00	0.00	1.00	0.00	4.13	152.56	2.00	0.00	1.00	0.00
4.14	152.93	2.00	0.00	1.00	0.00	4.15	153.63	2.00	0.00	1.00	0.00
4.16	154.22	2.00	0.00	1.00	0.00	4.17	155.03	2.00	0.00	1.00	0.00
4.18	154.61	2.00	0.00	1.00	0.00	4.19	155.20	2.00	0.00	1.00	0.00
4.20	156.01	2.00	0.00	1.00	0.00	4.21	158.27	2.00	0.00	1.00	0.00
4.22	159.52	2.00	0.00	1.00	0.00	4.23	160.32	2.00	0.00	1.00	0.00
4.24	161.34	2.00	0.00	1.00	0.00	4.25	162.26	2.00	0.00	1.00	0.00
4.26	161.73	2.00	0.00	1.00	0.00	4.27	159.76	2.00	0.00	1.00	0.00
4.28	157.67	2.00	0.00	1.00	0.00	4.29	157.36	2.00	0.00	1.00	0.00
4.30	156.27	2.00	0.00	1.00	0.00	4.31	155.63	2.00	0.00	1.00	0.00
4.32	155.21	2.00	0.00	1.00	0.00	4.33	154.79	2.00	0.00	1.00	0.00
4.34	154.70	2.00	0.00	1.00	0.00	4.35	155.29	2.00	0.00	1.00	0.00
4.36	157.10	2.00	0.00	1.00	0.00	4.37	158.57	2.00	0.00	1.00	0.00
4.38	157.70	2.00	0.00	1.00	0.00	4.39	155.95	2.00	0.00	1.00	0.00
4.40	154.19	2.00	0.00	1.00	0.00	4.41	152.87	2.00	0.00	1.00	0.00
4.42	150.77	2.00	0.00	1.00	0.00	4.43	151.03	2.00	0.00	1.00	0.00
4.44	151.73	2.00	0.00	1.00	0.00	4.45	153.65	2.00	0.00	1.00	0.00
4.46	155.24	2.00	0.00	1.00	0.00	4.47	157.93	2.00	0.00	1.00	0.00
4.48	159.17	2.00	0.00	1.00	0.00	4.49	161.29	2.00	0.00	1.00	0.00
4.50	162.20	2.00	0.00	1.00	0.00	4.51	162.88	2.00	0.00	1.00	0.00
4.52	163.35	2.00	0.00	1.00	0.00	4.53	163.15	2.00	0.00	1.00	0.00
4.54	162.19	2.00	0.00	1.00	0.00	4.55	161.77	2.00	0.00	1.00	0.00
4.56	160.59	2.00	0.00	1.00	0.00	4.57	158.74	2.00	0.00	1.00	0.00
4.58	157.55	2.00	0.00	1.00	0.00	4.59	155.03	2.00	0.00	1.00	0.00
4.60	154.62	2.00	0.00	1.00	0.00	4.61	155.54	2.00	0.00	1.00	0.00
4.62	158.77	2.00	0.00	1.00	0.00	4.63	160.01	2.00	0.00	1.00	0.00
4.64	161.24	2.00	0.00	1.00	0.00	4.65	161.71	2.00	0.00	1.00	0.00
4.66	161.51	2.00	0.00	1.00	0.00	4.67	160.77	2.00	0.00	1.00	0.00
4.68	159.80	2.00	0.00	1.00	0.00	4.69	159.27	2.00	0.00	1.00	0.00
4.70	157.09	2.00	0.00	1.00	0.00	4.71	155.79	2.00	0.00	1.00	0.00
4.72	153.16	2.00	0.00	1.00	0.00	4.73	150.08	2.00	0.00	1.00	0.00
4.74	147.99	2.00	0.00	1.00	0.00	4.75	143.32	2.00	0.00	1.00	0.00
4.76	139.07	2.00	0.00	1.00	0.00	4.77	137.86	2.00	0.00	1.00	0.00
4.78	136.31	1.98	0.01	1.00	0.00	4.79	135.66	1.95	0.02	1.00	0.00
4.80	134.68	1.91	0.04	1.00	0.00	4.81	134.71	1.91	0.04	1.00	0.00
4.82	134.29	1.89	0.04	1.00	0.00	4.83	133.87	1.87	0.05	1.00	0.00
4.84	133.45	1.85	0.06	1.00	0.00	4.85	132.12	1.80	0.08	1.00	0.00
4.86	131.02	1.76	0.10	1.00	0.00	4.87	130.14	1.73	0.12	1.00	0.00
4.88	126.86	1.62	0.18	1.00	0.00	4.89	125.19	1.57	0.21	1.00	0.00
4.90	122.46	1.49	0.27	1.00	0.00	4.91	121.22	1.46	0.30	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
4.92	120.34	1.43	0.31	1.00	0.00	4.93	119.56	1.41	0.33	1.00	0.00
4.94	119.49	1.41	0.33	1.00	0.00	4.95	119.53	1.41	0.33	1.00	0.00
4.96	119.58	1.41	0.33	1.00	0.00	4.97	119.85	1.42	0.33	1.00	0.00
4.98	119.78	1.42	0.33	1.00	0.00	4.99	119.36	1.40	0.34	1.00	0.00
5.00	118.71	1.39	0.36	1.00	0.00	5.01	116.66	1.34	0.41	1.00	0.00
5.02	116.01	1.33	0.42	1.00	0.00	5.03	115.35	1.31	0.44	1.00	0.00
5.04	115.63	1.32	0.43	1.00	0.00	5.05	115.91	1.32	0.43	1.00	0.00
5.06	116.30	1.33	0.42	1.00	0.00	5.07	116.23	1.33	0.42	1.00	0.00
5.08	116.16	1.33	0.42	1.00	0.00	5.09	117.25	1.35	0.40	1.00	0.00
5.10	117.65	1.36	0.39	1.00	0.00	5.11	117.00	1.34	0.41	1.00	0.00
5.12	116.35	1.33	0.42	1.00	0.00	5.13	114.20	1.28	0.48	1.00	0.00
5.14	112.73	1.25	0.52	1.00	0.01	5.15	108.93	1.18	0.64	1.00	0.01
5.16	105.57	1.13	0.77	1.00	0.01	5.17	104.45	1.11	0.82	1.00	0.01
5.18	102.88	1.09	0.90	1.00	0.01	5.19	102.47	1.08	0.92	1.00	0.01
5.20	102.64	1.08	0.92	1.00	0.01	5.21	102.57	1.08	0.92	1.00	0.01
5.22	102.62	1.08	0.92	1.00	0.01	5.23	103.81	1.10	0.86	1.00	0.01
5.24	104.33	1.11	0.84	1.00	0.01	5.25	105.32	1.12	0.79	1.00	0.01
5.26	105.60	1.12	0.78	1.00	0.01	5.27	106.24	1.13	0.76	1.00	0.01
5.28	107.46	1.15	0.71	1.00	0.01	5.29	108.44	1.17	0.67	1.00	0.01
5.30	110.35	1.20	0.61	1.00	0.01	5.31	112.02	1.23	0.56	1.00	0.01
5.32	112.64	1.24	0.54	1.00	0.01	5.33	114.65	1.28	0.48	1.00	0.00
5.34	116.08	1.31	0.45	1.00	0.00	5.35	116.13	1.31	0.45	1.00	0.00
5.36	114.68	1.28	0.49	1.00	0.00	5.37	113.81	1.26	0.51	1.00	0.01
5.38	111.79	1.22	0.57	1.00	0.01	5.39	110.68	1.20	0.61	1.00	0.01
5.40	108.54	1.16	0.68	1.00	0.01	5.41	107.08	1.14	0.74	1.00	0.01
5.42	104.34	1.10	0.87	1.00	0.01	5.43	103.35	1.08	0.92	1.00	0.01
5.44	101.38	1.05	1.05	1.00	0.01	5.45	100.63	1.04	1.11	1.00	0.01
5.46	99.76	1.03	1.18	1.00	0.01	5.47	98.67	1.02	1.28	1.00	0.01
5.48	97.80	1.01	1.38	1.00	0.01	5.49	95.67	0.98	1.68	1.00	0.02
5.50	94.72	0.97	1.87	1.00	0.02	5.51	91.71	0.94	2.88	1.00	0.03
5.52	88.45	0.90	3.63	1.00	0.04	5.53	87.32	0.89	3.68	1.00	0.04
5.54	86.08	0.88	3.73	1.00	0.04	5.55	85.90	0.88	3.74	1.00	0.04
5.56	87.04	0.89	3.69	1.00	0.04	5.57	89.12	0.91	3.61	1.00	0.04
5.58	90.02	0.92	3.57	1.00	0.04	5.59	92.32	0.94	2.70	1.00	0.03
5.60	92.98	0.95	2.44	1.00	0.02	5.61	93.04	0.95	2.43	1.00	0.02
5.62	92.16	0.94	2.82	1.00	0.03	5.63	89.39	0.91	3.60	1.00	0.04
5.64	87.21	0.89	3.69	1.00	0.04	5.65	82.04	0.84	3.91	1.00	0.04
5.66	79.12	0.82	4.05	1.00	0.04	5.67	73.87	0.78	4.33	1.00	0.04
5.68	73.91	0.78	4.32	1.00	0.04	5.69	74.27	0.78	4.30	1.00	0.04
5.70	79.93	0.82	4.01	1.00	0.04	5.71	81.94	0.84	3.92	1.00	0.04
5.72	86.76	0.88	3.70	1.00	0.04	5.73	87.74	0.89	3.66	1.00	0.04
5.74	91.37	0.92	3.52	1.00	0.04	5.75	92.72	0.94	2.72	1.00	0.03
5.76	94.98	0.96	1.98	1.00	0.02	5.77	96.55	0.98	1.68	1.00	0.02
5.78	98.21	1.00	1.44	1.00	0.01	5.79	99.59	1.02	1.29	1.00	0.01
5.80	102.32	1.05	1.06	1.00	0.01	5.81	105.53	1.10	0.87	1.00	0.01
5.82	107.09	1.12	0.80	1.00	0.01	5.83	111.52	1.19	0.63	1.00	0.01
5.84	115.87	1.27	0.49	1.00	0.00	5.85	117.19	1.30	0.46	1.00	0.00
5.86	120.37	1.37	0.38	1.00	0.00	5.87	120.57	1.37	0.37	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
5.88	119.96	1.36	0.39	1.00	0.00	5.89	118.78	1.33	0.42	1.00	0.00
5.90	117.02	1.29	0.47	1.00	0.00	5.91	116.05	1.27	0.49	1.00	0.00
5.92	112.47	1.20	0.60	1.00	0.01	5.93	111.23	1.18	0.65	1.00	0.01
5.94	107.97	1.13	0.77	1.00	0.01	5.95	105.02	1.08	0.92	1.00	0.01
5.96	101.48	1.03	1.16	1.00	0.01	5.97	97.61	0.99	1.59	1.00	0.02
5.98	93.92	0.94	2.45	1.00	0.02	5.99	93.32	0.94	2.70	1.00	0.03
6.00	93.98	0.94	2.45	1.00	0.02	6.01	94.50	0.95	2.28	1.00	0.02
6.02	94.80	0.95	2.20	1.00	0.02	6.03	95.40	0.96	2.04	1.00	0.02
6.04	94.45	0.95	2.32	1.00	0.02	6.05	94.50	0.95	2.31	1.00	0.02
6.06	93.17	0.93	2.85	1.00	0.03	6.07	92.80	0.93	3.06	1.00	0.03
6.08	88.85	0.89	3.62	1.00	0.04	6.09	75.26	0.77	4.25	1.00	0.04
6.10	66.56	0.71	4.77	1.00	0.05	6.11	69.60	0.73	4.57	1.00	0.05
6.12	73.07	0.76	4.37	1.00	0.04	6.13	78.40	0.80	4.09	1.00	0.04
6.14	82.27	0.83	3.90	1.00	0.04	6.15	85.51	0.86	3.76	1.00	0.04
6.16	86.96	0.87	3.70	1.00	0.04	6.17	86.69	0.87	3.71	1.00	0.04
6.18	80.78	0.81	3.97	1.00	0.04	6.19	75.45	0.77	4.24	1.00	0.04
6.20	69.38	0.73	4.59	1.00	0.05	6.21	72.07	0.75	4.43	1.00	0.04
6.22	76.81	0.78	4.17	1.00	0.04	6.23	82.14	0.82	3.91	1.00	0.04
6.24	93.64	0.93	2.83	1.00	0.03	6.25	97.82	0.98	1.66	1.00	0.02
6.26	100.69	1.01	1.30	1.00	0.01	6.27	102.20	1.03	1.17	1.00	0.01
6.28	103.31	1.05	1.08	1.00	0.01	6.29	103.93	1.05	1.04	1.00	0.01
6.30	103.98	1.06	1.04	1.00	0.01	6.31	103.20	1.04	1.10	1.00	0.01
6.32	99.90	1.00	1.40	1.00	0.01	6.33	99.40	0.99	1.46	1.00	0.01
6.34	98.56	0.98	1.58	1.00	0.02	6.35	97.61	0.97	1.73	1.00	0.02
6.36	96.66	0.96	1.92	1.00	0.02	6.37	94.19	0.93	2.69	1.00	0.03
6.38	93.22	0.92	3.20	1.00	0.03	6.39	92.60	0.92	3.47	1.00	0.03
6.40	92.55	0.92	3.47	1.00	0.03	6.41	93.29	0.92	3.20	1.00	0.03
6.42	95.88	0.95	2.14	1.00	0.02	6.43	97.62	0.97	1.76	1.00	0.02
6.44	97.57	0.97	1.78	1.00	0.02	6.45	103.19	1.04	1.12	1.00	0.01
6.46	105.53	1.07	0.96	1.00	0.01	6.47	106.36	1.08	0.92	1.00	0.01
6.48	106.08	1.08	0.93	1.00	0.01	6.49	104.91	1.06	1.00	1.00	0.01
6.50	102.69	1.03	1.17	1.00	0.01	6.51	100.30	1.00	1.40	1.00	0.01
6.52	97.24	0.96	1.87	1.00	0.02	6.53	88.68	0.87	3.63	1.00	0.04
6.54	84.52	0.84	3.80	1.00	0.04	6.55	80.34	0.80	3.99	1.00	0.04
6.56	76.89	0.78	4.16	1.00	0.04	6.57	76.66	0.77	4.18	1.00	0.04
6.58	79.64	0.80	4.03	1.00	0.04	6.59	83.51	0.83	3.85	1.00	0.04
6.60	86.77	0.86	3.70	1.00	0.04	6.61	89.54	0.88	3.59	1.00	0.04
6.62	91.06	0.89	3.53	1.00	0.04	6.63	91.09	0.90	3.53	1.00	0.04
6.64	92.46	0.91	3.48	1.00	0.03	6.65	90.15	0.89	3.57	1.00	0.04
6.66	87.55	0.86	3.67	1.00	0.04	6.67	86.46	0.85	3.72	1.00	0.04
6.68	88.03	0.86	3.65	1.00	0.04	6.69	90.32	0.89	3.56	1.00	0.04
6.70	93.23	0.92	3.45	1.00	0.03	6.71	96.01	0.94	2.25	1.00	0.02
6.72	98.91	0.98	1.64	1.00	0.02	6.73	98.08	0.97	1.78	1.00	0.02
6.74	96.73	0.95	2.07	1.00	0.02	6.75	94.85	0.93	2.69	1.00	0.03
6.76	93.01	0.91	3.46	1.00	0.03	6.77	90.60	0.89	3.55	1.00	0.04
6.78	88.50	0.87	3.63	1.00	0.04	6.79	86.85	0.85	3.70	1.00	0.04
6.80	86.01	0.84	3.74	1.00	0.04	6.81	85.70	0.84	3.75	1.00	0.04
6.82	83.80	0.82	3.83	1.00	0.04	6.83	82.57	0.81	3.89	1.00	0.04

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
6.84	82.93	0.82	3.87	1.00	0.04	6.85	82.88	0.82	3.87	1.00	0.04
6.86	83.74	0.82	3.84	1.00	0.04	6.87	83.70	0.82	3.84	1.00	0.04
6.88	82.63	0.81	3.89	1.00	0.04	6.89	80.21	0.79	4.00	1.00	0.04
6.90	76.64	0.77	4.18	1.00	0.04	6.91	72.98	0.74	4.38	1.00	0.04
6.92	70.15	0.72	4.54	1.00	0.05	6.93	68.32	0.71	4.65	1.00	0.05
6.94	66.25	0.70	4.79	1.00	0.05	6.95	66.71	0.70	4.76	1.00	0.05
6.96	75.20	0.76	4.25	1.00	0.04	6.97	76.69	0.77	4.17	1.00	0.04
6.98	81.77	0.81	3.92	1.00	0.04	6.99	83.35	0.82	3.85	1.00	0.04
7.00	82.96	0.81	3.87	1.00	0.04	7.01	81.30	0.80	3.95	1.00	0.04
7.02	79.56	0.79	4.03	1.00	0.04	7.03	77.45	0.77	4.14	1.00	0.04
7.04	17.90	2.00	0.00	1.00	0.00	7.05	14.03	2.00	0.00	1.00	0.00
7.06	14.01	2.00	0.00	1.00	0.00	7.07	14.00	2.00	0.00	1.00	0.00
7.08	10.97	2.00	0.00	1.00	0.00	7.09	10.36	2.00	0.00	1.00	0.00
7.10	9.38	2.00	0.00	1.00	0.00	7.11	9.01	2.00	0.00	1.00	0.00
7.12	8.64	2.00	0.00	1.00	0.00	7.13	8.14	2.00	0.00	1.00	0.00
7.14	8.02	2.00	0.00	1.00	0.00	7.15	8.01	2.00	0.00	1.00	0.00
7.16	7.89	2.00	0.00	1.00	0.00	7.17	8.85	2.00	0.00	1.00	0.00
7.18	10.06	2.00	0.00	1.00	0.00	7.19	11.50	2.00	0.00	1.00	0.00
7.20	14.27	2.00	0.00	1.00	0.00	7.21	15.35	2.00	0.00	1.00	0.00
7.22	16.19	2.00	0.00	1.00	0.00	7.23	16.42	2.00	0.00	1.00	0.00
7.24	14.98	2.00	0.00	1.00	0.00	7.25	13.64	2.00	0.00	1.00	0.00
7.26	11.23	2.00	0.00	1.00	0.00	7.27	10.61	2.00	0.00	1.00	0.00
7.28	10.13	2.00	0.00	1.00	0.00	7.29	10.24	2.00	0.00	1.00	0.00
7.30	10.23	2.00	0.00	1.00	0.00	7.31	11.31	2.00	0.00	1.00	0.00
7.32	12.62	2.00	0.00	1.00	0.00	7.33	14.64	2.00	0.00	1.00	0.00
7.34	15.11	2.00	0.00	1.00	0.00	7.35	15.10	2.00	0.00	1.00	0.00
7.36	14.97	2.00	0.00	1.00	0.00	7.37	14.37	2.00	0.00	1.00	0.00
7.38	13.77	2.00	0.00	1.00	0.00	7.39	13.52	2.00	0.00	1.00	0.00
7.40	13.51	2.00	0.00	1.00	0.00	7.41	13.63	2.00	0.00	1.00	0.00
7.42	14.09	2.00	0.00	1.00	0.00	7.43	14.80	2.00	0.00	1.00	0.00
7.44	15.15	2.00	0.00	1.00	0.00	7.45	15.49	2.00	0.00	1.00	0.00
7.46	15.01	2.00	0.00	1.00	0.00	7.47	13.82	2.00	0.00	1.00	0.00
7.48	13.69	2.00	0.00	1.00	0.00	7.49	14.51	2.00	0.00	1.00	0.00
7.50	15.56	2.00	0.00	1.00	0.00	7.51	18.38	2.00	0.00	1.00	0.00
7.52	84.65	0.82	3.80	1.00	0.04	7.53	88.43	0.85	3.64	1.00	0.04
7.54	99.47	0.97	1.75	1.00	0.02	7.55	101.49	0.99	1.45	1.00	0.01
7.56	103.66	1.02	1.23	1.00	0.01	7.57	104.96	1.04	1.12	1.00	0.01
7.58	105.52	1.04	1.08	1.00	0.01	7.59	101.96	1.00	1.40	1.00	0.01
7.60	100.20	0.97	1.64	1.00	0.02	7.61	90.99	0.88	3.53	1.00	0.04
7.62	87.14	0.84	3.69	1.00	0.04	7.63	83.28	0.81	3.86	1.00	0.04
7.64	80.82	0.79	3.97	1.00	0.04	7.65	77.93	0.77	4.11	1.00	0.04
7.66	78.99	0.77	4.06	1.00	0.04	7.67	80.50	0.78	3.99	1.00	0.04
7.68	84.14	0.81	3.82	1.00	0.04	7.69	89.67	0.86	3.59	1.00	0.04
7.70	95.16	0.92	3.15	1.00	0.03	7.71	106.24	1.05	1.04	1.00	0.01
7.72	103.55	1.02	1.26	1.00	0.01	7.73	102.03	1.00	1.41	1.00	0.01
7.74	99.58	0.97	1.76	1.00	0.02	7.75	98.29	0.95	2.02	1.00	0.02
7.76	96.59	0.93	2.52	1.00	0.03	7.77	93.42	0.90	3.44	1.00	0.03
7.78	91.67	0.88	3.51	1.00	0.04	7.79	89.25	0.86	3.60	1.00	0.04

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
7.80	86.19	0.83	3.73	1.00	0.04	7.81	84.35	0.81	3.81	1.00	0.04
7.82	82.49	0.80	3.89	1.00	0.04	7.83	78.22	0.77	4.10	1.00	0.04
7.84	75.62	0.75	4.23	1.00	0.04	7.85	73.12	0.73	4.37	1.00	0.04
7.86	72.60	0.73	4.40	1.00	0.04	7.87	72.47	0.73	4.40	1.00	0.04
7.88	73.41	0.73	4.35	1.00	0.04	7.89	72.86	0.73	4.38	1.00	0.04
7.90	72.90	0.73	4.38	1.00	0.04	7.91	73.97	0.74	4.32	1.00	0.04
7.92	76.16	0.75	4.20	1.00	0.04	7.93	77.44	0.76	4.14	1.00	0.04
7.94	78.70	0.77	4.07	1.00	0.04	7.95	81.72	0.79	3.93	1.00	0.04
7.96	84.31	0.81	3.81	1.00	0.04	7.97	89.04	0.85	3.61	1.00	0.04
7.98	92.67	0.89	3.47	1.00	0.03	7.99	96.30	0.93	2.71	1.00	0.03
8.00	102.23	0.99	1.42	1.00	0.01	8.01	105.41	1.04	1.12	1.00	0.01
8.02	107.06	1.06	1.01	1.00	0.01	8.03	107.55	1.07	0.98	1.00	0.01
8.04	109.09	1.09	0.89	1.00	0.01	8.05	109.89	1.10	0.85	1.00	0.01
8.06	109.84	1.10	0.86	1.00	0.01	8.07	109.80	1.10	0.86	1.00	0.01
8.08	115.68	1.20	0.62	1.00	0.01	8.09	116.37	1.21	0.59	1.00	0.01
8.10	117.69	1.24	0.55	1.00	0.01	8.11	118.80	1.26	0.52	1.00	0.01
8.12	119.80	1.28	0.49	1.00	0.00	8.13	119.95	1.28	0.48	1.00	0.00
8.14	119.48	1.27	0.50	1.00	0.00	8.15	119.00	1.26	0.51	1.00	0.01
8.16	118.42	1.25	0.53	1.00	0.01	8.17	115.20	1.19	0.63	1.00	0.01
8.18	112.93	1.15	0.72	1.00	0.01	8.19	110.55	1.11	0.83	1.00	0.01
8.20	103.71	1.01	1.28	1.00	0.01	8.21	99.99	0.96	1.75	1.00	0.02
8.22	100.48	0.97	1.67	1.00	0.02	8.23	108.47	1.08	0.93	1.00	0.01
8.24	109.43	1.09	0.88	1.00	0.01	8.25	115.36	1.19	0.63	1.00	0.01
8.26	106.63	1.05	1.05	1.00	0.01	8.27	104.52	1.02	1.21	1.00	0.01
8.28	99.95	0.96	1.77	1.00	0.02	8.29	95.78	0.92	3.04	1.00	0.03
8.30	92.62	0.88	3.47	1.00	0.03	8.31	27.02	2.00	0.00	1.00	0.00
8.32	24.89	2.00	0.00	1.00	0.00	8.33	22.31	2.00	0.00	1.00	0.00
8.34	21.63	2.00	0.00	1.00	0.00	8.35	20.05	2.00	0.00	1.00	0.00
8.36	18.71	2.00	0.00	1.00	0.00	8.37	27.03	2.00	0.00	1.00	0.00
8.38	96.35	0.92	2.77	1.00	0.03	8.39	104.03	1.01	1.26	1.00	0.01
8.40	120.60	1.30	0.47	1.00	0.00	8.41	115.80	1.20	0.62	1.00	0.01
8.42	109.92	1.10	0.86	1.00	0.01	8.43	107.29	1.06	1.01	1.00	0.01
8.44	105.42	1.03	1.14	1.00	0.01	8.45	102.79	1.00	1.38	1.00	0.01
8.46	98.03	0.94	2.20	1.00	0.02	8.47	88.77	0.85	3.62	1.00	0.04
8.48	90.81	0.87	3.54	1.00	0.04	8.49	166.97	2.00	0.00	1.00	0.00
8.50	192.59	2.00	0.00	1.00	0.00	8.51	169.28	2.00	0.00	1.00	0.00
8.52	182.10	2.00	0.00	1.00	0.00	8.53	163.05	2.00	0.00	1.00	0.00
8.54	166.76	2.00	0.00	1.00	0.00	8.55	161.30	2.00	0.00	1.00	0.00
8.56	140.33	1.92	0.03	1.00	0.00	8.57	127.56	1.47	0.29	1.00	0.00
8.58	123.84	1.37	0.38	1.00	0.00	8.59	112.61	1.14	0.74	1.00	0.01
8.60	120.49	1.29	0.47	1.00	0.00	8.61	140.84	1.95	0.02	1.00	0.00
8.62	117.72	1.23	0.56	1.00	0.01	8.63	115.19	1.19	0.64	1.00	0.01
8.64	119.93	1.28	0.49	1.00	0.00	8.65	35.50	2.00	0.00	1.00	0.00
8.66	29.94	2.00	0.00	1.00	0.00	8.67	25.89	2.00	0.00	1.00	0.00
8.68	19.88	2.00	0.00	1.00	0.00	8.69	18.11	2.00	0.00	1.00	0.00
8.70	17.77	2.00	0.00	1.00	0.00	8.71	17.11	2.00	0.00	1.00	0.00
8.72	13.47	2.00	0.00	1.00	0.00	8.73	12.25	2.00	0.00	1.00	0.00
8.74	12.24	2.00	0.00	1.00	0.00	8.75	12.56	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
8.76	12.67	2.00	0.00	1.00	0.00	8.77	13.87	2.00	0.00	1.00	0.00
8.78	12.98	2.00	0.00	1.00	0.00	8.79	13.19	2.00	0.00	1.00	0.00
8.80	11.98	2.00	0.00	1.00	0.00	8.81	11.86	2.00	0.00	1.00	0.00
8.82	11.74	2.00	0.00	1.00	0.00	8.83	11.63	2.00	0.00	1.00	0.00
8.84	11.73	2.00	0.00	1.00	0.00	8.85	12.27	2.00	0.00	1.00	0.00
8.86	12.60	2.00	0.00	1.00	0.00	8.87	12.81	2.00	0.00	1.00	0.00
8.88	13.13	2.00	0.00	1.00	0.00	8.89	13.56	2.00	0.00	1.00	0.00
8.90	13.66	2.00	0.00	1.00	0.00	8.91	13.76	2.00	0.00	1.00	0.00
8.92	13.75	2.00	0.00	1.00	0.00	8.93	13.75	2.00	0.00	1.00	0.00
8.94	13.52	2.00	0.00	1.00	0.00	8.95	13.51	2.00	0.00	1.00	0.00
8.96	13.51	2.00	0.00	1.00	0.00	8.97	13.50	2.00	0.00	1.00	0.00
8.98	13.49	2.00	0.00	1.00	0.00	8.99	13.27	2.00	0.00	1.00	0.00
9.00	13.26	2.00	0.00	1.00	0.00	9.01	12.93	2.00	0.00	1.00	0.00
9.02	12.81	2.00	0.00	1.00	0.00	9.03	13.13	2.00	0.00	1.00	0.00
9.04	12.36	2.00	0.00	1.00	0.00	9.05	11.81	2.00	0.00	1.00	0.00
9.06	11.81	2.00	0.00	1.00	0.00	9.07	11.80	2.00	0.00	1.00	0.00
9.08	11.58	2.00	0.00	1.00	0.00	9.09	11.35	2.00	0.00	1.00	0.00
9.10	11.24	2.00	0.00	1.00	0.00	9.11	10.91	2.00	0.00	1.00	0.00
9.12	10.69	2.00	0.00	1.00	0.00	9.13	10.57	2.00	0.00	1.00	0.00
9.14	10.35	2.00	0.00	1.00	0.00	9.15	10.24	2.00	0.00	1.00	0.00
9.16	10.34	2.00	0.00	1.00	0.00	9.17	10.33	2.00	0.00	1.00	0.00
9.18	10.44	2.00	0.00	1.00	0.00	9.19	10.54	2.00	0.00	1.00	0.00
9.20	10.96	2.00	0.00	1.00	0.00	9.21	11.07	2.00	0.00	1.00	0.00
9.22	11.28	2.00	0.00	1.00	0.00	9.23	11.16	2.00	0.00	1.00	0.00
9.24	10.94	2.00	0.00	1.00	0.00	9.25	10.51	2.00	0.00	1.00	0.00
9.26	10.39	2.00	0.00	1.00	0.00	9.27	10.07	2.00	0.00	1.00	0.00
9.28	9.74	2.00	0.00	1.00	0.00	9.29	9.52	2.00	0.00	1.00	0.00
9.30	9.30	2.00	0.00	1.00	0.00	9.31	9.08	2.00	0.00	1.00	0.00
9.32	9.08	2.00	0.00	1.00	0.00	9.33	8.86	2.00	0.00	1.00	0.00
9.34	8.74	2.00	0.00	1.00	0.00	9.35	8.42	2.00	0.00	1.00	0.00
9.36	8.31	2.00	0.00	1.00	0.00	9.37	7.98	2.00	0.00	1.00	0.00
9.38	7.87	2.00	0.00	1.00	0.00	9.39	7.65	2.00	0.00	1.00	0.00
9.40	7.54	2.00	0.00	1.00	0.00	9.41	7.21	2.00	0.00	1.00	0.00
9.42	7.21	2.00	0.00	1.00	0.00	9.43	7.10	2.00	0.00	1.00	0.00
9.44	7.10	2.00	0.00	1.00	0.00	9.45	7.20	2.00	0.00	1.00	0.00
9.46	7.30	2.00	0.00	1.00	0.00	9.47	7.52	2.00	0.00	1.00	0.00
9.48	7.73	2.00	0.00	1.00	0.00	9.49	8.15	2.00	0.00	1.00	0.00
9.50	8.36	2.00	0.00	1.00	0.00	9.51	8.68	2.00	0.00	1.00	0.00
9.52	8.88	2.00	0.00	1.00	0.00	9.53	9.20	2.00	0.00	1.00	0.00
9.54	9.30	2.00	0.00	1.00	0.00	9.55	9.41	2.00	0.00	1.00	0.00
9.56	9.51	2.00	0.00	1.00	0.00	9.57	9.50	2.00	0.00	1.00	0.00
9.58	9.39	2.00	0.00	1.00	0.00	9.59	9.39	2.00	0.00	1.00	0.00
9.60	9.38	2.00	0.00	1.00	0.00	9.61	9.38	2.00	0.00	1.00	0.00
9.62	9.27	2.00	0.00	1.00	0.00	9.63	9.16	2.00	0.00	1.00	0.00
9.64	9.16	2.00	0.00	1.00	0.00	9.65	9.15	2.00	0.00	1.00	0.00
9.66	8.93	2.00	0.00	1.00	0.00	9.67	8.61	2.00	0.00	1.00	0.00
9.68	8.40	2.00	0.00	1.00	0.00	9.69	7.97	2.00	0.00	1.00	0.00
9.70	7.75	2.00	0.00	1.00	0.00	9.71	7.54	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
9.72	7.22	2.00	0.00	1.00	0.00	9.73	7.11	2.00	0.00	1.00	0.00
9.74	7.00	2.00	0.00	1.00	0.00	9.75	6.89	2.00	0.00	1.00	0.00
9.76	6.78	2.00	0.00	1.00	0.00	9.77	6.57	2.00	0.00	1.00	0.00
9.78	6.57	2.00	0.00	1.00	0.00	9.79	6.77	2.00	0.00	1.00	0.00
9.80	6.98	2.00	0.00	1.00	0.00	9.81	7.40	2.00	0.00	1.00	0.00
9.82	7.71	2.00	0.00	1.00	0.00	9.83	8.45	2.00	0.00	1.00	0.00
9.84	8.76	2.00	0.00	1.00	0.00	9.85	9.49	2.00	0.00	1.00	0.00
9.86	9.91	2.00	0.00	1.00	0.00	9.87	10.11	2.00	0.00	1.00	0.00
9.88	10.42	2.00	0.00	1.00	0.00	9.89	10.63	2.00	0.00	1.00	0.00
9.90	10.94	2.00	0.00	1.00	0.00	9.91	11.25	2.00	0.00	1.00	0.00
9.92	11.24	2.00	0.00	1.00	0.00	9.93	11.24	2.00	0.00	1.00	0.00
9.94	11.13	2.00	0.00	1.00	0.00	9.95	10.91	2.00	0.00	1.00	0.00
9.96	11.01	2.00	0.00	1.00	0.00	9.97	10.90	2.00	0.00	1.00	0.00
9.98	10.79	2.00	0.00	1.00	0.00	9.99	10.79	2.00	0.00	1.00	0.00
10.00	10.78	2.00	0.00	1.00	0.00	10.01	10.67	2.00	0.00	1.00	0.00
10.02	10.57	2.00	0.00	1.00	0.00	10.03	10.56	2.00	0.00	1.00	0.00
10.04	10.55	2.00	0.00	1.00	0.00	10.05	10.55	2.00	0.00	1.00	0.00
10.06	10.54	2.00	0.00	1.00	0.00	10.07	10.85	2.00	0.00	1.00	0.00
10.08	10.85	2.00	0.00	1.00	0.00	10.09	10.84	2.00	0.00	1.00	0.00
10.10	11.04	2.00	0.00	1.00	0.00	10.11	10.93	2.00	0.00	1.00	0.00
10.12	10.72	2.00	0.00	1.00	0.00	10.13	10.61	2.00	0.00	1.00	0.00
10.14	10.61	2.00	0.00	1.00	0.00	10.15	10.71	2.00	0.00	1.00	0.00
10.16	10.70	2.00	0.00	1.00	0.00	10.17	10.80	2.00	0.00	1.00	0.00
10.18	10.69	2.00	0.00	1.00	0.00	10.19	10.69	2.00	0.00	1.00	0.00
10.20	10.58	2.00	0.00	1.00	0.00	10.21	10.47	2.00	0.00	1.00	0.00
10.22	10.26	2.00	0.00	1.00	0.00	10.23	10.25	2.00	0.00	1.00	0.00
10.24	10.25	2.00	0.00	1.00	0.00	10.25	10.55	2.00	0.00	1.00	0.00
10.26	10.65	2.00	0.00	1.00	0.00	10.27	10.65	2.00	0.00	1.00	0.00
10.28	10.64	2.00	0.00	1.00	0.00	10.29	10.84	2.00	0.00	1.00	0.00
10.30	11.04	2.00	0.00	1.00	0.00	10.31	11.24	2.00	0.00	1.00	0.00
10.32	11.55	2.00	0.00	1.00	0.00	10.33	11.65	2.00	0.00	1.00	0.00
10.34	11.64	2.00	0.00	1.00	0.00	10.35	11.53	2.00	0.00	1.00	0.00
10.36	11.32	2.00	0.00	1.00	0.00	10.37	11.32	2.00	0.00	1.00	0.00
10.38	11.31	2.00	0.00	1.00	0.00	10.39	11.10	2.00	0.00	1.00	0.00
10.40	10.99	2.00	0.00	1.00	0.00	10.41	10.99	2.00	0.00	1.00	0.00
10.42	10.98	2.00	0.00	1.00	0.00	10.43	10.88	2.00	0.00	1.00	0.00
10.44	10.97	2.00	0.00	1.00	0.00	10.45	11.07	2.00	0.00	1.00	0.00
10.46	10.76	2.00	0.00	1.00	0.00	10.47	10.75	2.00	0.00	1.00	0.00
10.48	10.65	2.00	0.00	1.00	0.00	10.49	10.64	2.00	0.00	1.00	0.00
10.50	10.64	2.00	0.00	1.00	0.00	10.51	10.63	2.00	0.00	1.00	0.00
10.52	10.52	2.00	0.00	1.00	0.00	10.53	10.42	2.00	0.00	1.00	0.00
10.54	10.31	2.00	0.00	1.00	0.00	10.55	10.31	2.00	0.00	1.00	0.00
10.56	10.20	2.00	0.00	1.00	0.00	10.57	10.09	2.00	0.00	1.00	0.00
10.58	10.19	2.00	0.00	1.00	0.00	10.59	10.18	2.00	0.00	1.00	0.00
10.60	10.28	2.00	0.00	1.00	0.00	10.61	10.38	2.00	0.00	1.00	0.00
10.62	10.37	2.00	0.00	1.00	0.00	10.63	10.57	2.00	0.00	1.00	0.00
10.64	10.67	2.00	0.00	1.00	0.00	10.65	10.76	2.00	0.00	1.00	0.00
10.66	10.76	2.00	0.00	1.00	0.00	10.67	10.75	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
10.68	10.65	2.00	0.00	1.00	0.00	10.69	10.74	2.00	0.00	1.00	0.00
10.70	10.94	2.00	0.00	1.00	0.00	10.71	11.04	2.00	0.00	1.00	0.00
10.72	11.23	2.00	0.00	1.00	0.00	10.73	11.33	2.00	0.00	1.00	0.00
10.74	11.53	2.00	0.00	1.00	0.00	10.75	11.82	2.00	0.00	1.00	0.00
10.76	12.02	2.00	0.00	1.00	0.00	10.77	12.42	2.00	0.00	1.00	0.00
10.78	12.61	2.00	0.00	1.00	0.00	10.79	13.01	2.00	0.00	1.00	0.00
10.80	13.21	2.00	0.00	1.00	0.00	10.81	13.60	2.00	0.00	1.00	0.00
10.82	13.90	2.00	0.00	1.00	0.00	10.83	14.19	2.00	0.00	1.00	0.00
10.84	14.19	2.00	0.00	1.00	0.00	10.85	14.28	2.00	0.00	1.00	0.00
10.86	14.27	2.00	0.00	1.00	0.00	10.87	14.37	2.00	0.00	1.00	0.00
10.88	14.56	2.00	0.00	1.00	0.00	10.89	14.56	2.00	0.00	1.00	0.00
10.90	14.45	2.00	0.00	1.00	0.00	10.91	14.44	2.00	0.00	1.00	0.00
10.92	14.43	2.00	0.00	1.00	0.00	10.93	14.43	2.00	0.00	1.00	0.00
10.94	14.42	2.00	0.00	1.00	0.00	10.95	14.31	2.00	0.00	1.00	0.00
10.96	14.31	2.00	0.00	1.00	0.00	10.97	14.40	2.00	0.00	1.00	0.00
10.98	14.09	2.00	0.00	1.00	0.00	10.99	13.99	2.00	0.00	1.00	0.00
11.00	13.68	2.00	0.00	1.00	0.00	11.01	13.57	2.00	0.00	1.00	0.00
11.02	13.37	2.00	0.00	1.00	0.00	11.03	13.16	2.00	0.00	1.00	0.00
11.04	13.06	2.00	0.00	1.00	0.00	11.05	13.05	2.00	0.00	1.00	0.00
11.06	13.04	2.00	0.00	1.00	0.00	11.07	12.84	2.00	0.00	1.00	0.00
11.08	12.73	2.00	0.00	1.00	0.00	11.09	12.63	2.00	0.00	1.00	0.00
11.10	12.72	2.00	0.00	1.00	0.00	11.11	12.81	2.00	0.00	1.00	0.00
11.12	12.81	2.00	0.00	1.00	0.00	11.13	12.90	2.00	0.00	1.00	0.00
11.14	13.00	2.00	0.00	1.00	0.00	11.15	12.99	2.00	0.00	1.00	0.00
11.16	12.88	2.00	0.00	1.00	0.00	11.17	12.88	2.00	0.00	1.00	0.00
11.18	12.97	2.00	0.00	1.00	0.00	11.19	12.97	2.00	0.00	1.00	0.00
11.20	13.16	2.00	0.00	1.00	0.00	11.21	13.25	2.00	0.00	1.00	0.00
11.22	13.34	2.00	0.00	1.00	0.00	11.23	13.53	2.00	0.00	1.00	0.00
11.24	13.63	2.00	0.00	1.00	0.00	11.25	13.72	2.00	0.00	1.00	0.00
11.26	13.81	2.00	0.00	1.00	0.00	11.27	14.00	2.00	0.00	1.00	0.00
11.28	14.09	2.00	0.00	1.00	0.00	11.29	14.19	2.00	0.00	1.00	0.00
11.30	14.48	2.00	0.00	1.00	0.00	11.31	14.86	2.00	0.00	1.00	0.00
11.32	14.86	2.00	0.00	1.00	0.00	11.33	14.85	2.00	0.00	1.00	0.00
11.34	14.74	2.00	0.00	1.00	0.00	11.35	14.64	2.00	0.00	1.00	0.00
11.36	14.44	2.00	0.00	1.00	0.00	11.37	14.33	2.00	0.00	1.00	0.00
11.38	14.62	2.00	0.00	1.00	0.00	11.39	14.71	2.00	0.00	1.00	0.00
11.40	14.90	2.00	0.00	1.00	0.00	11.41	14.99	2.00	0.00	1.00	0.00
11.42	14.98	2.00	0.00	1.00	0.00	11.43	14.98	2.00	0.00	1.00	0.00
11.44	14.97	2.00	0.00	1.00	0.00	11.45	14.77	2.00	0.00	1.00	0.00
11.46	14.86	2.00	0.00	1.00	0.00	11.47	14.85	2.00	0.00	1.00	0.00
11.48	14.94	2.00	0.00	1.00	0.00	11.49	15.03	2.00	0.00	1.00	0.00
11.50	15.12	2.00	0.00	1.00	0.00	11.51	15.21	2.00	0.00	1.00	0.00
11.52	15.21	2.00	0.00	1.00	0.00	11.53	15.30	2.00	0.00	1.00	0.00
11.54	15.09	2.00	0.00	1.00	0.00	11.55	14.99	2.00	0.00	1.00	0.00
11.56	14.89	2.00	0.00	1.00	0.00	11.57	14.78	2.00	0.00	1.00	0.00
11.58	14.68	2.00	0.00	1.00	0.00	11.59	14.28	2.00	0.00	1.00	0.00
11.60	14.18	2.00	0.00	1.00	0.00	11.61	14.07	2.00	0.00	1.00	0.00
11.62	13.97	2.00	0.00	1.00	0.00	11.63	13.77	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
11.64	13.96	2.00	0.00	1.00	0.00	11.65	13.85	2.00	0.00	1.00	0.00
11.66	13.56	2.00	0.00	1.00	0.00	11.67	13.26	2.00	0.00	1.00	0.00
11.68	12.96	2.00	0.00	1.00	0.00	11.69	12.86	2.00	0.00	1.00	0.00
11.70	12.85	2.00	0.00	1.00	0.00	11.71	12.94	2.00	0.00	1.00	0.00
11.72	12.46	2.00	0.00	1.00	0.00	11.73	12.06	2.00	0.00	1.00	0.00
11.74	11.67	2.00	0.00	1.00	0.00	11.75	11.28	2.00	0.00	1.00	0.00
11.76	11.08	2.00	0.00	1.00	0.00	11.77	10.88	2.00	0.00	1.00	0.00
11.78	10.78	2.00	0.00	1.00	0.00	11.79	10.78	2.00	0.00	1.00	0.00
11.80	10.77	2.00	0.00	1.00	0.00	11.81	10.86	2.00	0.00	1.00	0.00
11.82	10.86	2.00	0.00	1.00	0.00	11.83	10.95	2.00	0.00	1.00	0.00
11.84	11.04	2.00	0.00	1.00	0.00	11.85	10.94	2.00	0.00	1.00	0.00
11.86	11.03	2.00	0.00	1.00	0.00	11.87	11.03	2.00	0.00	1.00	0.00
11.88	11.02	2.00	0.00	1.00	0.00	11.89	11.02	2.00	0.00	1.00	0.00
11.90	11.20	2.00	0.00	1.00	0.00	11.91	11.20	2.00	0.00	1.00	0.00
11.92	10.91	2.00	0.00	1.00	0.00	11.93	10.61	2.00	0.00	1.00	0.00
11.94	10.42	2.00	0.00	1.00	0.00	11.95	10.13	2.00	0.00	1.00	0.00
11.96	10.03	2.00	0.00	1.00	0.00	11.97	9.93	2.00	0.00	1.00	0.00
11.98	9.83	2.00	0.00	1.00	0.00	11.99	9.73	2.00	0.00	1.00	0.00
12.00	9.63	2.00	0.00	1.00	0.00	12.01	9.53	2.00	0.00	1.00	0.00
12.02	9.33	2.00	0.00	1.00	0.00	12.03	9.14	2.00	0.00	1.00	0.00
12.04	9.13	2.00	0.00	1.00	0.00	12.05	9.13	2.00	0.00	1.00	0.00
12.06	9.70	2.00	0.00	1.00	0.00	12.07	9.60	2.00	0.00	1.00	0.00
12.08	9.50	2.00	0.00	1.00	0.00	12.09	9.40	2.00	0.00	1.00	0.00
12.10	9.30	2.00	0.00	1.00	0.00	12.11	9.20	2.00	0.00	1.00	0.00
12.12	9.10	2.00	0.00	1.00	0.00	12.13	9.10	2.00	0.00	1.00	0.00
12.14	9.00	2.00	0.00	1.00	0.00	12.15	9.00	2.00	0.00	1.00	0.00
12.16	9.28	2.00	0.00	1.00	0.00	12.17	9.56	2.00	0.00	1.00	0.00
12.18	9.75	2.00	0.00	1.00	0.00	12.19	10.12	2.00	0.00	1.00	0.00
12.20	10.21	2.00	0.00	1.00	0.00	12.21	10.30	2.00	0.00	1.00	0.00
12.22	10.30	2.00	0.00	1.00	0.00	12.23	10.20	2.00	0.00	1.00	0.00
12.24	10.29	2.00	0.00	1.00	0.00	12.25	10.29	2.00	0.00	1.00	0.00
12.26	10.28	2.00	0.00	1.00	0.00	12.27	10.47	2.00	0.00	1.00	0.00
12.28	10.66	2.00	0.00	1.00	0.00	12.29	10.56	2.00	0.00	1.00	0.00
12.30	10.55	2.00	0.00	1.00	0.00	12.31	10.45	2.00	0.00	1.00	0.00
12.32	10.36	2.00	0.00	1.00	0.00	12.33	10.63	2.00	0.00	1.00	0.00
12.34	10.63	2.00	0.00	1.00	0.00	12.35	10.53	2.00	0.00	1.00	0.00
12.36	10.62	2.00	0.00	1.00	0.00	12.37	10.71	2.00	0.00	1.00	0.00
12.38	10.99	2.00	0.00	1.00	0.00	12.39	10.99	2.00	0.00	1.00	0.00
12.40	10.98	2.00	0.00	1.00	0.00	12.41	11.07	2.00	0.00	1.00	0.00
12.42	11.16	2.00	0.00	1.00	0.00	12.43	11.16	2.00	0.00	1.00	0.00
12.44	11.15	2.00	0.00	1.00	0.00	12.45	11.24	2.00	0.00	1.00	0.00
12.46	11.24	2.00	0.00	1.00	0.00	12.47	11.33	2.00	0.00	1.00	0.00
12.48	11.32	2.00	0.00	1.00	0.00	12.49	11.60	2.00	0.00	1.00	0.00
12.50	11.69	2.00	0.00	1.00	0.00	12.51	11.78	2.00	0.00	1.00	0.00
12.52	12.15	2.00	0.00	1.00	0.00	12.53	12.24	2.00	0.00	1.00	0.00
12.54	12.51	2.00	0.00	1.00	0.00	12.55	12.79	2.00	0.00	1.00	0.00
12.56	12.97	2.00	0.00	1.00	0.00	12.57	12.87	2.00	0.00	1.00	0.00
12.58	12.59	2.00	0.00	1.00	0.00	12.59	12.21	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
12.60	11.83	2.00	0.00	1.00	0.00	12.61	11.64	2.00	0.00	1.00	0.00
12.62	11.54	2.00	0.00	1.00	0.00	12.63	11.25	2.00	0.00	1.00	0.00
12.64	11.15	2.00	0.00	1.00	0.00	12.65	11.06	2.00	0.00	1.00	0.00
12.66	10.87	2.00	0.00	1.00	0.00	12.67	10.77	2.00	0.00	1.00	0.00
12.68	10.48	2.00	0.00	1.00	0.00	12.69	10.57	2.00	0.00	1.00	0.00
12.70	10.57	2.00	0.00	1.00	0.00	12.71	10.19	2.00	0.00	1.00	0.00
12.72	10.00	2.00	0.00	1.00	0.00	12.73	9.72	2.00	0.00	1.00	0.00
12.74	9.62	2.00	0.00	1.00	0.00	12.75	9.62	2.00	0.00	1.00	0.00
12.76	9.61	2.00	0.00	1.00	0.00	12.77	9.52	2.00	0.00	1.00	0.00
12.78	9.42	2.00	0.00	1.00	0.00	12.79	9.42	2.00	0.00	1.00	0.00
12.80	9.41	2.00	0.00	1.00	0.00	12.81	9.41	2.00	0.00	1.00	0.00
12.82	9.31	2.00	0.00	1.00	0.00	12.83	9.22	2.00	0.00	1.00	0.00
12.84	9.12	2.00	0.00	1.00	0.00	12.85	9.12	2.00	0.00	1.00	0.00
12.86	9.21	2.00	0.00	1.00	0.00	12.87	9.29	2.00	0.00	1.00	0.00
12.88	9.38	2.00	0.00	1.00	0.00	12.89	9.47	2.00	0.00	1.00	0.00
12.90	9.65	2.00	0.00	1.00	0.00	12.91	9.83	2.00	0.00	1.00	0.00
12.92	9.92	2.00	0.00	1.00	0.00	12.93	10.10	2.00	0.00	1.00	0.00
12.94	10.38	2.00	0.00	1.00	0.00	12.95	10.37	2.00	0.00	1.00	0.00
12.96	10.37	2.00	0.00	1.00	0.00	12.97	10.36	2.00	0.00	1.00	0.00
12.98	10.36	2.00	0.00	1.00	0.00	12.99	10.36	2.00	0.00	1.00	0.00
13.00	10.35	2.00	0.00	1.00	0.00	13.01	10.35	2.00	0.00	1.00	0.00
13.02	10.25	2.00	0.00	1.00	0.00	13.03	10.16	2.00	0.00	1.00	0.00
13.04	10.15	2.00	0.00	1.00	0.00	13.05	10.15	2.00	0.00	1.00	0.00
13.06	9.96	2.00	0.00	1.00	0.00	13.07	10.14	2.00	0.00	1.00	0.00
13.08	10.23	2.00	0.00	1.00	0.00	13.09	10.32	2.00	0.00	1.00	0.00
13.10	10.50	2.00	0.00	1.00	0.00	13.11	10.49	2.00	0.00	1.00	0.00
13.12	10.67	2.00	0.00	1.00	0.00	13.13	10.67	2.00	0.00	1.00	0.00
13.14	10.66	2.00	0.00	1.00	0.00	13.15	10.75	2.00	0.00	1.00	0.00
13.16	10.75	2.00	0.00	1.00	0.00	13.17	10.74	2.00	0.00	1.00	0.00
13.18	10.83	2.00	0.00	1.00	0.00	13.19	10.73	2.00	0.00	1.00	0.00
13.20	10.73	2.00	0.00	1.00	0.00	13.21	10.63	2.00	0.00	1.00	0.00
13.22	10.72	2.00	0.00	1.00	0.00	13.23	10.81	2.00	0.00	1.00	0.00
13.24	10.80	2.00	0.00	1.00	0.00	13.25	10.89	2.00	0.00	1.00	0.00
13.26	10.98	2.00	0.00	1.00	0.00	13.27	10.97	2.00	0.00	1.00	0.00
13.28	11.24	2.00	0.00	1.00	0.00	13.29	11.42	2.00	0.00	1.00	0.00
13.30	11.32	2.00	0.00	1.00	0.00	13.31	11.23	2.00	0.00	1.00	0.00
13.32	11.22	2.00	0.00	1.00	0.00	13.33	11.22	2.00	0.00	1.00	0.00
13.34	11.22	2.00	0.00	1.00	0.00	13.35	11.12	2.00	0.00	1.00	0.00
13.36	11.12	2.00	0.00	1.00	0.00	13.37	11.11	2.00	0.00	1.00	0.00
13.38	11.02	2.00	0.00	1.00	0.00	13.39	10.92	2.00	0.00	1.00	0.00
13.40	10.83	2.00	0.00	1.00	0.00	13.41	10.73	2.00	0.00	1.00	0.00
13.42	10.64	2.00	0.00	1.00	0.00	13.43	10.63	2.00	0.00	1.00	0.00
13.44	10.63	2.00	0.00	1.00	0.00	13.45	10.44	2.00	0.00	1.00	0.00
13.46	10.17	2.00	0.00	1.00	0.00	13.47	10.07	2.00	0.00	1.00	0.00
13.48	10.07	2.00	0.00	1.00	0.00	13.49	10.06	2.00	0.00	1.00	0.00
13.50	9.88	2.00	0.00	1.00	0.00	13.51	9.88	2.00	0.00	1.00	0.00
13.52	9.78	2.00	0.00	1.00	0.00	13.53	9.78	2.00	0.00	1.00	0.00
13.54	9.77	2.00	0.00	1.00	0.00	13.55	9.77	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
13.56	9.77	2.00	0.00	1.00	0.00	13.57	9.94	2.00	0.00	1.00	0.00
13.58	9.67	2.00	0.00	1.00	0.00	13.59	9.57	2.00	0.00	1.00	0.00
13.60	9.39	2.00	0.00	1.00	0.00	13.61	9.39	2.00	0.00	1.00	0.00
13.62	9.47	2.00	0.00	1.00	0.00	13.63	9.56	2.00	0.00	1.00	0.00
13.64	9.56	2.00	0.00	1.00	0.00	13.65	9.55	2.00	0.00	1.00	0.00
13.66	9.55	2.00	0.00	1.00	0.00	13.67	9.55	2.00	0.00	1.00	0.00
13.68	9.54	2.00	0.00	1.00	0.00	13.69	9.36	2.00	0.00	1.00	0.00
13.70	9.27	2.00	0.00	1.00	0.00	13.71	9.17	2.00	0.00	1.00	0.00
13.72	9.08	2.00	0.00	1.00	0.00	13.73	8.99	2.00	0.00	1.00	0.00
13.74	8.98	2.00	0.00	1.00	0.00	13.75	9.07	2.00	0.00	1.00	0.00
13.76	9.07	2.00	0.00	1.00	0.00	13.77	9.15	2.00	0.00	1.00	0.00
13.78	9.24	2.00	0.00	1.00	0.00	13.79	9.41	2.00	0.00	1.00	0.00
13.80	9.68	2.00	0.00	1.00	0.00	13.81	9.85	2.00	0.00	1.00	0.00
13.82	9.94	2.00	0.00	1.00	0.00	13.83	10.02	2.00	0.00	1.00	0.00
13.84	10.02	2.00	0.00	1.00	0.00	13.85	10.02	2.00	0.00	1.00	0.00
13.86	10.10	2.00	0.00	1.00	0.00	13.87	10.19	2.00	0.00	1.00	0.00
13.88	10.36	2.00	0.00	1.00	0.00	13.89	10.36	2.00	0.00	1.00	0.00
13.90	10.35	2.00	0.00	1.00	0.00	13.91	10.35	2.00	0.00	1.00	0.00
13.92	10.35	2.00	0.00	1.00	0.00	13.93	10.43	2.00	0.00	1.00	0.00
13.94	10.43	2.00	0.00	1.00	0.00	13.95	10.42	2.00	0.00	1.00	0.00
13.96	10.51	2.00	0.00	1.00	0.00	13.97	10.59	2.00	0.00	1.00	0.00
13.98	10.59	2.00	0.00	1.00	0.00	13.99	10.59	2.00	0.00	1.00	0.00
14.00	10.58	2.00	0.00	1.00	0.00	14.01	10.67	2.00	0.00	1.00	0.00
14.02	10.66	2.00	0.00	1.00	0.00	14.03	10.57	2.00	0.00	1.00	0.00
14.04	10.57	2.00	0.00	1.00	0.00	14.05	10.56	2.00	0.00	1.00	0.00
14.06	10.74	2.00	0.00	1.00	0.00	14.07	10.73	2.00	0.00	1.00	0.00
14.08	10.64	2.00	0.00	1.00	0.00	14.09	10.55	2.00	0.00	1.00	0.00
14.10	10.54	2.00	0.00	1.00	0.00	14.11	10.54	2.00	0.00	1.00	0.00
14.12	10.45	2.00	0.00	1.00	0.00	14.13	10.35	2.00	0.00	1.00	0.00
14.14	10.26	2.00	0.00	1.00	0.00	14.15	10.26	2.00	0.00	1.00	0.00
14.16	10.25	2.00	0.00	1.00	0.00	14.17	10.25	2.00	0.00	1.00	0.00
14.18	10.33	2.00	0.00	1.00	0.00	14.19	10.24	2.00	0.00	1.00	0.00
14.20	10.06	2.00	0.00	1.00	0.00	14.21	9.97	2.00	0.00	1.00	0.00
14.22	9.88	2.00	0.00	1.00	0.00	14.23	9.87	2.00	0.00	1.00	0.00
14.24	9.87	2.00	0.00	1.00	0.00	14.25	9.60	2.00	0.00	1.00	0.00
14.26	9.42	2.00	0.00	1.00	0.00	14.27	9.24	2.00	0.00	1.00	0.00
14.28	8.98	2.00	0.00	1.00	0.00	14.29	8.89	2.00	0.00	1.00	0.00
14.30	8.88	2.00	0.00	1.00	0.00	14.31	8.79	2.00	0.00	1.00	0.00
14.32	8.61	2.00	0.00	1.00	0.00	14.33	8.52	2.00	0.00	1.00	0.00
14.34	8.52	2.00	0.00	1.00	0.00	14.35	8.60	2.00	0.00	1.00	0.00
14.36	8.95	2.00	0.00	1.00	0.00	14.37	9.04	2.00	0.00	1.00	0.00
14.38	9.21	2.00	0.00	1.00	0.00	14.39	9.47	2.00	0.00	1.00	0.00
14.40	9.64	2.00	0.00	1.00	0.00	14.41	9.72	2.00	0.00	1.00	0.00
14.42	9.54	2.00	0.00	1.00	0.00	14.43	9.54	2.00	0.00	1.00	0.00
14.44	9.63	2.00	0.00	1.00	0.00	14.45	9.62	2.00	0.00	1.00	0.00
14.46	9.62	2.00	0.00	1.00	0.00	14.47	9.62	2.00	0.00	1.00	0.00
14.48	9.61	2.00	0.00	1.00	0.00	14.49	9.78	2.00	0.00	1.00	0.00
14.50	9.87	2.00	0.00	1.00	0.00	14.51	9.95	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)	Depth (m)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (cm)
14.52	10.04	2.00	0.00	1.00	0.00	14.53	10.12	2.00	0.00	1.00	0.00
14.54	10.20	2.00	0.00	1.00	0.00	14.55	10.20	2.00	0.00	1.00	0.00
14.56	10.20	2.00	0.00	1.00	0.00	14.57	10.19	2.00	0.00	1.00	0.00
14.58	10.19	2.00	0.00	1.00	0.00	14.59	10.27	2.00	0.00	1.00	0.00
14.60	10.27	2.00	0.00	1.00	0.00	14.61	10.35	2.00	0.00	1.00	0.00
14.62	10.26	2.00	0.00	1.00	0.00	14.63	10.26	2.00	0.00	1.00	0.00
14.64	10.34	2.00	0.00	1.00	0.00	14.65	10.42	2.00	0.00	1.00	0.00
14.66	10.59	2.00	0.00	1.00	0.00	14.67	10.68	2.00	0.00	1.00	0.00
14.68	10.85	2.00	0.00	1.00	0.00	14.69	11.02	2.00	0.00	1.00	0.00
14.70	11.27	2.00	0.00	1.00	0.00	14.71	11.53	2.00	0.00	1.00	0.00
14.72	11.96	2.00	0.00	1.00	0.00	14.73	12.39	2.00	0.00	1.00	0.00
14.74	12.47	2.00	0.00	1.00	0.00	14.75	12.82	2.00	0.00	1.00	0.00
14.76	12.99	2.00	0.00	1.00	0.00	14.77	13.16	2.00	0.00	1.00	0.00
14.78	13.33	2.00	0.00	1.00	0.00	14.79	13.32	2.00	0.00	1.00	0.00
14.80	13.32	2.00	0.00	1.00	0.00	14.81	13.23	2.00	0.00	1.00	0.00
14.82	13.05	2.00	0.00	1.00	0.00	14.83	13.04	2.00	0.00	1.00	0.00
14.84	12.95	2.00	0.00	1.00	0.00	14.85	12.95	2.00	0.00	1.00	0.00
14.86	12.85	2.00	0.00	1.00	0.00	14.87	12.85	2.00	0.00	1.00	0.00
14.88	12.33	2.00	0.00	1.00	0.00	14.89	11.97	2.00	0.00	1.00	0.00
14.90	11.88	2.00	0.00	1.00	0.00	14.91	11.53	2.00	0.00	1.00	0.00
14.92	11.36	2.00	0.00	1.00	0.00	14.93	11.27	2.00	0.00	1.00	0.00
14.94	11.00	2.00	0.00	1.00	0.00	14.95	11.00	2.00	0.00	1.00	0.00
14.96	11.00	2.00	0.00	1.00	0.00	14.97	11.08	2.00	0.00	1.00	0.00
14.98	11.07	2.00	0.00	1.00	0.00	14.99	11.16	2.00	0.00	1.00	0.00
15.00	11.32	2.00	0.00	1.00	0.00	15.01	11.49	2.00	0.00	1.00	0.00
15.02	11.66	2.00	0.00	1.00	0.00	15.03	11.83	2.00	0.00	1.00	0.00

Total estimated settlement: 6.94

Abbreviations

$Q_{tn,cs}$:	Equivalent dean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation Idriss & Boulanger (2008) ::

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.00	9.84	160.23	1.00	160.25	1.65	0.26	0.90
3.01	9.81	159.58	1.00	159.73	1.65	0.26	0.90
3.02	9.77	158.92	1.00	159.21	1.65	0.26	0.89
3.03	9.70	157.63	1.00	158.20	1.65	0.26	0.89
3.04	9.62	156.39	1.01	157.20	1.65	0.25	0.89
3.05	9.52	154.77	1.01	155.93	1.66	0.24	0.89
3.06	9.47	153.86	1.01	155.28	1.66	0.24	0.89
3.07	9.44	153.33	1.01	154.89	1.66	0.24	0.89
3.08	9.43	152.17	1.00	152.26	1.65	0.24	0.89
3.09	9.48	151.96	1.00	151.96	1.63	0.24	0.89
3.10	9.63	152.85	1.00	152.85	1.61	0.25	0.89
3.11	9.85	155.70	1.00	155.70	1.60	0.26	0.89
3.12	10.15	159.42	1.00	159.42	1.59	0.27	0.89
3.13	10.38	162.43	1.00	162.43	1.58	0.30	0.90
3.14	10.55	164.32	1.00	164.32	1.57	0.31	0.90
3.15	10.56	164.25	1.00	164.25	1.57	0.31	0.90
3.16	10.54	163.92	1.00	163.92	1.57	0.30	0.90
3.17	10.54	163.85	1.00	163.85	1.57	0.30	0.90
3.18	10.61	164.66	1.00	164.66	1.57	0.30	0.90
3.19	10.69	165.76	1.00	165.76	1.57	0.31	0.90
3.20	10.81	167.32	1.00	167.32	1.57	0.32	0.90
3.21	10.96	169.26	1.00	169.26	1.57	0.33	0.90
3.22	11.28	173.23	1.00	173.23	1.55	0.35	0.91
3.23	11.66	177.88	1.00	177.88	1.54	0.41	0.91
3.24	12.18	184.17	1.00	184.17	1.52	0.45	0.92
3.25	12.59	189.00	1.00	189.00	1.50	0.55	0.92
3.26	12.97	193.48	1.00	193.48	1.48	0.59	0.92
3.27	13.23	196.42	1.00	196.42	1.47	0.65	0.93
3.28	13.43	198.44	1.00	198.44	1.46	0.71	0.93
3.29	13.54	199.22	1.00	199.22	1.45	0.72	0.93
3.30	13.54	198.60	1.00	198.60	1.45	0.72	0.93
3.31	13.48	197.37	1.00	197.37	1.45	0.70	0.93
3.32	13.44	196.31	1.00	196.31	1.44	0.67	0.93
3.33	13.46	196.18	1.00	196.18	1.44	0.67	0.93
3.34	13.57	197.03	1.00	197.03	1.43	0.71	0.93
3.35	13.71	198.35	1.00	198.35	1.42	0.75	0.93
3.36	13.82	199.51	1.00	199.51	1.42	0.78	0.93
3.37	13.90	200.46	1.00	200.46	1.42	0.80	0.93
3.38	13.91	200.84	1.00	200.84	1.42	0.80	0.93
3.39	13.88	200.62	1.00	200.62	1.43	0.78	0.93
3.40	13.76	199.25	1.00	199.25	1.44	0.76	0.93
3.41	13.61	197.30	1.00	197.30	1.44	0.70	0.93
3.42	13.41	194.71	1.00	194.71	1.45	0.65	0.93
3.43	13.20	192.01	1.00	192.01	1.46	0.61	0.92
3.44	13.05	190.12	1.00	190.12	1.47	0.55	0.92
3.45	13.04	189.79	1.00	189.79	1.47	0.55	0.92
3.46	13.21	191.66	1.00	191.66	1.46	0.59	0.92
3.47	13.64	196.55	1.00	196.55	1.44	0.65	0.93

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.48	14.13	202.27	1.00	202.27	1.42	0.87	0.93
3.49	14.68	208.71	1.00	208.71	1.41	0.94	0.94
3.50	14.99	212.23	1.00	212.23	1.40	0.94	0.94
3.51	15.15	213.86	1.00	213.86	1.39	0.94	0.94
3.52	15.12	213.11	1.00	213.11	1.39	0.94	0.94
3.53	15.01	211.40	1.00	211.40	1.39	0.94	0.94
3.54	14.93	209.94	1.00	209.94	1.39	0.94	0.94
3.55	14.89	209.04	1.00	209.04	1.39	0.94	0.94
3.56	14.94	208.94	1.00	208.94	1.38	0.94	0.94
3.57	15.01	208.94	1.00	208.94	1.37	0.94	0.94
3.58	15.06	208.47	1.00	208.47	1.35	0.94	0.94
3.59	15.05	207.51	1.00	207.51	1.34	0.94	0.94
3.60	14.90	205.11	1.00	205.11	1.34	0.93	0.93
3.61	14.64	201.92	1.00	201.92	1.35	0.93	0.93
3.62	14.16	196.65	1.00	196.65	1.37	0.84	0.93
3.63	13.64	191.07	1.00	191.07	1.40	0.63	0.92
3.64	13.06	184.75	1.00	184.75	1.43	0.53	0.92
3.65	12.58	179.15	1.00	179.15	1.45	0.46	0.91
3.66	12.11	173.38	1.00	173.38	1.47	0.40	0.91
3.67	11.56	166.55	1.00	166.55	1.50	0.35	0.90
3.68	11.08	160.74	1.00	160.74	1.52	0.29	0.90
3.69	10.64	155.83	1.00	155.83	1.55	0.28	0.89
3.70	10.41	153.56	1.00	153.56	1.58	0.26	0.89
3.71	10.24	151.97	1.00	151.97	1.60	0.25	0.89
3.72	10.14	151.15	1.00	151.15	1.61	0.25	0.89
3.73	10.04	150.17	1.00	150.17	1.63	0.24	0.89
3.74	9.93	148.93	1.00	148.93	1.64	0.23	0.88
3.75	9.80	147.44	1.00	148.01	1.65	0.23	0.88
3.76	9.65	145.27	1.01	146.64	1.66	0.22	0.88
3.77	9.47	142.74	1.01	144.60	1.66	0.21	0.88
3.78	9.24	139.00	1.01	140.52	1.66	0.20	0.87
3.79	9.05	135.45	1.00	135.80	1.65	0.19	0.87
3.80	8.86	131.67	1.00	131.67	1.63	0.19	0.87
3.81	8.71	128.65	1.00	128.65	1.62	0.18	0.86
3.82	8.57	125.82	1.00	125.82	1.60	0.18	0.86
3.83	8.42	122.87	1.00	122.87	1.58	0.17	0.86
3.84	8.33	120.62	1.00	120.62	1.56	0.17	0.85
3.85	8.24	118.44	1.00	118.44	1.54	0.17	0.85
3.86	8.20	117.25	1.00	117.25	1.53	0.17	0.85
3.87	8.15	116.24	1.00	116.24	1.52	0.16	0.85
3.88	8.15	115.92	1.00	115.92	1.52	0.16	0.85
3.89	8.18	116.05	1.00	116.05	1.51	0.16	0.85
3.90	8.23	116.49	1.00	116.49	1.51	0.17	0.85
3.91	8.28	117.20	1.00	117.20	1.51	0.17	0.85
3.92	8.39	118.58	1.00	118.58	1.51	0.17	0.85
3.93	8.51	120.12	1.00	120.12	1.50	0.17	0.85
3.94	8.71	122.57	1.00	122.57	1.49	0.18	0.86
3.95	8.92	124.91	1.00	124.91	1.48	0.19	0.86

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.96	9.19	127.95	1.00	127.95	1.47	0.20	0.86
3.97	9.49	131.38	1.00	131.38	1.45	0.21	0.87
3.98	10.01	137.58	1.00	137.58	1.43	0.22	0.87
3.99	10.57	144.21	1.00	144.21	1.40	0.27	0.88
4.00	11.09	150.21	1.00	150.21	1.38	0.29	0.89
4.01	11.38	153.06	1.00	153.06	1.36	0.31	0.89
4.02	11.55	154.47	1.00	154.47	1.34	0.33	0.89
4.03	11.59	154.52	1.00	154.52	1.33	0.33	0.89
4.04	11.55	153.97	1.00	153.97	1.34	0.32	0.89
4.05	11.48	153.24	1.00	153.24	1.34	0.31	0.89
4.06	11.45	152.95	1.00	152.95	1.35	0.31	0.89
4.07	11.43	152.83	1.00	152.83	1.35	0.31	0.89
4.08	11.18	149.75	1.00	149.75	1.36	0.31	0.89
4.09	10.93	146.90	1.00	146.90	1.37	0.26	0.88
4.10	10.70	144.48	1.00	144.48	1.39	0.26	0.88
4.11	10.81	146.22	1.00	146.22	1.40	0.26	0.88
4.12	11.02	148.84	1.00	148.84	1.40	0.28	0.88
4.13	11.21	151.26	1.00	151.26	1.40	0.30	0.89
4.14	11.33	152.90	1.00	152.90	1.40	0.30	0.89
4.15	11.39	153.69	1.00	153.69	1.40	0.30	0.89
4.16	11.46	154.59	1.00	154.59	1.40	0.31	0.89
4.17	11.49	154.98	1.00	154.98	1.40	0.31	0.89
4.18	11.53	155.46	1.00	155.46	1.40	0.31	0.89
4.19	11.56	155.93	1.00	155.93	1.41	0.31	0.89
4.20	11.68	157.44	1.00	157.44	1.41	0.32	0.89
4.21	11.82	159.13	1.00	159.13	1.41	0.33	0.89
4.22	11.95	160.70	1.00	160.70	1.40	0.34	0.90
4.23	12.05	161.39	1.00	161.39	1.39	0.35	0.90
4.24	12.14	161.76	1.00	161.76	1.38	0.36	0.90
4.25	12.19	161.69	1.00	161.69	1.36	0.37	0.90
4.26	12.15	160.95	1.00	160.95	1.36	0.36	0.90
4.27	12.02	159.38	1.00	159.38	1.37	0.35	0.89
4.28	11.90	157.96	1.00	157.96	1.37	0.33	0.89
4.29	11.80	156.96	1.00	156.96	1.38	0.33	0.89
4.30	11.75	156.42	1.00	156.42	1.39	0.32	0.89
4.31	11.69	155.98	1.00	155.98	1.40	0.32	0.89
4.32	11.66	155.78	1.00	155.78	1.40	0.31	0.89
4.33	11.64	155.91	1.00	155.91	1.42	0.31	0.89
4.34	11.65	156.23	1.00	156.23	1.42	0.31	0.89
4.35	11.73	157.21	1.00	157.21	1.42	0.31	0.89
4.36	11.85	158.49	1.00	158.49	1.42	0.33	0.89
4.37	11.93	159.28	1.00	159.28	1.41	0.34	0.89
4.38	11.90	158.94	1.00	158.94	1.42	0.33	0.89
4.39	11.78	157.49	1.00	157.49	1.42	0.32	0.89
4.40	11.64	155.78	1.00	155.78	1.43	0.31	0.89
4.41	11.50	153.83	1.00	153.83	1.43	0.30	0.89
4.42	11.41	152.67	1.00	152.67	1.43	0.28	0.89
4.43	11.38	152.31	1.00	152.31	1.44	0.29	0.89

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
4.44	11.48	153.43	1.00	153.43	1.44	0.29	0.89
4.45	11.61	154.96	1.00	154.96	1.43	0.30	0.89
4.46	11.80	157.15	1.00	157.15	1.42	0.31	0.89
4.47	11.98	159.06	1.00	159.06	1.42	0.33	0.89
4.48	12.17	161.07	1.00	161.07	1.41	0.34	0.90
4.49	12.30	162.46	1.00	162.46	1.40	0.36	0.90
4.50	12.42	163.62	1.00	163.62	1.39	0.37	0.90
4.51	12.49	164.35	1.00	164.35	1.39	0.37	0.90
4.52	12.52	164.67	1.00	164.67	1.39	0.38	0.90
4.53	12.51	164.33	1.00	164.33	1.39	0.37	0.90
4.54	12.47	163.62	1.00	163.62	1.39	0.37	0.90
4.55	12.40	162.60	1.00	162.60	1.39	0.36	0.90
4.56	12.30	161.30	1.00	161.30	1.39	0.35	0.90
4.57	12.18	159.66	1.00	159.66	1.39	0.34	0.90
4.58	12.02	157.54	1.00	157.54	1.40	0.33	0.89
4.59	11.91	156.04	1.00	156.04	1.40	0.31	0.89
4.60	11.85	155.34	1.00	155.34	1.40	0.31	0.89
4.61	11.97	156.79	1.00	156.79	1.40	0.31	0.89
4.62	12.14	158.80	1.00	158.80	1.40	0.34	0.89
4.63	12.32	160.95	1.00	160.95	1.39	0.35	0.90
4.64	12.42	162.07	1.00	162.07	1.39	0.36	0.90
4.65	12.47	162.91	1.00	162.91	1.40	0.36	0.90
4.66	12.47	163.14	1.00	163.14	1.41	0.36	0.90
4.67	12.41	163.30	1.00	163.30	1.43	0.35	0.90
4.68	12.35	163.22	1.00	163.22	1.45	0.35	0.90
4.69	12.25	162.60	1.00	162.60	1.47	0.34	0.90
4.70	12.13	161.42	1.00	161.42	1.48	0.33	0.90
4.71	11.96	159.33	1.00	159.33	1.49	0.32	0.89
4.72	11.75	156.71	1.00	156.71	1.50	0.30	0.89
4.73	11.53	153.78	1.00	153.78	1.50	0.28	0.89
4.74	11.24	150.14	1.00	150.14	1.51	0.27	0.89
4.75	10.92	146.19	1.00	146.19	1.52	0.25	0.88
4.76	10.63	142.55	1.00	142.55	1.53	0.23	0.88
4.77	10.43	140.00	1.00	140.00	1.54	0.22	0.88
4.78	10.34	138.71	1.00	138.71	1.54	0.22	0.87
4.79	10.25	137.42	1.00	137.42	1.54	0.22	0.87
4.80	10.21	136.73	1.00	136.73	1.54	0.21	0.87
4.81	10.18	136.20	1.00	136.20	1.54	0.21	0.87
4.82	10.16	136.03	1.00	136.03	1.54	0.21	0.87
4.83	10.13	135.82	1.00	135.82	1.55	0.21	0.87
4.84	10.07	135.36	1.00	135.36	1.56	0.21	0.87
4.85	10.00	134.62	1.00	134.62	1.58	0.20	0.87
4.86	9.91	133.62	1.00	133.62	1.59	0.20	0.87
4.87	9.76	131.70	1.00	131.70	1.59	0.20	0.87
4.88	9.59	129.43	1.00	129.43	1.59	0.19	0.86
4.89	9.37	126.30	1.00	126.30	1.59	0.18	0.86
4.90	9.21	123.95	1.00	123.95	1.59	0.18	0.86
4.91	9.08	121.98	1.00	121.98	1.59	0.17	0.86

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
4.92	9.00	120.89	1.00	120.89	1.59	0.17	0.85
4.93	8.96	120.25	1.00	120.25	1.59	0.17	0.85
4.94	8.94	119.92	1.00	119.92	1.59	0.17	0.85
4.95	8.95	119.90	1.00	119.90	1.59	0.17	0.85
4.96	8.97	120.00	1.00	120.00	1.59	0.17	0.85
4.97	8.98	120.09	1.00	120.09	1.59	0.17	0.85
4.98	8.98	120.00	1.00	120.00	1.59	0.17	0.85
4.99	8.95	119.62	1.00	119.62	1.59	0.17	0.85
5.00	8.87	118.57	1.00	118.57	1.59	0.17	0.85
5.01	8.78	117.46	1.00	117.46	1.60	0.16	0.85
5.02	8.69	116.33	1.00	116.33	1.61	0.16	0.85
5.03	8.67	115.99	1.00	115.99	1.61	0.16	0.85
5.04	8.67	115.99	1.00	115.99	1.61	0.16	0.85
5.05	8.70	116.32	1.00	116.32	1.61	0.16	0.85
5.06	8.73	116.51	1.00	116.51	1.61	0.16	0.85
5.07	8.74	116.57	1.00	116.57	1.61	0.16	0.85
5.08	8.78	116.33	1.00	116.33	1.58	0.16	0.85
5.09	8.82	116.32	1.00	116.32	1.56	0.16	0.85
5.10	8.86	116.23	1.00	116.23	1.55	0.16	0.85
5.11	8.84	116.24	1.00	116.24	1.56	0.16	0.85
5.12	8.74	115.38	1.00	115.38	1.58	0.16	0.85
5.13	8.63	114.16	1.00	114.16	1.59	0.16	0.85
5.14	8.42	111.94	1.00	111.94	1.61	0.15	0.84
5.15	8.18	109.32	1.00	109.32	1.64	0.14	0.84
5.16	7.95	106.80	1.00	106.80	1.67	0.14	0.84
5.17	7.79	105.02	1.00	105.02	1.69	0.14	0.83
5.18	7.71	104.18	1.00	104.18	1.70	0.13	0.83
5.19	7.66	103.76	1.00	103.76	1.71	0.13	0.83
5.20	7.66	103.79	1.00	103.79	1.72	0.13	0.83
5.21	7.67	103.94	1.05	109.44	1.72	0.13	0.83
5.22	7.71	104.38	1.05	109.97	1.72	0.13	0.83
5.23	7.76	104.96	1.05	110.38	1.72	0.13	0.83
5.24	7.84	105.80	1.05	110.76	1.71	0.14	0.84
5.25	7.90	106.33	1.00	106.33	1.71	0.14	0.84
5.26	7.96	106.85	1.00	106.85	1.70	0.14	0.84
5.27	8.02	107.47	1.00	107.47	1.69	0.14	0.84
5.28	8.11	108.32	1.00	108.32	1.68	0.14	0.84
5.29	8.23	109.57	1.00	109.57	1.67	0.14	0.84
5.30	8.37	110.95	1.00	110.95	1.65	0.15	0.84
5.31	8.50	112.19	1.00	112.19	1.64	0.15	0.84
5.32	8.63	113.48	1.00	113.48	1.62	0.15	0.85
5.33	8.75	114.63	1.00	114.63	1.61	0.16	0.85
5.34	8.86	115.54	1.00	115.54	1.59	0.16	0.85
5.35	8.86	115.24	1.00	115.24	1.58	0.16	0.85
5.36	8.80	114.27	1.00	114.27	1.58	0.16	0.85
5.37	8.68	112.67	1.00	112.67	1.58	0.15	0.84
5.38	8.57	111.28	1.00	111.28	1.58	0.15	0.84
5.39	8.43	109.46	1.00	109.46	1.59	0.15	0.84

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.40	8.30	107.87	1.00	107.87	1.60	0.14	0.84
5.41	8.12	105.79	1.00	105.79	1.61	0.14	0.84
5.42	7.98	104.13	1.00	104.13	1.63	0.14	0.83
5.43	7.82	102.33	1.00	102.33	1.64	0.13	0.83
5.44	7.72	101.17	1.00	101.17	1.65	0.13	0.83
5.45	7.62	100.07	1.00	100.07	1.66	0.13	0.83
5.46	7.55	99.19	1.00	99.19	1.67	0.13	0.83
5.47	7.47	98.26	1.00	98.26	1.68	0.13	0.82
5.48	7.36	96.87	1.00	96.87	1.69	0.12	0.82
5.49	7.25	95.54	1.00	95.54	1.69	0.12	0.82
5.50	7.09	93.49	1.00	93.49	1.70	0.12	0.82
5.51	6.89	91.12	1.00	91.12	1.72	0.11	0.81
5.52	6.69	88.66	1.00	88.66	1.74	0.11	0.81
5.53	6.53	86.73	1.00	86.73	1.75	0.11	0.81
5.54	6.47	85.79	1.00	85.79	1.75	0.11	0.81
5.55	6.46	85.56	1.00	85.56	1.74	0.11	0.81
5.56	6.55	86.43	1.00	86.43	1.73	0.11	0.81
5.57	6.67	87.66	1.00	87.66	1.71	0.11	0.81
5.58	6.83	89.31	1.00	89.31	1.69	0.11	0.81
5.59	6.94	90.52	1.00	90.52	1.68	0.12	0.81
5.60	7.03	91.47	1.00	91.47	1.67	0.12	0.81
5.61	7.03	91.42	1.00	91.42	1.68	0.12	0.81
5.62	6.93	90.28	1.00	90.28	1.69	0.12	0.81
5.63	6.77	88.41	1.00	88.41	1.70	0.11	0.81
5.64	6.49	85.01	1.00	85.01	1.72	0.11	0.80
5.65	6.21	81.48	1.00	81.48	1.74	0.10	0.80
5.66	5.84	76.82	1.00	76.82	1.76	0.10	0.79
5.67	5.54	73.12	1.00	73.12	1.78	0.09	0.78
5.68	5.19	68.81	1.00	68.81	1.82	0.09	0.78
5.69	4.91	65.53	1.00	65.53	1.85	0.08	0.77
5.70	4.60	61.76	1.00	61.76	1.89	0.08	0.76
5.71	4.36	58.89	1.00	58.89	1.93	0.08	0.76
5.72	4.10	55.73	1.26	70.46	1.97	0.08	0.75
5.73	3.92	53.55	1.31	70.24	2.01	0.08	0.74
5.74	3.75	51.66	1.38	71.22	2.05	0.09	0.74
5.75	3.68	50.97	1.44	73.44	2.09	0.09	0.74
5.76	3.64	50.77	1.50	76.03	2.12	0.09	0.74
5.77	3.68	51.42	1.53	78.75	2.14	0.09	0.74
5.78	3.74	52.28	1.55	80.94	2.15	0.09	0.74
5.79	3.83	53.71	1.57	84.16	2.16	0.10	0.74
5.80	3.97	55.74	1.59	88.47	2.17	0.10	0.75
5.81	4.12	57.94	1.60	92.63	2.17	0.10	0.75
5.82	4.34	60.98	1.60	97.46	2.17	0.10	0.76
5.83	4.61	64.64	1.58	102.16	2.16	0.11	0.77
5.84	4.90	68.59	1.55	106.60	2.15	0.11	0.78
5.85	5.19	72.39	1.51	109.60	2.13	0.12	0.78
5.86	5.40	75.02	1.48	110.83	2.11	0.12	0.79
5.87	5.55	76.83	1.45	111.29	2.10	0.12	0.79

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.88	5.56	76.84	1.44	110.45	2.09	0.12	0.79
5.89	5.49	75.72	1.44	108.83	2.09	0.12	0.79
5.90	5.37	74.07	1.44	107.03	2.09	0.12	0.79
5.91	5.18	71.47	1.46	104.45	2.10	0.11	0.78
5.92	5.00	68.94	1.48	101.89	2.11	0.11	0.78
5.93	4.79	66.03	1.49	98.66	2.12	0.11	0.77
5.94	4.64	63.79	1.48	94.72	2.12	0.10	0.77
5.95	4.52	61.86	1.46	90.09	2.10	0.10	0.76
5.96	4.45	60.47	1.40	84.56	2.07	0.10	0.76
5.97	4.42	59.52	1.35	80.23	2.03	0.09	0.76
5.98	4.40	58.97	1.31	77.20	2.01	0.09	0.76
5.99	4.42	59.10	1.30	76.78	2.00	0.09	0.76
6.00	4.47	59.73	1.30	77.51	2.00	0.09	0.76
6.01	4.55	60.66	1.30	78.56	2.00	0.09	0.76
6.02	4.64	61.78	1.29	79.42	1.99	0.09	0.76
6.03	4.73	62.84	1.28	80.21	1.98	0.09	0.76
6.04	4.82	63.90	1.26	80.74	1.97	0.09	0.77
6.05	4.87	64.44	1.25	80.75	1.96	0.09	0.77
6.06	4.91	64.79	1.24	80.60	1.95	0.09	0.77
6.07	4.91	64.73	1.24	80.37	1.95	0.09	0.77
6.08	4.69	61.44	1.22	74.80	1.93	0.09	0.76
6.09	4.40	57.26	1.00	57.26	1.90	0.08	0.75
6.10	4.04	52.11	1.00	52.11	1.87	0.07	0.74
6.11	3.83	49.58	1.00	49.58	1.90	0.07	0.73
6.12	3.66	47.56	1.00	47.56	1.94	0.07	0.73
6.13	3.55	46.44	1.00	46.44	1.98	0.07	0.72
6.14	3.52	46.35	1.00	46.35	2.02	0.08	0.72
6.15	3.56	47.09	1.36	64.12	2.04	0.08	0.73
6.16	3.67	48.59	1.36	66.11	2.04	0.08	0.73
6.17	3.88	51.07	1.32	67.50	2.02	0.08	0.74
6.18	4.27	55.60	1.00	55.60	1.94	0.08	0.75
6.19	4.72	60.77	1.00	60.77	1.87	0.08	0.76
6.20	5.19	66.06	1.00	66.06	1.80	0.08	0.77
6.21	5.57	70.46	1.00	70.46	1.77	0.09	0.78
6.22	5.97	75.22	1.00	75.22	1.74	0.09	0.79
6.23	6.60	82.44	1.00	82.44	1.69	0.10	0.80
6.24	7.21	89.43	1.00	89.43	1.65	0.12	0.81
6.25	7.74	95.62	1.00	95.62	1.62	0.12	0.82
6.26	8.00	98.60	1.00	98.60	1.61	0.13	0.83
6.27	8.16	100.72	1.00	100.72	1.62	0.13	0.83
6.28	8.26	102.17	1.00	102.17	1.63	0.13	0.83
6.29	8.31	103.14	1.00	103.14	1.65	0.14	0.83
6.30	8.32	103.45	1.00	103.45	1.67	0.14	0.83
6.31	8.20	102.32	1.00	102.32	1.69	0.13	0.83
6.32	8.07	100.79	1.00	100.79	1.70	0.13	0.83
6.33	7.94	99.08	1.00	99.08	1.70	0.13	0.83
6.34	7.88	98.13	1.00	98.13	1.70	0.13	0.82
6.35	7.80	97.09	1.00	97.09	1.70	0.12	0.82

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.36	7.68	95.54	1.00	95.54	1.70	0.12	0.82
6.37	7.55	94.01	1.00	94.01	1.70	0.12	0.82
6.38	7.44	92.68	1.00	92.68	1.71	0.12	0.82
6.39	7.40	92.19	1.00	92.19	1.72	0.12	0.82
6.40	7.40	92.29	1.00	92.29	1.73	0.12	0.82
6.41	7.50	93.48	1.00	93.48	1.73	0.12	0.82
6.42	7.66	95.27	1.00	95.27	1.72	0.12	0.82
6.43	7.79	96.75	1.00	96.75	1.71	0.12	0.82
6.44	8.01	99.17	1.00	99.17	1.70	0.12	0.83
6.45	8.25	101.73	1.00	101.73	1.67	0.13	0.83
6.46	8.52	104.56	1.00	104.56	1.65	0.14	0.83
6.47	8.61	105.45	1.00	105.45	1.64	0.14	0.83
6.48	8.59	105.19	1.00	105.19	1.64	0.14	0.83
6.49	8.49	103.88	1.00	103.88	1.64	0.14	0.83
6.50	8.32	101.81	1.00	101.81	1.64	0.13	0.83
6.51	8.10	99.06	1.00	99.06	1.65	0.13	0.83
6.52	7.69	94.17	1.00	94.17	1.66	0.12	0.82
6.53	7.23	88.74	1.00	88.74	1.69	0.11	0.81
6.54	6.74	83.03	1.00	83.03	1.72	0.10	0.80
6.55	6.39	78.99	1.00	78.99	1.75	0.10	0.79
6.56	6.05	75.06	1.00	75.06	1.79	0.09	0.79
6.57	5.72	71.35	1.00	71.35	1.82	0.09	0.78
6.58	5.42	67.89	1.00	67.89	1.86	0.09	0.77
6.59	5.16	64.90	1.18	76.91	1.90	0.09	0.77
6.60	4.96	62.61	1.22	76.08	1.93	0.09	0.76
6.61	4.83	61.10	1.24	75.88	1.95	0.09	0.76
6.62	4.78	60.52	1.26	76.25	1.97	0.09	0.76
6.63	4.89	61.96	1.26	77.92	1.97	0.09	0.76
6.64	5.16	65.14	1.23	80.27	1.94	0.09	0.77
6.65	5.57	69.90	1.19	83.45	1.91	0.10	0.78
6.66	5.99	74.76	1.16	86.63	1.87	0.10	0.79
6.67	6.40	79.53	1.13	90.16	1.84	0.10	0.80
6.68	6.74	83.67	1.12	93.90	1.82	0.11	0.80
6.69	7.03	87.20	1.12	97.57	1.82	0.11	0.81
6.70	7.32	90.80	1.12	101.59	1.82	0.12	0.81
6.71	7.64	94.59	1.11	105.17	1.81	0.12	0.82
6.72	7.87	97.28	1.11	107.56	1.80	0.13	0.82
6.73	7.95	98.08	1.10	107.59	1.79	0.13	0.82
6.74	7.87	96.88	1.09	105.69	1.78	0.12	0.82
6.75	7.74	95.05	1.09	103.26	1.77	0.12	0.82
6.76	7.57	92.80	1.09	100.85	1.77	0.12	0.82
6.77	7.37	90.42	1.09	98.68	1.78	0.11	0.81
6.78	7.18	88.00	1.10	96.42	1.78	0.11	0.81
6.79	7.01	85.99	1.10	94.63	1.79	0.11	0.81
6.80	6.89	84.46	1.11	93.44	1.80	0.11	0.80
6.81	6.79	83.34	1.11	92.68	1.81	0.11	0.80
6.82	6.73	82.38	1.00	82.38	1.80	0.10	0.80
6.83	6.72	81.78	1.00	81.78	1.77	0.10	0.80

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.84	6.72	81.40	1.00	81.40	1.74	0.10	0.80
6.85	6.76	81.66	1.00	81.66	1.72	0.10	0.80
6.86	6.79	81.91	1.00	81.91	1.72	0.10	0.80
6.87	6.79	81.82	1.00	81.82	1.72	0.10	0.80
6.88	6.69	80.62	1.00	80.62	1.73	0.10	0.80
6.89	6.48	78.23	1.00	78.23	1.74	0.10	0.79
6.90	6.20	74.91	1.00	74.91	1.75	0.09	0.79
6.91	5.91	71.35	1.00	71.35	1.77	0.09	0.78
6.92	5.63	68.03	1.00	68.03	1.78	0.09	0.77
6.93	5.31	64.28	1.00	64.28	1.80	0.08	0.77
6.94	4.99	60.52	1.00	60.52	1.83	0.08	0.76
6.95	4.76	57.73	1.00	57.73	1.85	0.08	0.75
6.96	4.41	53.72	1.00	53.72	1.89	0.08	0.74
6.97	3.99	48.89	1.00	48.89	1.95	0.07	0.73
6.98	3.44	42.54	1.00	42.54	2.05	0.08	0.71
6.99	3.03	37.70	1.52	57.43	2.14	0.08	0.70
7.00	2.66	33.29	1.74	57.95	2.23	0.08	0.68
7.01	2.31	29.12	2.07	60.20	2.34	0.08	0.67
7.02	1.99	25.27	2.55	64.52	2.46	0.08	0.65
7.03	1.71	21.90	3.23	70.81	2.58	0.08	0.63
7.04	1.43	18.43	4.31	79.51	2.74	0.08	1.35
7.05	1.24	16.05	5.34	85.74	2.86	0.08	1.16
7.06	1.14	14.64	6.08	89.07	2.94	0.08	1.05
7.07	1.06	13.47	6.52	87.85	2.98	0.08	0.96
7.08	0.96	12.07	7.22	87.20	3.04	0.08	0.86
7.09	0.84	10.29	8.44	86.83	3.14	0.08	0.73
7.10	0.79	9.52	9.22	87.77	3.20	0.08	0.68
7.11	0.74	8.84	9.95	87.98	3.25	0.08	0.63
7.12	0.71	8.35	10.42	87.06	3.28	0.08	0.60
7.13	0.68	7.97	10.75	85.63	3.30	0.07	0.57
7.14	0.67	7.72	10.86	83.86	3.31	0.07	0.55
7.15	0.66	7.63	10.79	82.25	3.30	0.07	0.54
7.16	0.68	7.96	10.15	80.84	3.26	0.07	0.57
7.17	0.74	8.78	9.05	79.47	3.19	0.08	0.63
7.18	0.84	10.21	7.63	77.97	3.08	0.08	0.73
7.19	0.99	12.36	6.08	75.20	2.94	0.08	0.88
7.20	1.14	14.25	4.99	71.06	2.82	0.08	1.03
7.21	1.27	15.85	4.17	66.04	2.72	0.08	1.17
7.22	1.33	16.51	3.77	62.33	2.67	0.08	1.22
7.23	1.31	16.25	3.66	59.45	2.65	0.08	1.21
7.24	1.24	15.25	3.85	58.77	2.68	0.08	1.13
7.25	1.09	13.35	4.50	60.07	2.77	0.08	0.98
7.26	0.97	11.78	5.29	62.30	2.86	0.08	0.85
7.27	0.87	10.50	6.13	64.34	2.94	0.08	0.75
7.28	0.84	10.11	6.55	66.25	2.98	0.08	0.72
7.29	0.83	9.96	6.92	68.95	3.02	0.08	0.71
7.30	0.87	10.44	6.98	72.89	3.02	0.08	0.75
7.31	0.94	11.38	6.67	75.95	2.99	0.08	0.81

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
7.32	1.06	13.12	5.95	78.01	2.93	0.08	0.94
7.33	1.17	14.49	5.36	77.66	2.86	0.08	1.04
7.34	1.24	15.38	5.01	77.08	2.83	0.08	1.11
7.35	1.25	15.49	4.96	76.74	2.82	0.08	1.12
7.36	1.23	15.22	5.08	77.24	2.83	0.08	1.10
7.37	1.19	14.75	5.33	78.69	2.86	0.08	1.06
7.38	1.15	14.23	5.61	79.91	2.89	0.08	1.02
7.39	1.13	13.91	5.74	79.84	2.90	0.08	1.00
7.40	1.12	13.84	5.71	79.11	2.90	0.08	0.99
7.41	1.14	14.03	5.54	77.74	2.88	0.08	1.01
7.42	1.18	14.48	5.31	76.95	2.86	0.08	1.04
7.43	1.22	15.01	5.07	76.08	2.83	0.08	1.09
7.44	1.26	15.50	4.87	75.44	2.81	0.08	1.12
7.45	1.27	15.56	4.79	74.58	2.80	0.08	1.13
7.46	1.23	15.05	4.90	73.74	2.81	0.08	1.09
7.47	1.18	14.38	5.11	73.48	2.84	0.08	1.04
7.48	1.16	14.20	5.25	74.50	2.85	0.08	1.02
7.49	1.21	14.87	5.23	77.73	2.85	0.08	1.07
7.50	1.35	16.64	4.95	82.42	2.82	0.08	1.21
7.51	1.70	21.04	4.04	85.03	2.71	0.08	1.55
7.52	2.17	26.92	3.17	85.34	2.57	0.09	0.66
7.53	2.88	35.59	2.35	83.75	2.41	0.09	0.69
7.54	3.48	42.78	1.97	84.24	2.31	0.10	0.71
7.55	4.02	49.12	1.74	85.47	2.23	0.10	0.73
7.56	4.30	52.36	1.66	86.65	2.20	0.10	0.74
7.57	4.47	54.28	1.60	86.99	2.17	0.10	0.74
7.58	4.44	53.82	1.60	86.35	2.17	0.10	0.74
7.59	4.24	51.49	1.65	84.73	2.19	0.10	0.74
7.60	3.78	45.89	1.76	80.90	2.24	0.10	0.72
7.61	3.29	39.91	1.91	76.32	2.29	0.09	0.71
7.62	2.77	33.63	2.13	71.51	2.35	0.09	0.68
7.63	2.44	29.49	2.31	68.04	2.40	0.08	0.67
7.64	2.15	26.02	2.54	66.15	2.45	0.08	0.65
7.65	2.00	24.16	2.74	66.23	2.49	0.08	0.64
7.66	1.97	23.75	2.89	68.57	2.52	0.08	0.64
7.67	2.11	25.61	2.90	74.29	2.53	0.08	0.65
7.68	2.41	29.32	2.72	79.89	2.49	0.09	0.67
7.69	2.91	35.45	2.36	83.49	2.41	0.09	0.69
7.70	3.76	45.44	1.83	82.96	2.26	0.09	0.72
7.71	4.64	55.47	1.50	83.18	2.12	0.10	0.75
7.72	5.42	64.21	1.32	85.02	2.02	0.10	0.77
7.73	5.83	68.76	1.26	86.74	1.97	0.10	0.78
7.74	6.09	71.58	1.23	87.85	1.94	0.10	0.78
7.75	6.19	72.57	1.21	87.98	1.92	0.10	0.78
7.76	6.11	71.56	1.21	86.42	1.92	0.10	0.78
7.77	5.94	69.49	1.21	84.06	1.92	0.10	0.78
7.78	5.75	67.11	1.21	81.26	1.92	0.09	0.77
7.79	5.59	65.20	1.21	78.72	1.92	0.09	0.77

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
7.80	5.50	63.96	1.20	76.87	1.91	0.09	0.77
7.81	5.47	63.49	1.00	63.49	1.90	0.09	0.77
7.82	5.47	63.40	1.00	63.40	1.89	0.09	0.77
7.83	5.47	63.23	1.00	63.23	1.87	0.09	0.76
7.84	5.45	62.83	1.00	62.83	1.86	0.08	0.76
7.85	5.46	62.82	1.00	62.82	1.85	0.08	0.76
7.86	5.48	63.07	1.00	63.07	1.85	0.08	0.76
7.87	5.57	64.07	1.00	64.07	1.84	0.08	0.77
7.88	5.72	65.67	1.00	65.67	1.84	0.09	0.77
7.89	5.92	67.86	1.00	67.86	1.82	0.09	0.77
7.90	6.11	69.91	1.00	69.91	1.80	0.09	0.78
7.91	6.30	72.00	1.00	72.00	1.78	0.09	0.78
7.92	6.42	73.43	1.00	73.43	1.79	0.09	0.78
7.93	6.54	74.84	1.00	74.84	1.80	0.10	0.79
7.94	6.71	76.85	1.00	76.85	1.80	0.10	0.79
7.95	6.98	79.75	1.00	79.75	1.78	0.10	0.80
7.96	7.35	83.58	1.00	83.58	1.73	0.10	0.80
7.97	7.71	87.28	1.00	87.28	1.69	0.11	0.81
7.98	8.09	91.16	1.00	91.16	1.65	0.12	0.81
7.99	8.50	95.46	1.00	95.46	1.61	0.12	0.82
8.00	8.91	99.60	1.00	99.60	1.58	0.13	0.83
8.01	9.25	103.20	1.00	103.20	1.56	0.14	0.83
8.02	9.42	105.09	1.00	105.09	1.56	0.14	0.83
8.03	9.54	106.43	1.00	106.43	1.56	0.14	0.84
8.04	9.63	107.43	1.00	107.43	1.56	0.14	0.84
8.05	9.71	108.25	1.00	108.25	1.56	0.15	0.84
8.06	9.73	108.51	1.00	108.51	1.56	0.15	0.84
8.07	9.92	110.20	1.00	110.20	1.53	0.15	0.84
8.08	10.13	112.20	1.00	112.20	1.50	0.16	0.84
8.09	10.38	114.84	1.00	114.84	1.49	0.16	0.85
8.10	10.49	116.25	1.00	116.25	1.52	0.16	0.85
8.11	10.60	117.76	1.00	117.76	1.54	0.17	0.85
8.12	10.68	118.75	1.00	118.75	1.55	0.17	0.85
8.13	10.70	119.24	1.00	119.24	1.57	0.17	0.85
8.14	10.68	119.21	1.00	119.21	1.59	0.17	0.85
8.15	10.64	118.92	1.00	118.92	1.62	0.17	0.85
8.16	10.51	117.60	1.00	117.60	1.63	0.17	0.85
8.17	10.32	115.65	1.00	115.65	1.65	0.16	0.85
8.18	10.08	113.07	1.00	113.07	1.67	0.15	0.84
8.19	9.72	109.31	1.04	114.01	1.71	0.15	0.84
8.20	9.30	104.80	1.07	112.09	1.75	0.14	0.83
8.21	8.81	99.62	1.10	109.64	1.79	0.13	0.83
8.22	8.38	94.97	1.13	107.21	1.83	0.13	0.82
8.23	7.71	87.72	1.18	103.45	1.89	0.12	0.81
8.24	6.95	79.45	1.25	99.49	1.96	0.11	0.80
8.25	5.92	68.09	1.40	95.21	2.07	0.11	0.77
8.26	5.08	58.70	1.60	93.71	2.17	0.10	0.76
8.27	4.27	49.64	1.91	94.98	2.29	0.10	0.73

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.28	3.75	43.66	2.24	97.90	2.38	0.10	0.72
8.29	3.30	38.50	2.63	101.41	2.47	0.10	0.70
8.30	2.86	33.45	3.17	106.09	2.57	0.10	0.68
8.31	2.51	29.37	3.78	110.99	2.67	0.09	2.15
8.32	2.20	25.73	4.52	116.19	2.77	0.09	1.86
8.33	2.04	23.83	5.01	119.30	2.83	0.09	1.72
8.34	1.90	22.12	5.52	122.12	2.88	0.09	1.59
8.35	1.79	20.81	5.99	124.72	2.93	0.09	1.49
8.36	1.95	22.80	5.55	126.45	2.88	0.09	1.63
8.37	2.42	28.37	4.41	125.01	2.75	0.10	2.06
8.38	3.23	37.71	3.16	119.08	2.57	0.10	0.70
8.39	4.33	50.15	2.17	108.65	2.36	0.11	0.73
8.40	5.18	59.52	1.72	102.56	2.22	0.12	0.76
8.41	5.58	63.64	1.53	97.26	2.14	0.11	0.77
8.42	5.34	60.82	1.54	93.69	2.14	0.11	0.76
8.43	5.01	57.06	1.57	89.35	2.16	0.10	0.75
8.44	4.75	53.99	1.60	86.59	2.17	0.10	0.74
8.45	4.42	50.20	1.67	83.69	2.20	0.10	0.73
8.46	4.19	47.63	1.74	82.87	2.23	0.10	0.73
8.47	5.42	61.11	1.40	85.79	2.07	0.08	0.76
8.48	9.24	102.24	1.06	108.32	1.73	0.11	0.83
8.49	13.88	150.74	1.00	150.74	1.47	0.41	0.89
8.50	16.40	176.77	1.00	176.77	1.37	0.88	0.91
8.51	16.91	182.04	1.00	182.04	1.36	0.44	0.92
8.52	15.94	171.64	1.00	171.64	1.37	0.63	0.91
8.53	15.87	170.57	1.00	170.57	1.36	0.37	0.91
8.54	15.19	163.39	1.00	163.39	1.38	0.41	0.90
8.55	14.46	155.73	1.00	155.73	1.40	0.36	0.89
8.56	13.19	143.96	1.00	143.96	1.57	0.23	0.88
8.57	11.12	122.71	1.06	129.59	1.73	0.19	0.86
8.58	8.94	99.96	1.21	121.17	1.92	0.14	0.83
8.59	7.26	81.44	1.34	108.87	2.03	0.11	0.80
8.60	6.90	77.56	1.40	108.71	2.07	0.12	0.79
8.61	6.60	74.61	1.55	115.81	2.15	0.15	0.79
8.62	6.03	68.39	1.77	120.89	2.24	0.12	0.78
8.63	5.15	58.84	2.25	132.32	2.38	0.12	0.76
8.64	4.40	50.40	2.75	138.70	2.50	0.13	0.74
8.65	3.67	42.25	3.58	151.25	2.64	0.10	3.09
8.66	2.77	31.94	5.11	163.35	2.84	0.10	2.30
8.67	2.30	26.28	6.62	173.94	2.99	0.10	1.88
8.68	1.94	21.89	8.31	181.88	3.13	0.09	1.56
8.69	1.70	18.88	9.90	186.88	3.25	0.09	1.35
8.70	1.62	17.86	10.55	188.36	3.29	0.09	1.28
8.71	1.48	16.13	11.10	179.13	3.32	0.09	1.15
8.72	1.31	14.10	11.66	164.34	3.36	0.08	1.01
8.73	1.17	12.32	12.11	149.19	3.39	0.08	0.88
8.74	1.14	12.00	11.97	143.66	3.38	0.08	0.86
8.75	1.16	12.17	11.63	141.49	3.36	0.08	0.87

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.76	1.21	12.77	11.02	140.67	3.32	0.08	0.91
8.77	1.22	12.92	10.49	135.45	3.28	0.08	0.92
8.78	1.24	13.10	9.97	130.63	3.25	0.08	0.94
8.79	1.18	12.40	9.77	121.13	3.24	0.08	0.89
8.80	1.15	11.98	9.49	113.75	3.22	0.08	0.86
8.81	1.11	11.44	9.22	105.46	3.20	0.08	0.82
8.82	1.10	11.29	8.90	100.51	3.17	0.08	0.81
8.83	1.09	11.23	8.75	98.24	3.16	0.08	0.80
8.84	1.11	11.41	8.48	96.75	3.14	0.08	0.82
8.85	1.14	11.76	8.22	96.72	3.12	0.08	0.84
8.86	1.17	12.15	8.01	97.26	3.11	0.08	0.87
8.87	1.20	12.44	7.88	98.06	3.10	0.08	0.89
8.88	1.22	12.77	7.77	99.14	3.09	0.08	0.91
8.89	1.25	13.05	7.70	100.41	3.08	0.08	0.93
8.90	1.27	13.26	7.69	101.96	3.08	0.08	0.95
8.91	1.27	13.31	7.81	103.97	3.09	0.08	0.95
8.92	1.28	13.32	7.94	105.75	3.10	0.08	0.95
8.93	1.27	13.22	8.15	107.64	3.12	0.08	0.94
8.94	1.26	13.11	8.30	108.83	3.13	0.08	0.94
8.95	1.25	13.02	8.44	109.89	3.14	0.08	0.93
8.96	1.25	13.00	8.49	110.41	3.14	0.08	0.93
8.97	1.25	12.98	8.53	110.71	3.15	0.08	0.93
8.98	1.25	12.88	8.61	110.88	3.15	0.08	0.92
8.99	1.24	12.79	8.68	111.01	3.16	0.08	0.91
9.00	1.22	12.57	8.85	111.27	3.17	0.08	0.90
9.01	1.21	12.40	8.98	111.29	3.18	0.08	0.89
9.02	1.21	12.33	8.97	110.59	3.18	0.08	0.88
9.03	1.19	12.11	9.06	109.75	3.19	0.08	0.86
9.04	1.16	11.73	9.30	109.17	3.20	0.08	0.84
9.05	1.12	11.25	9.71	109.14	3.23	0.08	0.80
9.06	1.10	11.04	9.89	109.15	3.24	0.08	0.79
9.07	1.09	10.93	9.63	105.27	3.23	0.08	0.78
9.08	1.08	10.75	9.41	101.12	3.21	0.08	0.77
9.09	1.06	10.53	9.19	96.73	3.20	0.08	0.75
9.10	1.04	10.28	9.37	96.40	3.21	0.08	0.73
9.11	1.02	10.04	9.59	96.24	3.22	0.08	0.72
9.12	1.00	9.80	9.78	95.77	3.24	0.08	0.70
9.13	0.98	9.59	9.90	94.95	3.25	0.08	0.69
9.14	0.97	9.43	9.95	93.86	3.25	0.08	0.67
9.15	0.96	9.34	9.93	92.81	3.25	0.08	0.67
9.16	0.97	9.34	9.87	92.10	3.24	0.08	0.67
9.17	0.97	9.41	9.68	91.05	3.23	0.08	0.67
9.18	0.98	9.48	9.48	89.90	3.22	0.08	0.68
9.19	1.00	9.71	9.05	87.80	3.19	0.08	0.69
9.20	1.02	9.93	8.64	85.80	3.16	0.08	0.71
9.21	1.04	10.19	8.20	83.63	3.12	0.08	0.73
9.22	1.05	10.26	8.02	82.31	3.11	0.08	0.73
9.23	1.05	10.26	7.92	81.32	3.10	0.08	0.73

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.24	1.03	10.05	8.03	80.74	3.11	0.08	0.72
9.25	1.02	9.84	8.18	80.47	3.12	0.08	0.70
9.26	0.99	9.54	8.41	80.23	3.14	0.08	0.68
9.27	0.97	9.26	8.65	80.03	3.16	0.08	0.66
9.28	0.94	8.94	8.92	79.71	3.18	0.08	0.64
9.29	0.92	8.65	9.16	79.27	3.19	0.08	0.62
9.30	0.90	8.41	9.37	78.78	3.21	0.08	0.60
9.31	0.88	8.24	9.49	78.23	3.22	0.08	0.59
9.32	0.87	8.07	9.66	77.93	3.23	0.08	0.58
9.33	0.86	7.93	9.81	77.83	3.24	0.08	0.57
9.34	0.84	7.69	10.13	77.86	3.26	0.08	0.55
9.35	0.82	7.48	10.40	77.80	3.28	0.08	0.53
9.36	0.80	7.21	10.74	77.43	3.30	0.08	0.51
9.37	0.78	7.01	10.97	76.85	3.32	0.07	0.50
9.38	0.76	6.77	11.17	75.66	3.33	0.07	0.48
9.39	0.75	6.61	11.27	74.51	3.34	0.07	0.47
9.40	0.73	6.38	11.47	73.13	3.35	0.07	0.46
9.41	0.71	6.22	11.59	72.09	3.36	0.07	0.44
9.42	0.70	6.07	11.65	70.69	3.36	0.07	0.43
9.43	0.70	6.03	11.47	69.16	3.35	0.07	0.43
9.44	0.70	6.03	11.20	67.51	3.33	0.07	0.43
9.45	0.71	6.10	10.78	65.78	3.30	0.07	0.44
9.46	0.72	6.25	10.32	64.52	3.27	0.07	0.45
9.47	0.74	6.44	9.79	63.02	3.24	0.07	0.46
9.48	0.76	6.74	9.15	61.64	3.19	0.07	0.48
9.49	0.79	7.04	8.51	59.93	3.15	0.07	0.50
9.50	0.82	7.38	7.93	58.47	3.10	0.08	0.53
9.51	0.84	7.63	7.53	57.52	3.07	0.08	0.55
9.52	0.87	7.93	7.21	57.19	3.04	0.08	0.57
9.53	0.89	8.14	7.09	57.72	3.03	0.08	0.58
9.54	0.91	8.32	7.04	58.62	3.03	0.08	0.59
9.55	0.92	8.42	7.12	59.99	3.03	0.08	0.60
9.56	0.92	8.49	7.20	61.12	3.04	0.08	0.61
9.57	0.92	8.48	7.40	62.73	3.06	0.08	0.61
9.58	0.92	8.43	7.60	64.08	3.07	0.08	0.60
9.59	0.92	8.39	7.84	65.76	3.09	0.08	0.60
9.60	0.92	8.38	7.98	66.83	3.10	0.08	0.60
9.61	0.91	8.33	8.18	68.11	3.12	0.08	0.60
9.62	0.91	8.24	8.39	69.17	3.14	0.08	0.59
9.63	0.90	8.16	8.67	70.73	3.16	0.08	0.58
9.64	0.90	8.11	8.86	71.83	3.17	0.08	0.58
9.65	0.89	8.02	9.06	72.72	3.19	0.08	0.57
9.66	0.87	7.83	9.36	73.25	3.21	0.08	0.56
9.67	0.85	7.55	9.76	73.69	3.24	0.08	0.54
9.68	0.82	7.21	10.25	73.89	3.27	0.08	0.51
9.69	0.79	6.91	10.66	73.59	3.30	0.07	0.49
9.70	0.77	6.60	11.02	72.74	3.32	0.07	0.47
9.71	0.74	6.34	11.28	71.46	3.34	0.07	0.45

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.72	0.72	6.11	11.48	70.12	3.35	0.07	0.44
9.73	0.71	5.92	11.65	68.95	3.36	0.07	0.42
9.74	0.70	5.80	11.69	67.88	3.36	0.07	0.41
9.75	0.69	5.69	11.74	66.78	3.36	0.07	0.41
9.76	0.67	5.54	11.79	65.34	3.37	0.07	0.40
9.77	0.66	5.43	11.78	64.00	3.37	0.07	0.39
9.78	0.67	5.45	11.44	62.29	3.35	0.07	0.39
9.79	0.68	5.61	10.85	60.88	3.31	0.07	0.40
9.80	0.71	5.94	9.92	58.90	3.25	0.07	0.42
9.81	0.74	6.30	9.08	57.15	3.19	0.07	0.45
9.82	0.80	6.85	8.07	55.30	3.11	0.07	0.49
9.83	0.84	7.36	7.37	54.21	3.05	0.08	0.53
9.84	0.90	8.02	6.62	53.05	2.99	0.08	0.57
9.85	0.95	8.54	6.10	52.08	2.94	0.08	0.61
9.86	0.99	9.01	5.68	51.17	2.90	0.08	0.64
9.87	1.02	9.30	5.48	50.92	2.88	0.08	0.66
9.88	1.04	9.51	5.40	51.38	2.87	0.08	0.68
9.89	1.06	9.76	5.40	52.65	2.87	0.08	0.70
9.90	1.09	10.02	5.47	54.79	2.88	0.08	0.72
9.91	1.11	10.22	5.60	57.18	2.89	0.08	0.73
9.92	1.11	10.29	5.84	60.16	2.91	0.08	0.74
9.93	1.11	10.22	6.21	63.45	2.95	0.08	0.73
9.94	1.09	10.06	6.63	66.67	2.99	0.08	0.72
9.95	1.09	9.95	7.02	69.87	3.02	0.08	0.71
9.96	1.08	9.85	7.34	72.26	3.05	0.08	0.70
9.97	1.07	9.79	7.69	75.34	3.08	0.08	0.70
9.98	1.07	9.71	8.00	77.68	3.11	0.08	0.69
9.99	1.06	9.67	8.35	80.69	3.13	0.08	0.69
10.00	1.06	9.63	8.61	82.94	3.15	0.08	0.69
10.01	1.06	9.56	8.95	85.54	3.18	0.08	0.68
10.02	1.05	9.48	9.19	87.16	3.20	0.08	0.68
10.03	1.05	9.44	9.32	88.05	3.21	0.08	0.67
10.04	1.05	9.44	9.33	88.06	3.21	0.08	0.67
10.05	1.05	9.43	9.32	87.86	3.21	0.08	0.67
10.06	1.06	9.52	8.96	85.22	3.18	0.08	0.68
10.07	1.06	9.60	8.60	82.58	3.15	0.08	0.69
10.08	1.07	9.69	8.25	79.93	3.13	0.08	0.69
10.09	1.08	9.76	8.23	80.30	3.12	0.08	0.70
10.10	1.08	9.78	8.24	80.61	3.12	0.08	0.70
10.11	1.08	9.74	8.35	81.33	3.13	0.08	0.70
10.12	1.07	9.59	8.51	81.65	3.15	0.08	0.69
10.13	1.06	9.48	8.63	81.87	3.15	0.08	0.68
10.14	1.06	9.48	8.62	81.74	3.15	0.08	0.68
10.15	1.06	9.51	8.61	81.89	3.15	0.08	0.68
10.16	1.07	9.57	8.59	82.21	3.15	0.08	0.68
10.17	1.07	9.56	8.62	82.45	3.15	0.08	0.68
10.18	1.07	9.55	8.63	82.45	3.15	0.08	0.68
10.19	1.06	9.47	8.66	82.01	3.16	0.08	0.68

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)							
Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.20	1.06	9.39	8.63	81.06	3.15	0.08	0.67
10.21	1.04	9.24	8.68	80.15	3.16	0.08	0.66
10.22	1.03	9.12	8.68	79.19	3.16	0.08	0.65
10.23	1.03	9.05	8.68	78.52	3.16	0.08	0.65
10.24	1.04	9.15	8.50	77.71	3.14	0.08	0.65
10.25	1.05	9.28	8.31	77.15	3.13	0.08	0.66
10.26	1.06	9.42	8.17	76.97	3.12	0.08	0.67
10.27	1.07	9.45	8.16	77.11	3.12	0.08	0.68
10.28	1.08	9.52	8.11	77.22	3.11	0.08	0.68
10.29	1.09	9.66	7.98	77.08	3.10	0.08	0.69
10.30	1.11	9.87	7.77	76.70	3.09	0.08	0.71
10.31	1.13	10.11	7.53	76.15	3.07	0.08	0.72
10.32	1.15	10.32	7.33	75.63	3.05	0.08	0.74
10.33	1.17	10.45	7.24	75.59	3.04	0.08	0.75
10.34	1.17	10.43	7.29	76.04	3.05	0.08	0.75
10.35	1.16	10.32	7.44	76.74	3.06	0.08	0.74
10.36	1.15	10.21	7.61	77.70	3.07	0.08	0.73
10.37	1.14	10.13	7.75	78.50	3.09	0.08	0.72
10.38	1.13	10.04	7.90	79.36	3.10	0.08	0.72
10.39	1.12	9.92	8.07	80.01	3.11	0.08	0.71
10.40	1.11	9.80	8.27	81.01	3.13	0.08	0.70
10.41	1.11	9.75	8.41	82.00	3.14	0.08	0.70
10.42	1.11	9.71	8.58	83.31	3.15	0.08	0.69
10.43	1.11	9.70	8.74	84.73	3.16	0.08	0.69
10.44	1.11	9.72	8.83	85.87	3.17	0.08	0.69
10.45	1.11	9.68	8.97	86.75	3.18	0.08	0.69
10.46	1.10	9.59	9.10	87.27	3.19	0.08	0.69
10.47	1.09	9.44	9.28	87.62	3.20	0.08	0.67
10.48	1.08	9.40	9.33	87.65	3.21	0.08	0.67
10.49	1.08	9.35	9.35	87.35	3.21	0.08	0.67
10.50	1.08	9.33	9.34	87.13	3.21	0.08	0.67
10.51	1.07	9.28	9.39	87.11	3.21	0.08	0.66
10.52	1.07	9.20	9.48	87.26	3.22	0.08	0.66
10.53	1.06	9.09	9.59	87.19	3.22	0.08	0.65
10.54	1.05	9.01	9.63	86.77	3.23	0.08	0.64
10.55	1.04	8.93	9.66	86.26	3.23	0.08	0.64
10.56	1.04	8.85	9.72	85.99	3.23	0.08	0.63
10.57	1.03	8.81	9.76	85.90	3.24	0.08	0.63
10.58	1.03	8.80	9.76	85.84	3.24	0.08	0.63
10.59	1.04	8.86	9.66	85.56	3.23	0.08	0.63
10.60	1.05	8.92	9.53	84.96	3.22	0.08	0.64
10.61	1.05	8.98	9.39	84.31	3.21	0.08	0.64
10.62	1.06	9.07	9.23	83.72	3.20	0.08	0.65
10.63	1.07	9.16	9.10	83.34	3.19	0.08	0.65
10.64	1.09	9.29	8.92	82.89	3.18	0.08	0.66
10.65	1.09	9.35	8.83	82.54	3.17	0.08	0.67
10.66	1.10	9.38	8.77	82.24	3.17	0.08	0.67
10.67	1.09	9.33	8.77	81.88	3.17	0.08	0.67

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.68	1.09	9.32	8.75	81.55	3.16	0.08	0.67
10.69	1.10	9.38	8.65	81.11	3.16	0.08	0.67
10.70	1.11	9.51	8.50	80.86	3.14	0.08	0.68
10.71	1.13	9.67	8.36	80.81	3.13	0.08	0.69
10.72	1.14	9.80	8.27	81.01	3.13	0.08	0.70
10.73	1.16	9.96	8.18	81.50	3.12	0.08	0.71
10.74	1.18	10.15	8.09	82.13	3.11	0.08	0.73
10.75	1.20	10.38	7.98	82.83	3.10	0.08	0.74
10.76	1.23	10.68	7.82	83.54	3.09	0.08	0.76
10.77	1.26	10.95	7.68	84.10	3.08	0.08	0.78
10.78	1.29	11.28	7.50	84.62	3.07	0.08	0.81
10.79	1.32	11.55	7.35	84.89	3.05	0.08	0.82
10.80	1.35	11.88	7.17	85.21	3.04	0.08	0.85
10.81	1.38	12.17	7.02	85.45	3.02	0.08	0.87
10.82	1.42	12.49	6.88	85.91	3.01	0.08	0.89
10.83	1.43	12.68	6.81	86.33	3.01	0.08	0.91
10.84	1.45	12.80	6.82	87.21	3.01	0.08	0.91
10.85	1.45	12.81	6.87	88.03	3.01	0.08	0.92
10.86	1.46	12.86	6.93	89.21	3.02	0.08	0.92
10.87	1.47	12.95	6.97	90.22	3.02	0.08	0.92
10.88	1.47	13.03	7.00	91.23	3.02	0.08	0.93
10.89	1.48	13.04	7.09	92.43	3.03	0.08	0.93
10.90	1.47	12.98	7.21	93.53	3.04	0.08	0.93
10.91	1.47	12.93	7.37	95.21	3.05	0.08	0.92
10.92	1.47	12.91	7.52	97.06	3.07	0.08	0.92
10.93	1.47	12.89	7.68	99.02	3.08	0.08	0.92
10.94	1.46	12.84	7.87	101.06	3.10	0.08	0.92
10.95	1.46	12.79	8.02	102.66	3.11	0.08	0.91
10.96	1.46	12.78	8.16	104.26	3.12	0.08	0.91
10.97	1.45	12.69	8.31	105.46	3.13	0.08	0.91
10.98	1.44	12.58	8.47	106.50	3.14	0.08	0.90
10.99	1.42	12.33	8.73	107.57	3.16	0.08	0.88
11.00	1.40	12.15	8.92	108.29	3.18	0.08	0.87
11.01	1.38	11.93	9.13	108.99	3.19	0.08	0.85
11.02	1.37	11.75	9.29	109.22	3.20	0.08	0.84
11.03	1.35	11.57	9.42	108.99	3.21	0.08	0.83
11.04	1.34	11.46	9.47	108.52	3.22	0.08	0.82
11.05	1.34	11.42	9.47	108.09	3.22	0.08	0.82
11.06	1.33	11.34	9.41	106.72	3.21	0.08	0.81
11.07	1.32	11.23	9.37	105.26	3.21	0.08	0.80
11.08	1.31	11.09	9.34	103.59	3.21	0.08	0.79
11.09	1.30	11.04	9.32	102.87	3.20	0.08	0.79
11.10	1.31	11.07	9.20	101.81	3.20	0.08	0.79
11.11	1.31	11.12	9.05	100.67	3.19	0.08	0.79
11.12	1.32	11.18	8.90	99.45	3.17	0.08	0.80
11.13	1.33	11.23	8.76	98.38	3.16	0.08	0.80
11.14	1.33	11.29	8.63	97.47	3.15	0.08	0.81
11.15	1.33	11.28	8.58	96.76	3.15	0.08	0.81

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
11.16	1.33	11.24	8.57	96.28	3.15	0.08	0.80
11.17	1.33	11.23	8.53	95.77	3.15	0.08	0.80
11.18	1.33	11.25	8.49	95.47	3.14	0.08	0.80
11.19	1.34	11.34	8.39	95.14	3.14	0.08	0.81
11.20	1.35	11.43	8.29	94.71	3.13	0.08	0.82
11.21	1.37	11.55	8.18	94.41	3.12	0.08	0.82
11.22	1.38	11.67	8.09	94.40	3.11	0.08	0.83
11.23	1.39	11.79	8.03	94.70	3.11	0.08	0.84
11.24	1.41	11.91	7.99	95.22	3.11	0.08	0.85
11.25	1.42	12.00	7.97	95.69	3.10	0.08	0.86
11.26	1.43	12.12	7.93	96.12	3.10	0.08	0.87
11.27	1.44	12.25	7.87	96.43	3.10	0.08	0.87
11.28	1.46	12.37	7.82	96.65	3.09	0.08	0.88
11.29	1.48	12.52	7.73	96.72	3.08	0.08	0.89
11.30	1.50	12.76	7.57	96.65	3.07	0.08	0.91
11.31	1.52	12.98	7.45	96.66	3.06	0.08	0.93
11.32	1.54	13.09	7.42	97.19	3.06	0.08	0.94
11.33	1.53	13.04	7.54	98.39	3.07	0.08	0.93
11.34	1.53	12.96	7.70	99.79	3.08	0.08	0.93
11.35	1.51	12.82	7.90	101.33	3.10	0.08	0.92
11.36	1.50	12.68	8.09	102.61	3.11	0.08	0.91
11.37	1.50	12.68	8.20	103.94	3.12	0.08	0.91
11.38	1.51	12.76	8.20	104.71	3.12	0.08	0.91
11.39	1.53	12.95	8.13	105.24	3.12	0.08	0.92
11.40	1.54	13.06	8.07	105.44	3.11	0.08	0.93
11.41	1.55	13.14	8.07	106.04	3.11	0.08	0.94
11.42	1.56	13.16	8.12	106.82	3.12	0.08	0.94
11.43	1.56	13.14	8.19	107.69	3.12	0.08	0.94
11.44	1.55	13.06	8.30	108.45	3.13	0.08	0.93
11.45	1.55	13.02	8.35	108.67	3.13	0.08	0.93
11.46	1.54	12.97	8.37	108.56	3.13	0.08	0.93
11.47	1.55	13.02	8.29	107.90	3.13	0.08	0.93
11.48	1.56	13.07	8.19	107.09	3.12	0.08	0.93
11.49	1.57	13.16	8.07	106.25	3.11	0.08	0.94
11.50	1.58	13.24	7.96	105.44	3.10	0.08	0.95
11.51	1.58	13.29	7.89	104.92	3.10	0.08	0.95
11.52	1.59	13.35	7.84	104.59	3.09	0.08	0.95
11.53	1.59	13.30	7.86	104.57	3.09	0.08	0.95
11.54	1.58	13.22	7.91	104.60	3.10	0.08	0.94
11.55	1.57	13.08	7.99	104.42	3.10	0.08	0.93
11.56	1.55	12.96	8.03	104.02	3.11	0.08	0.93
11.57	1.54	12.84	8.07	103.68	3.11	0.08	0.92
11.58	1.52	12.63	8.20	103.63	3.12	0.08	0.90
11.59	1.50	12.43	8.37	103.98	3.13	0.08	0.89
11.60	1.48	12.23	8.53	104.25	3.15	0.08	0.87
11.61	1.47	12.12	8.61	104.39	3.15	0.08	0.87
11.62	1.46	11.98	8.71	104.40	3.16	0.08	0.86
11.63	1.46	11.94	8.74	104.37	3.16	0.08	0.85

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
11.64	1.45	11.90	8.77	104.28	3.16	0.08	0.85
11.65	1.45	11.82	8.82	104.21	3.17	0.08	0.84
11.66	1.42	11.59	8.99	104.18	3.18	0.08	0.83
11.67	1.39	11.29	9.20	103.88	3.20	0.08	0.81
11.68	1.37	11.06	9.33	103.17	3.21	0.08	0.79
11.69	1.36	10.92	9.33	101.94	3.21	0.08	0.78
11.70	1.36	10.91	9.23	100.71	3.20	0.08	0.78
11.71	1.34	10.77	9.23	99.42	3.20	0.08	0.77
11.72	1.32	10.51	9.38	98.60	3.21	0.08	0.75
11.73	1.27	10.08	9.68	97.67	3.23	0.08	0.72
11.74	1.23	9.69	10.00	96.97	3.25	0.08	0.69
11.75	1.20	9.37	10.28	96.26	3.27	0.08	0.67
11.76	1.17	9.10	10.51	95.72	3.29	0.08	0.65
11.77	1.16	8.94	10.63	95.06	3.29	0.08	0.64
11.78	1.15	8.84	10.68	94.35	3.30	0.08	0.63
11.79	1.14	8.80	10.64	93.62	3.30	0.08	0.63
11.80	1.15	8.82	10.58	93.30	3.29	0.08	0.63
11.81	1.15	8.85	10.54	93.27	3.29	0.08	0.63
11.82	1.16	8.90	10.50	93.49	3.29	0.08	0.64
11.83	1.16	8.96	10.42	93.37	3.28	0.08	0.64
11.84	1.17	8.99	10.33	92.88	3.27	0.08	0.64
11.85	1.17	9.01	10.23	92.23	3.27	0.08	0.64
11.86	1.17	9.01	10.09	90.85	3.26	0.08	0.64
11.87	1.17	9.03	9.90	89.38	3.25	0.08	0.64
11.88	1.17	9.02	9.72	87.65	3.23	0.08	0.64
11.89	1.18	9.07	9.55	86.67	3.22	0.08	0.65
11.90	1.19	9.13	9.41	85.90	3.21	0.08	0.65
11.91	1.18	9.09	9.43	85.68	3.21	0.08	0.65
11.92	1.16	8.89	9.63	85.65	3.23	0.08	0.64
11.93	1.14	8.64	9.92	85.65	3.25	0.08	0.62
11.94	1.11	8.38	10.21	85.50	3.27	0.08	0.60
11.95	1.09	8.18	10.45	85.45	3.28	0.08	0.58
11.96	1.07	8.02	10.66	85.46	3.30	0.08	0.57
11.97	1.06	7.91	10.85	85.85	3.31	0.08	0.57
11.98	1.05	7.81	11.04	86.27	3.32	0.08	0.56
11.99	1.04	7.71	11.27	86.90	3.34	0.08	0.55
12.00	1.03	7.61	11.48	87.36	3.35	0.08	0.54
12.01	1.02	7.48	11.72	87.65	3.36	0.08	0.53
12.02	1.00	7.32	11.94	87.36	3.38	0.08	0.52
12.03	0.99	7.19	12.09	86.94	3.39	0.08	0.51
12.04	0.98	7.12	12.16	86.59	3.39	0.08	0.51
12.05	1.01	7.34	11.36	83.35	3.34	0.08	0.52
12.06	1.03	7.53	10.55	79.45	3.29	0.08	0.54
12.07	1.05	7.69	9.73	74.84	3.23	0.08	0.55
12.08	1.04	7.61	9.69	73.67	3.23	0.08	0.54
12.09	1.03	7.52	9.64	72.47	3.23	0.08	0.54
12.10	1.02	7.43	9.58	71.18	3.22	0.08	0.53
12.11	1.01	7.34	9.53	69.93	3.22	0.08	0.52

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.12	1.01	7.28	9.45	68.79	3.21	0.08	0.52
12.13	1.00	7.22	9.39	67.75	3.21	0.08	0.52
12.14	1.00	7.19	9.36	67.25	3.21	0.08	0.51
12.15	1.01	7.25	9.20	66.74	3.20	0.08	0.52
12.16	1.03	7.44	8.90	66.25	3.17	0.08	0.53
12.17	1.06	7.69	8.54	65.70	3.15	0.08	0.55
12.18	1.09	7.97	8.17	65.16	3.12	0.08	0.57
12.19	1.11	8.20	7.89	64.70	3.10	0.08	0.59
12.20	1.13	8.39	7.67	64.36	3.08	0.08	0.60
12.21	1.14	8.45	7.60	64.21	3.07	0.08	0.60
12.22	1.14	8.45	7.61	64.32	3.07	0.08	0.60
12.23	1.14	8.45	7.66	64.73	3.08	0.08	0.60
12.24	1.14	8.45	7.72	65.29	3.08	0.08	0.60
12.25	1.15	8.49	7.79	66.12	3.09	0.08	0.61
12.26	1.16	8.55	7.81	66.76	3.09	0.08	0.61
12.27	1.17	8.67	7.76	67.23	3.09	0.08	0.62
12.28	1.18	8.75	7.69	67.28	3.08	0.08	0.63
12.29	1.18	8.77	7.67	67.30	3.08	0.08	0.63
12.30	1.18	8.71	7.78	67.75	3.09	0.08	0.62
12.31	1.17	8.64	7.90	68.27	3.10	0.08	0.62
12.32	1.17	8.67	7.96	69.03	3.10	0.08	0.62
12.33	1.18	8.73	7.98	69.68	3.10	0.08	0.62
12.34	1.19	8.79	8.04	70.63	3.11	0.08	0.63
12.35	1.19	8.78	8.14	71.51	3.12	0.08	0.63
12.36	1.19	8.81	8.19	72.12	3.12	0.08	0.63
12.37	1.21	8.95	8.08	72.28	3.11	0.08	0.64
12.38	1.22	9.06	7.98	72.29	3.10	0.08	0.65
12.39	1.23	9.14	7.93	72.48	3.10	0.08	0.65
12.40	1.23	9.16	7.96	72.96	3.10	0.08	0.65
12.41	1.24	9.21	7.98	73.51	3.10	0.08	0.66
12.42	1.25	9.25	8.01	74.10	3.11	0.08	0.66
12.43	1.25	9.27	8.06	74.73	3.11	0.08	0.66
12.44	1.25	9.28	8.15	75.62	3.12	0.08	0.66
12.45	1.25	9.30	8.23	76.58	3.12	0.08	0.66
12.46	1.26	9.35	8.30	77.58	3.13	0.08	0.67
12.47	1.26	9.37	8.35	78.25	3.13	0.08	0.67
12.48	1.28	9.48	8.34	79.01	3.13	0.08	0.68
12.49	1.29	9.59	8.31	79.68	3.13	0.08	0.69
12.50	1.31	9.74	8.26	80.45	3.13	0.08	0.70
12.51	1.33	9.91	8.19	81.14	3.12	0.08	0.71
12.52	1.35	10.08	8.11	81.75	3.11	0.08	0.72
12.53	1.37	10.31	7.98	82.24	3.10	0.08	0.74
12.54	1.40	10.51	7.85	82.57	3.09	0.08	0.75
12.55	1.42	10.74	7.73	83.06	3.08	0.08	0.77
12.56	1.44	10.85	7.70	83.53	3.08	0.08	0.77
12.57	1.43	10.77	7.80	83.98	3.09	0.08	0.77
12.58	1.40	10.51	8.01	84.18	3.11	0.08	0.75
12.59	1.36	10.15	8.31	84.36	3.13	0.08	0.73

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.60	1.33	9.83	8.60	84.59	3.15	0.08	0.70
12.61	1.30	9.59	8.85	84.88	3.17	0.08	0.69
12.62	1.28	9.38	9.08	85.20	3.19	0.08	0.67
12.63	1.26	9.21	9.32	85.78	3.20	0.08	0.66
12.64	1.24	9.04	9.58	86.64	3.22	0.08	0.65
12.65	1.23	8.93	9.80	87.52	3.24	0.08	0.64
12.66	1.22	8.82	9.99	88.15	3.25	0.08	0.63
12.67	1.20	8.65	10.25	88.67	3.27	0.08	0.62
12.68	1.19	8.56	10.41	89.08	3.28	0.08	0.61
12.69	1.19	8.49	10.50	89.14	3.29	0.08	0.61
12.70	1.18	8.39	10.53	88.35	3.29	0.08	0.60
12.71	1.15	8.21	10.63	87.21	3.29	0.08	0.59
12.72	1.12	7.93	10.83	85.91	3.31	0.08	0.57
12.73	1.10	7.75	10.96	84.91	3.32	0.08	0.55
12.74	1.09	7.62	11.02	83.97	3.32	0.08	0.54
12.75	1.09	7.58	10.97	83.18	3.32	0.08	0.54
12.76	1.08	7.55	10.93	82.54	3.31	0.08	0.54
12.77	1.08	7.49	10.89	81.58	3.31	0.08	0.53
12.78	1.07	7.43	10.81	80.31	3.31	0.08	0.53
12.79	1.07	7.40	10.61	78.54	3.29	0.08	0.53
12.80	1.07	7.39	10.43	77.12	3.28	0.08	0.53
12.81	1.07	7.36	10.32	75.94	3.27	0.08	0.53
12.82	1.06	7.30	10.33	75.34	3.27	0.08	0.52
12.83	1.05	7.20	10.39	74.86	3.28	0.08	0.51
12.84	1.04	7.14	10.44	74.50	3.28	0.08	0.51
12.85	1.04	7.13	10.41	74.17	3.28	0.08	0.51
12.86	1.05	7.18	10.25	73.56	3.27	0.08	0.51
12.87	1.06	7.26	10.05	72.94	3.26	0.08	0.52
12.88	1.07	7.34	9.86	72.37	3.24	0.08	0.52
12.89	1.08	7.45	9.69	72.21	3.23	0.08	0.53
12.90	1.10	7.59	9.51	72.20	3.22	0.08	0.54
12.91	1.12	7.73	9.34	72.27	3.21	0.08	0.55
12.92	1.13	7.87	9.19	72.39	3.20	0.08	0.56
12.93	1.15	8.04	9.03	72.61	3.18	0.08	0.57
12.94	1.17	8.18	8.91	72.83	3.18	0.08	0.58
12.95	1.18	8.25	8.86	73.12	3.17	0.08	0.59
12.96	1.18	8.25	8.91	73.43	3.17	0.08	0.59
12.97	1.18	8.24	8.96	73.84	3.18	0.08	0.59
12.98	1.18	8.23	9.03	74.32	3.18	0.08	0.59
12.99	1.18	8.24	9.09	74.83	3.19	0.08	0.59
13.00	1.18	8.25	9.15	75.47	3.19	0.08	0.59
13.01	1.18	8.24	9.23	76.06	3.20	0.08	0.59
13.02	1.18	8.19	9.37	76.69	3.21	0.08	0.58
13.03	1.17	8.12	9.49	77.05	3.22	0.08	0.58
13.04	1.17	8.09	9.56	77.25	3.22	0.08	0.58
13.05	1.16	8.01	9.57	76.70	3.22	0.08	0.57
13.06	1.16	8.00	9.53	76.24	3.22	0.08	0.57
13.07	1.16	8.01	9.46	75.74	3.21	0.08	0.57

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.08	1.17	8.11	9.34	75.73	3.21	0.08	0.58
13.09	1.19	8.21	9.23	75.79	3.20	0.08	0.59
13.10	1.19	8.28	9.17	75.91	3.19	0.08	0.59
13.11	1.21	8.39	9.10	76.30	3.19	0.08	0.60
13.12	1.21	8.43	9.08	76.55	3.19	0.08	0.60
13.13	1.22	8.48	9.05	76.78	3.19	0.08	0.61
13.14	1.22	8.50	9.04	76.85	3.19	0.08	0.61
13.15	1.23	8.52	9.04	76.98	3.18	0.08	0.61
13.16	1.23	8.54	9.04	77.21	3.18	0.08	0.61
13.17	1.23	8.56	9.06	77.52	3.19	0.08	0.61
13.18	1.23	8.55	9.11	77.91	3.19	0.08	0.61
13.19	1.23	8.55	9.18	78.50	3.20	0.08	0.61
13.20	1.23	8.49	9.32	79.09	3.20	0.08	0.61
13.21	1.23	8.49	9.41	79.92	3.21	0.08	0.61
13.22	1.23	8.52	9.47	80.69	3.22	0.08	0.61
13.23	1.24	8.57	9.49	81.35	3.22	0.08	0.61
13.24	1.25	8.62	9.47	81.72	3.22	0.08	0.62
13.25	1.25	8.68	9.43	81.86	3.21	0.08	0.62
13.26	1.26	8.73	9.39	81.99	3.21	0.08	0.62
13.27	1.27	8.84	9.28	82.03	3.20	0.08	0.63
13.28	1.29	8.96	9.15	81.95	3.19	0.08	0.64
13.29	1.30	9.06	9.03	81.83	3.18	0.08	0.65
13.30	1.30	9.06	9.05	81.97	3.19	0.08	0.65
13.31	1.30	9.01	9.14	82.31	3.19	0.08	0.64
13.32	1.29	8.97	9.18	82.40	3.20	0.08	0.64
13.33	1.29	8.96	9.17	82.12	3.19	0.08	0.64
13.34	1.29	8.92	9.15	81.57	3.19	0.08	0.64
13.35	1.29	8.88	9.16	81.33	3.19	0.08	0.63
13.36	1.28	8.85	9.19	81.31	3.20	0.08	0.63
13.37	1.28	8.81	9.27	81.67	3.20	0.08	0.63
13.38	1.27	8.76	9.39	82.17	3.21	0.08	0.63
13.39	1.26	8.67	9.55	82.73	3.22	0.08	0.62
13.40	1.26	8.58	9.69	83.12	3.23	0.08	0.61
13.41	1.24	8.48	9.82	83.31	3.24	0.08	0.61
13.42	1.24	8.41	9.91	83.37	3.25	0.08	0.60
13.43	1.23	8.36	9.97	83.37	3.25	0.08	0.60
13.44	1.23	8.30	10.03	83.26	3.25	0.08	0.59
13.45	1.21	8.16	10.19	83.20	3.27	0.08	0.58
13.46	1.19	8.00	10.39	83.12	3.28	0.08	0.57
13.47	1.18	7.88	10.54	83.04	3.29	0.08	0.56
13.48	1.17	7.84	10.58	82.90	3.29	0.08	0.56
13.49	1.17	7.77	10.64	82.61	3.29	0.08	0.55
13.50	1.16	7.70	10.70	82.35	3.30	0.08	0.55
13.51	1.15	7.61	10.75	81.84	3.30	0.08	0.54
13.52	1.15	7.58	10.75	81.50	3.30	0.08	0.54
13.53	1.14	7.55	10.74	81.15	3.30	0.08	0.54
13.54	1.14	7.55	10.71	80.91	3.30	0.08	0.54
13.55	1.15	7.55	10.68	80.65	3.30	0.08	0.54

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.56	1.15	7.60	10.58	80.42	3.29	0.08	0.54
13.57	1.15	7.59	10.57	80.20	3.29	0.08	0.54
13.58	1.15	7.55	10.61	80.09	3.29	0.08	0.54
13.59	1.13	7.43	10.74	79.87	3.30	0.08	0.53
13.60	1.13	7.39	10.80	79.74	3.31	0.08	0.53
13.61	1.13	7.38	10.76	79.44	3.30	0.08	0.53
13.62	1.14	7.43	10.65	79.14	3.30	0.08	0.53
13.63	1.14	7.47	10.54	78.76	3.29	0.08	0.53
13.64	1.14	7.49	10.47	78.44	3.28	0.08	0.54
13.65	1.15	7.49	10.42	78.08	3.28	0.08	0.53
13.66	1.15	7.49	10.39	77.79	3.28	0.08	0.53
13.67	1.15	7.48	10.36	77.51	3.28	0.08	0.53
13.68	1.14	7.42	10.42	77.23	3.28	0.08	0.53
13.69	1.13	7.32	10.52	77.01	3.29	0.08	0.52
13.70	1.11	7.20	10.65	76.75	3.30	0.08	0.51
13.71	1.10	7.11	10.75	76.51	3.30	0.08	0.51
13.72	1.09	7.02	10.85	76.13	3.31	0.08	0.50
13.73	1.09	6.95	10.90	75.72	3.31	0.08	0.50
13.74	1.09	6.94	10.86	75.38	3.31	0.08	0.50
13.75	1.09	6.97	10.79	75.22	3.31	0.08	0.50
13.76	1.10	7.02	10.72	75.25	3.30	0.08	0.50
13.77	1.10	7.08	10.64	75.26	3.29	0.08	0.51
13.78	1.12	7.18	10.47	75.13	3.28	0.08	0.51
13.79	1.14	7.32	10.23	74.86	3.27	0.08	0.52
13.80	1.16	7.48	9.98	74.68	3.25	0.08	0.53
13.81	1.17	7.63	9.80	74.72	3.24	0.08	0.54
13.82	1.19	7.73	9.70	75.00	3.23	0.08	0.55
13.83	1.20	7.79	9.67	75.29	3.23	0.08	0.56
13.84	1.20	7.82	9.65	75.49	3.23	0.08	0.56
13.85	1.21	7.86	9.62	75.64	3.23	0.08	0.56
13.86	1.21	7.92	9.56	75.77	3.22	0.08	0.57
13.87	1.23	8.02	9.45	75.82	3.21	0.08	0.57
13.88	1.24	8.09	9.39	75.94	3.21	0.08	0.58
13.89	1.24	8.14	9.35	76.06	3.21	0.08	0.58
13.90	1.24	8.14	9.37	76.26	3.21	0.08	0.58
13.91	1.24	8.13	9.39	76.33	3.21	0.08	0.58
13.92	1.25	8.15	9.39	76.53	3.21	0.08	0.58
13.93	1.25	8.17	9.39	76.77	3.21	0.08	0.58
13.94	1.26	8.22	9.42	77.36	3.21	0.08	0.59
13.95	1.26	8.26	9.43	77.84	3.21	0.08	0.59
13.96	1.27	8.31	9.39	78.08	3.21	0.08	0.59
13.97	1.28	8.36	9.32	77.93	3.21	0.08	0.60
13.98	1.28	8.38	9.30	77.88	3.20	0.08	0.60
13.99	1.28	8.37	9.33	78.10	3.21	0.08	0.60
14.00	1.28	8.38	9.36	78.45	3.21	0.08	0.60
14.01	1.28	8.40	9.37	78.70	3.21	0.08	0.60
14.02	1.28	8.39	9.40	78.85	3.21	0.08	0.60
14.03	1.28	8.36	9.44	78.85	3.21	0.08	0.60

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.04	1.28	8.32	9.47	78.81	3.22	0.08	0.59
14.05	1.28	8.37	9.32	78.00	3.21	0.08	0.60
14.06	1.29	8.42	9.19	77.30	3.20	0.08	0.60
14.07	1.30	8.44	9.10	76.86	3.19	0.08	0.60
14.08	1.29	8.40	9.23	77.52	3.20	0.08	0.60
14.09	1.28	8.34	9.37	78.14	3.21	0.08	0.60
14.10	1.28	8.30	9.46	78.53	3.21	0.08	0.59
14.11	1.28	8.26	9.52	78.63	3.22	0.08	0.59
14.12	1.27	8.19	9.63	78.87	3.23	0.08	0.59
14.13	1.26	8.11	9.75	79.08	3.24	0.08	0.58
14.14	1.25	8.04	9.86	79.36	3.24	0.08	0.57
14.15	1.25	8.00	9.92	79.37	3.25	0.08	0.57
14.16	1.25	7.98	9.93	79.32	3.25	0.08	0.57
14.17	1.25	8.00	9.91	79.25	3.25	0.08	0.57
14.18	1.25	7.99	9.91	79.15	3.25	0.08	0.57
14.19	1.24	7.93	9.98	79.10	3.25	0.08	0.57
14.20	1.23	7.82	10.10	78.96	3.26	0.08	0.56
14.21	1.21	7.70	10.22	78.70	3.27	0.08	0.55
14.22	1.21	7.64	10.24	78.18	3.27	0.08	0.55
14.23	1.20	7.60	10.22	77.70	3.27	0.08	0.54
14.24	1.20	7.53	10.28	77.36	3.27	0.08	0.54
14.25	1.18	7.42	10.41	77.29	3.28	0.08	0.53
14.26	1.16	7.26	10.63	77.16	3.29	0.08	0.52
14.27	1.14	7.10	10.84	76.92	3.31	0.08	0.51
14.28	1.12	6.94	11.00	76.35	3.32	0.08	0.50
14.29	1.11	6.83	11.10	75.79	3.32	0.08	0.49
14.30	1.11	6.78	11.07	75.05	3.32	0.08	0.48
14.31	1.10	6.69	11.11	74.33	3.33	0.08	0.48
14.32	1.08	6.58	11.14	73.24	3.33	0.08	0.47
14.33	1.07	6.49	11.15	72.34	3.33	0.08	0.46
14.34	1.07	6.48	11.02	71.39	3.32	0.08	0.46
14.35	1.09	6.61	10.67	70.52	3.30	0.08	0.47
14.36	1.11	6.77	10.29	69.66	3.27	0.08	0.48
14.37	1.13	6.95	9.89	68.79	3.25	0.08	0.50
14.38	1.15	7.11	9.53	67.76	3.22	0.08	0.51
14.39	1.18	7.29	9.12	66.46	3.19	0.08	0.52
14.40	1.19	7.43	8.76	65.10	3.16	0.08	0.53
14.41	1.20	7.43	8.66	64.34	3.16	0.08	0.53
14.42	1.19	7.39	8.68	64.08	3.16	0.08	0.53
14.43	1.19	7.35	8.75	64.29	3.16	0.08	0.52
14.44	1.19	7.37	8.76	64.56	3.16	0.08	0.53
14.45	1.19	7.39	8.80	65.04	3.17	0.08	0.53
14.46	1.19	7.39	8.87	65.56	3.17	0.08	0.53
14.47	1.19	7.38	8.97	66.21	3.18	0.08	0.53
14.48	1.20	7.42	9.01	66.85	3.18	0.08	0.53
14.49	1.21	7.49	9.01	67.49	3.18	0.08	0.54
14.50	1.22	7.59	8.99	68.16	3.18	0.08	0.54
14.51	1.23	7.65	9.01	68.96	3.18	0.08	0.55

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.52	1.24	7.72	9.05	69.84	3.19	0.08	0.55
14.53	1.25	7.79	9.10	70.88	3.19	0.08	0.56
14.54	1.26	7.83	9.18	71.87	3.20	0.08	0.56
14.55	1.26	7.84	9.27	72.68	3.20	0.08	0.56
14.56	1.26	7.83	9.34	73.16	3.21	0.08	0.56
14.57	1.26	7.82	9.37	73.30	3.21	0.08	0.56
14.58	1.26	7.84	9.36	73.41	3.21	0.08	0.56
14.59	1.26	7.86	9.34	73.41	3.21	0.08	0.56
14.60	1.27	7.90	9.32	73.64	3.21	0.08	0.56
14.61	1.27	7.89	9.38	73.96	3.21	0.08	0.56
14.62	1.27	7.87	9.46	74.47	3.21	0.08	0.56
14.63	1.27	7.86	9.51	74.81	3.22	0.08	0.56
14.64	1.27	7.91	9.50	75.10	3.22	0.08	0.56
14.65	1.29	8.01	9.41	75.34	3.21	0.08	0.57
14.66	1.30	8.11	9.32	75.55	3.20	0.08	0.58
14.67	1.32	8.24	9.18	75.64	3.20	0.08	0.59
14.68	1.34	8.37	9.04	75.64	3.18	0.08	0.60
14.69	1.36	8.55	8.84	75.51	3.17	0.08	0.61
14.70	1.39	8.75	8.61	75.39	3.15	0.08	0.63
14.71	1.42	9.03	8.32	75.17	3.13	0.08	0.65
14.72	1.47	9.37	8.02	75.08	3.11	0.08	0.67
14.73	1.50	9.65	7.77	74.97	3.09	0.08	0.69
14.74	1.54	9.90	7.56	74.82	3.07	0.08	0.71
14.75	1.56	10.07	7.42	74.73	3.06	0.08	0.72
14.76	1.59	10.27	7.27	74.71	3.05	0.08	0.73
14.77	1.61	10.41	7.19	74.85	3.04	0.08	0.74
14.78	1.62	10.49	7.16	75.09	3.04	0.08	0.75
14.79	1.62	10.51	7.18	75.45	3.04	0.08	0.75
14.80	1.62	10.46	7.29	76.23	3.05	0.08	0.75
14.81	1.61	10.37	7.45	77.17	3.06	0.08	0.74
14.82	1.60	10.28	7.62	78.36	3.08	0.08	0.73
14.83	1.59	10.20	7.78	79.30	3.09	0.08	0.73
14.84	1.58	10.16	7.90	80.33	3.10	0.08	0.73
14.85	1.57	10.09	8.06	81.39	3.11	0.08	0.72
14.86	1.57	10.05	8.21	82.48	3.12	0.08	0.72
14.87	1.55	9.85	8.48	83.56	3.14	0.08	0.70
14.88	1.51	9.59	8.82	84.60	3.17	0.08	0.68
14.89	1.47	9.30	9.18	85.37	3.20	0.08	0.66
14.90	1.44	9.06	9.46	85.75	3.22	0.08	0.65
14.91	1.42	8.88	9.65	85.62	3.23	0.08	0.63
14.92	1.40	8.69	9.82	85.31	3.24	0.08	0.62
14.93	1.38	8.53	9.94	84.76	3.25	0.08	0.61
14.94	1.37	8.42	9.99	84.13	3.25	0.08	0.60
14.95	1.36	8.34	9.99	83.32	3.25	0.08	0.60
14.96	1.36	8.36	9.86	82.44	3.24	0.08	0.60
14.97	1.36	8.38	9.71	81.39	3.23	0.08	0.60
14.98	1.37	8.43	9.55	80.50	3.22	0.08	0.60
14.99	1.38	8.51	9.35	79.52	3.21	0.08	0.61

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

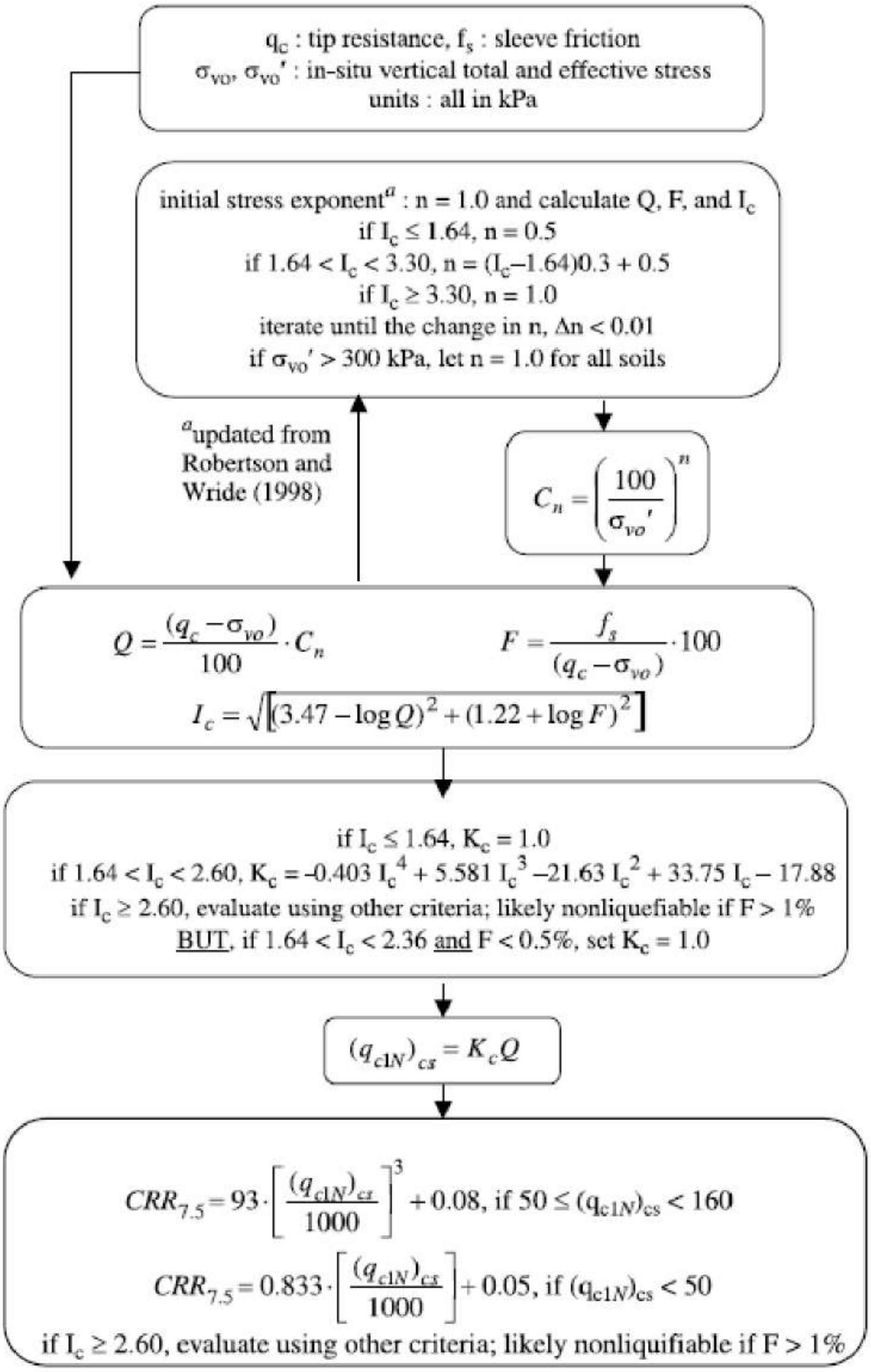
Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.00	1.40	8.63	9.08	78.33	3.19	0.08	0.62
15.01	1.42	8.78	8.76	76.93	3.16	0.08	0.63
15.02	1.44	8.93	8.46	75.52	3.14	0.08	0.64
15.03	1.45	9.02	8.28	74.71	3.13	0.08	0.64

Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

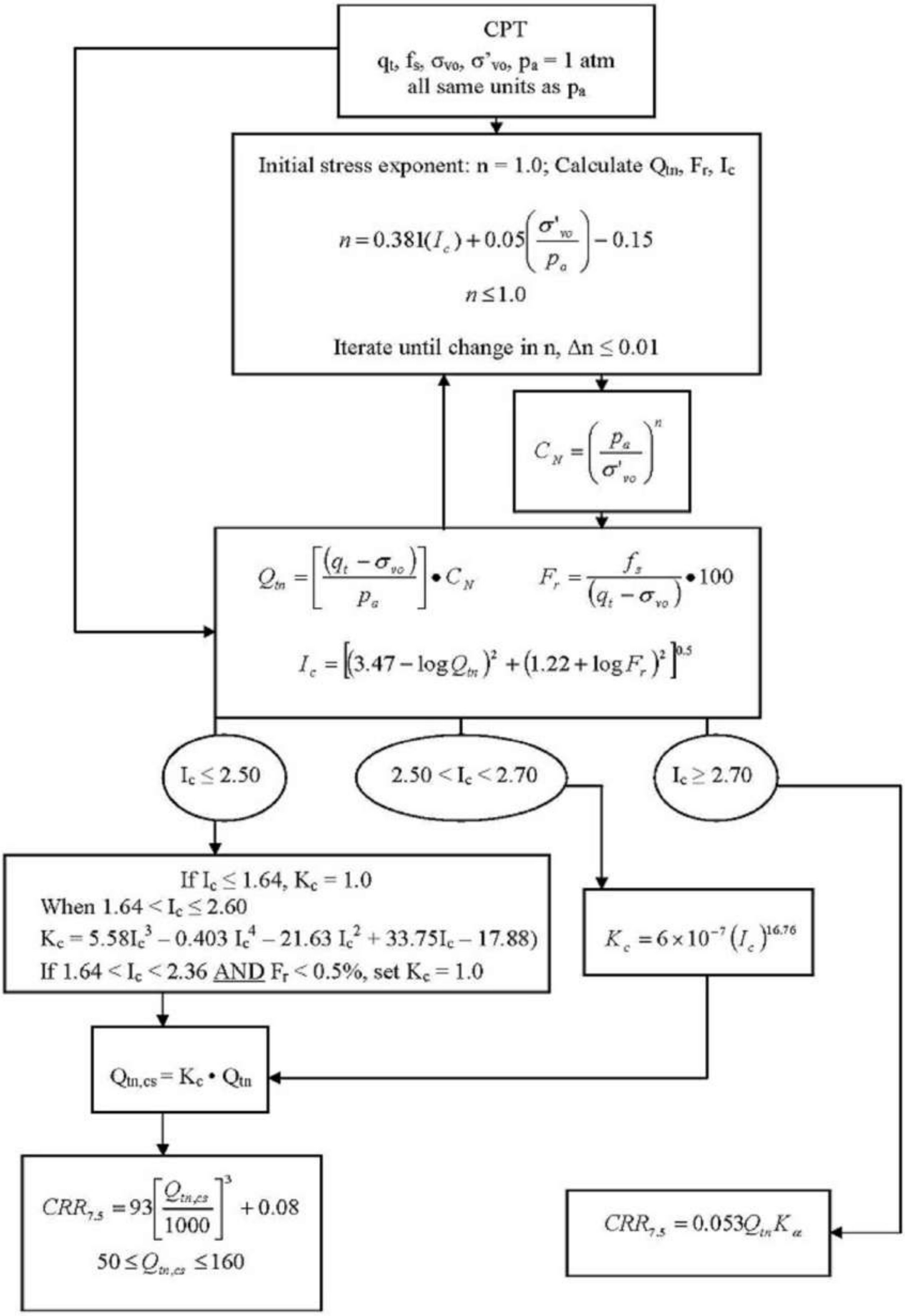
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

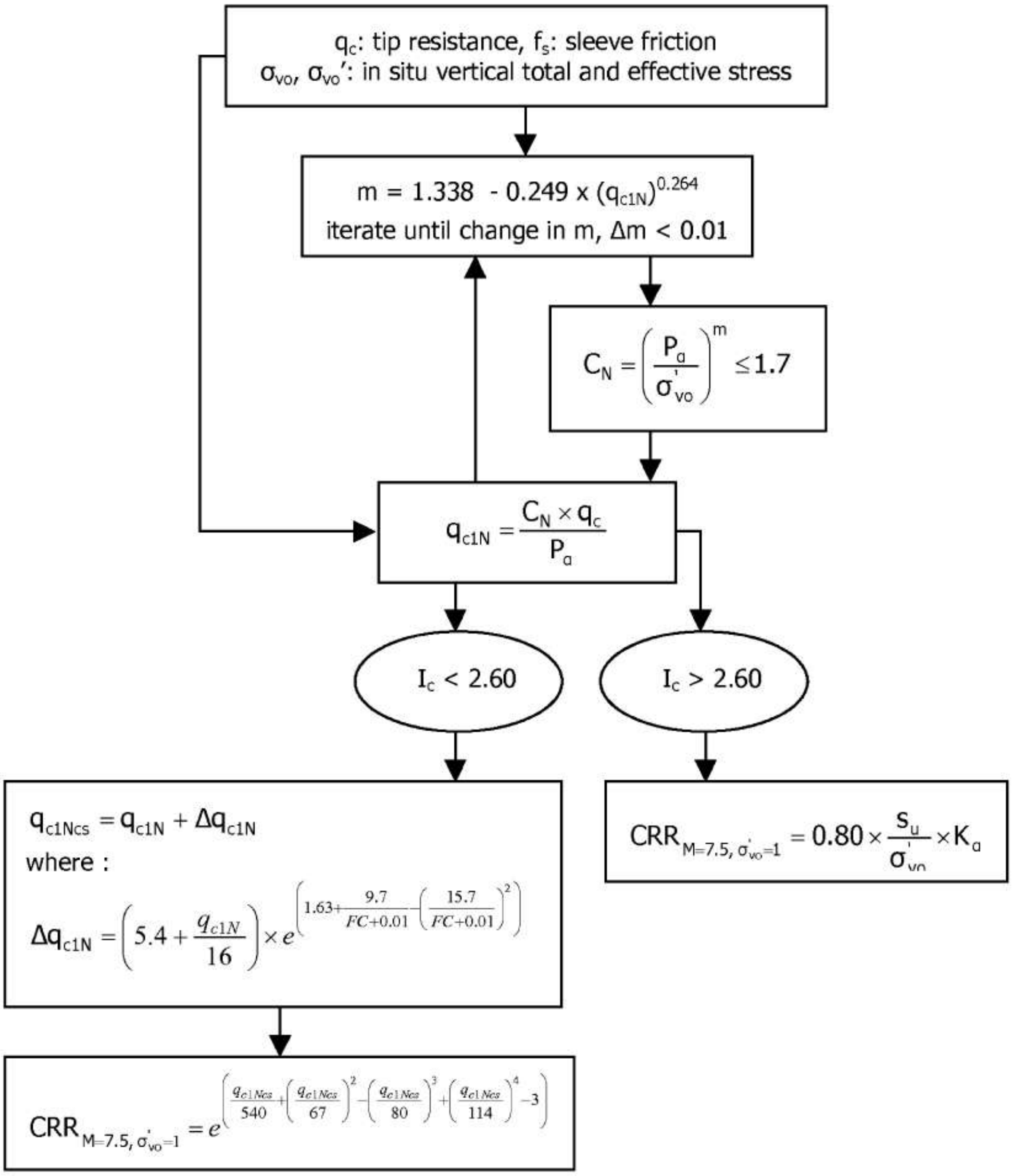
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

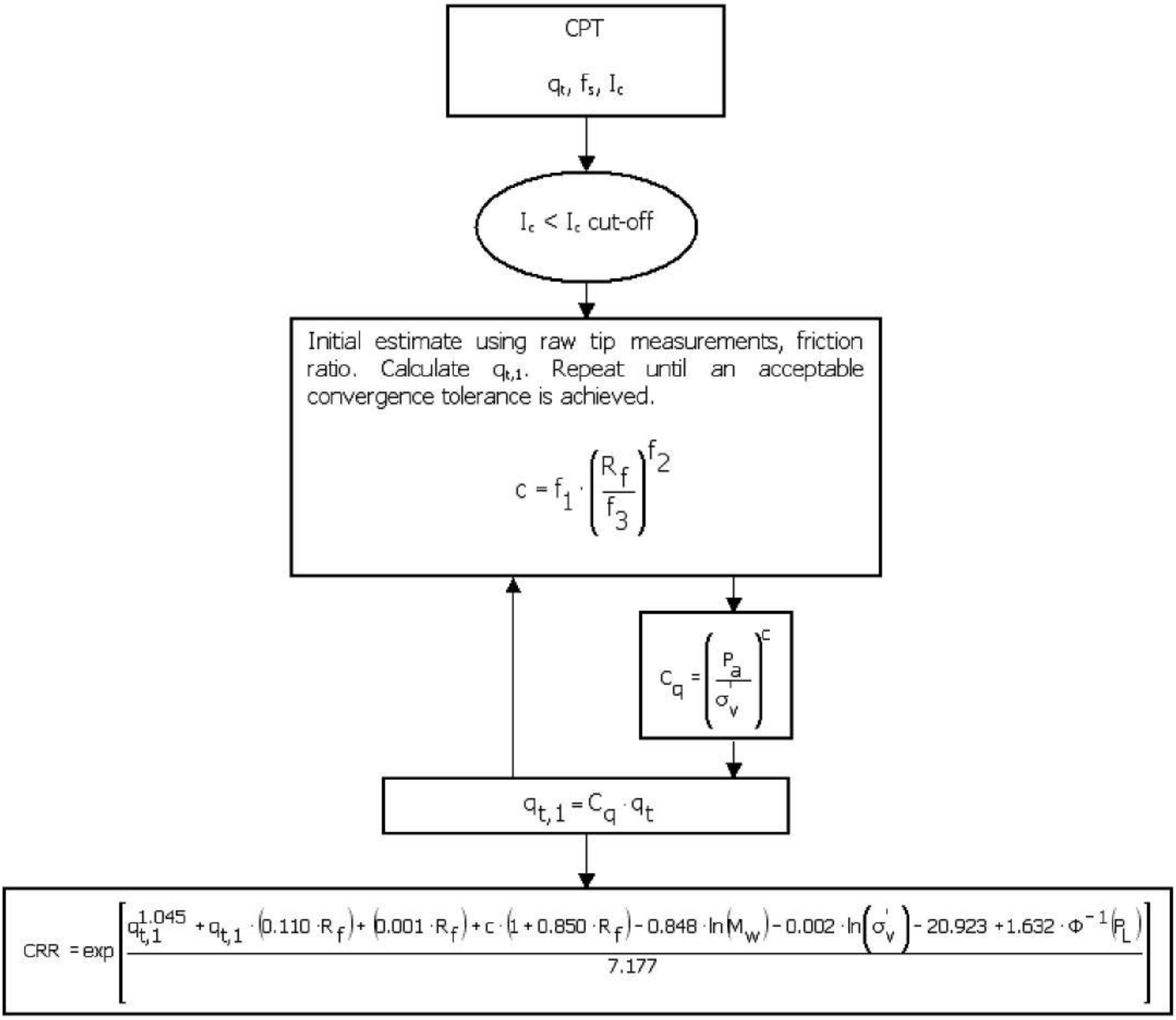


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65\frac{\sigma_v}{\sigma'_v}\frac{a_{\max}}{g} r_d \frac{1}{MSF}\frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z)\cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126\sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118\sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64\exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{c1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v and σ_v at start of earthquake shaking

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right)\exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{N_q}\frac{q_c}{P_a}$$

$$C_{N_q} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

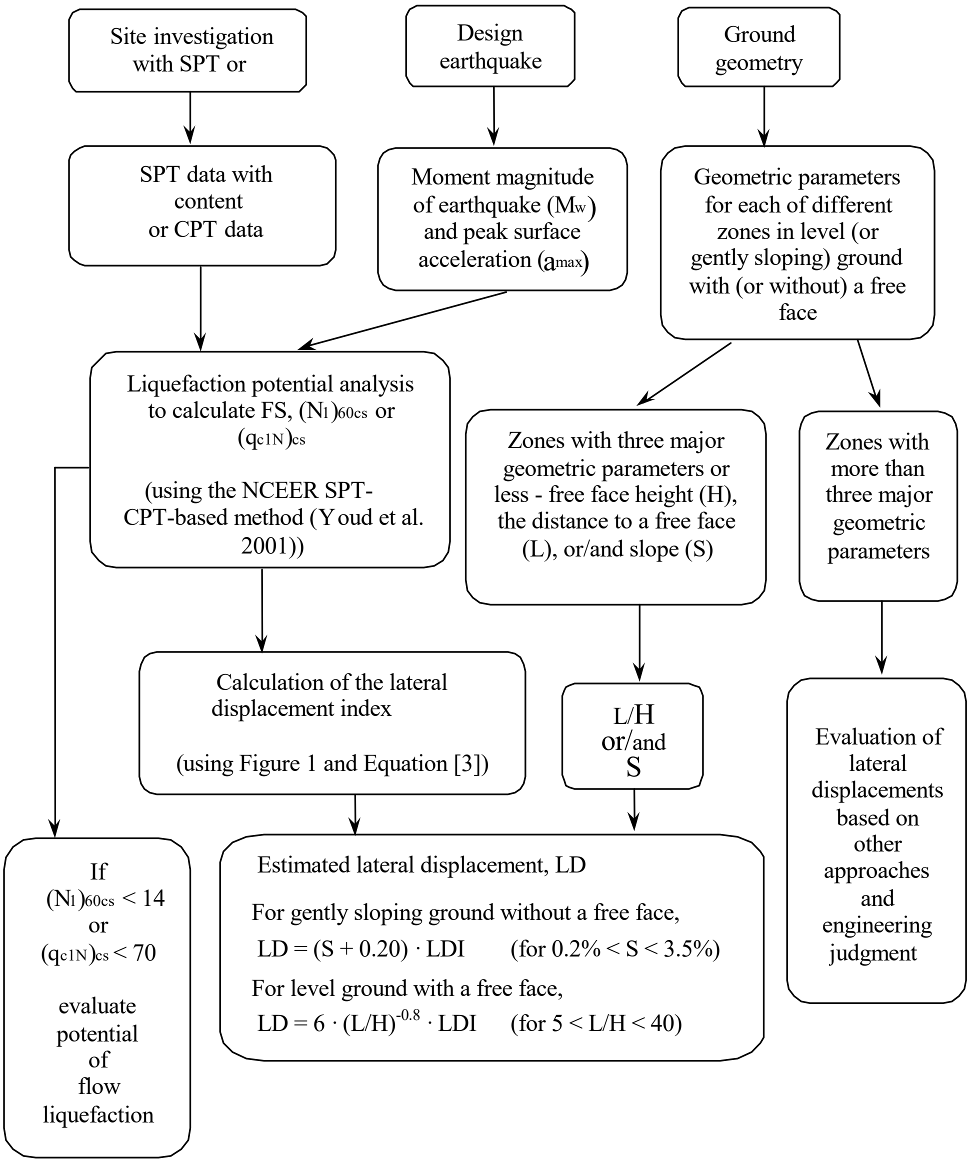
$$I_c = \left[\left(3.47 - \log(Q)\right)^2 + \left(1.22 + \log(F)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \text{ with } 0.5 \le n \le 1.0 \text{ per Robertson \& Wride (1998)}$$

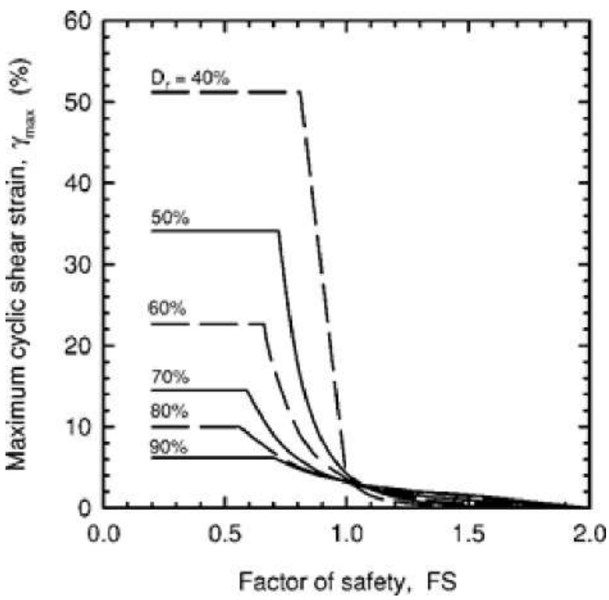
$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right)\cdot 100\%$$

σ'_v at time of CPT sounding

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



[1] **Figure 1**

$$LDI = \int_0^{Z_{max}} \gamma_{max} \, dz$$

[1] **Equation [3]**

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands

Average shear stress, τ_{av}

$$\tau_{av} = CSR^{*} \cdot \sigma_{v0}' = 0.65 \cdot \frac{\alpha_{max}}{g} \cdot \sigma_{v0} \cdot \tau_{a}$$

↓

Estimate small shear strain modulus, G_0

$$G_0 = 0.0188 \cdot \left[10^{(0.55 I_c - 1.68)}\right] \cdot (q_t - \sigma_v)$$

↓

Estimate shear strain amplitude, γ

(based on Pradel (1998))

$$\gamma = \left[\frac{1 + \alpha \cdot e^{bR}}{1 + \alpha}\right] \cdot R \cdot 100\ (\%)$$

$$R = \frac{\tau_{av}}{G_0} \text{ (Note } \tau_{av} \text{ and } G_0 \text{ same units)}$$

$$\alpha = 0.0389 \cdot \left(\frac{\sigma_v}{p_a}\right) + 0.124$$

$$b = 6400 \cdot \left(\frac{\sigma_v}{p_a}\right)$$

↓

Estimate volumetric strain in 15 cycles

$$\varepsilon_{vol(15)} = \gamma \cdot \left[\frac{(N_1)_{60cs}}{20}\right]^{-1.20}$$

$$(N_1)_{60cs} = \frac{Q_{tn,cs}}{8.5 \cdot \left[1 - \frac{I_c}{4.6}\right]}$$

↓

Volumetric strain in design earthquake

$$\Sigma_{vol} = \varepsilon_{vol(15)} \cdot \left[\frac{N_c}{15}\right]^{0.45}$$

$$N_c = (M - 4)^{2.17}$$

↓

Seismic settlement, s

$$s = 2 \cdot \int_0^{GWT} \Sigma_{vol} \cdot dz$$

Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

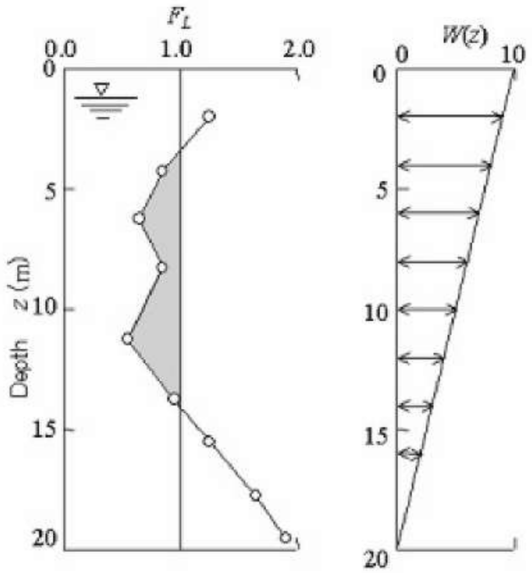
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\textbf{LPI} = \int_0^{20} (10 - 0{,}5_z) \times F_L \times d_z$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) +$$
$$4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B +$$
$$0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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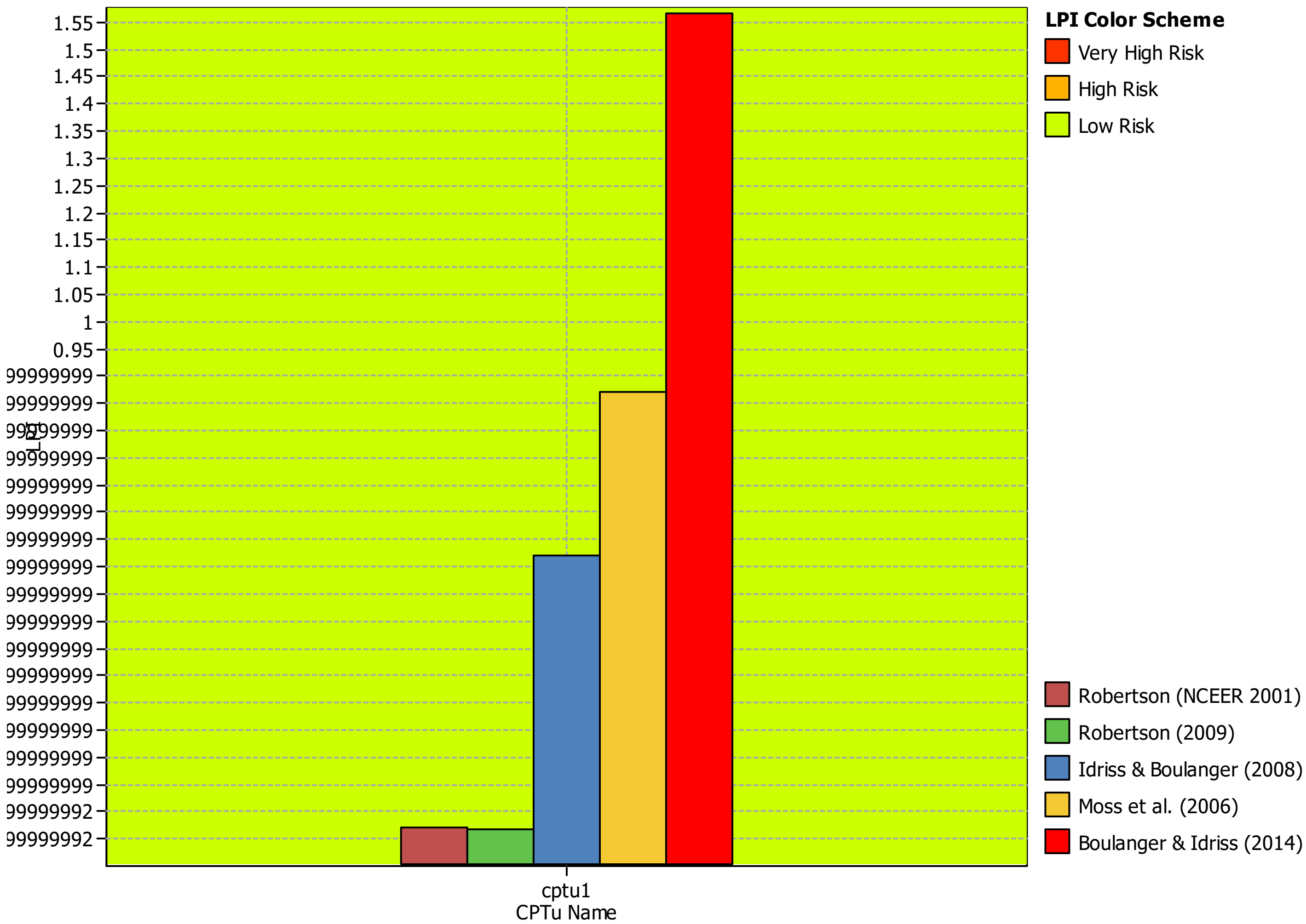
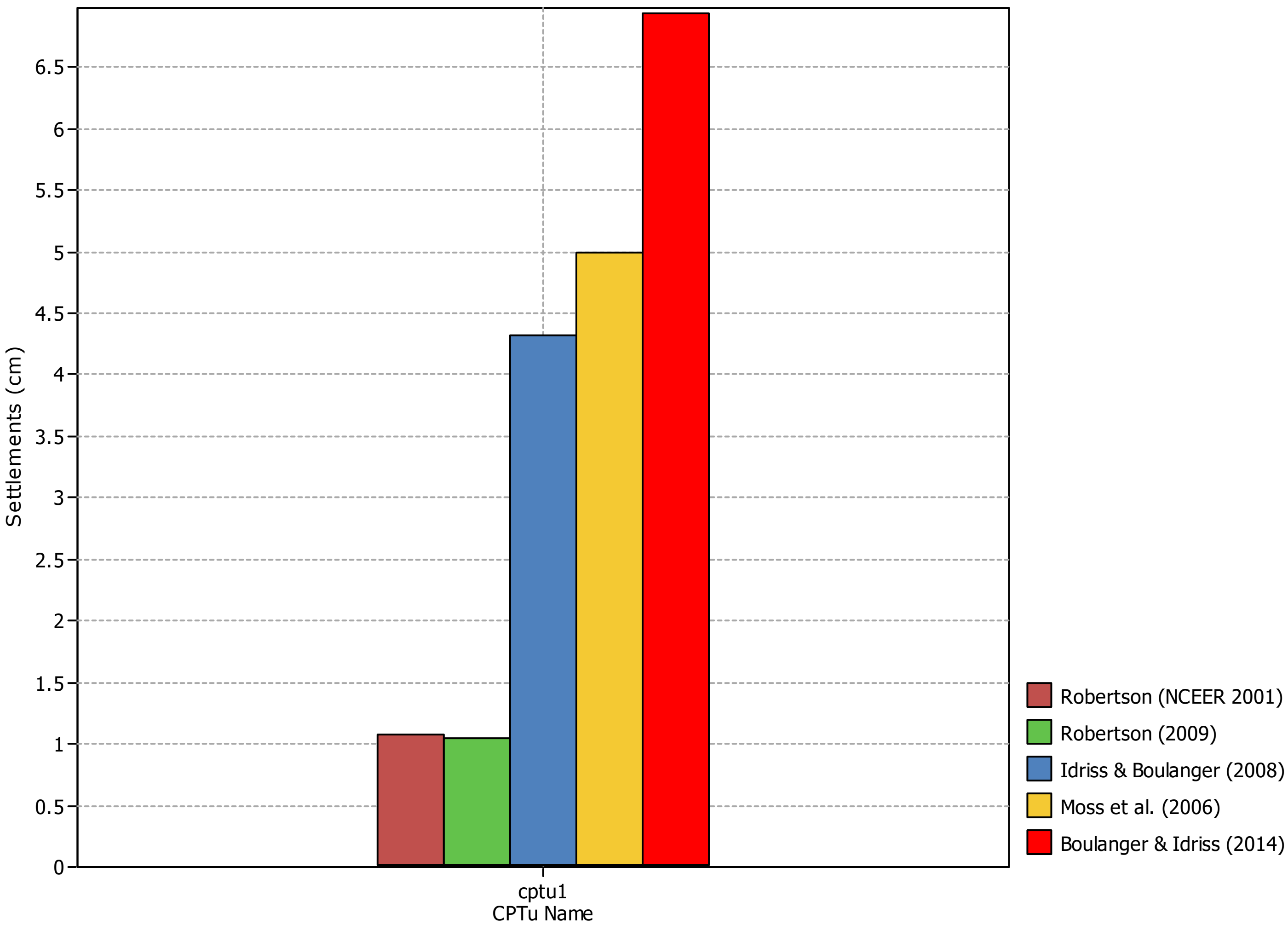
Overall Parametric Assessment Method



:: CPT main liquefaction parameters details ::				
CPT Name	**Earthquake Mag.**	**Earthquake Accel.**	**GWT in situ (m)**	**GWT earthq. (m)**
cptu1	6.00	0.18	1.00	2.00

Overall Parametric Assessment Method



:: CPT main liquefaction parameters details ::

CPT Name	Earthquake Mag.	Earthquake Accel.	GWT in situ (m)	GWT earthq. (m)
cptu1	6.00	0.18	1.00	2.00

Pineta Zadina
Casa Tagliata
Case Sbrozzi
FELICI
Bovoria
Podere n.4
Case Boudant
241130
la Fornasotta
R. Mesola del Montaletto
Cimitero
F.so Mesolino
Casa Marconi
Casa Bonoli
Casa Zamagna
Casa Baratelli
CESENATICO
SS 16
Casa Righi
Visdomina
Casa Pistocchi
C. Manzi
Cannucceto
scolo di Via Cannucceto
C. Paci
256010
256020
C. della Congregazione
Borella
Case Venarella
C.le Verone
Valverde
C. Giunchi
Cella
C. Montanari
C. Bartolini
C. Righi
SP 33
C. Zangheri
C. Turchi
Casa Campodarsino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ANITA
GIOSUE
CARDUCCI
PIAZZA
COSTA
CES
ROMA
VIALE
LEONARDO
DA
PIAZZA
COMANDINI
MAZZINI
GIUSEPPE
VIALE
ROMA
VIALE
P.ZA
BARACCA
TRENTO
VIALE


LEONARDO DA VINCI
PIAZZA COMANI